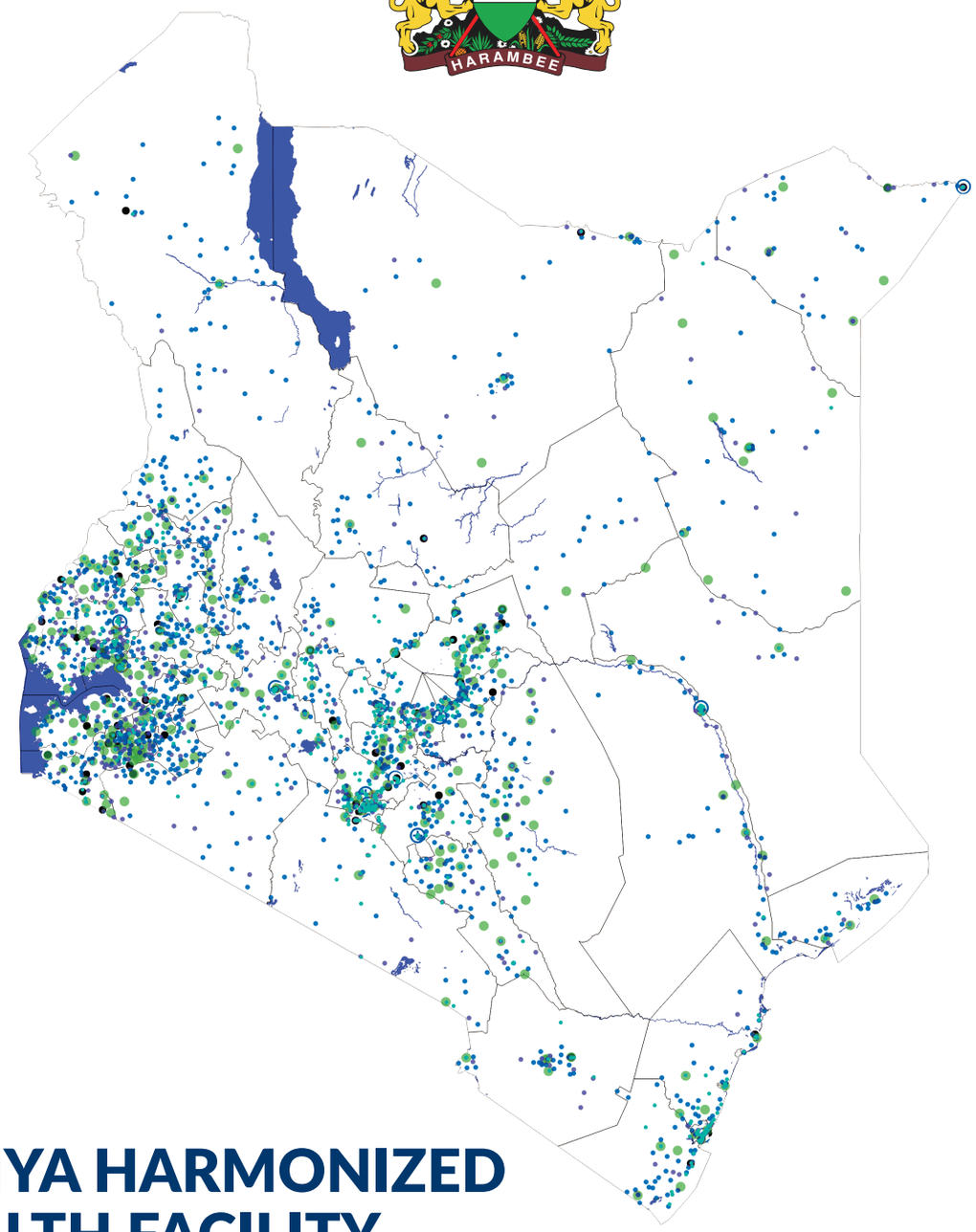


KENYA HARMONIZED HEALTH FACILITY ASSESSMENT (KHFA)

2018/2019
MAIN REPORT

Detailed Annex Tables, Questionnaires, and Footnotes are Published Separately in Book 2

MINISTRY OF HEALTH
Division of Health Sector Monitoring and Evaluation

PREFACE

Kenya has drawn the Roadmap for accelerating implementation of UHC, which is one of the priority agenda for the National Government. Determining the level of availability and readiness of health facilities to offer services, as well as the quality of care across the sector is paramount in planning for UHC implementation. This then demands an objective and comprehensive assessment of the functionality of the health system at community and facility level. This initiative will therefore serve to provide baseline information needed for costing health investments in Kenya, including the UHC Roadmap and the Kenya Health sector strategic and investment plan

The Kenya Harmonized Health Facility Assessment (KHFA) was designed as a system to provide standardized assessments consisting of ***harmonized*** modules that cover all key blocks of service provision in a health facility, that include service availability, service readiness, quality and safety of care, and systems that support management as well as functionality of community structures. The KHFA approach departs from previous health facility assessments methods implemented in the past that have been implemented fragmentary, focusing on one area at a time.

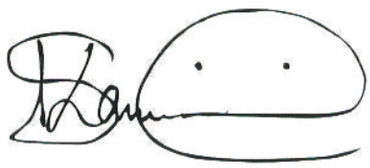
Kenya is one of the first country to adopt the approach of harmonizing the facility surveys into one comprehensive assessment. Lessons learnt during this process will be valuable for other countries in implementing similar surveys.

The KHFA has come at a critical time when plans to scale up UHC in Kenya are being developed. This then means that we now have the essential information needed to facilitate critical investments into health facilities, to facilitate them to deliver the essential health package for UHC.

We are certain that these results will significantly support us at national government, as well as our counties in planning and consequent management of available resources to maximize on outputs.

Finally, the KHFA findings will provide the foundation for which more regular service availability and readiness monitoring mechanisms will be established as part of routine reporting for sustainability.

It is our hope that all stakeholders and implementers will embrace these findings and utilize them, as this is a key element that will help us to significantly contribute towards our vision of a healthy, productive and globally competitive nation.



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Sicily K. Kariuki (Mrs), EGH

Cabinet Secretary
Ministry of Health

ACKNOWLEDGEMENTS

The Kenya Harmonized Health Facility Assessment (KHFA) 2018 is a collective effort of multiple Health Data Collaborative partners at the global level that includes; The Global Fund, The World Bank, USAID, GAVI, PEPFAR/CDC, UNICEF, UNFPA, UN MDG, Health Envoy and WHO. The Kenya Harmonized Health Facility Assessment (KHFA) was implemented through a consultative approach involving Health Data Collaborative (HDC) Health Facility Survey working group of technical experts from partners, countries, academia, and civil society as a key deliverable of the HDC Operational Work plan 2016-17, while taking cognizance of all new actors under a devolved system of governance.

The KHFA succeeds other past initiatives that were aimed to provide information on the degree of preparedness of health facilities to offer services through the SARAM in 2013, SDI 2012 & 2018 and SPA in 2010 among others. Such initiative will provide baseline information needed for costing the health investments in the Kenya UHC Roadmap and the Kenya Health Sector Strategic and Investment Plan 2018- 2023.

The preparation of the KHFA Survey would not have been possible without the support, hard work, and endless efforts of a large number of individuals and institutions. The team worked tirelessly to ensure the assessment was completed.

I wish to recognize the effort of the Policy Planning and Health Financing Department, specifically the Monitoring and Evaluation unit for their tireless efforts in coordinating this process. I commend the KHFA core team for guiding the process and facilitating the various working groups to steer this work to completion. In particular, I applaud the efforts by Dr Helen Kiarie and Dr Andreas Bjerrum (MOH, M&E), Dr Amani Siyam (WHO), Ashley Sheffel, Cosmas Leonard (WHO), Dr Hillary Kipruto, Dr Immaculate Kathure (USAID), Dr Joseph Mung'atu, William Watembo and Boniface Muganda in this respect.

Efforts of officers from other departments and programs towards this assessment and report writing were also commendable. Inputs and contributions from county technical teams, as well as development and implementing partners were similarly commendable.

The development of the KHFA 2018 was made possible through technical and financial support from our development partners to whom we are very grateful. Special mention goes to WHO, USAID, JICA, UNICEF, Global Fund and UNFPA for their immense support.

Lastly, we would like to take this opportunity to thank all those who in one way or the other participated and contributed in the making the KHFA assessment successful.

Dr. Rashid Aman

Chief Administrative Secretary

Ministry of Health

FOREWORD

The Kenya health sector has re-aligned its policy and strategic direction in line with the Constitution of Kenya 2010. Health Service Delivery is one of the eight policy orientations specified in the Kenya Health Policy (KHP, 2014-2030). The Constitution of Kenya 2010 guarantees the highest attainable standard of health as a right while devolving governance to ensure improved service delivery, greater accountability, improved citizen participation and equity in the distribution of resources. Kenya's Vision 2030 aims at transforming Kenya into a globally competitive and prosperous country with a high quality of life by 2030. The Kenya Health Policy 2014-2030 outlines the direction that the sector is taking to ensure significant improvements are made in the overall status of health in Kenya in line with the Constitution of Kenya 2010, the country's long-term development agenda, Vision 2030 and global commitments such as the Sustainable Development Goals (SDGs).

The Government of Kenya has committed to providing Universal Health Coverage (UHC) under the "Big Four" agenda as part of socio-economic transformation by providing equitable, affordable and quality health care of the highest standard to all Kenyans. UHC will ensure that Kenyans receive quality, promotive, preventive, and curative and rehabilitation health services without suffering financial hardship. Kenya has drawn the Roadmap towards accelerating implementation of UHC agenda, determining the level of service availability, readiness, and quality of care across the sector.

Baseline information on service availability, readiness of health facilities to deliver services, quality of care offered, availability of human resources, leadership, governance, and quality of data is therefore required to inform strategic and operational planning and implementation processes for UHC in Kenya. As the country draws the Roadmap towards accelerating implementation of the UHC agenda, determining the level of service availability and readiness across the sector is paramount to progressive realization of 100% UHC by 2022.

The Kenya Harmonized Health Facility Assessment (KHFA) 2018 modules that were assessed include; Availability: Information relating to the physical presence of facilities, resources, and services, Readiness: Capacity of facility to provide specific services, Management & finance: Practices to support continuous service availability and quality, Quality & safety of healthcare: Includes indicators of the receipt of appropriate, effective and timely care by patients under safe conditions, and Community Unit: A qualitative assessment of the community structures via key informant interviews with Community Health workers and focus group discussions with clients in all 47 counties.

We look forward to working collaboratively across the national and county governments, partners, and all other stakeholders to ensure successful implementation of the findings.

Susan N. Mochache, CBS

Principal Secretary
Ministry of Health

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Tables

ABBREVIATIONS AND ACRONYMS

ACE	angiotensin converting enzyme
ADR	adverse drug reaction
AIDS	acquired immunodeficiency syndrome
ALT	alanine aminotransferase test
ANC	antenatal care
ART	antiretroviral therapy
ARV	antiretroviral
BEmONC	basic emergency obstetric and newborn care
BOLD	burden of lung disease
BPHS	basic package of health services
CDC	Center for Disease Control
CDH	congenital diaphragmatic hernia
CEC	County Executive member
CMED	confidential enquiry into maternal deaths
CEmONC	comprehensive emergency obstetric and newborn care
CHC	community health centre
CHEW	community health extension worker
CHS	community health service
CHU	community health unit
CHV	community health volunteer
CHW	community health worker
CI	confidence interval
CPD	continuous professional development
CPT	cotrimoxazole preventive therapy
CRD	chronic respiratory disease
CSF	cerebrospinal fluid
CSO	civil society organisation
CT	computerised tomography
CVD	cardiovascular disease
DALY	disability-adjusted life year
DBS	dried blood spot

DHIS	District Health Information Software
DR-TB	drug resistant tuberculosis
DS-TB	drug sensitive tuberculosis
ECG	electrocardiogram
ELISA	enzyme-linked immunosorbent assay
EMC	emergency medical care
ENC	emergency newborn care
EQA	external quality assurance
FBO	faith-based organisation
FGD	focus group discussion
FP	family planning
GAVI	Global Alliance for Vaccine and Immunization
GBD	global burden of disease
GBV	gender-based violence
GoK	Government of Kenya
GPS	global positioning system
HDC	Health Data Collaborative
HFMC	health facility management committee
KHFA	
HIV	human immunodeficiency virus
KHFA	Harmomised Kenya Health Facility Assessment
HMIS	health management information system
HPV	human papilloma virus
HRH	human resources for health
HTC	HIV testing and counselling
ICU	intensive care unit
IDSR	integrated disease surveillance and response
IHME	Institute of Health Metrics
IHR	international health regulations
IPC	infection prevention and control
IPT	intermittent preventive treatment
IPTp	intermittent preventive treatment for pregnant women
IRP	international reference price
IT	information technology

ITN	insecticide-treated net
IUCD	intrauterine contraceptives device
JICA	Japan International Cooperation Agency
KDHS	Kenya Demographic and Health Survey
KEML	Kenya Essential Medicines List
KEMSA	Kenya Medical Supplies Authority
KEPH	Kenya Essential Package for Health
KHHEUS	Kenya Household Health Expenditure and Utilisation Survey
KHMFL	Kenya Health Master Facility List
KHP	Kenya Health Policy
KHSSP	Kenya Health Sector Strategic Plan
KII	key informant interview
KMC	kangaroo mother care
KNBTS	Kenya National Blood Transfusion Service
KQMH	Kenya Quality Model for Health
LBW	low birth weight
LF	lymphatic gilariasis
LLIN	long-lasting insecticide-treated net
LPA	line probe assay
MCH	maternal and child health
MDA	mass drug administration
MDG	Millennium Development Goal
M&E	monitoring and evaluation
ME	margin of error
MNCAH	maternal, newborn, child, and adolescent health
MoH	Ministry of Health
MPR	medicine price ratio
MSP	Ministerial Strategic Plan
MTEF	Medium Term Expenditure Framework
MTP	Medium Term Plan
MTR	Mid-Term Review
NCD	non-communicable disease
NGO	non-governmental organisation
NHIF	National Health Insurance Fund

NTD	neglected tropical disease
OECD	Organization for Economic Co-operation and Development
OPD	outpatient department
OR	operating room
ORS	oral rehydration solution
PAC	post-abortion care
PEPFAR	President's Emergency Plan for AIDS Relief
PHC	primary health care
PHPD	positive health, dignity and prevention
PLHIV	people living with HIV
PMTCT	prevention of mother-to-child transmission
PNC	postnatal care
POC	post-abortion care
PPB	Pharmacy and Poisons Board
PROM	premature rupture of membranes
QA	quality assurance/audit
QI	quality improvement
RA	research assistant
RDT	rapid diagnostic test
RMNCAH	reproductive, maternal, newborn, child, and adolescent health
SARA	Service Availability and Readiness Assessment
SARAM	Service Availability Readiness Assessment Mapping
SCCHC	Sub-County Community Health Committee
SCCHSFP	Sub-County Community Health Service Focal Person
SCMO	Sub-County Medical Officer
SDG	Sustainable Development Goal
SDI	service delivery indicator
SOP	standard operating procedure
SPA	service provision assessment
STEPS	
STH	soil-transmitted helminthiasis
STI	sexually-transmitted infection
TB	tuberculosis
ToT	trainer of trainers

TWG	technical working group
UHC	Universal Health Coverage
UN MDG	United Nations Millennium Development Goals
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
VCT	voluntary counselling and testing
VIA	visual inspection with acetic acid
VILI	visual inspection with lugoi's iodine
VL	viral load
VMCC	voluntary medical male circumcision
WHO	World Health Organization

EXECUTIVE SUMMARY

The Harmonized Kenya Health Facility Assessment 2018 was a collective effort involving multiple Health Data Collaborative partners. The assessment succeeds past initiatives including the SARAM in 2013, SDI 2012/2018 and SPA in 2010 among others, that were aimed at providing information on the degree of preparedness of health facilities to offer services through. The KHFA 2018 was implemented by the Kenya's Ministry of Health in collaboration with the development partners, who included the USAID, WHO, JICA, UNICEF, UNFPA among others, who provided funding and technical support.

Kenya's healthcare system is structured in a hierarchical manner beginning with the lowest unit being the community (level 1), primary health care facilities at level 2 and 3 (consisting of dispensaries and health centers), primary referral facilities/hospitals (level 4), secondary referral facilities (level 5) and finally tertiary referral facilities (level 6). The assessment was therefore stratified across counties, facility type, managing authority and whether the facility is in a rural or urban setting. The assessment provides baseline information needed for costing the health investments in the Kenya UHC Roadmap and the Kenya Health Sector Strategic and Investment Plan 2018-2023.

The objectives of KHFA 2018 were: To provide essential information at national and county level with to facilitate decision making on investments needed to deliver the essential health package towards UHC; To generate the evidence to support the ongoing national and county UHC Roadmap, strategic plan development, annual health reviews to guide more effective county/country and partner investments; To provide baselines of health infrastructure situation which will assist in development of health infrastructure and maintenance of master plans for all planning entities in the health sector to improve access to healthcare; To fill critical data gaps in health service availability and readiness required for assessing and monitoring progress in health system strengthening, UHC roadmap, within the broader context of M&E of county and national health strategies; Support county and national planners in planning and managing health systems (assessing equitable and appropriate distribution of services and resources, etc.); To provide foundation for the continued service availability readiness monitoring mechanisms through the established formal routine reporting system for sustainability; and To establish the accountability and potential financial resources for each health facility to deliver the essential services. The following modules were included in the assessment: service availability, service readiness, management and finance, quality of care, and the community module

Data collection for the survey was conducted in November and December 2018 by a team of national supervisors, county supervisors, and research assistants (RAs) in all the 47 counties. Data were collected electronically on Android phones running the CSPro software and stored centrally in a server hosted by the Kenya Ministry of Health headquarters. The data were successfully collected in 2,927 (98%) health facilities out of the targeted 2,980 health facilities. The following sections outline the key findings.

General service availability

The general service availability was assessed under:

- Health infrastructure: the national health facility density was 2.2 per 10,000 population achieving the WHO target of 2 per 10,000. Thirty-three counties (70%) have either attained or surpassed the target of 2/10,000. The national average for inpatient bed density was 13.3 beds per 10,000 population. This is below the WHO target of 25 and the global average for lower middle-income countries of 18. National average inpatient bed occupancy rate (46%) was below the set target of 80%. Maternity bed density is 13.8/1000, which is above the target of 10/1000.

- Health workforce: the national core health workforce density was at 15.6/10,000 population against the set target of 23/10,000. Understaffing is evident in health centres for all staff other than the registered nurses and support staff. Availability of all cadres at primary hospitals and at higher levels was below the norms.
- Service utilization: average number of outpatient visits per person per year nationally is 1.2, below the global target of 5. The national average for hospital discharges per 100 population is 3.8, which is below the global target of 10.
- Service availability index: the general service availability index stood at 57.2 (out of 100) with infrastructure being very high (100) while the index scores for health workforce (40.4) and service utilization (31.2) reportedly being quite low.

General service readiness

General service readiness of the available services and infrastructure was quantified below:

- Basic amenities: on average, health facilities had 55% of basic amenities available on the day of the survey with only 6% of the facilities having all basic amenities.
- Basic equipment: the mean availability of basic equipment stood at 77% among them 24% of health facilities having all basic equipment items.
- Standard precaution for infection prevention: the mean availability was 65% with only 12% of health facilities having all items for standard precaution for infection prevention.
- Diagnostic capacity: mean availability of diagnostic tests was 56%. However, only 17% of health facilities had all the diagnostic items.
- Essential medicines: the mean availability of essential medicines was 44% and none of the health facilities had all essential medicines available on the day of the survey.
- General service readiness index: index for Kenyan health facilities was 59%, meaning that nearly 6 in 10 health facilities were ready to provide health services.

Maternal, neonatal, and child health services

For each service, the percentage of facilities offering the service was computed as a measure of the availability of the service. In addition, for facilities offering the service, readiness to provide the service was assessed based on the presence of a number of tracer items in the following domains:

- Guidelines and trained staff
- Equipment
- Diagnostic capacity
- Medicines and commodities

Family planning

- Service availability: nationally, 85% of facilities sampled offer family planning services.
- Service readiness: mean availability of family planning tracer items in Kenya was 83% with only 57% of facilities having all five (5) family planning tracer items.

Antenatal care

- Service availability: the national average of facilities offering ANC services was at 81%.
- Service readiness: mean availability tracer items was 61% with only 4% of the facilities having all the tracer items available.

Basic emergency obstetric and newborn care

- Service availability: fifty percent of facilities in Kenya offer delivery services
- Service readiness: the mean availability of ready tracer items for BEmONC was 63%

Comprehensive emergency obstetric care

- Service availability: Only 25% of the hospitals offered CEmONC services (all 9 signal functions). However, 68% of hospitals had caesarean section available and 69% of hospitals had blood transfusion services available.
- Service readiness: nationally, the mean availability tracer items required for a facility to be considered ready to offer CEmONC servicers was 70% with 1% of facilities having all the tracer items.

Essential medicines for mothers

- The mean availability of essential medicines for mothers nationally was 40%. Facilities in urban settings had a higher mean (45%) compared to those in rural setting (38%).

Post-abortion care

- Service availability: the national availability of PAC services was at 27%.
- Service readiness: On average, facilities offering PAC services had 72% of the tracer items required to deliver the service with 20% of facilities offering PAC services having all the tracer items.

Postnatal care for mothers and newborns

- Service availability: 71% of facilities offered postnatal care (PNC) for mothers as an outpatient service.
- Service readiness: percentage availability of all tracer items for inpatient PNC was very low (7%).

Care for low birth weight and sick newborns

- Service availability: 93% offer outpatient services for LBW and sick newborns.
- Service readiness: Among facilities offering LBW and sick newborn care, 29% had a bed for caregiver providing KMC and four percent had a register to record KMC on the day of the interview.

Child immunization

- Service availability: The national average percentage of facilities offering immunization services is 71%.
- Service readiness: mean availability of ready tracer item was 74% and a meagre 3% of the facilities has all the tracers.

Child health preventive and curative care services

- Service availability: in all the health facilities sampled nationally, 89% offered preventive and curative care for under 5 years old children.
- Service readiness: the mean availability of all tracer items was at 68%. Only 2% of the facilities nationally had all the tracer items for child preventive and curative care services.

Essential medicines for children

- The mean availability of essential medicines for children nationally was 56%.

Adolescent health

- Service availability: the national average of facilities offering adolescent health services was 62%.
- Service readiness: The overall mean availability of tracer items stood at 87% nationally

Communicable disease services

Communicable diseases account for the highest proportion of disease burden in the country, with the leading causes being HIV/AIDS, malaria and TB.

Malaria services

- Service availability: 91% of health facilities in Kenya offer malaria diagnosis or treatment services.
- Service readiness: Overall, the mean availability of malaria tracer items was 79%. However, 55% of facilities that offer malaria service have all items available on the day of the survey – first-line antimalarial, paracetamol, and malaria diagnostic capacity.

Tuberculosis

- Service availability: In Kenya, 42% of health facilities offer TB diagnosis and treatment services.
- Service readiness: Nationally, the mean availability of TB tracer items is 67%. Only 24% of facilities in Kenya provide any services for drug resistant TB. Amongst the facilities offering TB services, 58% had all first-line TB medications, while only 25% have TB microscopy and HIV/AIDS counselling and testing.

- Service availability: 85% of facilities in Kenya offer HIV counselling and testing services.
- Service readiness: the mean availability of tracer items for HIV counselling and testing services nationally is 75%, while the percentage of the facilities which reported to have all tracer items for HIV counselling and testing readiness is 43%.

HIV/AIDS care and support

- Service availability: Overall, 40% of health facilities offer HIV/AIDS care and treatment services. Facilities are most likely to offer treatment of opportunistic infections (39%), family planning counselling (38%), and provision of condoms to clients (37%).
- Service readiness: nationally the mean availability of tracer items for HIV care support is 63%, while the percentage of facilities with all HIV care and support tracer items (3%).

HIV/AIDS ART prescription and client management services

- Service availability: overall, 35% of facilities offer ARV prescription or ARV treatment follow-up services.
- Service readiness: Among facilities that offer ARV treatment or ARV follow-up services, the ARV service readiness is 27% nationally. Only 4% of facilities that offer ARV treatment or ARV follow-up services have all ARV tracer items.

PMTCT services

- Service availability: in Kenya, 76% of health facilities offer PMTCT services.
- Service readiness: among facilities offering PMTCT services, 54% are ready to provide PMTCT services, while only 19% have all PMTCT tracer items.

Paediatric HIV services

- Service availability: Six in ten facilities in Kenya offer any paediatric HIV services or referral of children to HIV care and treatment services elsewhere.
- Service readiness: nearly one-third of facilities in Kenya that offer paediatric HIV services or referrals are ready to provide paediatric HIV services, while only 3% of health facilities have all paediatric HIV tracer items.

Sexually transmitted infections

- Service availability: in Kenya, 85% of health facility offer STI services.
- Service readiness: The mean availability of STI tracer items is 72%. Only 28% of facilities that offer STI services have all STI tracer items.

Neglected tropical diseases

- Service availability: Thirty-one percent of facilities nationally offer any service for Neglected Tropical Diseases (NTDs).

- Service readiness: NTD service readiness index is 35%. The most commonly available tracer items included lymphatic filariasis treatment (88%), albendazole/mebendazole (88%), and trachoma treatment (62%).
- No county had all NTD tracer items in any facility.

Non-communicable disease services

The major NCDs are cardiovascular conditions, cancers, diabetes, chronic respiratory diseases, mental illnesses, and violence and injuries with their sequelae and their shared risk factors. Nationally, availability of management and diagnosis of cardiovascular diseases and chronic respiratory disease was highest at 62% and 61% respectively while palliative care and diagnosis of colorectal cancer was lowest at 3% and 2% respectively.

Diabetes

- Service availability: nationally, 58% of health facilities were found to offer diabetes services.
- Service readiness: mean availability of the 11 tracer items was 63% with only 4% of the facilities having all the tracer items.

Cardiovascular disease

- Service availability: nationally, 62% of health facilities offer cardiovascular disease diagnosis and/ management.
- Service readiness: the average availability of tracer items for CVD management across the country was 55%. All the tracer items were available in only 3% of facilities.

Chronic respiratory disease

- Service availability: overall, 61% of the health facilities offered chronic respiratory disease diagnosis and/or management services.
- Service readiness: the mean availability of CVD tracer items was 49%. Only 1% of health facilities reported having all the tracer items for the diagnosis and /or management of CRDs.

Cervical cancer

- Service availability: the services were offered in 22 % of health facilities.
- Service readiness: The mean availability of tracer items was 32% in the facilities that reported to offer cervical cancer services. Among health facilities that were providing diagnosis and /or management of cervical cancer, none of the health facilities had all the tracer items.

Breast cancer

- Service availability: there was low availability of breast cancer services in Kenya with 20% of facilities reporting to screen for or diagnose breast cancer. Only 20% of facilities performed manual breast examination, which is a basic examination that should be available in most facilities.
- Service readiness: nationally the average availability of ready tracer items for breast cancer care was 4%.
- Morphine was the most commonly available tracer item in the country at 15%.

Prostate cancer

- Service availability: in Kenya, availability of prostate cancer services was low with only 7 % of facilities reporting that they screen for, diagnose or treat prostate cancer.
- Service readiness: the mean availability of ready tracer items was 56% of which 22% of facilities that offered prostate cancer care had all the items.

Colorectal cancer

- Service availability: the provision of colorectal cancer services was low with only 2% of all health facilities offering these services.
- Service readiness: the average availability of tracer items for colorectal cancer was 15% among the facilities that said they offer colorectal cancer services. Only 1% of facilities had all the tracer items.

Mental and neurological care

- Service availability: nationally, 13% of the facilities offer any services for mental health or neurological health.
- Service readiness: the mean availability of items required to deliver mental health services was 70% with 45% of facilities offering mental health services having all the tracer items.

Services for victims of violence and sexual abuse

- About a third (31%) of the facilities offered services for victims of intimate partner/ and sexual violence. The least available service was forensic assessment and examination at 8%.

Palliative care

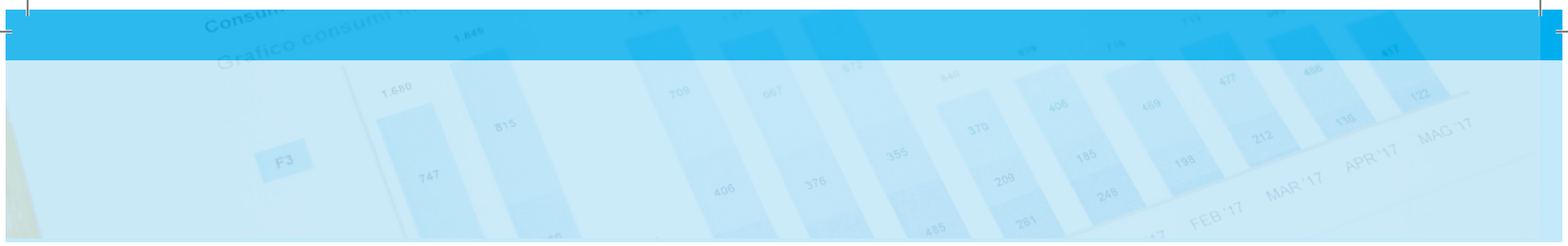
- Service availability: availability of palliative care services in Kenya was low with only 3% of health facilities offering the services.
- Service readiness: the mean availability of ready tracer items for palliative care was 59% among those found offering the service. Additionally, of the facilities that reported to offer palliative care services, only 7% had all the tracer items.

Rehabilitation care

- Service availability: nationally, only 4% of facilities were found to offer rehabilitation care
- Service readiness: the mean availability of tracer items for rehabilitative care services, among the facilities that had the service was 36% with only 4% of facilities reporting to have all the tracer items.

Surgical services

Basic surgical care for minor procedures can be performed at the primary care level, whereas more comprehensive surgical care requiring a well-equipped major operating theatre is generally performed only at the district hospital level or above.



Basic surgery

- Service availability: More than three quarters (81%) of the facilities offered basic surgical services.
- Service readiness: on average there was 24% availability of the fifteen tracer items in the facilities that provide basic surgical services country wide. Only one percent (1%) of the facilities country wide is equipped with all the fifteen tracer items that are necessary for a facility to offer basic surgical services.

Comprehensive surgery

- Service availability: nationally, 68% of facilities offer comprehensive surgical services.
- Service readiness: the mean availability of tracer items in the hospitals that offer comprehensive surgical services was 70% while the percentage of facilities with all the tracer items was 7%.

Blood transfusion

- Service availability: only 7% of health facilities in Kenya offered blood transfusion which demonstrated a large gap in the availability of blood transfusion services.
- Service readiness: the mean availability of tracer items was way above 50% in all the facilities that offered the service of which 10% of facilities that offer blood transfusion services had all tracer items for blood transfusion.

Emergency care

- Service availability: Nationally, the provision of colorectal cancer diagnosis and treatment services was low. Only 2% of all health facilities offering these services.
- Service readiness: The average availability of tracer items for colorectal cancer was 15% among the 77 facilities that said they offer colorectal cancer services. Only 1% of facilities had all the tracer items.

Voluntary medical male circumcision service

- Nationally, only 29% of healthcare facilities surveyed had VMMC services available.

Quality and safety

Support for quality of care

- Fifty three percent (53%) of facilities countrywide have quality improvement (QI) teams
- Nationally, a dedicated budget line for QI activities was available at 42% of facilities.
- Countrywide, 44% of facilities have a system in place for regular (at least quarterly) continuous medical education to ensure professional development of key staff.
- Overall, 40% of health facilities with inpatient services countrywide had a system for identifying and monitoring adverse events.

Monitoring of quality of care at the facility level

- Slightly over a third (39%) of health facilities in Kenya reported that they routinely verify their health professionals' licence and registration status.
- Almost half (49%) of facilities in Kenya routinely reviewed their performance based on facility data or patient feedback.
- Most (71%) health facilities reported that they had received at least one supportive supervision visit within the past three months.
- About half (49%) of health facilities in the country reported a system for community representation on management committees.
- Only 38% of facilities had systems in place for measuring patient experiences.
- Nationally, 38% of facilities with inpatient services conduct inpatient mortality reviews.
- Half (51%) of facilities have systematic monitoring on the use of medicines.

Facility adherence to standards

- Nationally, only 24% of facilities reported participation in an external accreditation process.
- More than two-thirds (70%) of health facilities have proper disposal of sharps waste available.
- Nationally, only 22% of health facilities have adequate pharmaceutical commodity storage conditions.
- Nationally, 77% of facilities have adequate vaccine storage condition.
- Only a paltry 4% of facilities have outbreak preparedness plans.
- Slightly over a third (39%) of facilities have guidelines on identifying and managing drug use problems.

Management Support Systems

Management practices

- Two thirds (67%) of facilities reporting having a core management team responsible for oversight of the day to day functioning of the facility.
- Half of the facilities (52%) reported having core management team structured as per norms and standards.
- Nationally, 38 percent of health facilities have IPC guidelines.
- 43 percent of health facilities reported undertaking out preventive and corrective maintenance for any systems.
- About half (47 percent) of the facilities reported to have routine and systematic process for checking the quality of data compiled for reports.
- Only 21 % of the facilities had a functional community health unit.

Finance and accountability practices

- Nationally, majority of health facilities (73%) had records showing pharmacy commodities received, disbursed, and the balances.
- A third (37%) of facilities reported having a routine system for including community representation for some aspects of the management teamwork.
- Nationally, 40% of facilities reported charging user fees for any outpatient services and 16% charged for any inpatient services.
- 47 percent of facility reported having received an annual external audit of facility accounts.

Community systems

- The services that expected to be delivered through the community health services are available albeit in a suboptimal manner. Several barriers limit the accessibility of health services at community and health facility level. These include costs associated with travel to the health facilities, and, negative attitudes of some health workers at the facility level.
- The readiness to provide services is undermined by several structural and organizational barriers that should be addressed to promote the functionality of the community health services and prepare the path for universal health coverage. There are policy and regulatory steps that should be taken to ameliorate the readiness to deliver services. Policy steps will need to engage with resource allocation to support the community health services, including the need to integrate the CHVs into the formal workforce, while regulatory steps should seek to implement the requirements of the Kenya quality model.
- Overall, there are glaring gaps in the implementation of the community health services with noticeable disparities across the counties in relation to the number of functional CHUs, CHVs, CHCs and the CHEWs. Together, these gaps compromise the readiness to deliver community health services and ultimately, access and utilization of services provided at level 1 and 2 of the healthcare systems.

Cross-cutting country performance

- The lowest inequalities were observed in specific service with the highest inequalities being experienced in the general service availability distribution across the counties.
- The main source of the inequality in the general service availability was due to health workforce distribution across the counties.
- Specific service readiness was found to be the most equitable.
- The overall performance was highly influenced by an increase in all the domains computed. High levels of overall performance were associated with high levels of quality of care followed by management and finance. This implies that the counties that had exemplary overall performance also toped in their quality of care as well as management scores.
- The overall KHFA index varied by counties. The overall KHFA performance index 2018 was 44.58%.

Conclusion

- Most of the essential services were available. However, this availability was affected by several missing components in every service package. For instance, infrastructure was available but with inadequate staffing.
- General service availability: health facility infrastructure was in place in all counties though witnessing low utilisation levels.
- There are widespread inequalities across the counties with regard to general service availability distribution, with the contributory factor being.
- The most impressive services that were beyond an availability of 75% included family planning, antenatal care, care for low birth weight and sick newborns, child health preventive and curative care services, malaria treatment services, HIV/AIDS counselling and testing, PMTCT services, treatment of sexually transmitted infections, and basic surgery.
- The least available services, (below 25%) were services for the diagnosis and treatment of cervical cancer, breast cancer, prostate cancer, and colorectal cancer, mental health and neurological care, palliative care, rehabilitation care, and blood transfusion.
- There was evidence that most of the facilities were ready to offer services, with more than two-thirds with ready items.
- Despite the tracer items being ready to offer services, health facilities are not maintaining all the tracers as a package, as witnessed by extremely low proportions of the health facilities with all the tracer items under respective service areas.
- Generally, the index for Kenyan health facilities is 59%, meaning that nearly 6 in 10 health facilities are ready to provide health services.
- An impressive readiness of tracer items (above 75%) was witnessed in the areas of family planning services, malaria treatment services, as well as HIV/AIDS counselling and testing.
- Low levels of readiness of tracer items (below 25%) were observed in postnatal care for mothers and newborns, breast cancer, colorectal cancer, and basic surgery.
- The quality of health service delivery is inadequate countrywide. Wide variations exist across the counties between levels and types of care in private, NGO/FBO and private facilities in both urban and rural areas.
- There was evidence of management practices starting from the management systems that were in place in a majority of the facilities. There were also guidelines on public finance management. However, these were not widely implemented on the ground.
- Overall, there are glaring gaps in the implementation of the community health services, with noticeable disparities across the counties in relation to the number of functional community health units (CHUs), CHVs, community health committees (CHCs) and community health extension workers (CHEWs). Together, these gaps compromise the readiness to deliver community health services and ultimately, reduce access and utilisation of services provided at level 1 and 2 of the healthcare systems.

Recommendations

Based on findings from this survey, the following recommendations are made:

- Increase investment in health to improve availability and readiness of the health facilities to deliver quality health services at each level. Several services including the services for all forms of cancers, mental health care, basic surgery and palliative care rehabilitation care as well as blood transfusion services require special focus to improve their availability across the country.
- Promote equitable distribution of health services especially in relation to health workforce and infrastructure to address health service inequalities.
- Establish mechanisms and strategies that improve adherence to service specific guidelines in general and the Kenya Quality Model of Health (KQMH) in particular.
- Recruit appropriate number of CHVs, CHEWs and CHC members in compliance with the Kenya quality model to improve functionality of community health systems.

Dr. J. Wekesa Masasabi
Ag. Director General for Health
Ministry of Health

1. INTRODUCTION

1.1 Overview of the health

The Kenya Health Policy (KHP) 2014-2030 guides the country's health system in line with the Constitution of Kenya 2010, the country's long-term development agenda, Vision 2030, and global commitments. The policy's goal is to *"attain the highest possible health standards in a manner responsive to the population's needs"*, while its aim is *"to support the provision of equitable, affordable and quality health and related services at the highest attainable standards to all Kenyans"*.

KHP 2014-2030 has six objectives: i) eliminate communicable conditions; ii) halt and reverse the rising burden of non-communicable conditions; iii) reduce the burden of violence and injuries; iv) provide essential healthcare; v) minimize exposure to health risk factors; and vi) strengthen collaboration with private and other health-related sectors. The policy aspiration will be achieved by addressing investments in all health system building blocks, namely: health financing; leadership and governance; research and development; health products and technologies; and human resources for health, infrastructure, health information and service delivery systems.

The promulgation of the Constitution of Kenya 2010 was a major milestone towards the improvement of health standards. The constitution assures that every citizen has the right to life, the right to the highest attainable standard of health, including reproductive health and emergency treatment, the right to be free from hunger and to have food of acceptable quality, the right to clean, safe and adequate water and reasonable standards of sanitation and the right to a clean healthy environment. Further the constitution provides an overarching conducive legal framework for ensuring more comprehensive and people-driven health services, and a right–based approach to health is adopted and applied in the country[1]. As envisaged in the Constitution, Kenya has a devolved system of governance, with health functions largely devolved under fourth Schedule of the Constitution, and the national and county governments having their specific functions.

The main objective of Kenya's Vision 2030 is to transform Kenya into an industrialised middle-income country by 2030. The health sector contributes to a healthy population, which is in turn economically productive. One of the goals of Vision 2030 is to improve the overall health outcomes and indicators by shifting focus from curative healthcare to preventive and promotive healthcare. Kenya's health sector thus provides one of the most important components for addressing issues of equity and the broader national socio-economic agenda in line with the aspirations of the social pillar of Vision 2030.

The Government of Kenya (GoK) is committed to implementing Universal Health Coverage (UHC) as part of the "Big Four" agenda. Implementation of UHC is expected to contribute to the attainment of the desired status of health as elaborated in the KHP 2014-2030. The health sector is guided by various global commitments, including the Sustainable Development Goals (SDGs), the Abuja Declaration, Internal Health Partnerships on Aid Effectiveness, and the Ouagadougou Declaration on Primary Health Care and Health Systems, amongst others. These commitments are integrated into the strategic focus of the health sector, as articulated in the Kenya Health Sector Strategic Plan (KHSSP) 2018-2023.

[1] Constitution of Kenya, Chapter Four, Bill of Rights.

1.2 Health status in Kenya

Kenya is undergoing an epidemiological transition marked by a decline in morbidity and mortality due to communicable conditions, and an increase in the burden of non-communicable diseases (NCDs)[2]. Non-communicable diseases are estimated to account for 27% of all deaths. Vaccine preventable and communicable diseases remain a high disease burden for children under the age of five. According to the Kenya Mortality Study 2017, 95% of all deaths in the country are due to preventable diseases, with HIV/AIDS, lower respiratory infections and malaria causing 12%, 9% and 5% of all deaths, respectively.

Violence and injuries are also increasingly becoming a major public health problem in terms of morbidity, premature mortality, and disability in the country. Currently the under-five and infant mortality rate stands at 52 and 39 per 1,000 live births, respectively[3]. Maternal mortality is 362 per 100,000 live births. Risk factors to health in Kenya include unsafe sex, suboptimal breastfeeding, alcohol and tobacco use, and obesity and physical inactivity, among other factors. Other social determinants of poor health include inadequate nutrition, low levels of education among mothers, unsafe water, lack of adequate sanitation, and poor housing conditions.

There is varying political commitment and budgetary allocation to health at both national and subnational levels, leading to inadequate resource allocation. This is in some instances accompanied by weak social accountability, which poses the risk of lack of prioritisation. The country faces a wide range of health challenges and disease burden partly because of the country's varied geographical and climatic conditions, as well as the difficult, disaster-prone environment in the arid and semi-arid regions of the country, and the lush but malaria-prone regions in the better endowed parts of the country. Political instability in the Eastern African region and subsequent displacement of people have resulted in increased demand for health services in the country and raised the risk of the spread of communicable diseases.

The mid-term review of the Kenya Health Sector Strategic Plan 2014-2018 conducted in 2016 revealed a significant increase in access to and utilisation of health services. This was attributed in part to improved access through expansion of health infrastructure and reduction of financial barriers through provision of free primary health care (PHC) services. The number of health facilities, staff, and equipment has significantly improved access at all levels[4].

1.2.1 Organisation of the healthcare system

The Constitution of Kenya 2010 established a two-tier health system[5]: national and county. The national level deals with health policy, national referral hospitals, capacity building and technical assistance to counties. On the other hand, the counties' Departments of Health Services focus on county health facilities and pharmacies, ambulance services, promotion of primary health care, licensing and control of selling of food in public places, veterinary services, cemeteries, funeral parlours and crematoriums; refuse removal, refuse dumps and solid waste. This scenario has led to concerted efforts to restructure human resource management, infrastructure development and maintenance, health financing, donor funding and partnerships, among others.

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2 Ministry of Health (2019). Policy Brief: LIFESTYLE DISEASES – An Increasing Cause of Health Loss. Retrieved from Ministry of Health: http://www.health.go.ke/wp-content/uploads/2019/01/Revised-Non-Communicable-Disease-Policy-Brief.pdf.

3 Global Burden of Disease, Institute of Health Metrics (IHME), 2017 https://vizhub.healthdata.org/gbd-compare/

4 MOH – MTR report, 2016

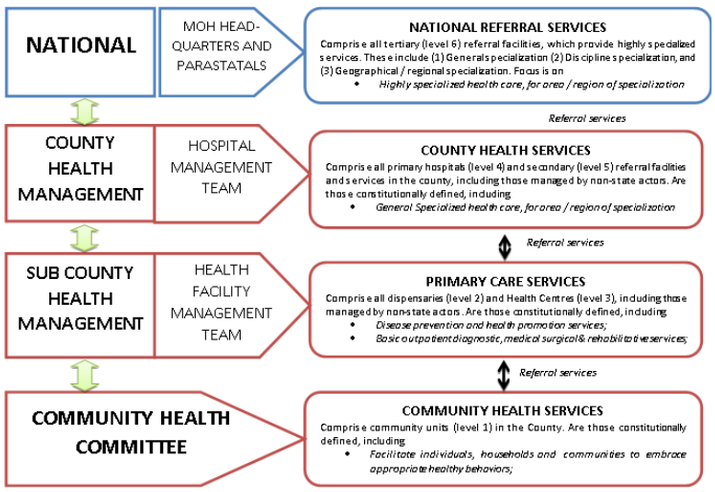
5 Constitution of Kenya, Fourth Schedule

The devolved system calls for strong collaboration, coordination, linkages and cooperation between the two levels of governments and hence relevant health sector laws, legislation, policies and regulation need to be formulated and implemented to guide the devolution of health services and organisation of health systems.

Kenya's healthcare system is structured in a hierarchical manner beginning with primary healthcare, with the lowest unit being the community (level 1) and primary health care facilities (levels 2 and 3) consisting of dispensaries and health centres, graduating to primary referral facilities/hospitals (level 4) then secondary referral facilities (level 5) and finally tertiary referral facilities (level 6).

The Health Department devolved governance and management functions of service delivery and human resources for health to counties. Currently at the county government level, the County Health Management Team as currently constituted is coordinated by the County Executive Committee (CEC), the County Chief Officer of Health, the County Department of Health and various members of the team.

Figure 1: Organisation of health service delivery system



1.2.2 Policies and strategies to improve and support healthcare delivery in Kenya

Vision 2030

Kenya's development agenda is anchored on Vision 2030 and its realisation is through incremental implementation of Medium-Term Plans. The focus is to provide efficient, integrated, and high-quality healthcare to all citizens with priority being given to preventive care.

Big Four agenda

Universal Healthcare Coverage (UHC) is one of the four focus areas of the government's Big Four Agenda. Kenya is committed to have UHC by 2022 by scaling up health insurance coverage, especially among low-income groups, through the National Hospital Insurance Fund (NHIF), among other measures.

Medium Term Plan III 2018-2022

The Medium-Term Plan (MTP) III 2018-2022 of Vision 2030's theme is: *"Transforming Lives: Advancing socio-economic development through the "Big Four".* The sector has developed the MTP III, which has

set out strategic directions to be achieved by the health sector over the next five years. This is the third-generation health sector strategic plan under the third generation of the medium-term plans of the Kenya Vision 2030. The overall objective of the MTP III is to accelerate the attainment of Universal Health Coverage through:

- Enhancing efficiency in provision of healthcare services
- Improving availability of essential health services
- Ensuring equity in access to essential health services
- Enhancing the human resource capacity for health service provision
- Improving availability of specialised medical services in the population

Kenya Health Sector Strategic Plan 2018-22

The Kenya Health Sector Strategic Plan (KHSSP) for the period 2018-2022 is guided by the Constitution of Kenya, Vision 2030, and the government's "Big Four" agenda. The Kenya Health Sector Strategic Plan 2018-22 defines the medium-term priorities and objectives towards attainment of the Kenya Health Policy objectives. It will guide the health and other sectors on the strategic priorities they need to focus on in addressing the health agenda in Kenya. The plan is aligned to the Sustainable Development Goals (SDGs), among other regional and global commitments and initiatives.

Ministerial Strategic Plan 2018-22

The Ministry of Health Strategic Plan (MSP) 2018-2022 elaborates the strategies the Ministry of Health will implement towards the objectives of the KHSSP. The plan also forms the basis for identifying the priorities for the Medium Term Expenditure Framework (MTEF) for funding, deliverables for performance contracting mechanism and will also be used as a resource mobilisation tool. The Plan prioritises policies, programmes, and projects that will support the implementation of the health sector objectives. The MSP is an integral component in the overall national planning arrangements. County governments and other planning entities in the health sector are expected to prepare their plans as per the health sector planning framework.

UHC Aspiration

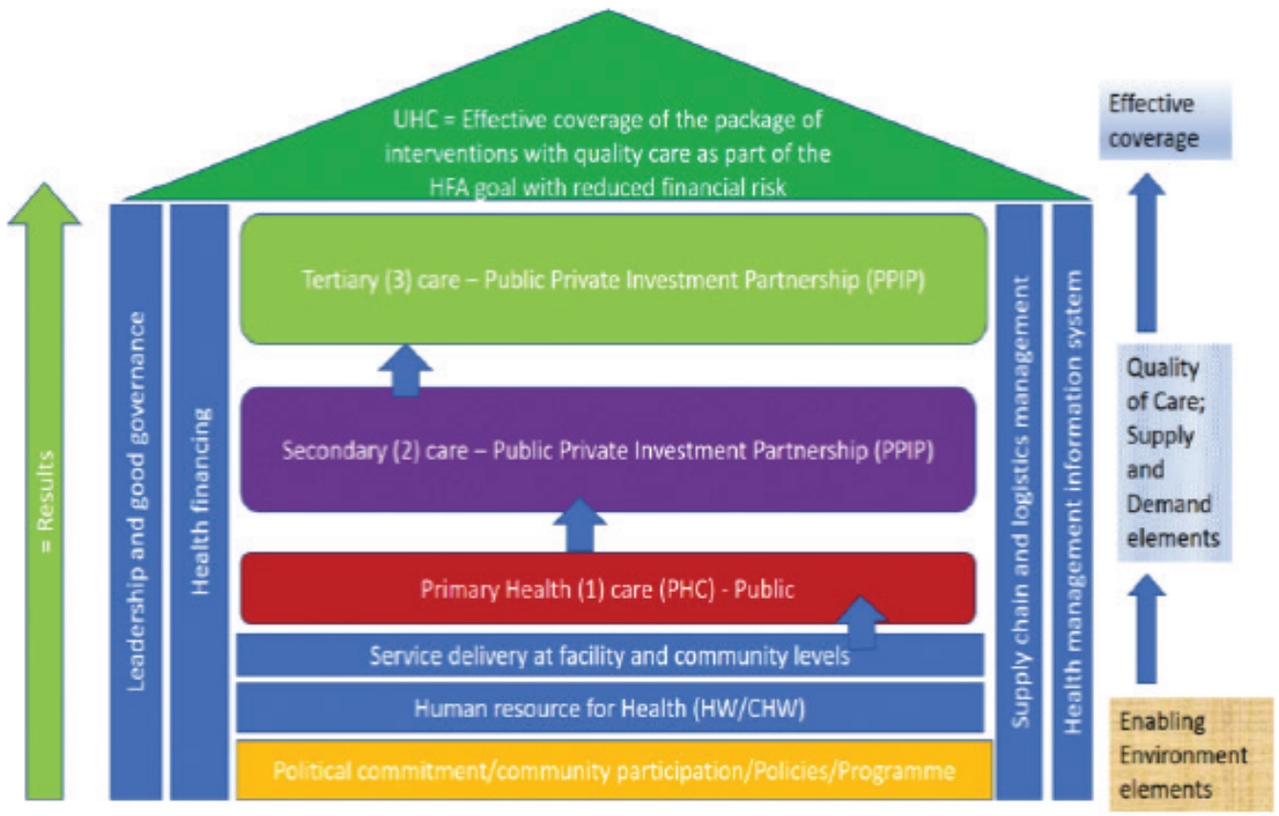
The Government of Kenya is committed to implementing Universal Health Coverage (UHC) as part of its Big Four agenda. This will ensure that all individuals and communities in Kenya have access to quality essential health services without suffering from financial hardship. These objectives are to:

- Progressively increase the proportion of Kenyans with coverage for essential health services.
- Increase the percentage of Kenyans covered under pre-paid health financing mechanisms. such as health insurance, subsidies and direct government funding to access health services.
- Progressively expand the scope of the health benefit package accessible to all Kenyans.
- Improve the quality of health services.
- Protect Kenyans, particularly poor and vulnerable groups, from catastrophic health expenditures.
- Provide and retain health resources appropriate for the delivery of health services.
- Strengthen the leadership and governance within the health sector.

The focus of UHC is the primary health care (PHC) approach and improvement of health systems. This calls for a holistic strengthening of the health system and investments. This also entails reforming the architecture that determines how different parts of the health system operate and interact to meet priority health needs through people-centred integrated services.

PHC forms the foundation of health systems, ensuring that all people stay healthy and get care when they need it. When PHC works, people and families are connected with trusted health workers and supportive systems throughout their lives and have access to comprehensive services ranging from family planning and routine immunizations to treatment of illness and management of chronic conditions. Good PHC empowers individuals, families and communities to be active decision-makers about their health. This strategic plan emphasises accelerating efforts towards implementation of UHC with PHC as the main focus. The KHSSP and UHC conceptual framework is presented in **Figure 2**.

Figure 2: KHSSP and UHC conceptual framework



1.3 Purpose of the survey

Kenya has drawn the roadmap towards accelerating implementation of the Universal Healthcare Coverage (UHC) agenda, determining the level of service availability, Readiness and quality of care across the sector is paramount. In order to provide a comprehensive assessment of the functioning of a health system and its impact on health, data from health facilities are needed. Such initiatives will provide baseline information needed for costing the health investments in Kenya UHC Roadmap and the Kenya Health Sector Strategic Plan (KHSSP) 2018-2022.

Kenya has had past initiatives to provide information on the degree of preparedness of health facilities to offer services. These were conducted through Service Availability Readiness Assessment Mapping (SARAM) in 2013, Service Delivery Indicators (SDI) 2012/2018 and Service Provision Assessment (SPA) in 2010, among others. These surveys provided information that assisted devolved units to set up health departments in the counties. Several health surveys have been conducted since devolution in 2013, including the Kenya Demographic and Health Survey (KDHS) in 2014, STEPS in 2015, a mid-term review of the KHSSP in 2016, a mini-Service Availability and Readiness Assessment (SARA) in 2016, among other surveys. All these have focused on different facets of service availability and readiness with varied level of details to establish progress.

1.3.1 Survey objectives

The rationale for the Kenya Harmonised Health Facility Assessment (KHFA) 2018 was two pronged: to provide external validation of service availability and readiness information gaps critical for delivery of the UHC agenda for health; and to provide the necessary information for strategic planning, health sector priority investment areas and areas of acceleration to achieve 100% UHC by 2022.

More importantly, the KHFA was designed with the specific objectives of:

- Supporting the national and county levels with the essential information needed to facilitate critical investments in health facilities to deliver the essential health package towards UHC;
- Generating the evidence to support the ongoing national and county UHC Roadmap, strategic plan development, and annual health reviews to guide more effective county/country and partner investments;
- Providing baselines of the health infrastructure situation, which will assist in the development of health infrastructure and maintenance of master plans for all planning entities in the health sector to improve access to healthcare;
- Filling the critical data gaps in health service availability and readiness required for assessing and monitoring progress in health system strengthening, UHC Roadmap, within the broader context of monitoring and evaluation (M&E) of county and national health strategies;
- Better planning and monitoring of the scaling up of interventions key to achieve the Sustainable Development Goals (SDGs), the African Union Agenda 2063 (e.g. interventions to reduce child and maternal mortality, non-communicable diseases, emerging threats, HIV/AIDS, tuberculosis, and malaria) and better responses to disease outbreaks and the increasing burden of chronic diseases;
- Supporting the county and national level planners in planning and managing health systems (assessing equitable and appropriate distribution of services and resources, etc.);
- Providing a foundation for the continued service availability readiness monitoring mechanisms through the established formal routine reporting system for sustainability;
- Supporting the prediction of logistical, including transport, communication and information technology (IT) infrastructure, purchase of vehicles, medical equipment and the disposal of the same by the counties;
- Establishing the accountability and potential financial resources for each health facility to deliver the essential services;

- Providing updated health facility information, including geocodes and services available at the facilities to ease access for citizens.

1.3.3 Support for the survey

The KHFA 2018 was implemented by Kenya's Ministry of Health in collaboration with several development partners, including USAID, WHO, JICA, UNICEF, and UNFPA, among others, who provided funding and technical support.

2. METHODOLOGY

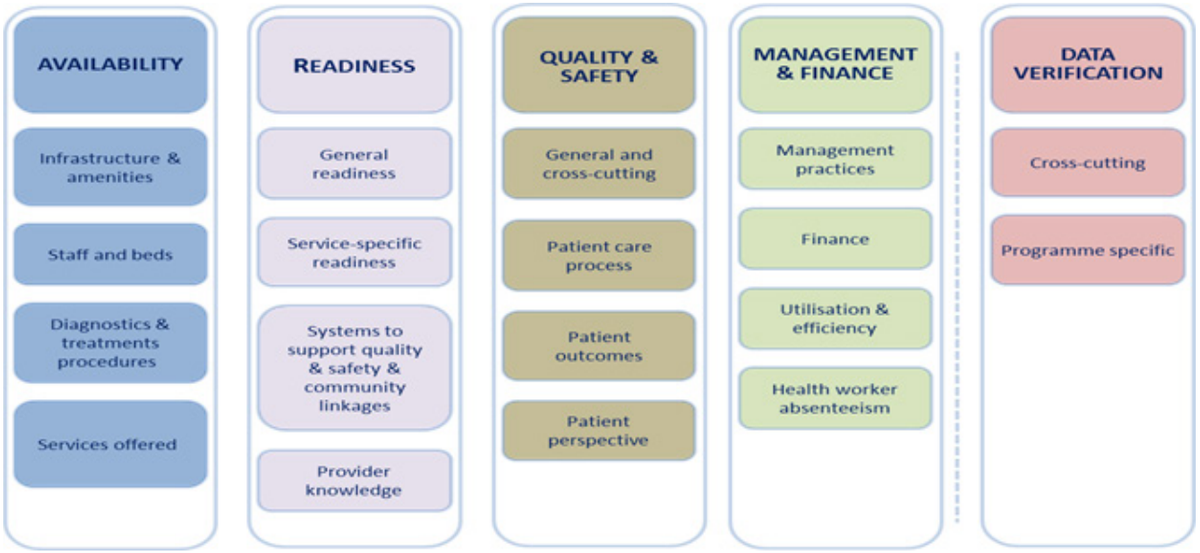
Study design and approach The Kenya Harmonised Health Facility Assessment (KHFA) by design was the collective effort of a multi-partner group that included The Global Fund, the World Bank, USAID, GAVI, PEPFAR/CDC, UNICEF, UNFPA, UN MDG Health Envoy and WHO. It was consultatively designed by the Health Data Collaborative (HDC), the Health Facility Survey working group of technical experts from partners, countries, academia, civil society as a key deliverable of the HDC Operational Work Plan 2016-17. The content consisted of five health facility assessment modules and data collection tools developed in response to input from technical and programme experts.

As part of this harmonised approach, efforts were made through the HDC to bring together existing indicators with a standard set of indicator definitions and recommended assessment/measurement methods and compiling diverse data collection methods into a comprehensive set of modules, as well as a question bank, both organised by subject. This harmonisation of core indicators provided a standard set of templates that could be adapted by countries when developing their own health facility assessment surveys. These modules and tools thus aimed to improve comparability of health facility assessment information when collected across time and geography.

The indicators for the KHFA was organised into five main modules that aimed to collect information for a defined set of indicators in a specific topic/area. The modules that were deployed for the survey included the following:

- Availability: Collected information relating to the physical presence of facilities, resources, and services (e.g., building and utilities infrastructure, staff, beds). This section also included the availability of services offered.
- Management and finance: Collected information on practices to support continuous service availability and quality (e.g. management practices and supervisory practices, finance and health worker perspective).
- Readiness: Collected information on capacity of the facility to provide specific services (e.g. presence of trained and knowledgeable staff, guidelines, drugs, supplies, diagnostics, equipment), appropriate service site systems and infrastructure conditions to support quality.
- Quality and safety of healthcare: Collected information on the receipt of appropriate, effective and timely care by patients under safe conditions.Community module: Utilised key informant interviews with community health workers in all 47 counties and focus group discussions with mothers of children under the age of 2 years. Qualitative data was collected to understand the functionality and strength of the community structures, as well as to triangulate the findings of the other survey modules.

Figure 3: An illustrative toolkit of harmonised health facility assessment modules and indicator domain



2.1 Modules and data collection tools

The KHFA adopted harmonised questionnaires that had been developed by the Health Data Collaborative Technical Working Group for the four modules and contextualised in appreciation of the organisation of the service delivery platform in Kenya.

The harmonised tools were piloted and thereafter, the country opted to adopt a service area-specific approach as opposed to a module approach. This led to the revision of the four modular tools (excluding the fifth community module) to thirteen smaller service-specific modules to facilitate data collection, which were:

- Administration
- Emergency
- Intensive Care Unit
- Laboratory
- Maternity
- Maternal and child health
- Outpatient Department
- Pharmacy
- Records
- Surgical
- HIV
- Tuberculosis
- Global Positioning System

In addition to the modules developed by the World Health Organization (WHO), the fifth module was developed in Kenya to assess the health systems at the community level. The interview guides focused on five main areas, including, the recruitment, roles, capacities and motivation of the community health workforce, range and quality of health services provided to special groups, linkages and referrals at the community level, experiences implementing community health services (CHS), and the challenges and recommendations in implementing CHS.

The FGD guide with the mothers also had five main domains that explored the range of health services received, experiences with community health volunteers (CHVs), health insurance and perceived benefits, perceived changes as a result of CHS implementation, and the challenges and recommendations for improving CHS. The women discussed issues related to health services locally available, their own use of health services for themselves and their children, and their use of family planning. The women also described their experiences in terms of services that they felt performed well, those that performed poorly, and their experiences with the use of child health services and services for pregnant women.

2.2 Sampling and sample size determination

2.2.1 Construction of a sampling frame

The Kenya Health Master Facility List (KHMFL) was used as the sampling frame for the survey. The sampling frame included health facilities of all types (dispensary, medical clinics, health centres, public primary hospitals, other primary hospitals and secondary/tertiary hospitals) and all managing authorities (public, private, NGO). Specialised health facilities, such as eye hospitals, dental clinics and Voluntary Counselling and Testing (VCT) centres were excluded. The sampling frame comprised 10,535 health facilities.

2.2.2 Sample size determination

The rationale for the KHFA was to provide reliable estimates of essential information for both national and county planning for each of Kenya's 47 counties within an acceptable margin of error. When sampling for the survey, a margin of error (ME) of 12% and a confidence level (CI) of 95% was applied to estimate individual samples for each of the 47 counties. Based on information from previous surveys, the design effect was set at 1.1 and the anticipated general service readiness was set at 50% (p = 0.5).

The sample size was then determined using the following formula:

$$n = \left\{ \frac{Z^2 pq + ME^2}{ME^2 + Z^2 pq/N} \right\} d$$

where:

n = sample size

z = critical value of the Normal distribution (for a confidence level of 95%, a critical value of 1.96 was used

ME = margin of error (12%)

p = the anticipated general service readiness (0.5)

q = 1-p

N = population size

d = design effect (1.1)

2.2.3 Selection of health facilities and community units

Health facilities

For each county, a random sample of health facilities was drawn from the Kenya Health Master Facility List (KMHFL) based on the specified parameters. The sampled facilities were randomly selected, respecting the distribution of facility types in the particular county. All secondary hospitals and all public primary hospitals were purposively included together with maternity and nursing homes. The total sample included 2,980 facilities. The most knowledgeable staff present in the respective service area on the day of the survey were the respondents.

Community units

The site selection started with the universal inclusion of all the 47 counties in Kenya. This is because all counties are varied in population size and population density, and in relation to numerous climatic, cultural, economic, ethnic, geographical, historical, linguistic, livelihoods, and social factors. Within each county, two community health units were sampled using the following criteria:

- Community health units sampled were those linked to the health facilities where the facility assessment was being conducted
- Population density and distance to health facilities

The population of interest for the community module were the community health workers (CHWs) comprising the community health volunteers (CHVs), community health extension workers (CHEWs), and members of the community health committees (CHCs). Others were mothers of children below 2 years of age and members and staff drawn from the community health unit at the sub-county level. A purposive sampling strategy was used to identify the community units from a list of health facilities that were part of the facility assessment sample. The community unit focal person provided names and locations of community health workers affiliated with the selected facilities, allowing the interviewers to randomly select four to six community health workers in each location to be interviewed.

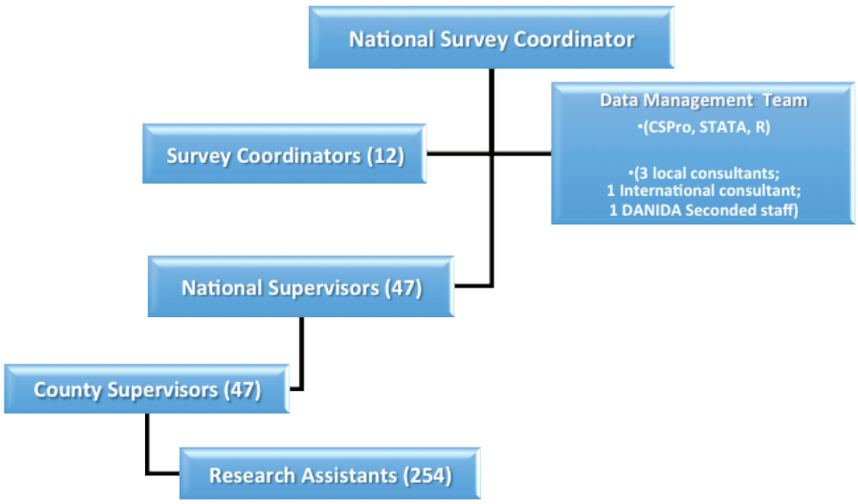
In each county, a total of 4 in-depth interviews were conducted with CHVs, 4 CHEWS, 1-2 CHC members and 1-2 with members of sub-county health management team and heads of civil society organisations and faith-based organisations supporting community units. In addition, 2 focus group discussions with mothers with children aged under the age of 2 years and one key informant interview with the Sub-County Medical Officer (SCMO) of Health OR Sub-County Community Health Coordinators (SCCHC) was conducted in each county. A total of 294 interviews and focus group discussions (FGDs) were conducted across the 47 counties with a total of 355 participants: 88 mothers with children under the age of 2 years, 88 CHVs, 88 CHEWs (KIIs), 44 CHCs (KIIs), and 47 SCMO/SCCHCs (KIIs).

2.3 Training and supervision of survey teams

Health facility assessment

The survey was coordinated by the Kenya's Ministry of Health, Department of Policy, Planning and healthcare financing. The survey team composition included one national survey coordinator, 12 survey coordinators, 4 CSPro experts/data managers, 47 national supervisors, 47 county supervisors, and 254 research assistants drawn from the various departments in the national and county governments (**Figure 4**).

Figure 4: Organisational structure of the survey



There were twelve survey coordinators, with one overall national survey coordinator. These were senior officers in the Ministry of Health with experience in leadership and management. They were in charge of the overall administrative and technical direction of the survey. They provided oversight and were responsible for quality assurance and control. Their role involved planning for the survey implementation (adapting the questionnaires, finalising the master facility list, developing guidelines, leading the training sessions, coordinating fieldwork, and quality control of the survey.

The data management team was experienced in programming and CSPro data management. It supported the development of electronic data collection forms, training of data collectors, and data management, including quality assurance, data analysis, and report writing.

National supervisors were senior Ministry of Health staff. They were responsible for ensuring effective coordination of the survey logistics, coordination of the research assistants, and quality control of the data.

County supervisors were either county Health Records and Information Officers or lead Monitoring and Evaluation Officers at the county level. They supported the actual data collection process through assigning roles to the research assistants, booking appointments, quality control, and submission of data to the server.

Research assistants were persons with background training in health or health-related fields. They were responsible for the actual data collection, data entry, and synchronising with the county supervisor.

The training of survey teams took part in two phases. The first phase of training took place from 29th October to 3rd November 2018 in Naivasha, Nakuru County. This was a trainer of trainers (TOT) workshop for national and county supervisors who were trained on all survey modules. The training included classroom lectures and discussions, practical demonstrations, mock interviews, and field practice. The research assistants' training took place from 5th to 10th November 2018. These were simultaneous training sessions that took place in nine regional training points. Dependant on the sample size for the given county, there were between 4 and 10 research assistants from each county trained by a team of trainers. The training included classroom lectures and discussions, practical demonstrations, mock interviews, and field practice. Research assistants were trained on the data

collection tools, procedures of accessing the health facilities and interviewing skills. The CSPro experts provided technical support in both phases of training.

Community units

Research assistants who participated in the qualitative data collection exercise were trained by a consultant with expertise in qualitative research methodologies, with support from MoH staff drawn from the community health unit. The training focused on the design, objectives and purpose of the assessment, the ethics-obtaining community entry permissions and getting informed consent, and understanding the interview guide questions techniques for interviewing. The team was also guided through the standard operating procedures (SOPs) of transcription and how to deal with the intricacies of direct and back translation from local languages to English and vice versa. Data collection tools were piloted, and revisions were incorporated into the final version prior to the actual data collection.

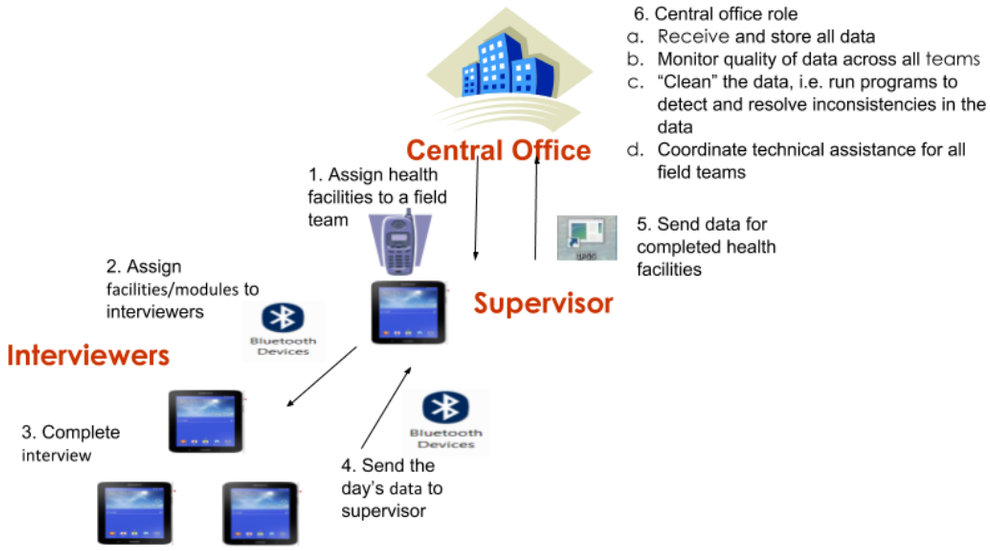
2.4 Data collection

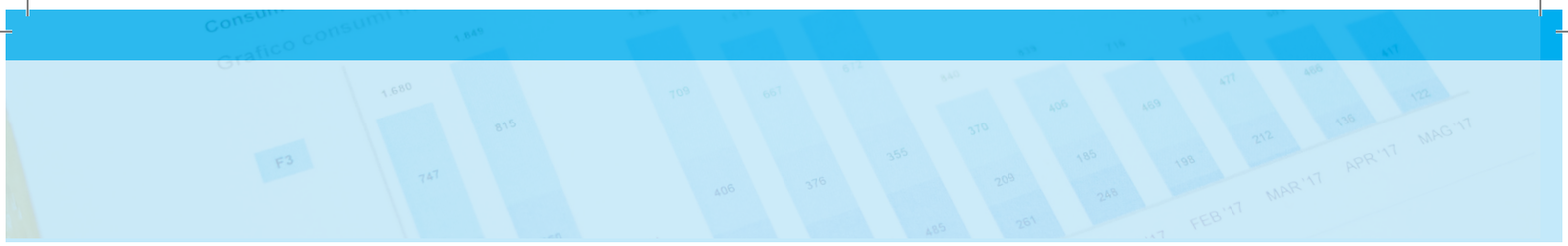
Health facility assessment

Data collection for the survey was conducted over a period of four weeks between November and December 2018 by a team of 47 national supervisors, 47 county supervisors, and 254 research assistants based in all the 47 counties. Data was collected electronically on Android phones running the CSPro software and stored centrally on a server hosted by the MoH. Data collection software was developed by a local team of IT experts with technical assistance from a WHO expert.

The software made it possible for the county supervisor to allocate different modules to research assistants visiting the same facility, which allowed simultaneous data collection for different modules. Allocation of modules to RAs was guided by a template that suggested 2 research assistants could complete interviews in a dispensary or medical clinic in half a day, a health centre in one day, and 4 research assistants could complete interviews in a hospital in one day. Once data was collected, it was synchronised via Bluetooth with the county supervisor who reviewed the data before uploading it to the central server. The central office received all data, monitored data quality, and coordinated technical assistance for all field teams. The electronic data collection process in detailed in **Figure 5**.

Figure 5: Electronic data collection process, 2018 Kenya KHFA





Community units

Data collection was undertaken between October and December 2018. All participants were reminded of the voluntary nature of the study, after which they provided informed consent for the interviews and discussions and for audio recording. All interviews were conducted in the language most appropriate for the participants and at venues that were mutually convenient to both the participant and the interviewer. On average, all interviews were 15 to 30 minutes long while the focus group discussions lasted between 30 minutes and 1 hour. In some instances, photographs of the interview process were taken and archived with the audio recordings in computer-protected passwords that only the study team had access to.

2.5 Mechanisms for data quality assurance

Health facility assessment

During data collection, data was downloaded from the server on a daily basis and survey progress was assessed for each county. Data was merged across the different modules to identify duplicates and missing/incomplete modules for the visited facilities. Based on these analyses, weekly reports were generated on the progress of the survey and shared with the national level supervisors and core team. Online tools were developed for all supervisors to assess survey completeness for their county in near real time.

Every week the county and national supervisors conducted a data validation visit to one of the facilities visited during that same week. Based on a predefined template, the supervisors collected validation data for selected modules. The template ensured that validation data was collected for all modules and all facility types and ownership combinations. The data management team compared the validation data to the original data collected by the research assistants and validation reports were shared with the county supervisors on a weekly basis. The reports outlined any discordances between the research assistant and the supervisor, and it was the responsibility of the supervisor to identify and discuss with the research assistant the source of the discrepancy and revisit facilities to correct any systematic errors. Where there were major discrepancies between supervisors and research assistants, the research assistants were required to return to the health facility to recollect and resubmit the data.

During the survey it was necessary to replace a number of facilities for various reasons, including closed/non-existent facilities, misclassified facilities, and multiple visits (minimum 3) without a complete response. In addition, if there were a few facilities in a county that were inaccessible, this was also considered a valid reason for replacement. However, if entire areas of a county were inaccessible, replacement was not done and instead the report took note that the findings did not cover these areas due to issues with accessibility. The replacement process required the county supervisor to contact the data management team in charge of replacing facilities, who then provided a unique code of a randomly selected facility that matched type and level of the replaced health facility. The data management team would then register the code for the replaced facility and the reason for replacement. Once the code was given, the same would be sent to the county supervisor who would use it to unlock facilities to form part of the sample.

After data collection, the KHFA findings for selected indicators were compared with similar indicator data from other sources (e.g. DHIS and KHMFL) for external data validation. In total, there were 471 discrepancies for facility type and 126 discrepancies for facility owner between the KHMFL and KHFA. Moreover, the KHFA had classified more facilities *as level 5 hospitals and above* than what was registered in the KHMFL. All disagreements were reviewed and corrected in the survey database by a separate group of experts from the KHMFL and M&E teams. They used the services offered at the

health facility to determine whether to keep the KHFA or the KMHFL classification. 81 health facilities retained the classification as per the KHFA findings. The KMHFL team was notified of the issues with facility classification, missing facilities, and closed facilities for further action.

Community units

For the qualitative data collection, quality was assured by training the research assistants on proper interviewing skills. During data transcription, double transcription was done for every recording and the transcripts harmonised to one which was then submitted. Transcription was done at the end of every day to minimise recall bias.

2.6 Data analysis and report writing

Health facility assessment

Data were weighted during analysis to account for differentials caused by oversampling and under-sampling and thus to represent the actual distribution of facilities in the country. Since facilities were not sampled with equal probability across type, ownership and counties, sampling weights were required to provide national and county estimates. Due to the applied sampling strategy, all facilities at Kenya Essential Package for Health (KEPH) level 5 and higher as well as all public KEPH level 4 hospitals were included in the sample, and hence were assigned the weight of 1. The remaining facilities were assigned a weight equal to the inverse of the probability of being sampled using the KHMFL as basis for the calculation.

Data analysis was guided by the Service Availability and Readiness Assessment (SARA) indicators developed by WHO as well as the WHO Harmonized Health Facility Assesment core indicator document. Data analysis for this survey was approached through the following steps:

- Analysis based on existing SARA indicators
- Analysis of service areas not covered by the SARA indicators
- Analysis of management and finance indicators
- Analysis of quality of care indicators
- Analysis of human resources, beds, and medicines prices
- Further analysis of linkages and correlations between services to inform the health sector review
- Analysis of UHC-specific indicators for the four pilot counties

All indicators were generated using STATA software (version 14). Tables were generated using a combination of the SARA chartbook (Excel), STATA, and R (version 3.6.0). Maps were generated using ArcMap (version 10.5). All analyses were stratified by county, facility type, ownership, and urban/rural location.

The final report was written with input from staff from national and county governments with the support of development partners and academia.

Community units

For qualitative data, a participatory approach to data analysis and coding was used. During the data analysis workshop, the community module study team, MOH community health strategy expert, and

senior qualitative research consultants developed a codebook that would guide data analysis. The team reviewed the different interview guides used in the field to develop a framework against which the codebook was eventually developed. The joint coding process began with individual immersion in the data and individual coding based on the study tools questions which generated 102 codes. These codes were further re-organised into 9 themes. Preliminary coding using the 9-category codebook was undertaken, with the aim of testing its robustness. Data was analysed using a thematic analysis approach.

2.7 Response rate

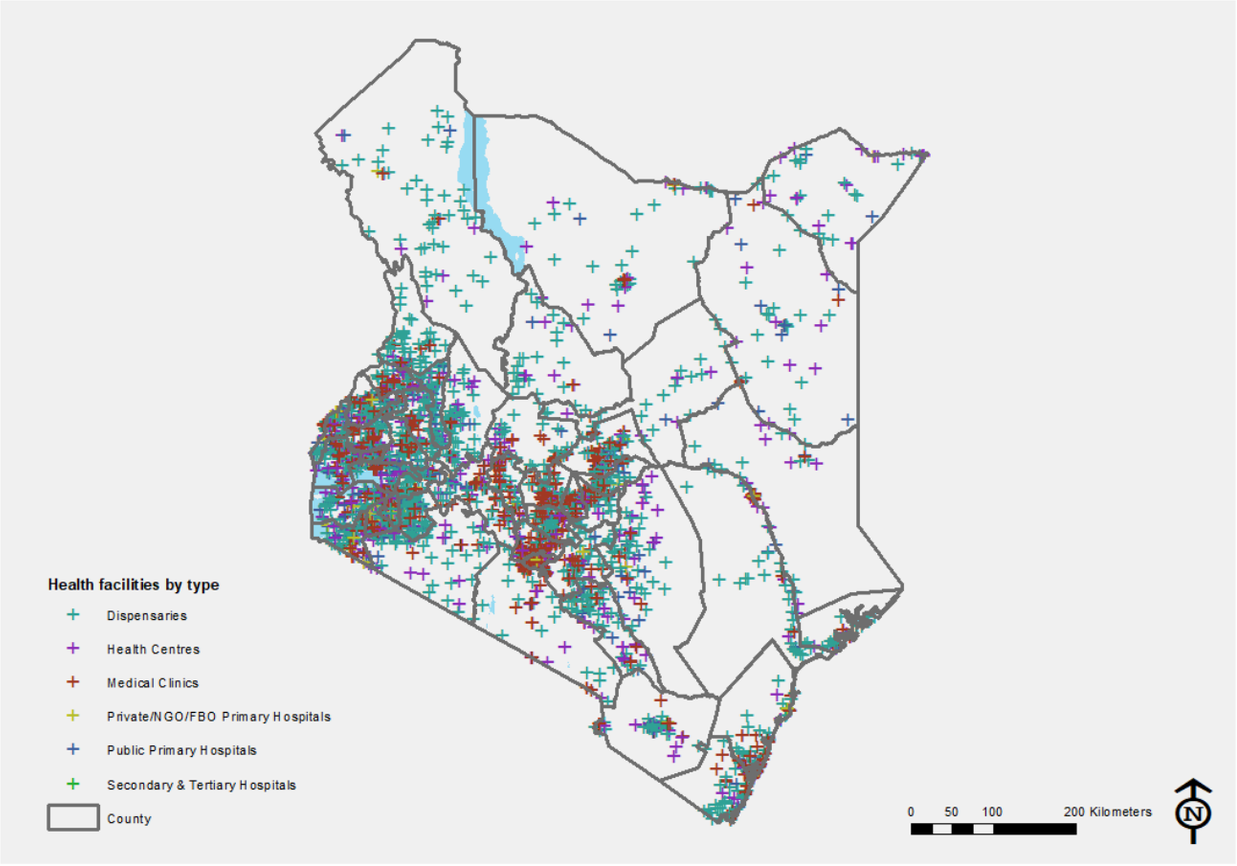
Data were successfully collected in 2,927 (98%) health facilities out of the targeted 2,980 health facilities. **Table 1** provides information on the weighted and unweighted distribution of facilities included in the sample by background characteristics. All other tables in this report use the unweighted numbers of facilities only. **Figure 6** shows a map of facilities included in the KHFA sample.

Table 1. Facilities included in the KHFA by county, facility type, managing authority, and urban/rural, Kenya 2018

Background characteristics	Total number of facilities unweighted	Total number of facilities weighted
Counties		
Baringo	63	219
Bomet	56	145
Bungoma	67	219
Busia	56	136
Elgeyo Marakwet	53	125
Embu	63	192
Garissa	59	161
Homa Bay	74	275
Isiolo	36	56
Kajiado	67	263
Kakamega	73	284
Kericho	63	202
Kiambu	86	573
Kilifi	69	293
Kirinyaga	63	208
Kisii	75	182
Kisumu	73	234
Kitui	75	319
Kwale	54	146
Laikipia	58	147
Lamu	34	58
Machakos	71	344
Makueni	73	304
Mandera	54	120

Background characteristics	Total number of facilities unweighted	Total number of facilities weighted
Marsabit	48	105
Meru	83	502
Migori	69	220
Mombasa	70	281
Murang'a	67	296
Nairobi	89	723
Nakuru	87	480
Nandi	62	189
Narok	59	171
Nyamira	61	154
Nyandarua	57	169
Nyeri	72	344
Samburu	41	75
Siaya	69	215
Taita Taveta	49	103
Tana River	38	67
Tharaka-Nithi	55	148
Trans nzoia	58	158
Turkana	61	218
Uasin Gishu	62	209
Vihiga	45	91
Wajir	54	115
West Pokot	56	137
Facility type		
Secondary & Tertiary Hospitals	20	20
Public Primary Hospitals	307	307
Private/NGO/FBO Primary Hospitals	84	365
Health Centres	465	1691
Dispensaries	1261	4572
Medical Clinics	790	3425
Managing authority		
Government	1658	5011
NGO / FBO	323	1296
Private	946	4071
Urban/Rural		
Urban	873	3448
Rural	2054	6931
Total	**2927**	**10379**

Figure 6. Map of health facilities sampled in the 2018 Kenya KHFA



2.8 Limitations

During this health facility assessment, all efforts were made to minimise the systematic errors in design phase, data collection and analysis but still there were certain inherent constraints and limitations in the assessment.

A sample of 2,980 health facilities were randomly drawn from the Kenya Health Master Facility List and since facilities were not sampled with equal probability across type, ownership and counties, sampling weights were applied to provide national and county estimates. However, during the analysis, we realised that certain analyses such as the workforce density required use of a census of all health facilities, and that questions on some specialised services were asked across all the health facilities but later analysis had to be approached according to the level of health facility that can offer the specific specialised services according to the Kenya Essential Package of Health. This assessment also not being a census does not provide a valid facility-based information that may be useful for health managers for decision-making.

The questionnaires for the survey were primarily organised into four modules: Availability; Readiness; Quality of Care; and Management and Finance. However, during the pilot phase, we experienced challenges implementing the modules as they were as different teams of interviewers had to overlap in various service areas and it was generally taking longer to complete. This then necessitated re-

organisation of the data collection tools into 12 separate modules by service area and an additional GPS coordinate module. Following data collection, we merged all the 12 modules back into the 4 WHO modules. However, due to missing module data for some facilities, the completeness of each of the WHO modules varied.

The use of KHMFL as the sampling frame also posed a few challenges. At the beginning of the process, we noted that the Master Facility List required some cleaning before being reliably used. During the survey it became necessary to replace a number of facilities for various reasons that included closed/ non-existing facilities, misclassified facility, and non-response.

This being the first of harmonised assessment to be done and given its broad scope, there were a lot of adjustments and compromises to be made in terms of the design and implementation on study. The modules also contained a large number of variables that made the aggregate data analysis very complex. However, we ensured that we conducted proper training and supervision so that we collected quality data. The size of the assessment also made the costs to be relatively high, though information collected is valuable for long-term policy making.

Other limitations included the fact that this health facility assessment does not provide qualitative reasons for why the services available were bad or good or why they were used or not used except as may relate to infrastructure, resources and systems. This assessment also does not provide information on patient satisfaction and details of the available human resources, such as educational background and training experiences.

3. GENERAL SERVICE AVAILABILITY

General service availability refers to the physical presence of the delivery of services and encompasses three domains of tracer indicators: health infrastructure, core health personnel, and service utilisation. Service availability is described by an index using the three areas of tracer indicators. This is made possible by expressing the indicators as a percentage score compared with a target or benchmark, then taking the mean of the area scores. General service availability does not include more complex dimensions of availability, such as geographical barriers, travel time, and user behaviour, which require more complex input data. Calculation of general service availability indicators requires a census of all facilities as these measures require data that link the numerator (e.g. number of facilities) to the denominator (e.g. population size).

The KHFA survey collected some of the information required to calculate general service availability; however, additional sources were often used, namely health management information systems (HMIS) and other routine information systems. The data used for the Kenya general service availability indicators comes from the following sources in **Table 2**.

Table 2. Data sources for the general service availability indicators

Data source	Indicators
Kenya DHIS Fiscal Year 2017/2018 (data extracted 25th April 2019)	• Total population • Number of pregnant women • Number of outpatient visits • Number of hospital discharges • Inpatient bed occupancy rate
Kenya Health Master Facility List	• Number of facilities • Number of inpatient beds
KHFA survey 2018	• Number of maternity beds • Number of core health workers

3.1 Health infrastructure

3.1.1 Health infrastructure indicator definitions

Three indicators are often used to measure the health infrastructure of a country: facility density, inpatient bed density, and maternity bed density.

Facility density is primarily an indicator of outpatient service access. Inpatient bed density provides an indicator of inpatient services access. Maternity bed density provides an indicator of access to delivery services. For each of the health infrastructure indicators, density is calculated as the number per population. In addition, targets for each of the health infrastructure indicators have been set based on WHO guidelines. For facility density the target is two facilities per 10,000 population. For inpatient bed density, the target is 25 beds per 10,000 population. The global average is 27 beds per 10,000 population and lower- and upper- middle income countries have 18 and 39 inpatient beds per 10,000, respectively.

For the KHFA, an arbitrary benchmark of 25 inpatient beds per 10,000 population was selected. For maternity bed density, the target is 10 maternity beds per 1,000 pregnant women. This target was calculated using the assumptions that there should be sufficient beds for all pregnant women with an

occupancy rate of 80% (to account for the uneven spread of demand over time) and a mean duration of a stay of 3 days. Table 3 below shows how the density and scores are calculated for the health infrastructure indicators.

Table 3. Health infrastructure density and score calculations

Domain		Indicator	Target	Score (%) (n / target, maximum 100)
Health infrastructure				
a	Facility density	Number per 10 000 population (*n*)	2	*n* / 2 × 100
b	Inpatient bed density	Number per 10 000 population (*n*)	25	*n* / 25 × 100
c	Maternity bed density	Number per 1000 pregnant women (*n*)	10	*n* / 10 × 100

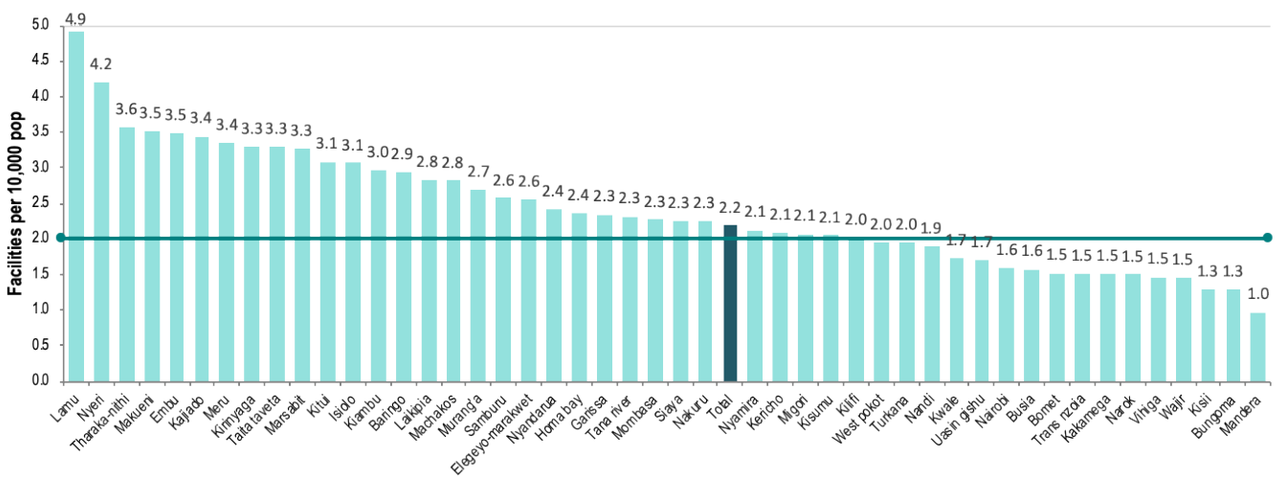
Annex Table 1 shows health infrastructure densities by county.

3.1.2 Facility density

The health facility density target is 2 health facilities per 10,000 population. **Figure 7** shows the health facility density by county in Kenya.

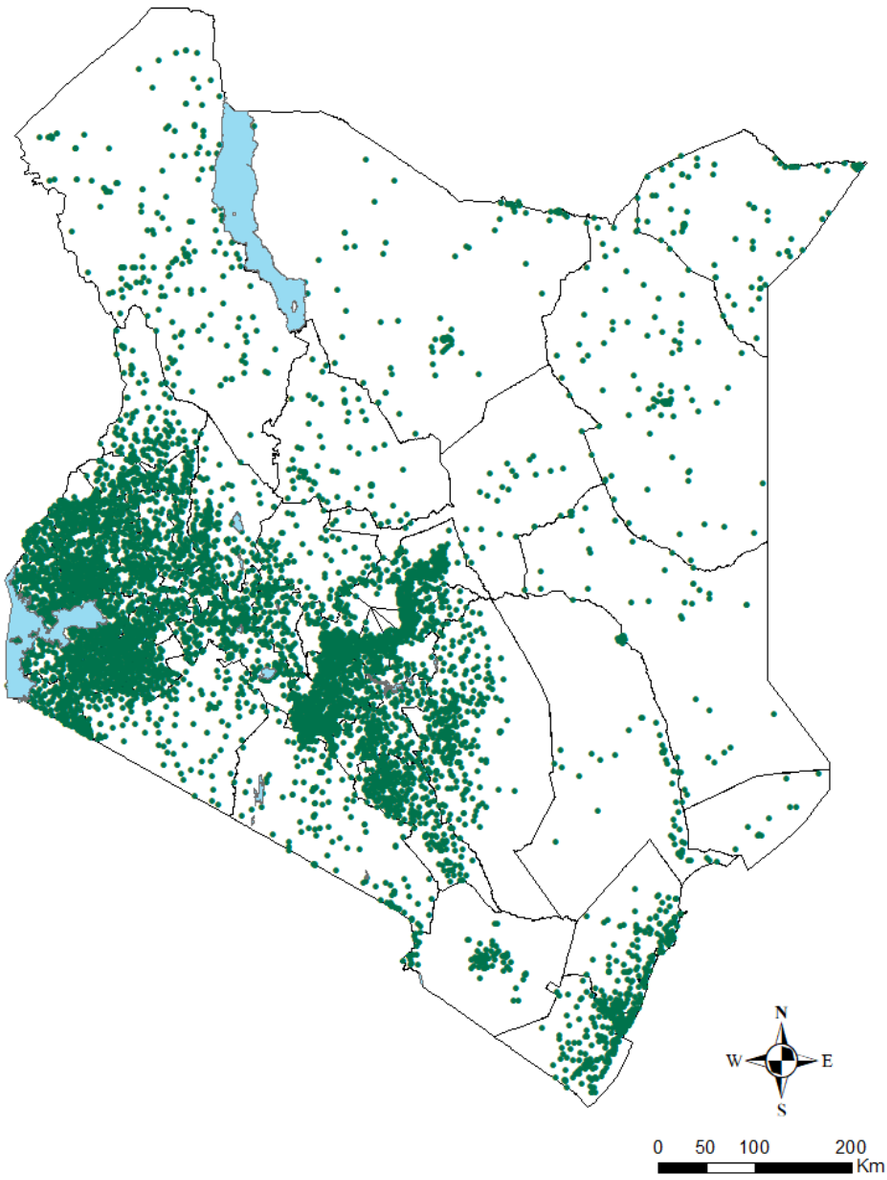
- The national health facility density is 2.2 per 10,000 population. The country has achieved the target of 2 per 10,000.
- Thirty-three counties (70%) have either attained or surpassed the target of 2/10,000.
- Lamu County has the highest health facility density of 4.9 followed by Nyeri (4.2), while Mandera County has the lowest at 1.0.
- Health facilities are well distributed by population across the counties, as can be seen in **Figure 8**.

Figure 7. Health facility density per 10,000 population (Target=2), Kenya 2018



Source: Kenya Master Health Facility List

Figure 8. Health facility distribution, Kenya 2018

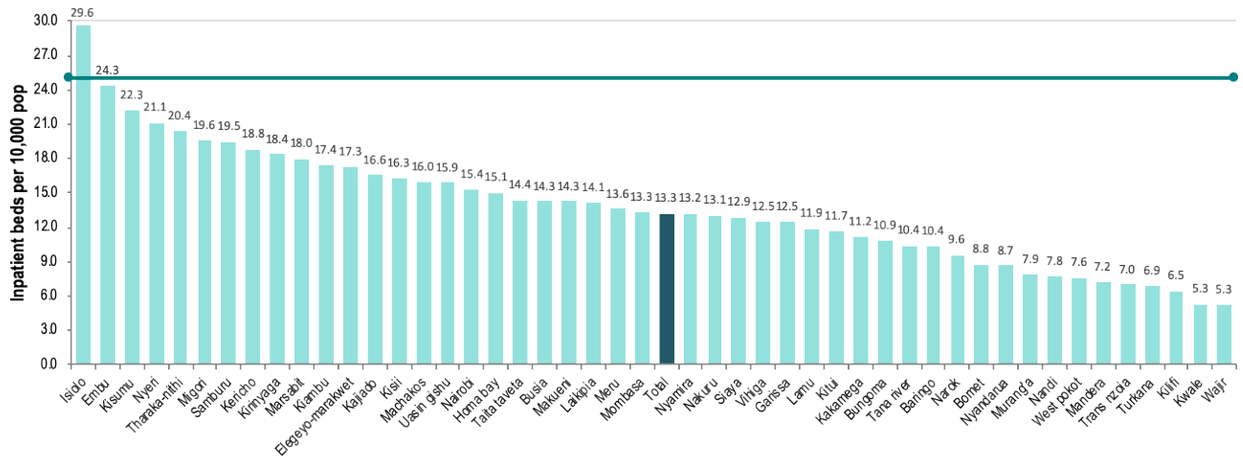


3.1.3 Inpatient bed density

The inpatient bed density target is 25 per 10,000 population. **Figure 9** shows the inpatient bed density by county in Kenya.

- The national average for inpatient bed density is 13.3 beds per 10,000 population. This is below the WHO target of 25 and the global average for lower middle-income countries of 18.
- Isiolo is the only county that has surpassed the national target at 29.6 inpatient beds per 10,000 population.
- Kilifi (6.5), Kwale (5.3) and Wajir (5.3) have the lowest inpatient bed density per 10,000 population.

Figure 9. Inpatient bed density per 10,000 population (Target=25), Kenya 2018



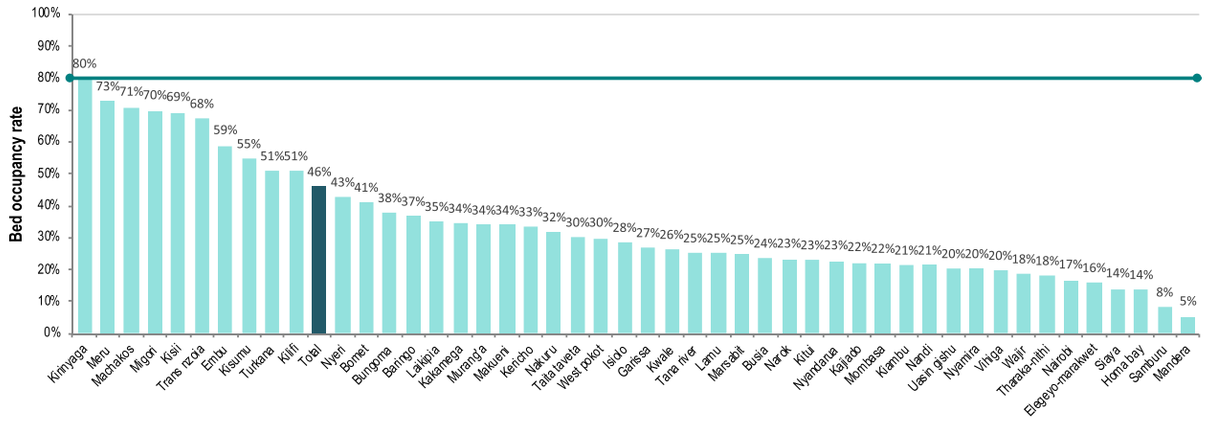
Source: Kenya Master Health Facility List

3.1.4 Inpatient bed occupancy rate

The inpatient bed occupancy rate was calculated as the average monthly bed occupancy rate over the period July 2017 to June 2018. Inpatient bed occupancy scores are calculated as the inpatient bed occupancy rate divided by the KHFA benchmark of 80% occupancy, multiplied by 100. **Figure 10** and **Annex Table 2** shows the inpatient bed occupancy rate by county in Kenya.

- The national average inpatient bed occupancy rate (46%) is below the set target of 80%.
- Isiolo County is the highest and only county to have reached the set target of 80% while Turkana (14%), Kilifi (14%), Kwale (8%) and Wajir (5%) are among the counties with the lowest bed occupancy rate.

Figure 10: Inpatient bed occupancy rate (Target=80%), Kenya 2018



Source: DHIS2 Extracted on 25th April 2019

- In addition to the low inpatient bed density, there is also a low inpatient bed occupancy rate, despite the high burden of both communicable and non-communicable diseases. This suggests that there are factors other than the number of inpatient beds hindering access and utilisation of inpatient services. Some of these factors could be physical and financial accessibility; knowledge-attitudes-

beliefs; healthcare system factors; perceived low quality of care manifested by high incidence of adverse health outcomes (maternal and neonatal mortality) and poor clinical governance and accountability; and unsatisfactory referral systems.

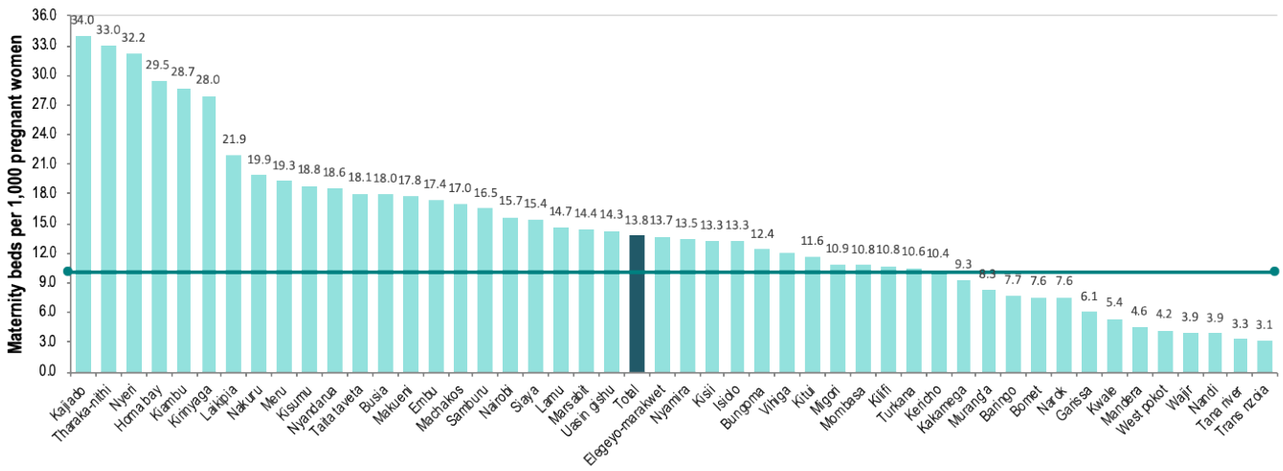
- The solution to low bed density will need to examine barriers to access and utilisation of services in order to develop appropriate evidence-based policies and interventions to address these structural deficiencies within the system.

3.1.5 Maternity bed density

The maternity bed density target is 10 beds per 1,000 pregnant women. **Figure 11** shows the maternity bed density by county in Kenya.

- The national maternity bed density is 13.8/1000, which is above the target of 10/1000.
- Thirty-four of the 47 counties (72%) have achieved the global target.
- The highest maternity bed density is found at Kajiado (34), Tharaka Nithi (33) and Nyeri (32.2) counties, while the lowest maternity bed density is found at Tana River (3.3) and Trans Nzoia counties (3.1).
- There have been significant investments by the national and county governments in maternal and child health interventions, which is reflected in the high performance of many counties in maternity bed density.

Figure 11. Maternity bed density per 1,000 pregnant women (Target=10), Kenya 2018



Kenya KHFA survey 2018

3.2 Health workforce

Efficient delivery of health services requires skilled personnel in adequate numbers. These include doctors, clinical officers, nurses, pharmacists, laboratory personnel, and specialists at different levels of care. In addition to health care caregivers, other supportive staff cadres include the managerial staff, records officers, and cleaners. Understanding their numbers are therefore critical in planning for resource allocation, expansion of human resource capacity and identifying gaps.

Health workforce is one of the health investments specified in the current Kenya Health Sector Strategic Plan (KHSSP). It is also guided by the current human resources for health (HRH) norms and standards, which defines the minimum required health workforce by cadre to serve the expected population as well as population ration for critical/specialised services for different tiers/levels of healthcare. Overall, the staffing level is measured against the norms and standards to assess the gaps in hiring of health workers. Availability is based on staff available in relation to specific services offered in a facility. Readiness of services thus links the available staff to the availability of infrastructure or equipment to enable the staff to provide the services required.

3.2.1 Health workforce indicator definitions

The health workforce domain comprises a single indicator: core health workforce density. Core health workforce density is based on the availability of the following core healthcare providers: generalist medical doctors, specialist medical doctors, non-physician clinicians, nursing professionals, and midwifery professionals. For the health workforce indicator, density is calculated as the number of core health personnel per 10,000 population. In addition, a target for the health workforce indicator has been set based on WHO guidelines. For the core health workforce density, the target is 23 health workers per 10,000 population. **Table 4** below shows how the density and scores are calculated for the health workforce indicators.

Table 4. Health workforce density and score calculations

Domain	Indicator	Target	Score (%) (n / target, maximum 100)
Health workforce			
Core health workforce density	Number per 10 000 population (*n*)	23	*n* / 23 × 100

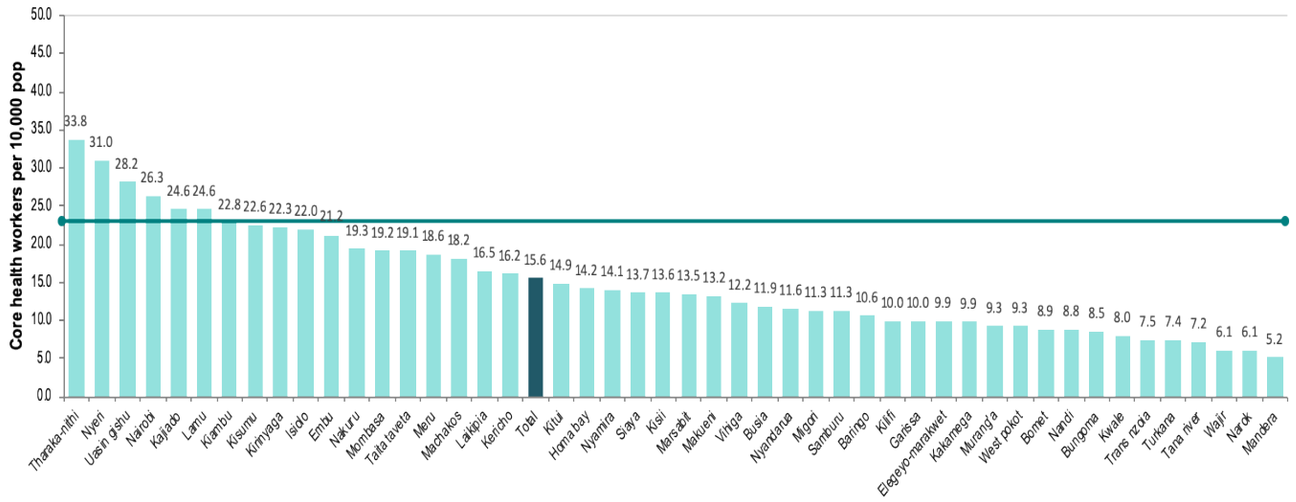
3.2.2 Health workforce density

Annex Table 3 and Figure 12 show health workforce densities by county in Kenya.

According to this survey, the national health workforce density for core health workers was **15.6/10,000**. This is below the recommended WHO target of **23/10,000**. Only six counties **(12.7%)** have surpassed the WHO target: Tharaka Nithi (**33.8**), Nyeri (**31**), Uasin Gishu (**28.2**), Nairobi (**26.3**), Kajiado **(24.6)** and Lamu **(24.6).** The majority of counties had health workforce densities below the set target, as indicated in the figure below.

Sixteen counties (34%) had a density of 10 or less health workers per 10,000 population. The worst performing counties were Mandera (5.2), Narok and Wajir, at 6.1 each. This indicates that the health workforce is not equitably distributed across the country, with arid and semi-arid counties generally having low densities.

Figure 12. Health workforce density per 10,000 population (Target=23), Kenya 2018



Density of health workers by counties was computed for medical officers, nurses, midwife, pharmacists and dentists, and a comparison was done with the sector norms and standards needs required for delivery of the Kenya Essential Package for Health (KEPH), 2014-2018.

Medical officers: Nationally, the density of medical officers was 0.6 per 10,000 population against the KEPH requirement of 3.7 medical officers per 10,000 population. However, there were huge variations between counties and a thirty-fold variation between the county with lowest density to the county with the highest density. The variations are reflected in the following figures for counties: Isiolo (1.99), West Pokot (1.37) and Nairobi (1.27) were leading while the lowest were Machakos (0.15), Bomet (0.16) and Nyandarua (0.17).

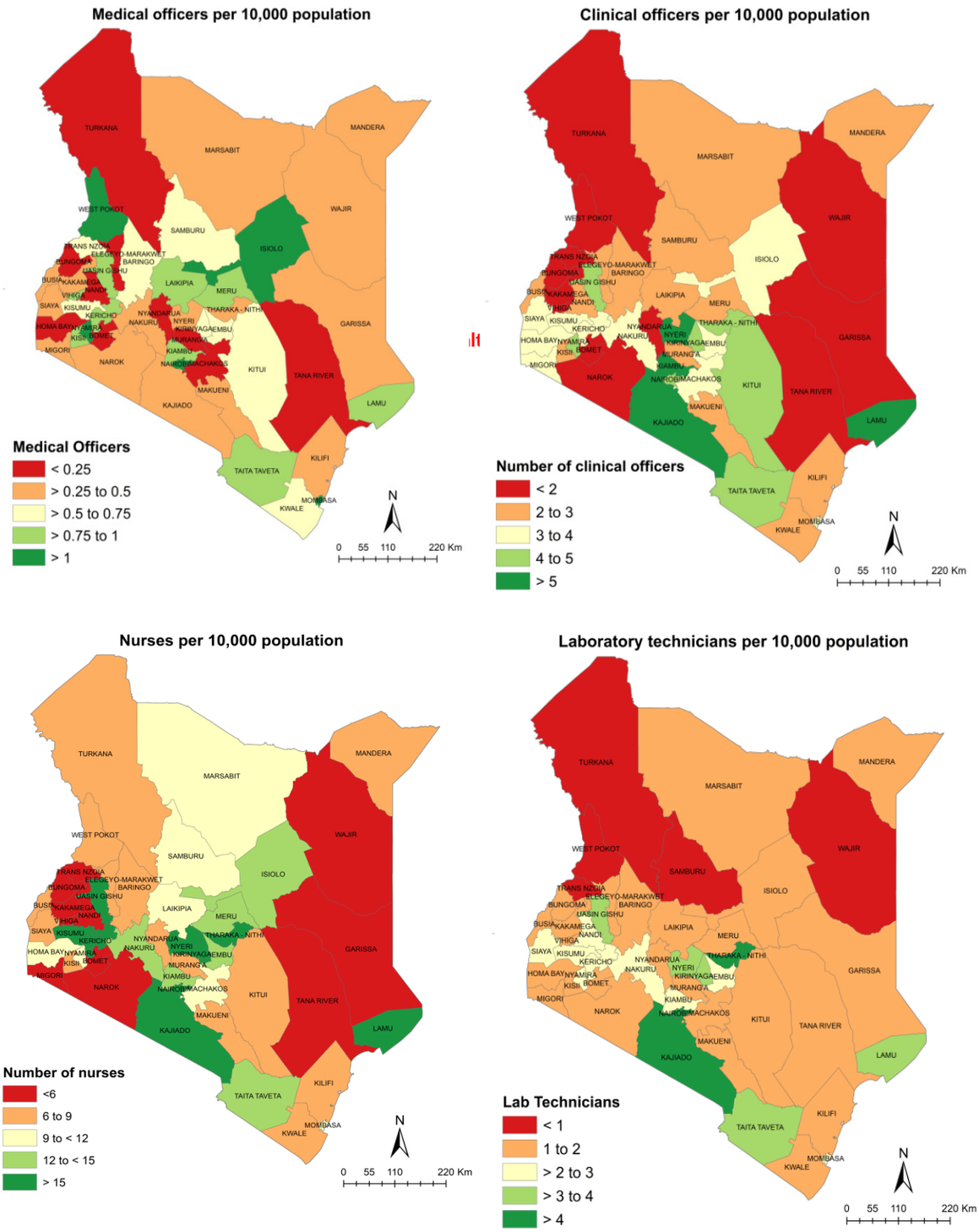
Clinical officers: The national density of clinical officers was 3 clinical officers per 10,000 population. Overall, the availability of clinical officers was below the KEPH recommended norm of 3.7 per 10,000 population. The density of clinical officers in Nyeri and Kajiado counties was 6 per 10,000 each, which was above the KEPH. West Pokot, Trans Nzoia and Wajir counties had the lowest density, at 1 per 10,000 population each.

Nurses: The national density for nurses was 10 per 10,000 population, which is way above the KEPH target of 8.7 for nurses6. There were important discrepancies between counties and a seven-fold variation between the county with the lowest density to the county with the highest density. Nyeri and Tharaka-Nithi counties were leading, with 26 and 24 nurses per 10,000 population, respectively while the lowest densities were in Wajir (4) and Narok (3) counties.

Laboratory technicians: The national density for laboratory technicians was 2 per 10,000 population, which is slightly above the KEPH target of 1.3 per 10,000. Tharaka-Nithi, Kajiado, Kirinyaga and Nairobi counties had the highest density, at 4 per 10,000 population each while 15 counties (32%) had the lowest density of laboratory technician, at 1 per 10,000 population.

[6] KEPH target for nurses excludes midwives

Figure 13. National density of health workforce by cadre, Kenya 2018



3.2.3 Health workforce norms definitions

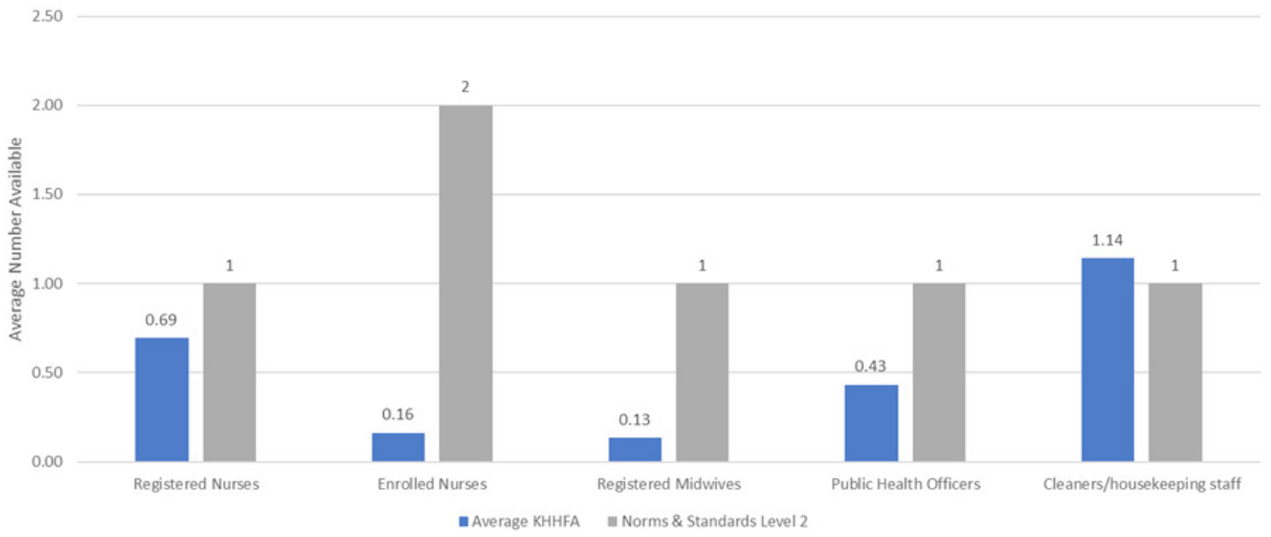
The Kenya Human Resources for Health & Health Infrastructure Norms and Standards7 provides a definition of the minimum number of health workers in each facility based on the expected services to be delivered as defined by the Kenya Essential Package for Health (KEPH). The staffing norms are detailed by facility level and outline the minimum number of health workers by cadre to ensure provision of the KEPH. The subsequent analysis is based on these norms. It compared the average number of health workers in a facility by cadre and facility type to the published Kenya norms and standards guidelines. This analysis was conducted for public health facilities other than where expressly indicated otherwise.

3.2.4 Health workforce norms: Dispensaries

The health workforce norms for dispensaries as well as the average number of health workers per cadre based on the KHFA survey are presented in **Annex Table 4** and **Figure 15**.

- Overall, the average number of nurses (all categories) in dispensaries was 1 compared to a national norm for dispensaries of 4, revealing a 25% staffing level of nurses in dispensaries.
- Availability of registered nurses averaged at less than 1 (0.69) compared to a norm of 2, revealing a gap of 31 for every 100 dispensaries; the average number of enrolled nurses was 0.16 compared to 2 in the norms and the average number of registered midwives was 0.13 against a norm of 1 per dispensary.
- The assessment also looked at the number of public health officers. An average of 0.43 public health officers were available against 1 in the norms and standards, showing that for every 100 facilities there were 43 public health officers, revealing a deficit of 56 per 100 facilities.

Figure 15: Health workforce norms and average health workers present in dispensaries, Kenya 2018



Kenya KHFA survey 2018

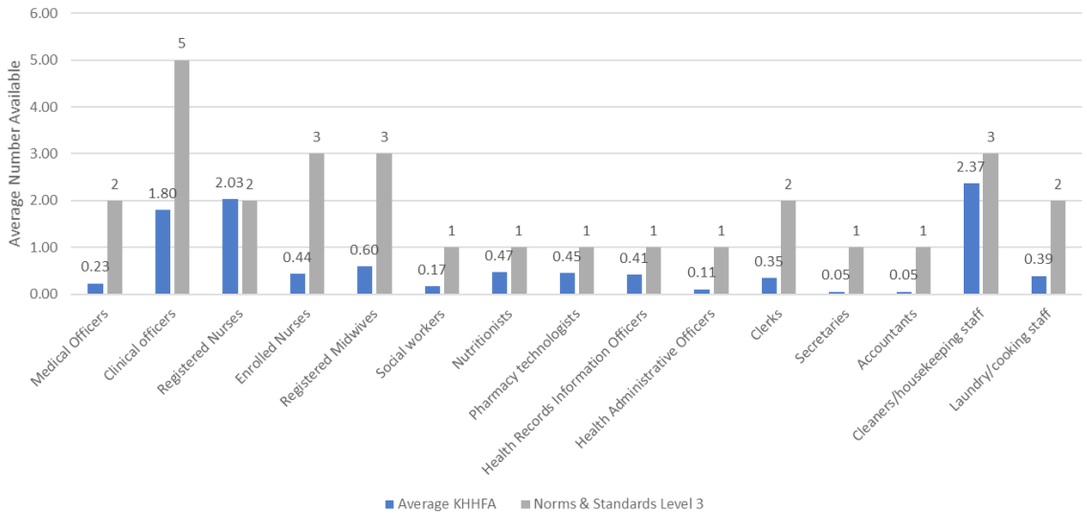
7 Human Resources for Health Norms and Standards Guidelines for The Health Sector

3.2.5 Health workforce norms: Health centres

The health workforce norms for health centres, as well as the average number of health workers per cadre based on the KHFA survey, are presented in **Annex Table 5** and **Figure 16**.

- Understaffing is evident in health centres for all staff other than registered nurses and support staff.
- While the norms and standards require a level 3 facility to have at least two medical officers, the survey revealed that an average, 0.23 medical officers were available, which implies that for every 100 facilities there were 23 medical officers, revealing a gap of 77 medical officers.
- In terms of clinical officers, the average number was 1.8 against the required 11 (general and specialised clinical officers).
- Among the nursing cadres assessed (registered nurses, midwives, and enrolled nurses), the most available were the registered nurses (2 compared to a norm of 3.2). Availability of enrolled and registered midwives was low, at an average of 0.4 and 0.6, respectively against a norm of 3.
- Availability of cleaning/housekeeping staff was high, although still below the norms at 2.4 against a norm of 3.

Figure 16: Health workforce norms and average health workers present in health centres, Kenya 2018



KHFA 2018

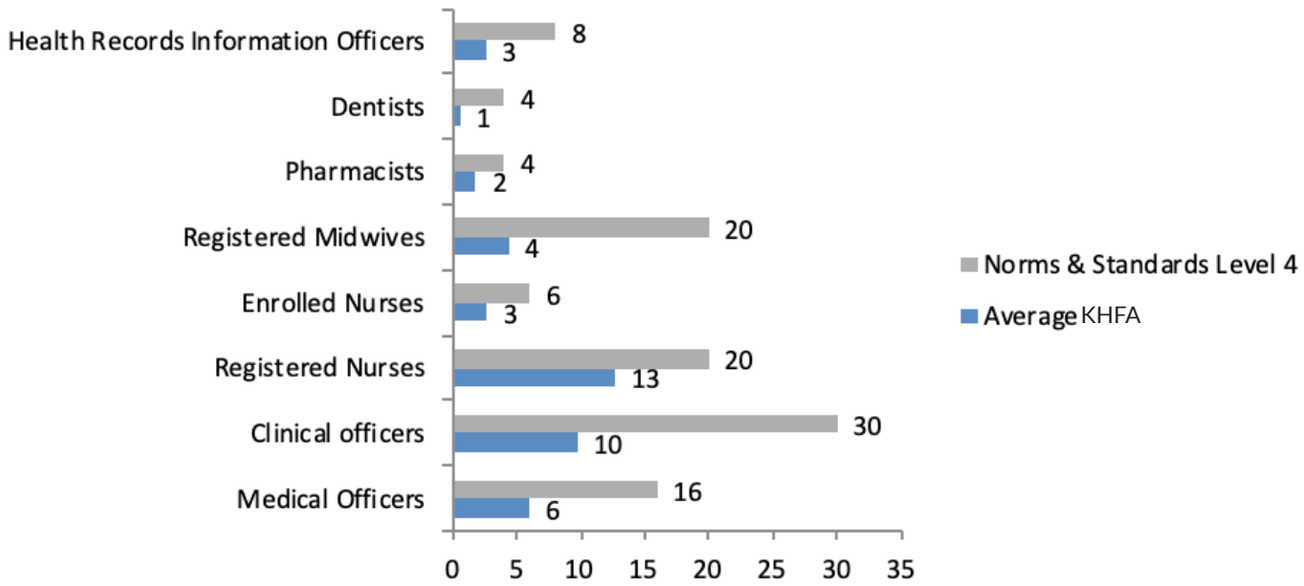
3.2.6 Health workforce norms: Primary hospitals

The health workforce norms for primary hospitals as well as the average number of health workers per cadre based on the survey are presented in **Annex Table 6**, **Figure 17** and **Figure 18**.

- Generally, availability of all cadres at primary hospitals was below the norms and standards.
- Nine private and seventy-four primary public hospitals reported having no doctor.
- As expected, nurses comprise the majority of staff in public primary hospitals, with registered nurses being the most available. Availability of registered midwives was low, and this was to be expected as training of the cadre has been halted in line with training guidelines.

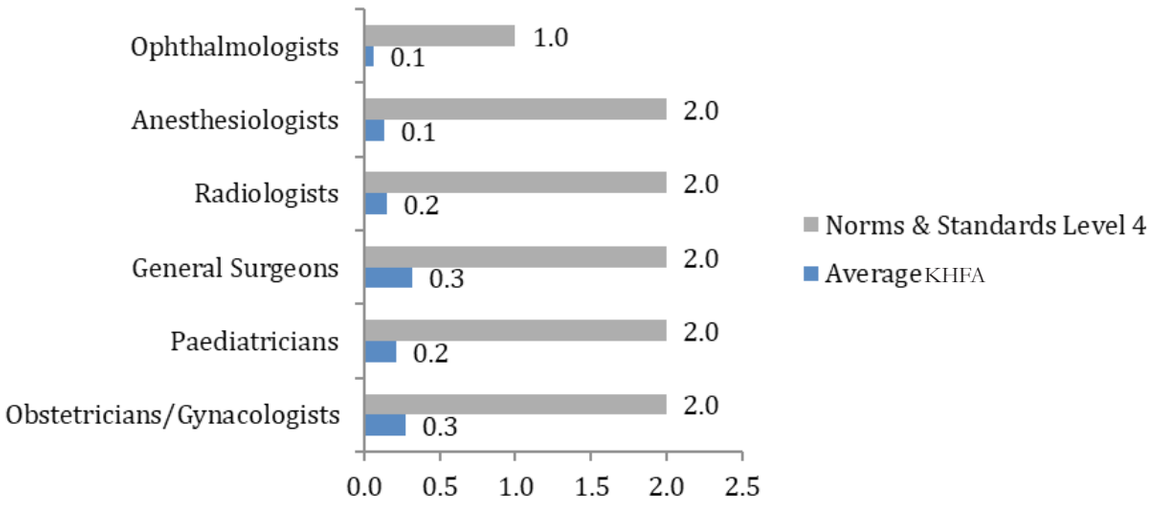
- Primary hospitals met about a third of the expected norms for clinical cadres (medical officers and clinical officers) and about half of the norms for nurses.
- Availability of medical officers at primary hospitals ranged from 10 to 25.
- The least available cadre was dentists, with an average of one per hospital.
- Availability of medical specialists in primary hospitals was generally low.
- The most available specialists were obstetricians, gynaecologists and general surgeons while the least available were ophthalmologists and anaesthesiologists.

Figure 17: Health workforce norms and average health workers present in primary hospitals, Kenya 2018



Kenya KHFA survey 2018

Figure 18: Health workforce norms and average specialists present in primary hospitals, Kenya 2018



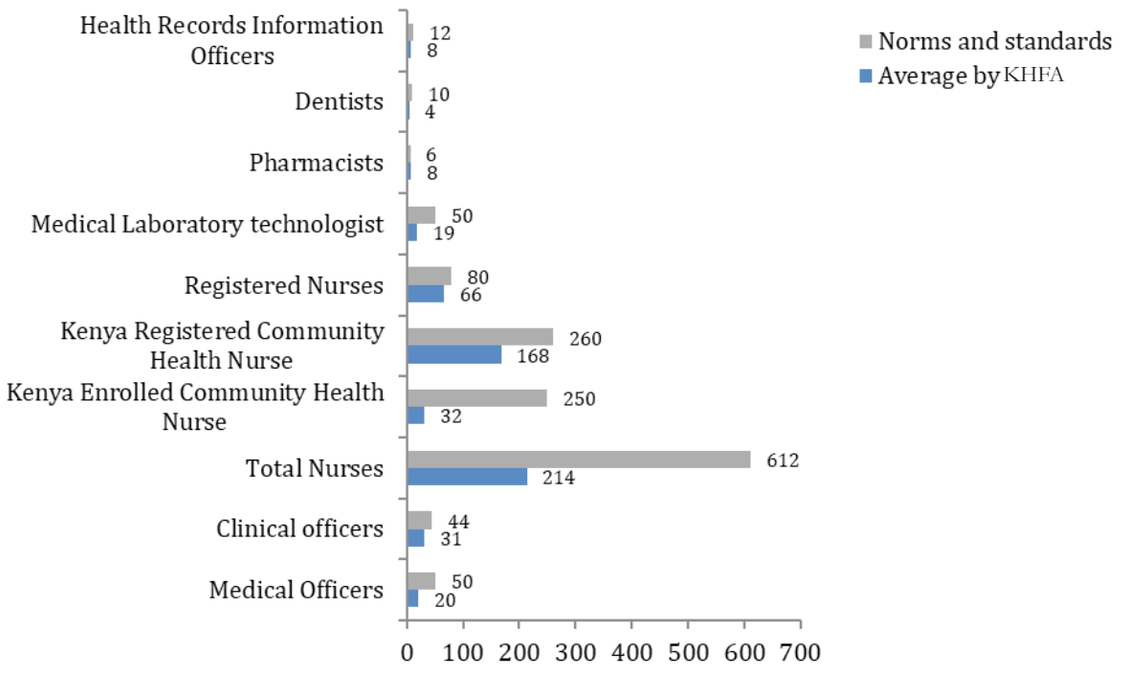
KHFA survey 2018

3.2.7 Health workforce norms: Secondary hospitals

The health workforce norms for secondary hospitals, as well as the average number of health workers per cadre based on the survey are presented in **Annex Table 7**, **Figure 19**, **Figure 20**, **Figure 21** and **Figure 22.**

- Secondary hospitals had a general inadequacy of all staff compared to the norms, meeting between one third and half of required health workers.
- Only 20 medical officers were available compared to the required 50, while a third of the required nurses were available.
- The least available cadre was dentists while pharmacists were the only cadre that met the norms.
- As far as private hospitals are concerned, Aga Khan Hospital reported the highest number of medical officers (74).

Figure 19: Health workforce norms and average health workers present in secondary level 5 hospitals, Kenya 2018

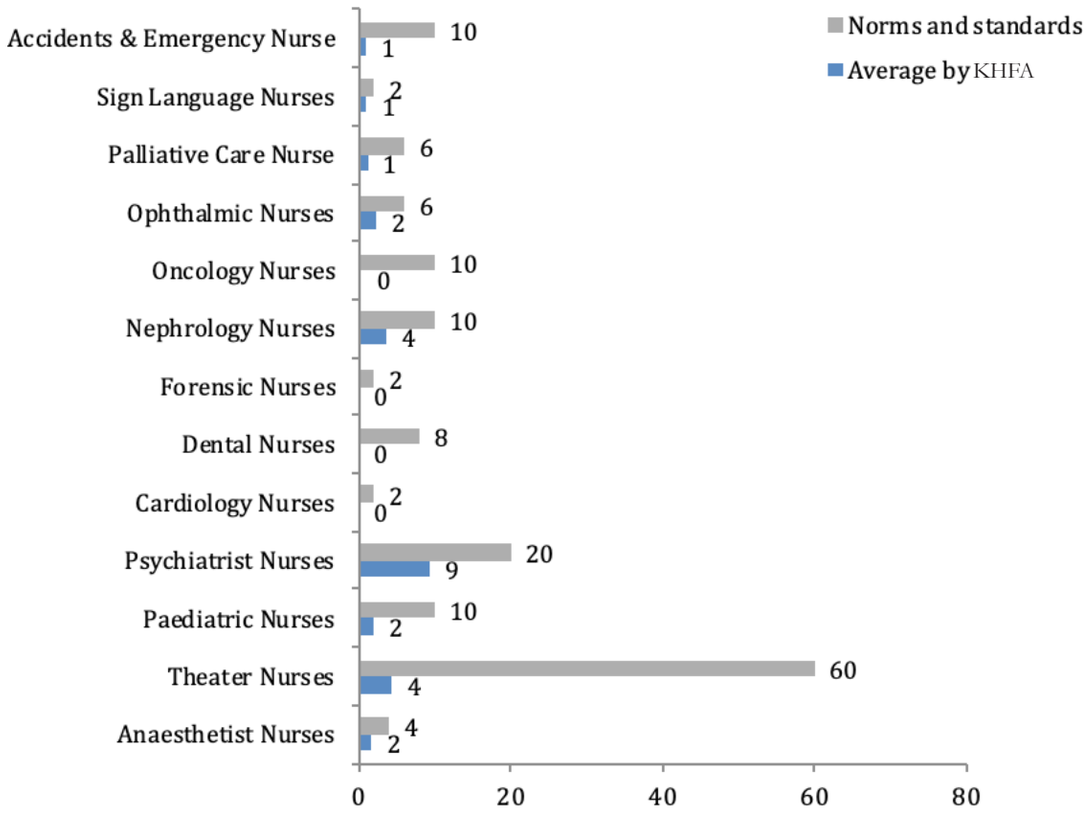


Kenya KHFA survey 2018

Availability of nurses in secondary hospitals

- A general inadequacy of all nursing cadres was evident compared to the norms.
- The starkest deficiency was in theatre nurses, where only 4 of the required 60 were available on average.
- Similarly, secondary hospitals on average did not have oncology nurses, while the norms required them to have at least 10.
- Other nursing cadres that did not have any staff were cardiology and dental nurses.
- An average of 2 anaesthesia nurses were available in the secondary hospitals.

Figure 20: Nurses norms and average present in secondary level 5 hospitals, Kenya 2018

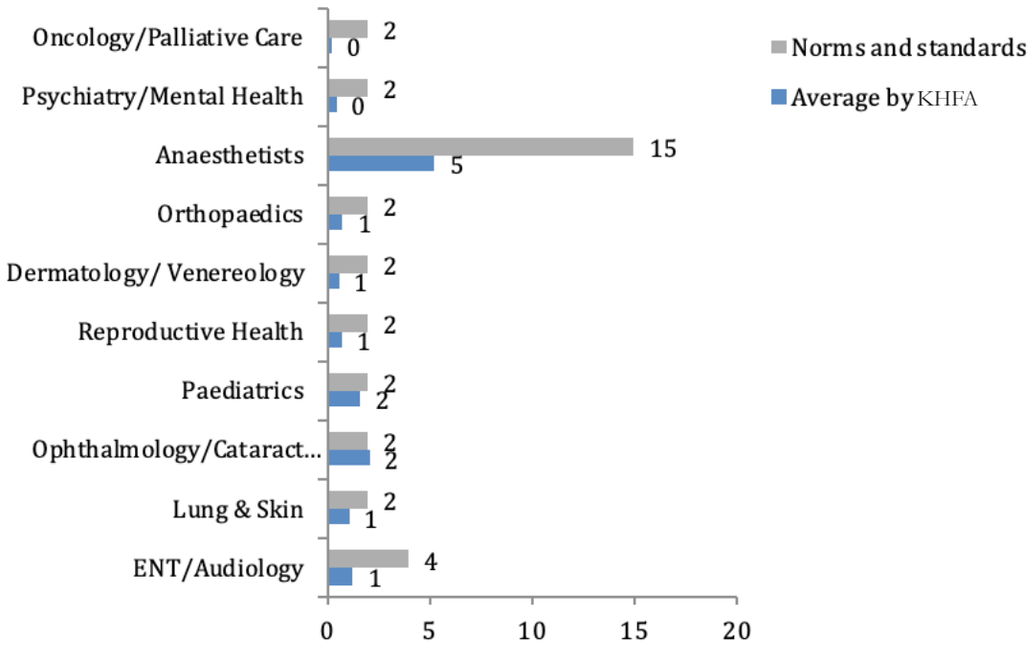


Kenya KHFA survey 2018

Availability of clinical officers in secondary hospitals

- A general picture of inadequacy was evident for clinical officers.
- Anaesthetist clinical officers were the most commonly available clinical officers, which is only a third of the norm.
- Oncology and psychiatry clinical officers were generally not available in secondary hospitals.

Figure 21: Clinical officers' norms and average present in secondary level 5 hospitals, Kenya 2018

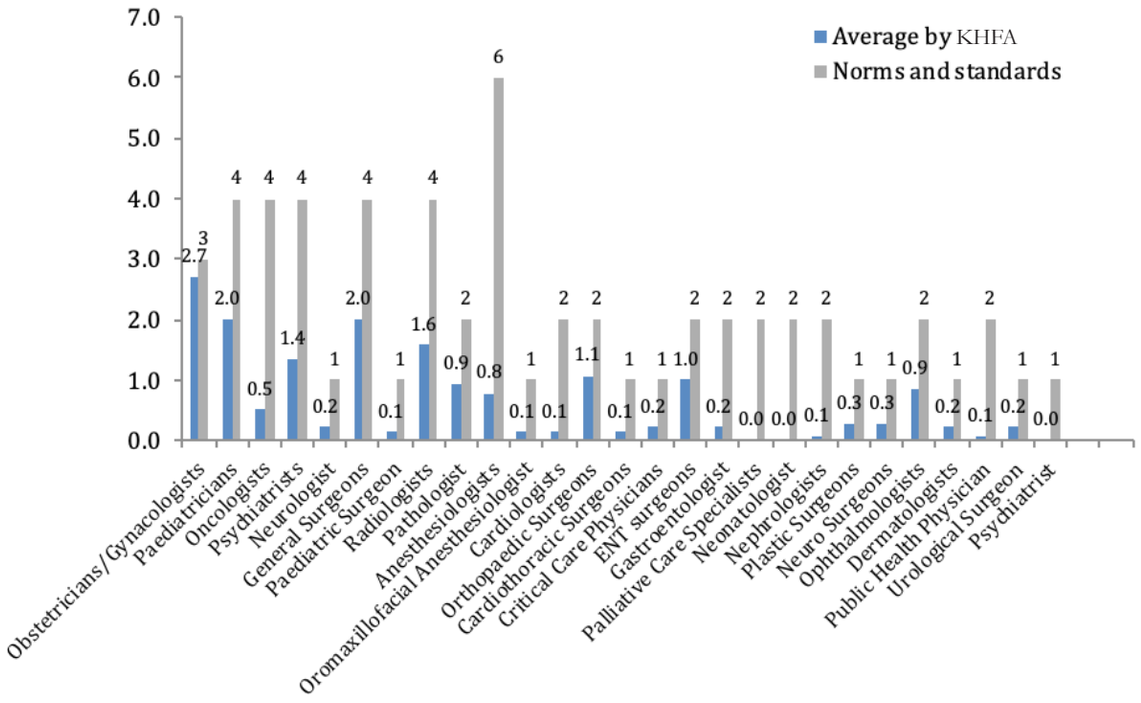


Kenya KHFA survey 2018

Availability of medical specialists in secondary hospitals

- Secondary hospitals did not meet the norms for medical specialists.
- Mombasa and Kisumu level 5 hospitals reported significantly higher availability for all specialists.
- Obstetricians, gynaecologists and paediatricians were the most available specialists, with the former being just below the norms (2.7 vs 3). Coast General Hospital reported the highest number of oncologists (4) while Nyeri, Kisumu and Kakamega had one each.
- Critical care physicians were only available in Mombasa and Kisumu. Neurosurgeons were available in Mombasa, Kisumu and Embu. Kisumu was the only secondary hospital with a nephrologist while no hospital reported a palliative care specialist or a neonatologist.

Figure 22: Medical specialists' norms and average present in secondary level 5 hospitals, Kenya 2018



Kenya KHFA survey 2018

3.3 Service utilisation

Service utilization examines how health facility services, both outpatient and inpatient, are utilised by the target population in a given year. Service utilisation assessment is based on examining the patterns of utilisation across types of services and classes of facilities. Further observations can be made across geographical settings as well as rural, urban and programme-specific services or facilities.

3.3.1 Service utilisation indicator definitions

There are two indicators that measure the health infrastructure of a country: outpatient service utilisation and inpatient service utilisation. Outpatient service utilisation is measured as the number of outpatient visits for ambulant care per capita per year and provides additional information on the availability of and access to outpatient services. Inpatient service utilisation is measured as the number of hospital discharges per 100 population per year and provides additional information on the availability of and access to inpatient services.

For each of the service utilisation indicators, density is calculated as the number per population. In addition, targets for each of the service utilisation indicators have been set based on WHO guidelines. For outpatient service utilisation, the target is 5 visits per person per year. This target has been set based on the knowledge that in countries of the Organization for Economic Co-operation and Development (OECD), the average number of physician consultations per person per year is about six. For inpatient service utilisation, the target is 10 discharges per 100 people per year. This target has been set based on the knowledge that in OECD countries, which have an ageing population, there are about 15 discharges per 100 population per year. **Table 5** below shows how the density and scores are calculated for the service utilisation indicators.

Table 5. Service utilisation density and score calculations

Domain		Indicator	Target	Score (%) (n / target, maximum 100)
Service utilisation				
a	Outpatient service utilisation	Outpatient visits per person per year (*n*)	5	*n* / 5 × 100
b	Inpatient service utilisation	Hospital discharges per 100 per year (*n*)	10	*n* / 10 × 100

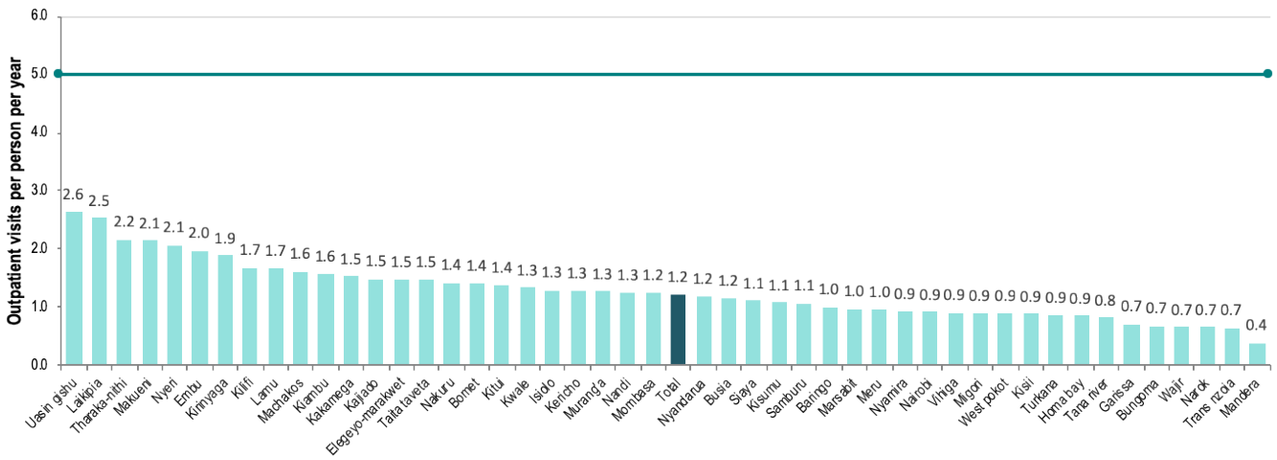
Annex Table 8 shows service utilisation densities by county.

3.3.2 Outpatient service utilisation

The outpatient service utilisation target is 5 outpatient visits per person per year. **Figure 23** shows the outpatient service utilisation by county in Kenya.

- The average number of outpatient visits per person per year nationally is 1.2, below the global target of 5.
- All the 47 counties were below the target with the highest being Baringo (2.6) and the lowest being West Pokot (0.4)
- Data from the Kenya Household Health Expenditure and Utilisation Survey (KHHEUS) 2018 indicated that the outpatient visits per person per year was 2.5, which is still below the set target of 5.
- Barriers to access to outpatient services include self-treatment, visit to traditional healers, long distance to facilities, cultural beliefs, perceived high service cost, unmet expectations, perceived poor quality of care and low recognition of serious symptoms.

Figure 23. Number of outpatient visits per person per year (Target=5), Kenya 2018



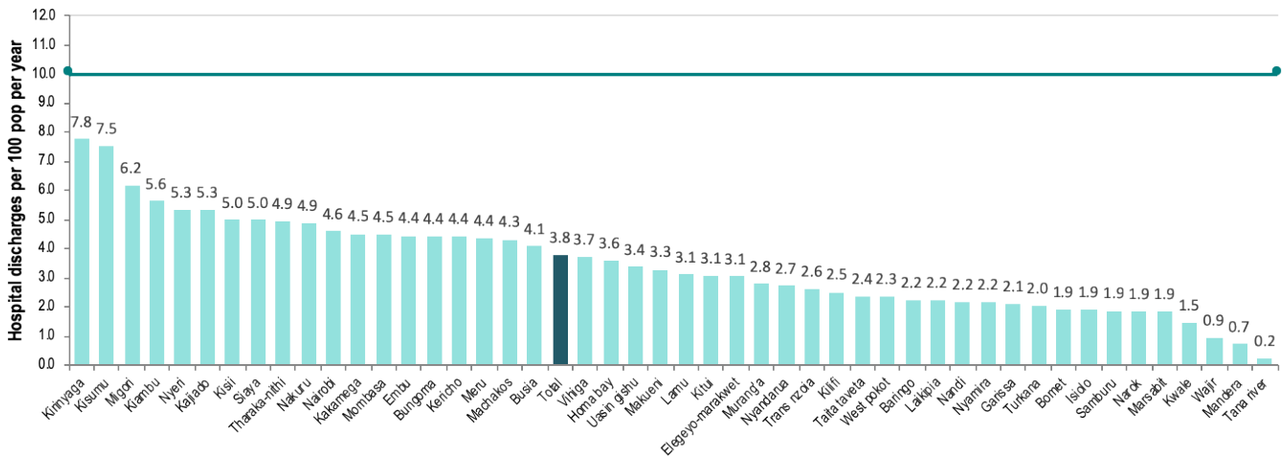
Source: DHIS2 Extracted on 25th April 2019

3.3.3 Inpatient service utilisation

The inpatient service target is 10 hospital discharges per 100 population per year. **Figure 24** shows the inpatient service utilisation by county in Kenya.

- The national average for hospital discharges per 100 population is 3.8, which is below the global target of 10.
- None of the 47 counties attained the target of 10 hospital discharges per 100 population per year.
- The county with the highest access to inpatient services was Baringo (7.8) while West Pokot had the lowest (0.2) access.
- Cost, non-availability of medical personnel at health facility, distance to facility and experience could be perceived as barriers to seeking inpatient services.

Figure 24. Number of hospital discharges per 100 population per year (Target=10), Kenya 2018



Source: DHIS2 Extracted on 25th April 2019

3.4 Service availability index

3.4.1 Service availability index definition

The service availability index is calculated using the six service availability indicators: facility density, inpatient bed density, maternity bed density, health workforce density, outpatient service utilisation, and inpatient service utilisation. The services availability index is the unweighted average of the three areas of infrastructure, health workforce, and utilisation and is represented as a percentage score.

Table 6 shows how the domain indices and overall service availability index are calculated.

Table 6. Service availability index calculations

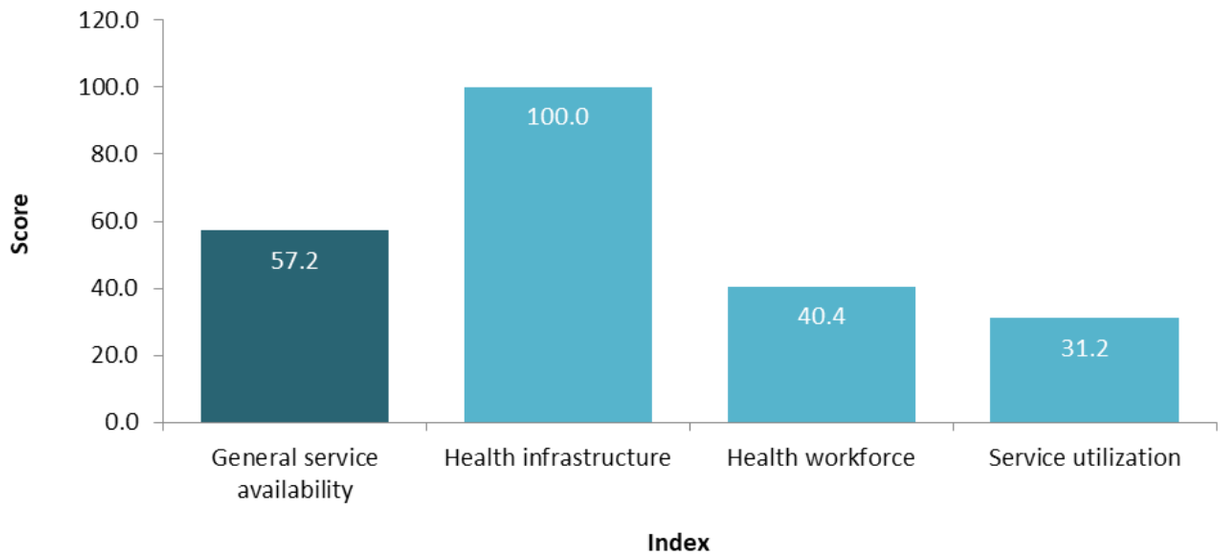
Index	Indicator	Target	Score
Health infrastructure index	Average score of the three indicators: facility density, inpatient bed density, maternity bed density	100	(a + b + c) / 3
Health workforce index	Core health worker density	100	d
Service utilisation index	Average score of the two indicators: outpatient visits, hospital discharges	100	(e + f) / 2
Service availability index	Unweighted average of the three areas: infrastructure, workforce, and utilization	100	[((a + b + c) /3) + d + ((e + f) / 2)] / 3

3.4.2 Service availability index

Annex Table 9 and Figure 25 shows the general service availability domain scores and index by county.

- The index score for infrastructure was very high (100) while the index score for health workforce (40.4) and service utilisation (31.2) were quite low.
- This implies that there is poor utilisation of health services by the population. This is likely attributed to a shortage of health workers as well as barriers to accessing services.
- This suggests that investments are imbalanced between human resource, inpatient and outpatient services such as quality of care of services offered as opposed to infrastructure.

Figure 25. General service availability index, Kenya 2018



4. GENERAL SERVICE READINESS

General Service Readiness refers to the overall capacity of health facilities to provide general health services. Readiness is defined as the availability of components required to provide services such as basic infrastructure and amenities, basic equipment, standard precautions for infection control, laboratory tests, and medicines and commodities. This includes information on:

Basic amenities: Power, improved water source, room with privacy, adequate sanitation facilities, communication equipment, access to computer with internet, emergency transportation

Basic equipment: Blood pressure apparatus, stethoscope, adult scale, child scale, thermometer, light source

Standard precautions for infection prevention: safe disposal of sharps, safe disposal of infectious wastes, sharps boxes, waste receptacle, disposable syringes, disinfectant, hand-washing soap or alcohol-based hand rub, latex gloves

Diagnostic capacity: haemoglobin, blood glucose, malaria diagnostic capacity, urine dipstick - protein, urine dipstick - glucose, HIV diagnostic capacity, syphilis rapid diagnostic test (RDT), urine pregnancy test

Essential medicines: 24 essential medicines (amlodipine tablet or alternative, calcium channel blocker, amoxicillin syrup/ suspension/ dispersible tablet, amoxicillin tablet, ampicillin injection, aspirin cap/ tab, beclomethasone inhaler, beta blockers, carbamzepine tablet, ceftriaxone injection, enalapril tablet or alternative ACE inhibitor, fluoxetine tablet, gentamicin injection, glibenclamide tablet, haloperidol tablet, insulin regular injection, magnesium sulphate injectable, metformin tablet, omeprazole tablet or alternative, oral rehydration solution, oxytocin injection, salbutamol inhaler, simvastatin tablet or other statin, thiazide, zinc sulphate tablet or syrup)

4.1 Basic amenities

Sufficient physical infrastructure and the availability of basic amenities are necessary for delivering quality services and for an effective and functional healthcare delivery system. Service readiness for basic amenities was assessed based on the availability of the following tracer items:

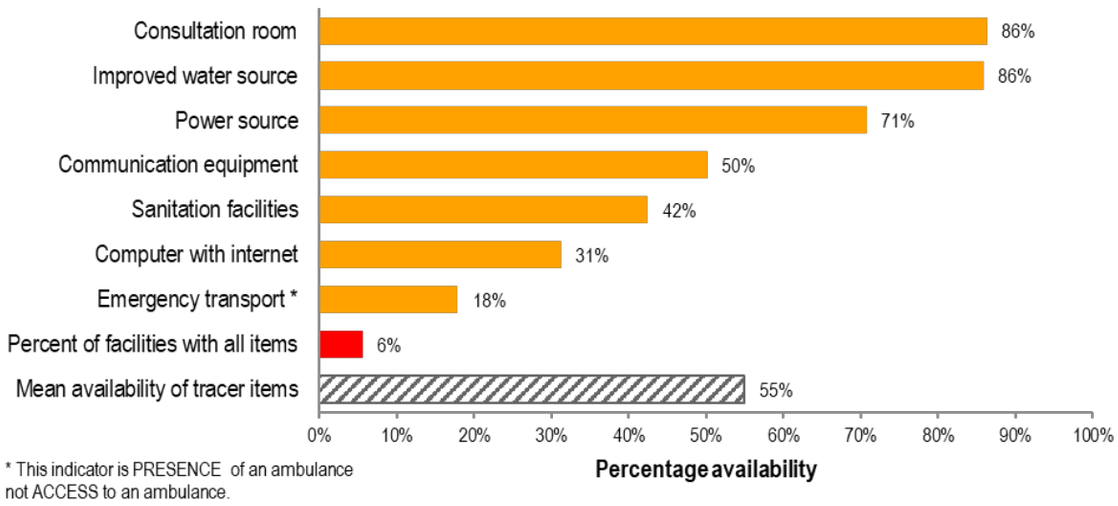
- Sanitation facilities
- Communication equipment
- Consultation room
- Improved water source
- Power supply (grid or generator)
- Emergency transport
- Computer with internet access

Figure 26 shows estimates for the availability of basic amenities at health facilities in the country.

- On average, health facilities had 55% of basic amenities available on the day of the survey.
- Only 6% of the facilities had all basic amenities available on the day of the survey.
- Amongst the basic amenities, health facilities are least likely to have emergency transport (18%).

- More than 80% of the facilities had both a consultation room (86%) and improved water source (86%).
- Half of the facilities had communication equipment, while only 42% of facilities had sanitation facilities and 31% had a computer with internet.

Figure 26. Proportion (%) of facilities with basic amenities items available (N=2927), Kenya 2018

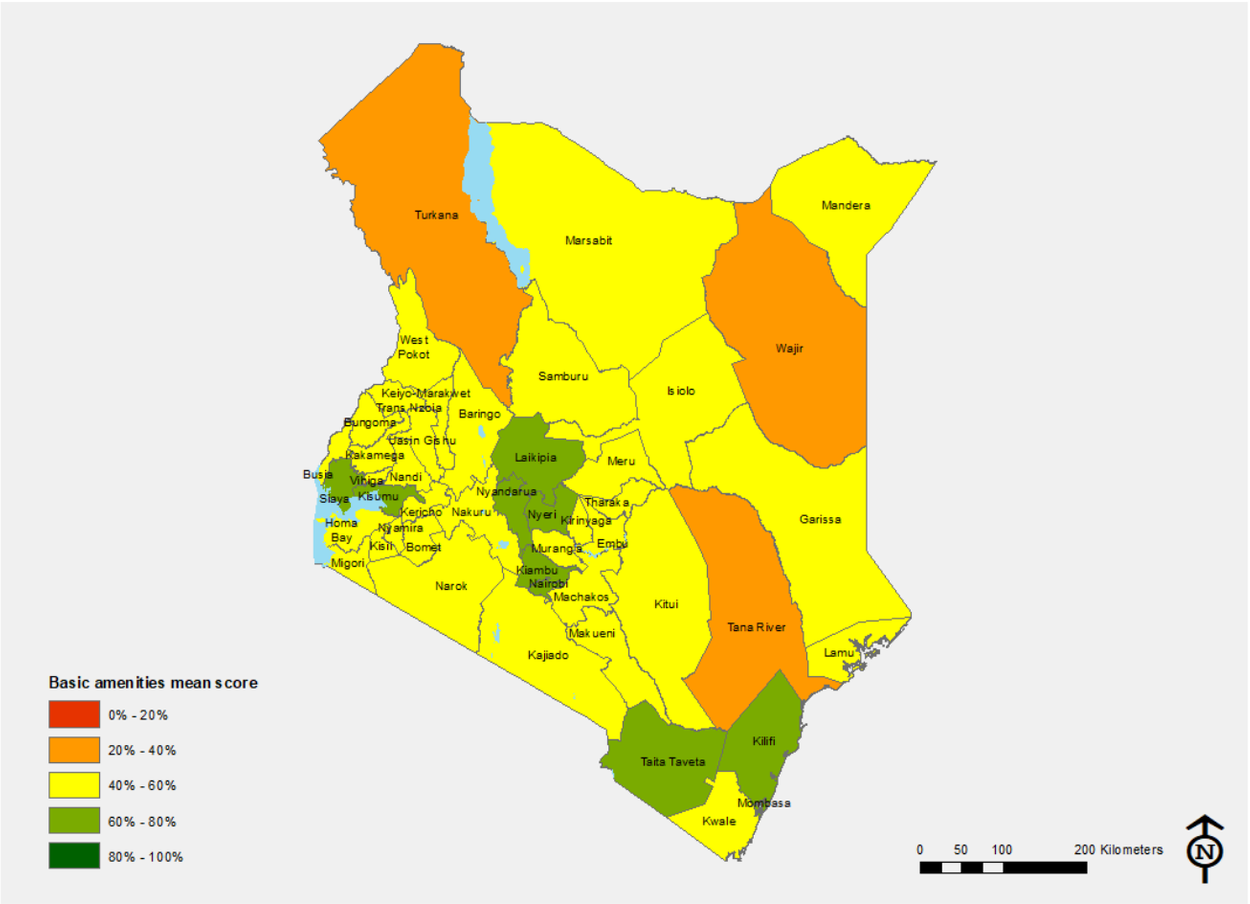


Annex Table 10 shows the availability of basic amenities by county, facility type, managing authority, and urban vs. rural location.

Figure 27 below shows the mean availability of basic amenities tracer items by county.

- The mean availability of basic amenities for counties ranged from 26% to 73%. The counties with the highest mean availability of basic amenities were Nairobi (73%), Mombasa (71%), and Laikipia (69%), while the counties with the lowest availability of basic amenities were Wajir (26%), Turkana (35%), and Tana River (38%).
- Generally, both secondary and tertiary hospitals and private/NGO/FBO primary hospitals had basic amenities available on the day of the survey, at 89% and 87%, respectively. The mean availability of basic amenities for health centres was 65% and 45% for dispensaries. Medical clinics had a mean availability of basic amenities of 58%.
- By managing authority, government facilities (47%) lagged behind NGO/FBO facilities and private facilities, at 63% and 62%, respectively.
- By urban-rural location, urban health facilities (67%) had a higher mean availability of basic amenities than rural health facilities (49%).

Figure 27. Mean availability of basic amenities by county, Kenya 2018



4.2 Basic equipment

Delivery of quality health services requires availability of functioning basic equipment. The World

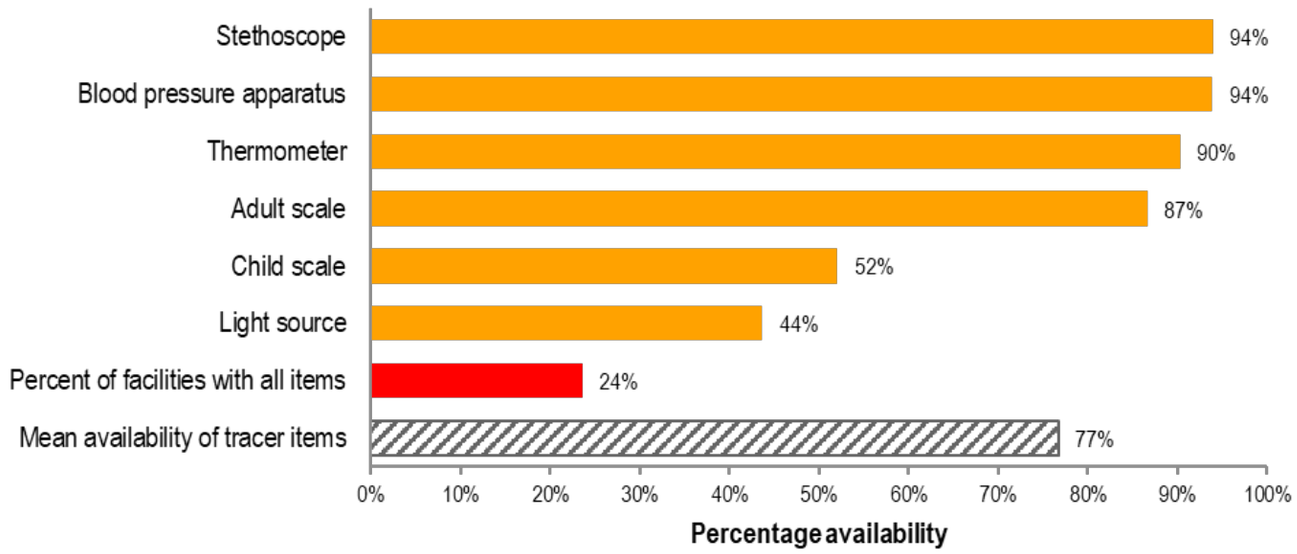
Health Organization (WHO) has proposed a list of basic pieces of equipment that should be available at a health facility to guarantee its readiness to deliver basic health services. Service readiness for basic equipment was assessed based on the availability of the following tracer items:

- Adult weighing scale
- Child weighing scale
- Thermometer
- Stethoscope
- Blood pressure apparatus
- Light source

Figure 28 shows estimates for the availability of basic equipment at health facilities in the country.

- Nationally, the mean availability of basic equipment stands at 77%.
- Only 24% of health facilities had all basic equipment items.
- The percentage of the facilities by item was as follows: stethoscope 94%, blood pressure apparatus 94%, thermometer 90%, adult scale 87%, child scale 52%, and light source 44%.

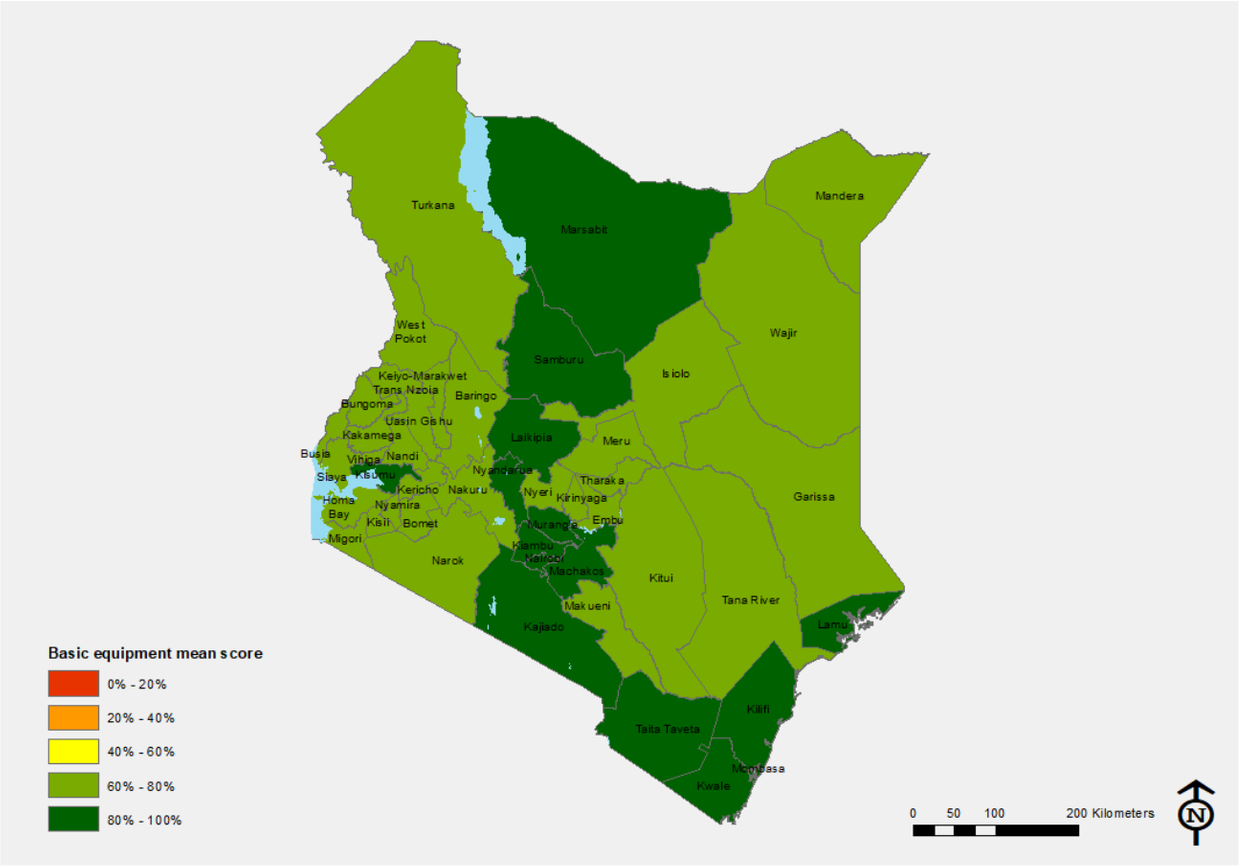
Figure 28. Proportion (%) of facilities with basic equipment items available (N=2927), Kenya 2018



Annex Table 11 shows the availability of basic equipment by county, facility type, managing authority, and urban vs. rural location. **Figure 29** below shows the mean availability of basic amenities tracer items by county.

- The mean availability of basic equipment items ranged from 64% to 92%. Samburu was the highest, at 92%, followed by Laikipia (91%), Murang'a (85%), Kisumu (85%), Taita Taveta (85%), and Lamu (85%), whereas Nandi was the lowest with 64%.
- Every health facility should have all basic equipment. At the county level, the percentage of facilities that had all basic equipment items ranged from 0% in Embu to 69% in Laikipia. Only 5% of health facilities in Embu had a child scale.
- By facility type, only 17% of dispensaries had all basic equipment, compared to 50% of secondary and tertiary hospitals.
- By managing authority, private facilities (31%) were more likely to have all basic equipment, compared to 17% of government facilities.
- One-third of urban health facilities had all basic equipment, compared to 19% of rural health facilities.

Figure 29. Mean availability of basic equipment by county, Kenya 2018



4.3 Standard precautions for infection prevention

Safety is an essential part of the health service delivery system. Health workers must be able to work in a safe environment and must be provided with all the safety training and equipment they need to carry out their duties. They must also be able to render services to their patients in the safest manner, which means using the best standards for safety precautions. Disposing of needles and medical products properly, sterilising medical equipment appropriately and disinfecting restrooms and work areas are among the basic safety standard precautions expected in health facilities. Service readiness for standard precautions for infection prevention was assessed based on the availability of the following tracer items:

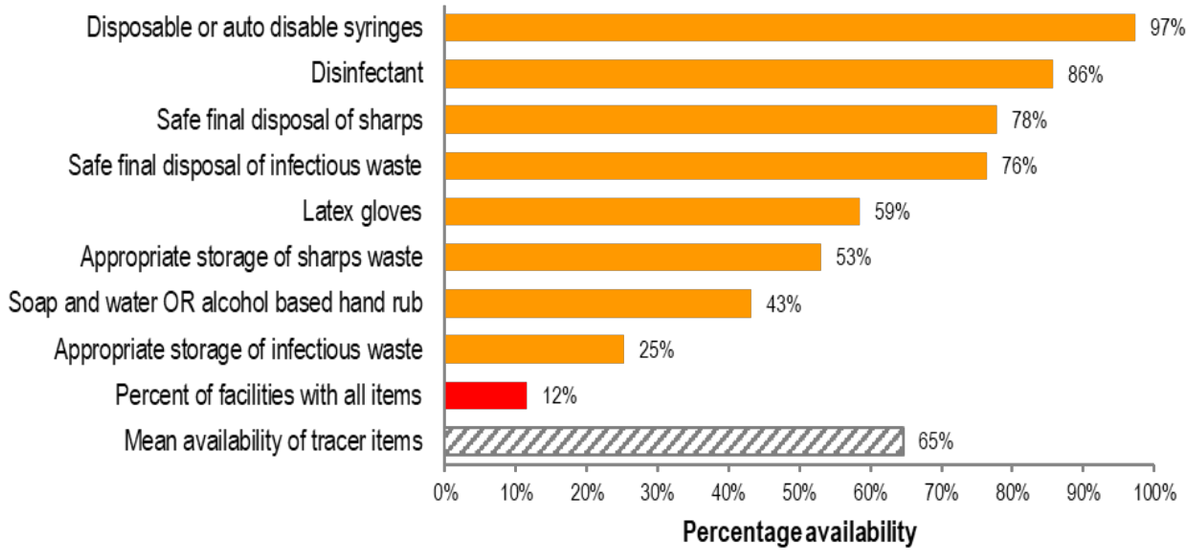
- Safe disposal of sharps
- Safe disposal of infectious wastes
- Appropriate storage of sharps wastes
- Appropriate storage of infectious waste
- Disinfectant

- Disposable or auto-destruct syringes
- Soap and water or alcohol-based hand rub
- Latex gloves

Figure 30 shows estimates for the availability of standard precautions for infection prevention items at health facilities in the country.

- Nationally, the mean availability of standard precautions for infection prevention items was 65%.
- Further, only 12% of health facilities had all items for standard precautions for infection prevention.
- Nearly all (97%) facilities had disposable or auto disable syringes, whereas only 25% of facilities had appropriate storage of infectious waste.
- Nearly 9 in 10 facilities had disinfectant (86%), while more than 70% of facilities had safe disposal of sharps (78%) and safe final disposal of infectious waste (76%).
- Nearly 6 in 10 facilities had latex gloves (59%) and 53% had appropriate storage of sharps waste.
- Less than half of facilities had soap and water OR alcohol-based hand rub (43%).

Figure 30. Proportion (%) of facilities with standard precautions for infection prevention items available (N=2927), Kenya 2018



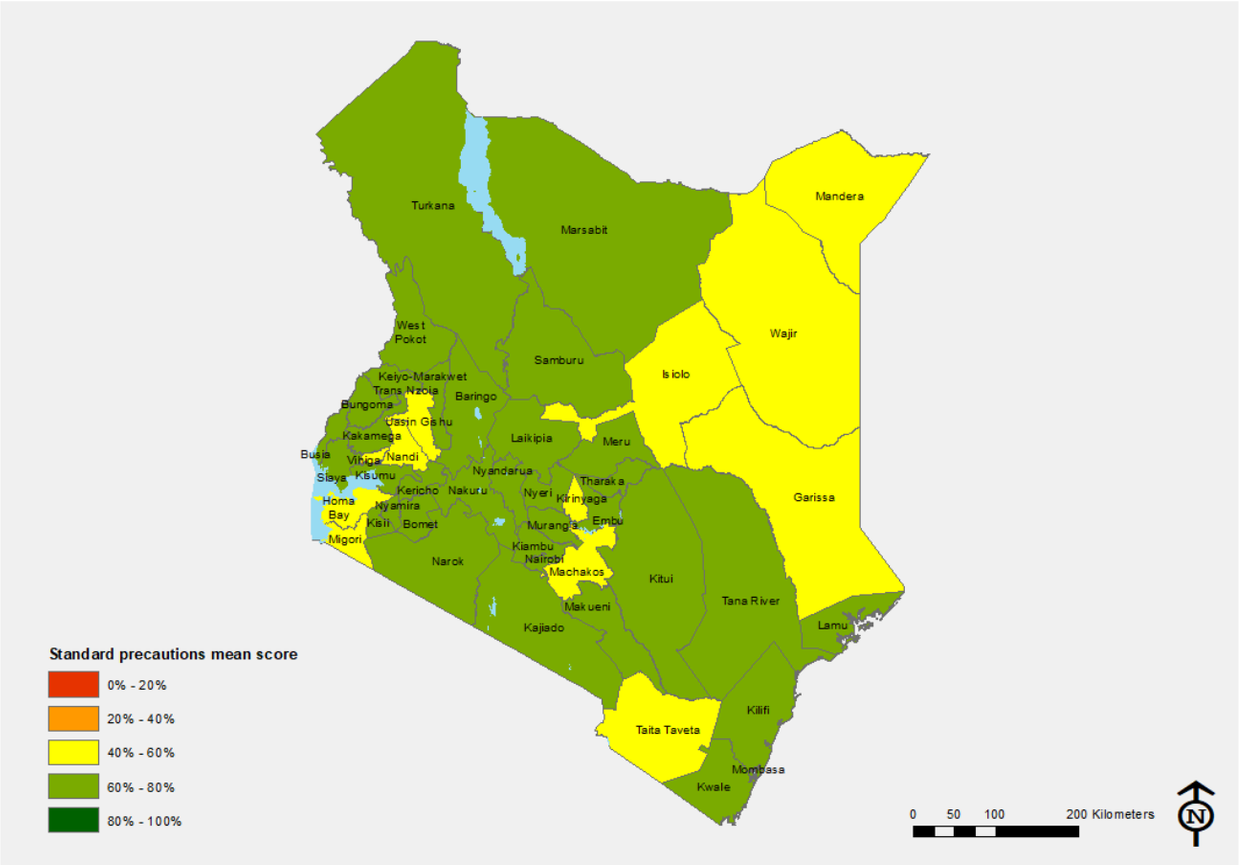
Annex Table 12 shows the availability of standard precautions for infection prevention items by county, facility type, managing authority, and urban vs. rural location.

Figure 31 below shows the mean availability of standard precautions for infection prevention tracer items by county.

- Across the 47 counties, the mean availability of standard precautions for infection prevention tracer items ranges=d from 47% to 80%. The highest mean availability of infection prevention items was in Samburu (80%), Nyandarua (79%), and Marsabit (78%), while those with lowest mean availability were Wajir (47%) and Isiolo (51%).

- By facility type, the mean availability of standard precautions for infection prevention was highest in secondary and tertiary hospitals (76%) and public primary hospitals (70%) and lowest in health centres (63%).
- The percentage of facilities with all standard precautions for infection prevention items ranged from a low of 0% in Elgeyo-Marakwet, Nyamira, and Wajir to a high of 51% in Nyandarua.
- By facility type, the percentage of facilities that have all items for infection prevention was lowest in public primary hospitals (10%) and health centres (10%) and slightly higher in secondary & tertiary hospitals (20%).
- There was little variation in the percentage of health facilities with all standard precautions for infection prevention items by managing authority and urban/rural location.

Figure 31. Mean availability of standard precautions for infection control by county, Kenya 2018



4.4 Diagnostic capacity

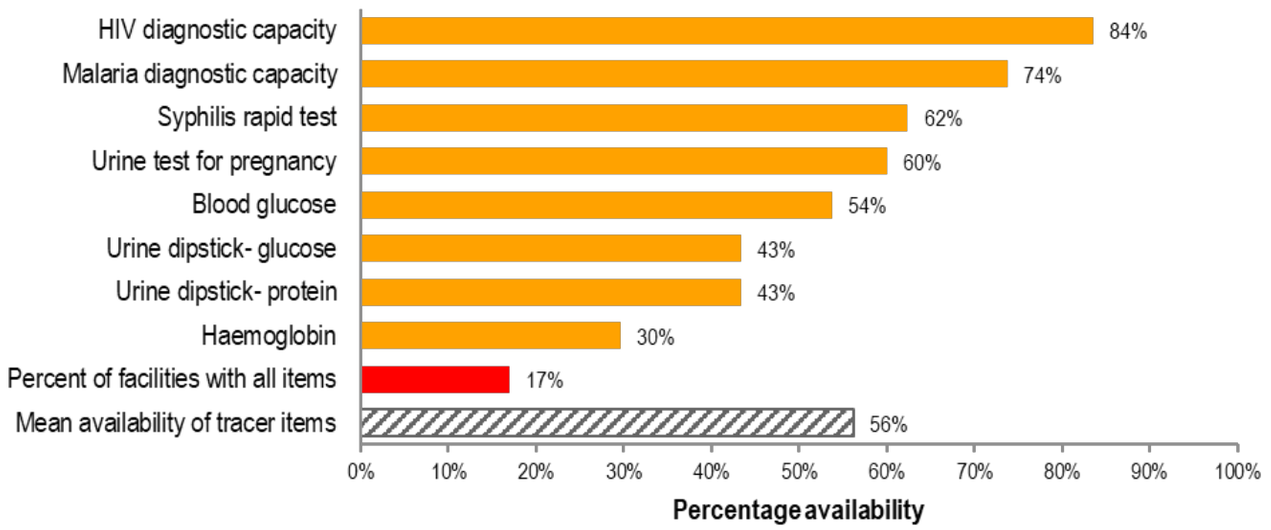
For any disease to be cured, it has to be first diagnosed correctly, which makes laboratories and diagnostics important elements of the healthcare delivery system in the country. Laboratory diagnostic capacity was assessed based on the capacity to conduct the following eight basic diagnostic tests on site at the facility:

- Haemoglobin
- Blood glucose
- Malaria diagnostic capacity
- Urine dipstick – protein
- Urine dipstick – glucose
- HIV diagnostic capacity
- Syphilis rapid test
- Urine test for pregnancy

Figure 32 shows estimates for the availability of diagnostic tests at health facilities in the country.

- The mean availability of diagnostic tests was 56%. However, only 17% of health facilities had all the diagnostic items.
- Health facilities were most likely to have HIV diagnostic capacity (84%) and malaria diagnostic capacity (74%), and were least likely to have diagnostics for haemoglobin (30%).
- About 60% of facilities had a syphilis rapid test (62%) and urine test for pregnancy (60%).
- Forty-three percent of facilities had both urine dipstick for glucose and urine dipstick for protein.

Figure 32. Proportion (%) of facilities with diagnostic capacity items available (N=2927), Kenya 2018

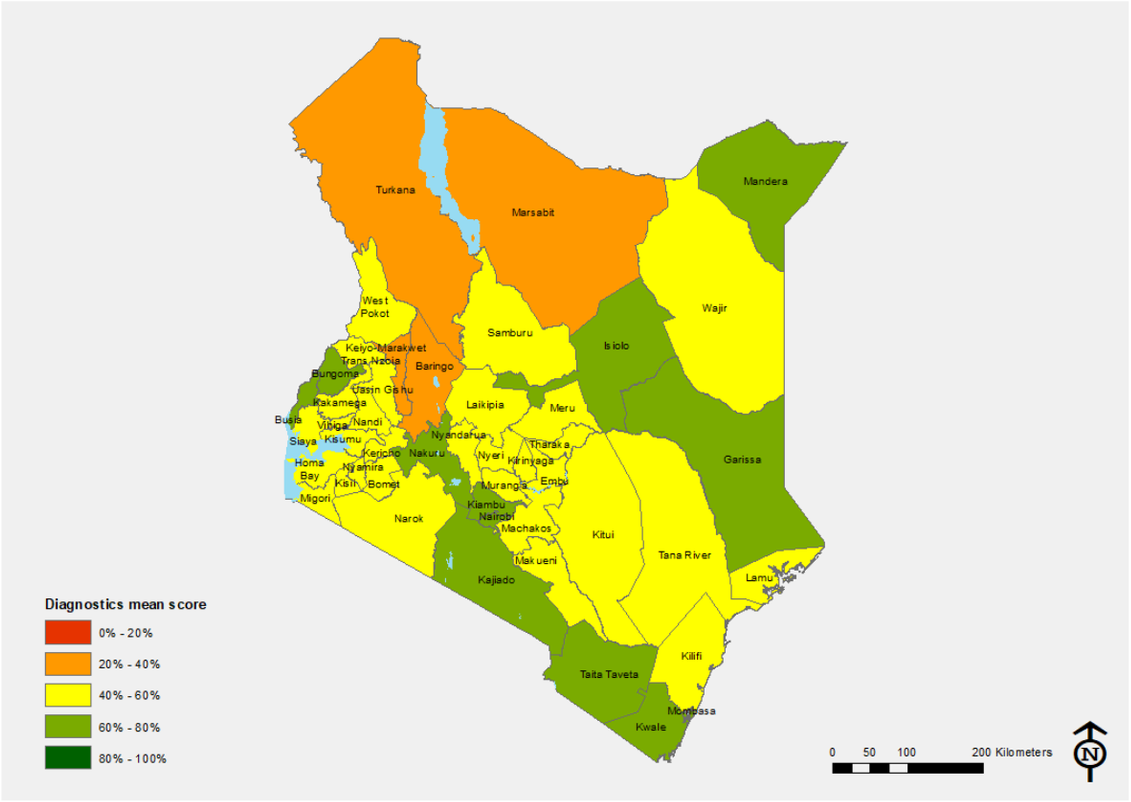


Annex Table 13 shows the availability of diagnostic tests by county, facility type, managing authority, and urban vs. rural location.

Figure 33 below shows the mean availability of diagnostic test tracer items by county.

- The mean availability of diagnostic test tracer items varied greatly across the counties. Counties with highest mean availability of diagnostic tracer items include Nairobi (80%), Mombasa (72%), and Bungoma (71%), while counties with the lowest mean availability of diagnostic items include Turkana (34%), Marsabit (38%), and Baringo (39%).
- Both public and private hospitals assessed show the highest mean availability of diagnostic test tracer items (ranging from 85% to 93%), while dispensaries and medical clinics are below the national average at 44% and 56%, respectively.
- Government facilities have the lowest mean availability (47%), while NGO/FBO and private facilities are above the national average.
- Urban facilities have a mean availability of diagnostic tests of 68%, compared to 50% of rural facilities.
- The percentage of facilities with all diagnostic items ranges from a low of 3% in Tana River and 4% in Kitui to a high of 48% in Nairobi.
- Secondary & tertiary hospitals are most likely to have all diagnostic items (70%), compared to 8% of dispensaries.

Figure 33. Mean availability of diagnostic tests by county, Kenya 2018



4.5 Essential medicines

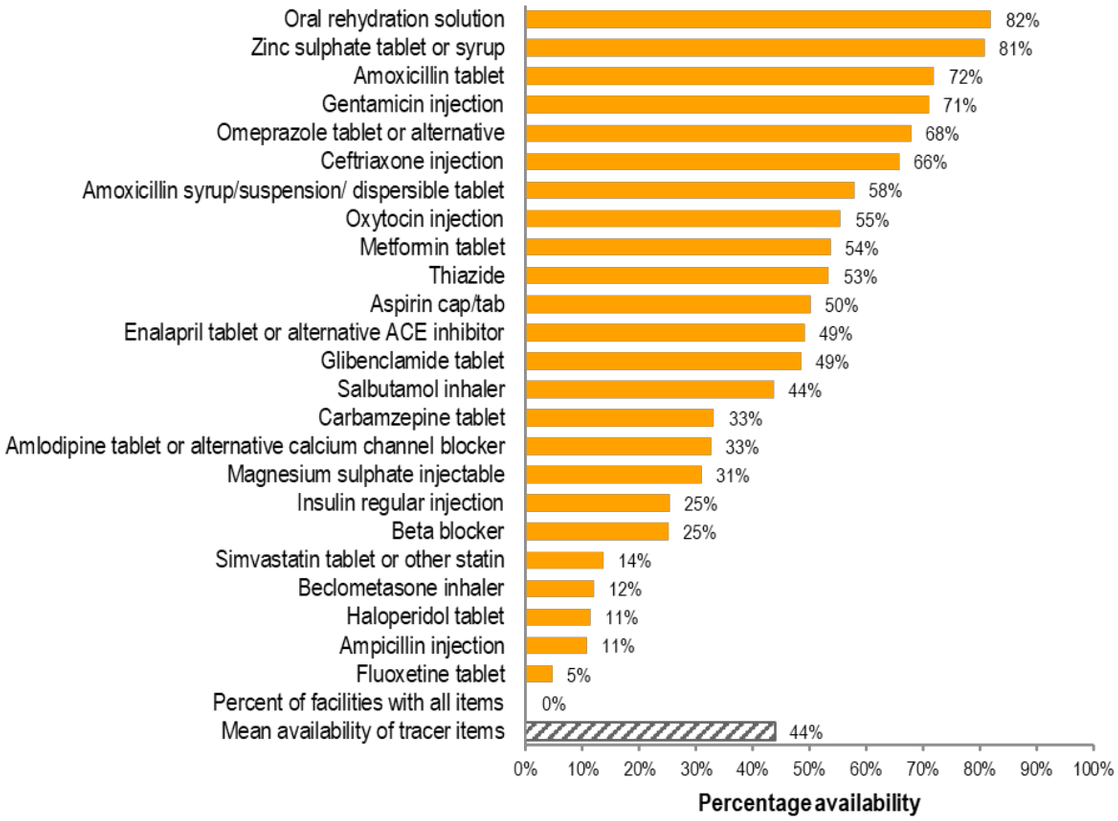
Access to essential medicines is fundamental to the good performance of the health care delivery system. Availability of medicines is commonly cited as the most important element of quality by health care consumers, and the absence of medicines is a key factor in the underuse of government health services. WHO defines essential medicines as the medicines that satisfy the priority health care needs of the population. Tracer medicines are used to examine access in terms of availability of essential medicines in addition to practices and trends over time in selection and procurement of these medicines.

Facilities were assessed on whether they had the following 25 essential medicines observed at the facility and with a valid expiration:

- amlodipine tablet or alternative,
- calcium channel blocker
- amoxicillin syrup/ suspension/ dispersible tablet
- amoxicillin tablet
- ampicillin injection
- aspirin cap/tab
- beclomethasone inhaler
- beta blocker
- carbamzepine tablet
- ceftriaxone injection
- enalapril tablet or alternative ACE inhibitor
- fluoxetine tablet
- gentamicin injection
- glibenclamide tablet
- haloperidol tablet
- insulin regular injection
- magnesium sulphate injectable
- metformin tablet
- omeprazole tablet or alternative
- oral rehydration solution
- oxytocin injection
- salbutamol inhaler
- simvastatin tablet or other statin
- thiazide
- zinc sulphate tablet or syrup

- **Figure 34** shows estimates for the availability of essential medicines at health facilities in the country.
- The mean availability of essential medicines is 44%.
- 0% of health facilities have all essential medicines available on the day of the survey.
- Health facilities are most likely to have an oral rehydration solution (82%), zinc sulphate tablet or syrup (81%), amoxicillin tablet (72%), and gentamicin injection (71%).
- Less than 20% of facilities have the following essential medicines: simvastatin tablet or other statin (14%), beclomethasone inhaler (12%), haloperidol tablet (11%), ampicillin injection (11%), and fluoxetine tablet (5%).

Figure 34. Proportion (%) of facilities with essential medicines available (N=2927), Kenya 2018



Annex Table 14 shows the availability of essential medicines by county, facility type, managing authority, and urban vs. rural location.

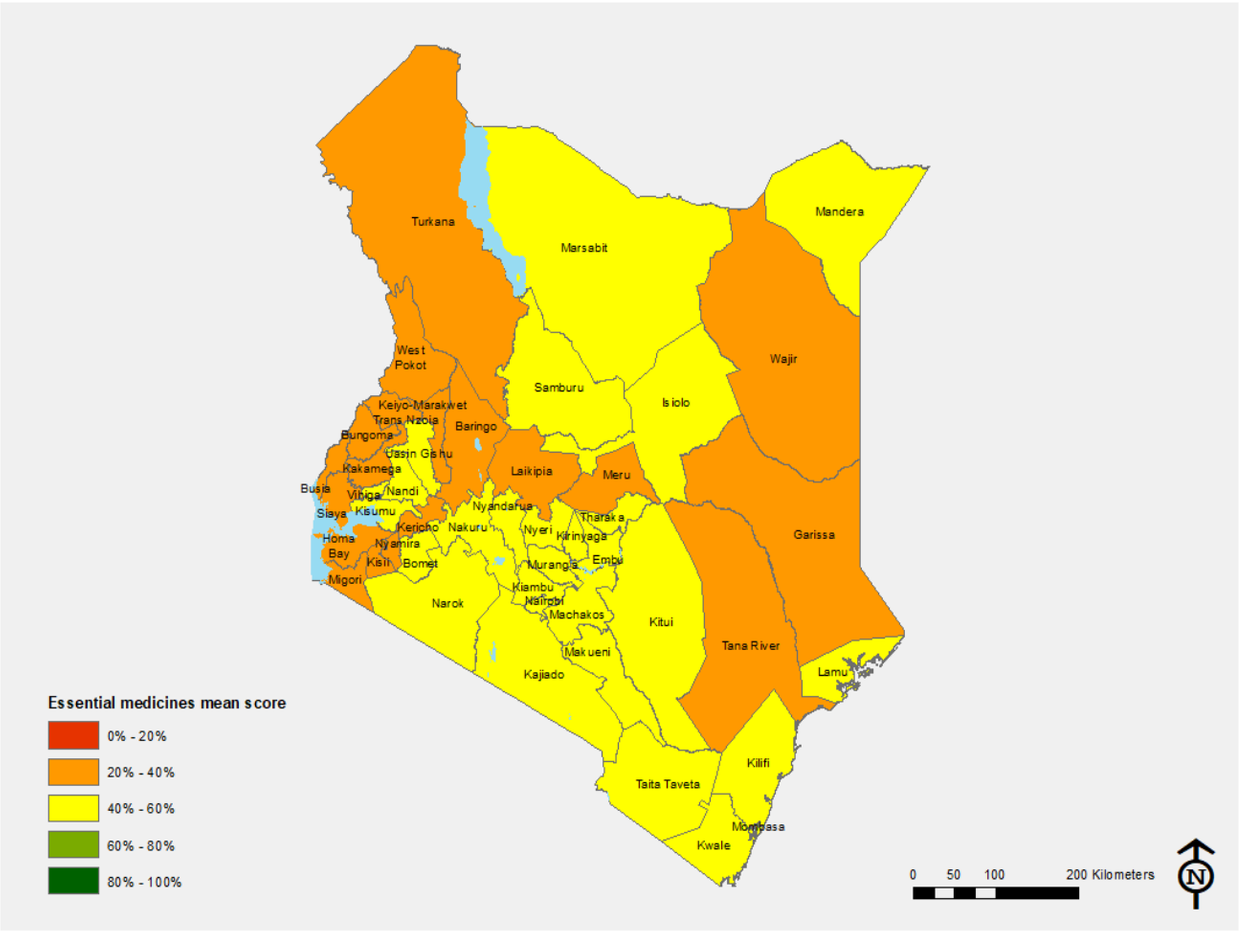
Figure 35 below shows the mean availability of essential medicine tracer items by county.

- The mean availability of essential medicines ranged from a low of 24% in Bungoma, 30% in Elgeyo-Marakwet, and 30% Turkana and a high of 57% in Nairobi and 59% in Marsabit.
- No health facility at the county level had all essential medicines.
- Secondary and tertiary hospitals had the highest mean availability of essential medicines, at 87%, followed by private/NGO/FBO primary hospitals (80%) and public primary hospitals (72%). Health

centres had a mean availability of essential medicines of 53%, while medical clinics had an average of 43% and dispensaries have an average of 37%.

- By managing authority, NGO/FBO facilities had a mean availability of essential medicines at 52%, compared to government facilities with a mean availability of 39% for essential medicines.

Figure 35. Mean availability of essential medicines by county, Kenya 2018



4.6 General service readiness

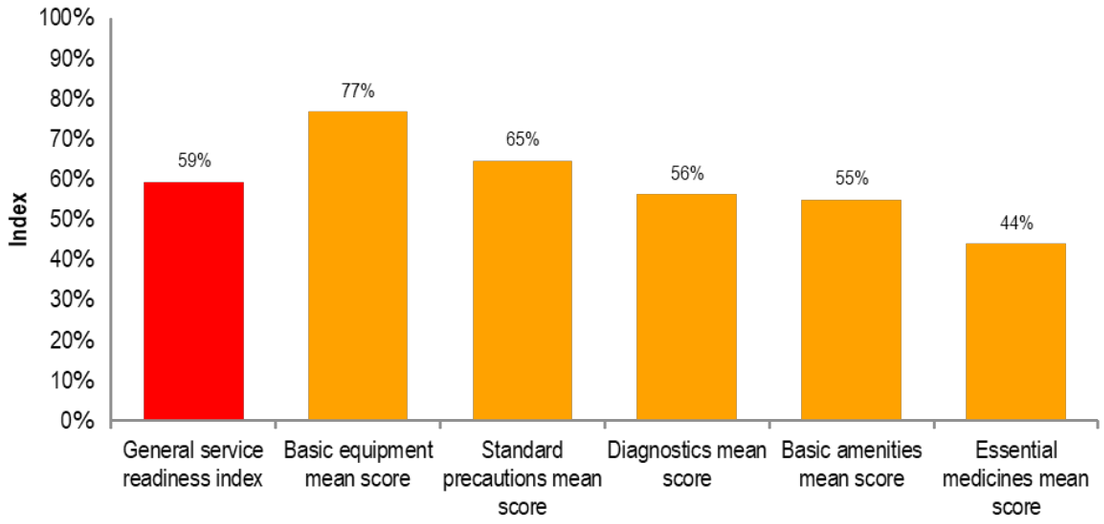
General service readiness refers to the overall capacity of health facilities to provide general health services. Readiness is defined as the availability of components required to provide services in the following five domains:

- Basic amenities
- Basic equipment
- Standard precautions for infection prevention
- Diagnostic capacity
- Essential medicines

Figure 36 shows estimates for the availability of essential medicines at health facilities in the country.

- The service readiness index for Kenyan health facilities is 59%, meaning that nearly 6 in 10 health facilities are ready to provide health services.
- On average, facilities had more than three-quarters of the basic equipment (77%) required and nearly two-thirds of the standard precautions for infection prevention items (65%) required to deliver services.
- On average, health facilities had only 56% of diagnostics tests/capacity and 55% of basic amenities, and 44% of essential medicines required to provide services.

Figure 36. General service readiness index and domain scores (N=2927), Kenya 2018



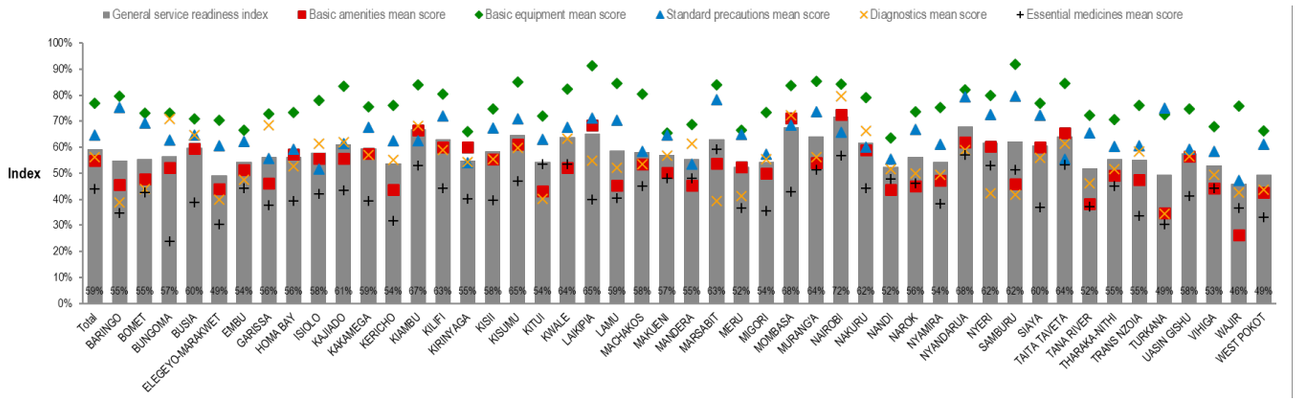
Annex Table 15 shows the general service readiness index and domain scores by county, facility type, managing authority, and urban vs. rural location.

Figure 37 below shows the general service readiness domains and index by county.

- Four counties had a general service readiness below 50%: Wajir (46%), Elgeyo-Marakwet (49%), Turkana (49%), and West Pokot (49%). Nairobi had the highest general service readiness index at 72%, followed by Mombasa (68%), Nyandarua (68%), and Kiambu (67%).
- Both secondary and tertiary hospitals (86%) and private/NGO/FBO primary hospitals (82%) had a general service readiness index above 80%. Dispensaries had the lowest service readiness index at 53%, as dispensaries had the lowest mean scores in basic amenities (45%), diagnostics (44%), and essentials medicines (37%).
- By managing authority, NGO/FBO (65%) and private facilities (63%) had a general service readiness index above 60%, while government facilities had an index of 55%. Government facilities had the lowest mean scores in basic amenities (47%), basic equipment (74%), diagnostics (47%), and essential medicines (39%), but had the highest mean score in standard precautions (68%).

- Urban facilities (65%) had a higher general service readiness index, compared to rural health facilities (56%). Compared to urban facilities, rural facilities had lower mean scores in basic amenities (49%), basic equipment (75%), diagnostics (50%), and essential medicines (41%), but had a higher mean score in standard precautions (66%).

Figure 37: General service readiness domains and index by county, Kenya 2018



5. SERVICE-SPECIFIC AVAILABILITY AND READINESS

In addition to assessing the offer of general services by health facilities, the Kenya Harmonised Health Facility Assessment also assessed the availability and readiness of health facilities to offer specific health interventions through consideration of tracer items that include equipment, diagnostic capacity, and medicines and commodities. The following key health services were assessed:

- Maternal, new-born, child, and adolescent health
  - Family planning
  - Antenatal care
  - Basic emergency obstetric care
  - Comprehensive emergency obstetric care
  - Essential medicines for mothers
  - Post-abortion care
  - Postnatal care for mothers and newborns
  - Care for low birth weight and sick newborns
  - Child immunization
  - Child health preventive and curative care services
  - Essential medicines for children
  - Adolescent health
- Communicable diseases
  - Malaria
  - Tuberculosis
    - o Tuberculosis diagnosis and treatment
    - o Drug resistant tuberculosis diagnosis and treatment
  - HIV/AIDS
    - o HIV counselling and testing
    - o HIV/AIDS care and support services
    - o Antiretroviral (ARV) therapy
    - o Preventing mother-to-child transmission (PMTCT)
    - o Paediatric HIV services
  - Sexually-transmitted infections (STIs)
  - Neglected tropical diseases (NTDs)

- Non-communicable diseases
  - Diabetes
  - Cardiovascular diseases (CVD)
  - Chronic respiratory disease (CRD)
  - Cervical cancer
  - Breast cancer
  - Prostate cancer
  - Colorectal cancer
  - Mental and neurological care
  - Services for victims of violence and sexual abuse
  - Palliative care
  - Rehabilitation care
- Surgical services
  - Basic surgery
  - Comprehensive surgery
  - Blood transfusion
  - Emergency care
  - Voluntary medical male circumcision (VMCC) services
- Medicines
  - Tracer medicines
  - Medicine availability and affordability
- Advance diagnostic services and diagnostic equipment

For each service, the percentage of facilities offering the service were computed as a measure of the availability of the service. In addition, for facilities offering the service, readiness to provide the service was assessed based on the presence of a number of tracer items in the following domains:

- Equipment
- Diagnostic capacity
- Medicines and commodities

The tracer items are considered to be a minimum set of items that are a prerequisite for the facility to be able to offer an adequate level of care. Service readiness is a key indicator for assessing and monitoring improvements and investments in service delivery. As for general service readiness, an overall readiness score was computed for each health service by calculating the average number of tracer items available.

5.1 Reproductive, maternal, newborn, child, and adolescent health

The global strategy on women, children and adolescent health 2016-2030 is a road map to achieve the right to the highest attainable standard of health for all women, children and adolescents. Globally, more than 15,000 children and 830 women still die every day from conditions that are preventable. When a woman dies in childbirth, her infant has only a 19% chance of surviving his or her first month. When interventions are delivered during labour and childbirth and immediate newborn care is provided, up to 51% of newborn deaths can be avoided.

Diarrhoea is one of the leading killers of children under the age of five, contributing to more deaths than HIV/AIDS, malaria, and measles combined. Home-based preventive measures to treat diarrhea are cost- effective.

Immunization yields up to a 44-fold return on investment in low- and middle-income countries and averts an estimated 2 to 3 million child deaths each year. WHO recommendations on adolescent health in line with the Global Strategy on Women's, Children's and Adolescents' Health 2016-2030, which recommends the rights to reproductive health, should include family planning, antenatal care, and immunization, among other rights for adolescents.

The overall availability of reproductive, maternal, newborn, child, and adolescent health services in Kenya can be seen in **Figure 38**.

- Among maternal, newborn, child and adolescent health (MNCAH) services in general, the most available were found to be child health preventive and curative care (89%), adolescent health (85%), family planning (85%), and antenatal care (81%).
- Comprehensive emergency, obstetric and newborn care (CEmONC) was the least available service along the reproductive, maternal, newborn, child and adolescent health (RMNCAH) continuum of services package, at 7%.

Figure 38. Availability of reproductive, maternal, newborn, child and adolescent health services (N = 2927), Kenya 2018

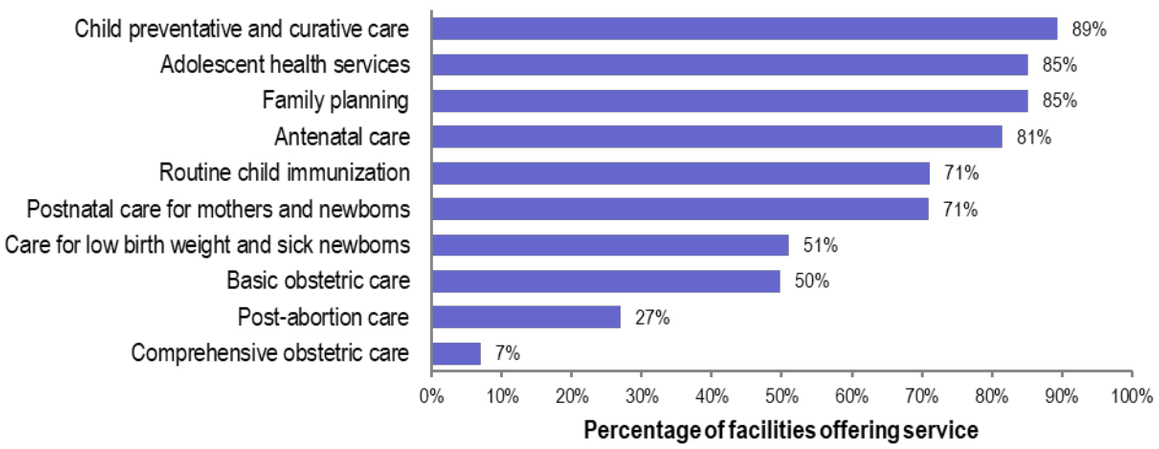
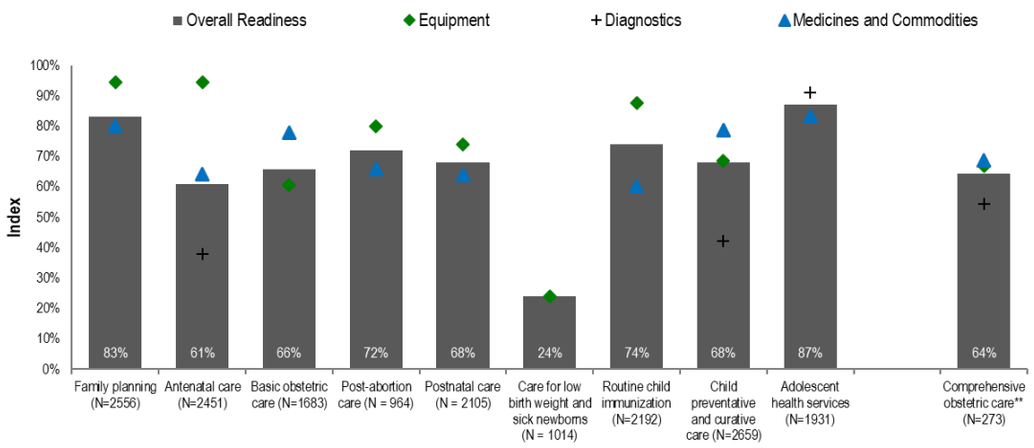


Figure 39 depicts the readiness of MNCAH services for each type of service and domain.

- Overall facility readiness score was above 60% across all services except for care for low birth weight and sick newborns, which was exceedingly low, registering at only 24%.
- Overall readiness to provide family planning, adolescent services and routine child immunization was the highest.
- Conversely, the lowest overall readiness was in the provision of antenatal care and care for low birth weight and sick newborns, which had the lowest overall readiness. This due to inadequate diagnostics, medicines and commodities. Family planning, antenatal care and routine child immunization had the highest equipment.

Figure 39. Readiness to provide maternal, newborn, child and adolescent health services, Kenya 2018



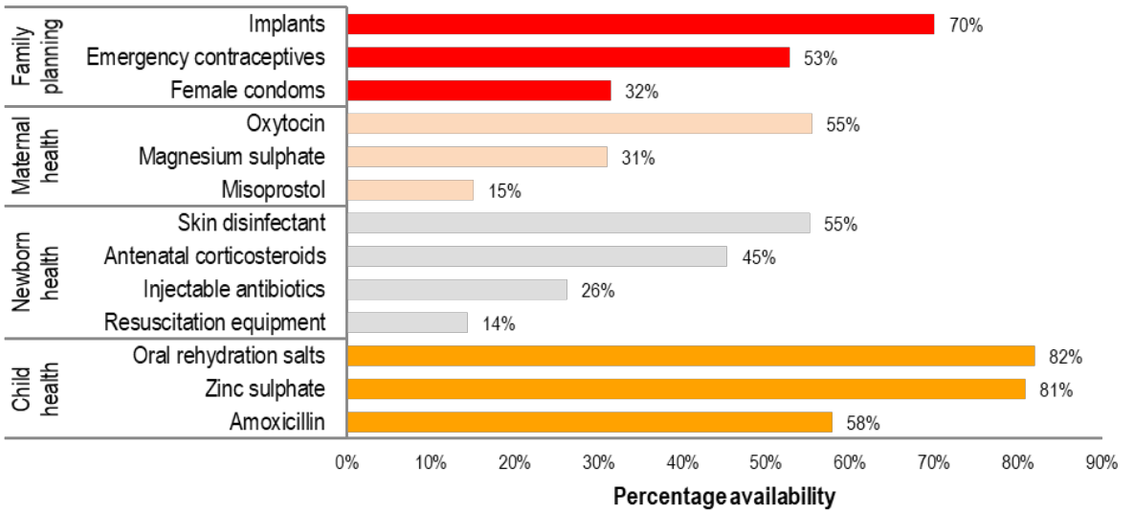
*** The readiness score corresponds to the average availability (%) of the tracer items of the three domains (« Equipment », « Diagnostic capacity » and « Medicines and commodities »).**

**** Only includes hospitals and health facilities offering caesarean section.**

Figure 40 displays the percentage of facilities offering lifesaving commodities for RMNCAH services.

- The highest availability of family planning lifesaving commodities was implants (70%).
- For maternal lifesaving health commodities, the highest was oxytocin 55%, followed by magnesium at 31% and misoprostol at 15%.
- For newborn lifesaving health commodities, the highest was skin disinfectant at 55%, followed by antenatal corticosteroids at 45%, injectable antibiotics at 26% and resuscitation equipment at 14%.
- The top three child health lifesaving commodities were oral rehydration solution (ORS) at 82%, zinc sulphate 81%, and amoxicillin at 58%.

Figure 40. Proportion (%) of facilities that have lifesaving commodities observed in stock and valid (N = 2927), Kenya 2018



Annex Table 16 shows the percentage of facilities offering lifesaving commodities for RMNCAH services by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location.

- 7 counties (Garissa, Kericho, Wajir, West Pokot, Mombasa, Muranga, Trans Nzoia) had less than 40% of facilities with available emergency contraceptives. According to the facility ownership, Government and private facilities had a proportion of 61% and 51% of facilities with emergency contraception while NGO/FBO had a proportion of 29%. Implants were least available at less than 50% in Garissa, Mandera, Meru, and Wajir. 26 out of the 47 counties had less than the 32% average on availability of female condoms with none of the Mandera facilities sampled having the commodity.
- Only 11 counties (Homa Bay, Isiolo, Kisii, Kwale, Mandera , Marsabit, Migori, Narok, Nyamira, Taita Taveta and Turkana) had above 75% of facilities with oxytocin available. By facility type, this was highest in secondary and tertiary facilities at 95% and least available in medical clinics at 50%. Availability in government, NGO/FBO/ and private facilities was at 66%, 55%, and 43% respectively Only 7 counties had over 50% of facilities with magnesium sulphate while all the counties had less than 30% of facilities with misoprostol.
- 4 counties (Turkana, Tharaka Nithi, Muranga, and Elgeyo Marakwet) had less than 10% of facilities with injectable antibiotics. By managing authority, availability government, NGO/FBO/ and private facilities was at 15%, 38% and, 36% respectively.
- In commodities for child health, Amoxicillin was available in 53% of government facilities, 58% of NGO/FBO facilities, and 61% of private facilities.

5.1.1 Family planning

Family planning reduces mortality and morbidity associated with pregnancy by preventing unwanted pregnancies, particularly high-risk pregnancies among adolescents and older women, and by increasing birth intervals. Birth spacing of less than 24 months compared with spacing of 36 months is associated

with greater risks of foetal, infant and childhood death, low birth weight and childhood under-nutrition. Kenya's Basic Package of Health Services (BPHS) includes family planning as a key component of maternal, reproductive and neonatal services provided by the health system. In the KHFA, the tracer items that were assessed in determining both availability and facility readiness family planning service readiness are outlined in **Table 7** by domain.

Table 7. Tracer items for family planning services

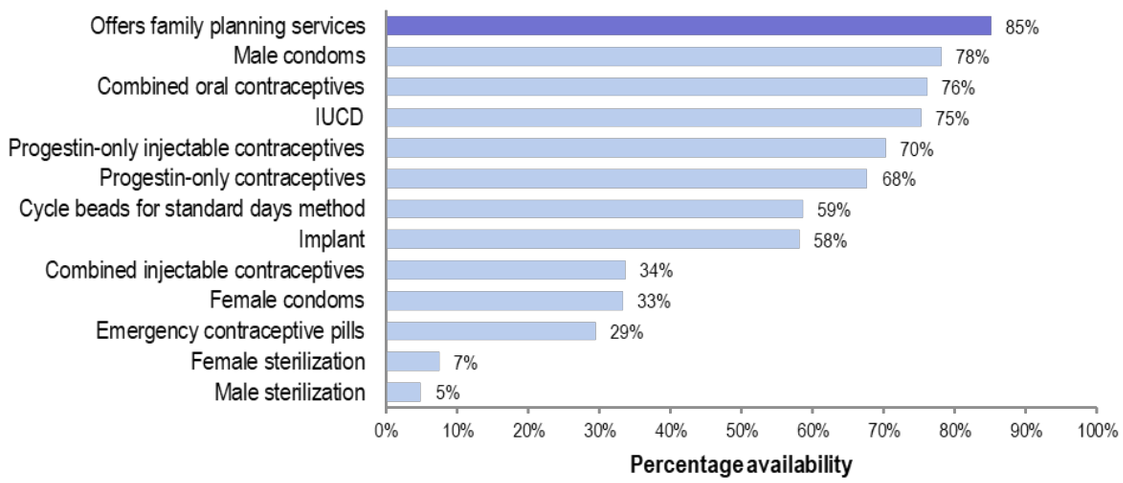
Domain	Tracer items
Equipment	• Blood pressure apparatus
Medicines and commodities	• Combined estrogen progesterone oral contraceptive pills • Progestin-only contraceptive pills • Injectable contraceptives • Condoms

Service availability

Figure 41 shows the countrywide availability of family planning services.

- Nationally, 85% of the facilities sampled offered family planning services.
- Amongst the family planning services available in the sampled facilities, male condoms ranked highest at 78% followed by combined oral contraceptives (76%) and intrauterine contraceptive device (IUCD) (75%), while the lowest services available were male sterilization (5%) and female sterilization at 7%.
- Although it is more popular in Africa than male sterilization, the survey showed that sterilization as a family planning method is still not largely available for neither males nor females in Kenya.

Figure 41. Proportion (%) of facilities that offer family planning services (N=2927), Kenya 2018

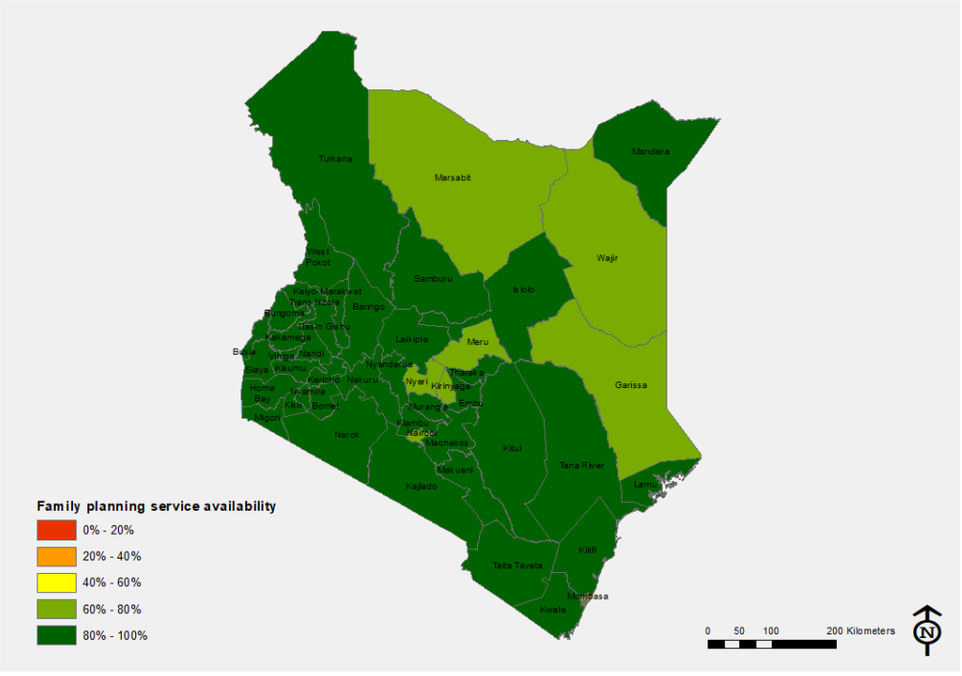


Annex Table 17 shows the percentage of facilities offering key family planning services by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location

while **Figure 42** shows the variation in family planning availability by county.

- The counties with the highest percentage of facilities providing family planning services were Vihiga, Nyamira and Murang'a at 98% and Bungoma at 97%, while Garissa (65%) and Nairobi (69%) had the lowest. Nairobi County may have been among the counties having the lowest number of facilities providing family planning services but had a greater population accessing the services in those facilities with a modern contraceptive prevalence rate of 58.3%. In contrast, while Garissa had 65% of its facilities offering family planning services, it had a very small population of clients using available family planning methods. It had a contraceptive prevalence rate of 5.5% % and ranked among counties with low contraceptive prevalence rate using modern methods8.
- Public primary hospitals had the highest family planning service availability at 99%, followed by secondary & tertiary hospitals (95%), health centres (90%) and dispensaries (89%) as compared to medical and private/NGO/FBO primary hospitals which had availability of 77% and 67%, respectively.
- In government health facilities, availability of family planning services stood at 97%, followed by private at 79% and NGO/FBO at 56%. The Government of Kenya provides free family planning commodities and services for its population, thus the near universal availability of family planning services in government health facilities.
- Rural health facilities were leading in availability of family planning services at 91% while urban facilities were at 73%.

Figure 42: Map of family planning availability by county, Kenya 2018



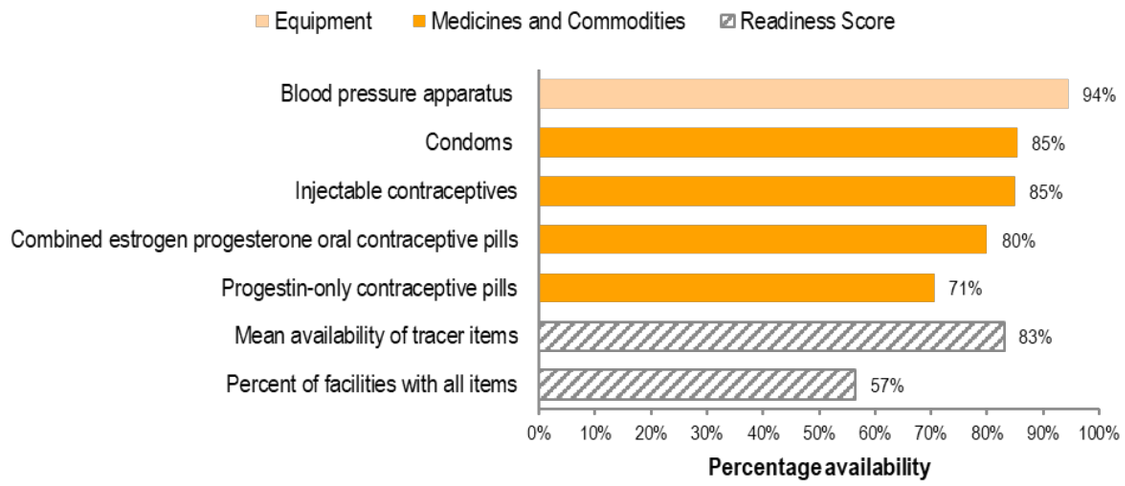
8 KDHS, 2014

Service readiness

Readiness to offer family planning services was assessed based on the availability of the five tracer items found in **Table 7. Figure 43** shows the percentage availability of these tracer items in facilities that offer family planning services (N=2556).

- The most available tracer items for family planning were blood pressure apparatus (94%), condoms (85%), and injectable contraceptives (85%).
- Mean availability of family planning tracer items in Kenya was 83%, with only 57% of facilities having all 5 family planning tracer items.

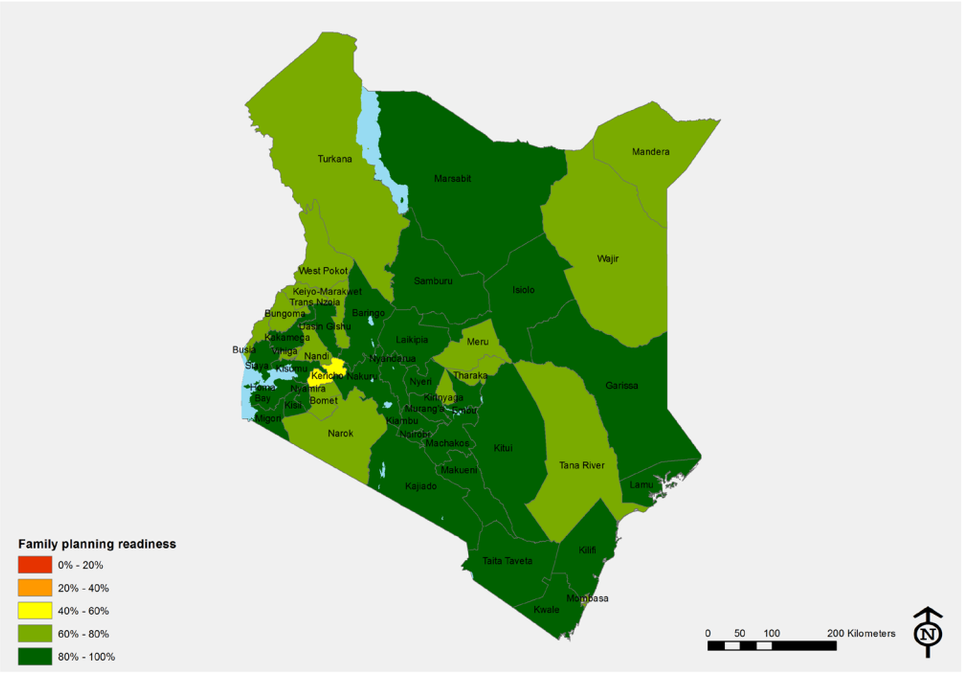
Figure 43: Proportion (%) of facilities that have tracer items for family planning services among facilities that provide this service (N=2556), Kenya 2018



Annex Table 18 shows availability of family planning tracer items by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location while **Figure 44** shows the variation in family planning readiness by county.

- Samburu (96%), Laikipia (81%), Kisumu (79%) had the highest proportion of facilities having all five FP tracer items while West Pokot (23%), Tana River (16%), Kericho (12%), Tharaka Nithi (12%) and Tana river (12%) had the lowest.
- Comparing facility availability of family planning services to facility readiness to provide FP service, a large proportion of facilities offer family planning services, but most do not have all the 5 tracer items.
- Public primary hospitals had the highest readiness to provide family planning services (76%) followed by secondary and tertiary hospitals (68%).
- The lowest was in private/NGO/FBO primary hospitals where only 42% of the facilities had all 5 family planning tracer items.
- The mean availability of family planning tracer items in rural and urban facilities was the same at 83%.

Figure 44: Map of family planning readiness by county, Kenya 2018



5.1.2 Antenatal care

Antenatal care (ANC) is essential to identify and treat problems during pregnancy such as anaemia and hypertension, as well as for preventive care such as folic acid and iron supplementation, intermittent preventive treatment (IPT) for malaria, and tetanus toxoid vaccination. The World Health Organization (WHO) recommends that in the absence of complications a woman should have at least eight ANC visits, during the first trimester. **Table 8** outlines the tracer items that the harmonized KHFA survey identified as necessary to determine ANC service readiness by domain.

Table 8: Tracer items for antenatal care services

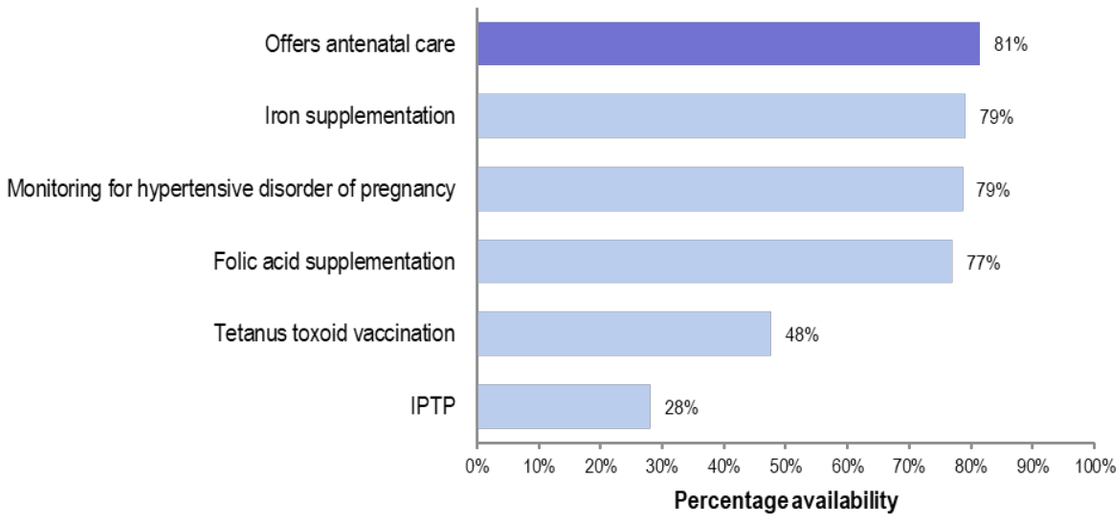
Domain	Tracer items
Equipment	• Blood pressure apparatus
Diagnostics	• Haemoglobin • Urine-dipstick-protein
Medicines and commodities	• Iron tablets • Folic acid tablets • Tetanus toxoid vaccine • Intermittent preventive treatment drug • Insecticide-treated nets

Service availability

Figure 45 shows the percentage of facilities offering key antenatal care services: iron supplementation, folic acid supplementation, intermittent preventive treatment in pregnancy (IPTP) for malaria, tetanus toxoid vaccination, and monitoring for pregnancy-induced hypertensive disorder.

- The national average of facilities offering ANC services is 81%.
- The most widely available ANC services were iron supplementation (79%), monitoring for hypertensive disorder of pregnancy (79%), and folic acid supplementation (77%).
- The low proportion of the provision of IPTp could be because only the malaria endemic areas/ counties offer these services. The specific counties are as follows: 5 counties in the coastal region, 8 counties in the lake and western regions and the highlands, which are all classified as high epidemic prone regions[9].

Figure 45. Proportion (%) of facilities that offer antenatal care services (N=2927), Kenya 2018



Annex Table 19 shows the percentage of facilities offering key antenatal care services by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location while

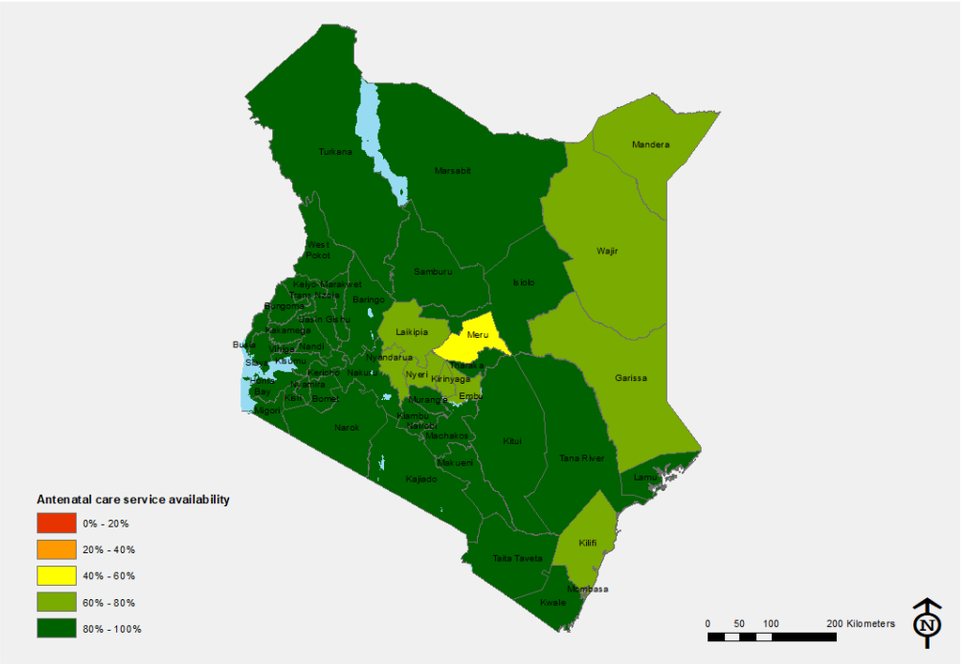
shows the variation in antenatal care availability by county.

- Some counties performed higher than national average with Nyamira and Vihiga at 100% and 95%, respectively while the lowest performing county was Meru (59%).
- Public primary hospitals had the highest ANC services availability at 99%, followed by health centres at 96%, secondary and tertiary hospitals at 95%, dispensaries at 93%, and private□NGO□FBO primary hospitals at 92%, as compared to medical clinics, which were at 56%.
- In government health facilities, availability of ANC services was at 96%, followed by NGO/FBO facilities at 86%, and private facilities at 63%.

[9] Malaria Operational Plan, 2018

- Rural health facilities were leading in availability of ANC services at 88%, while urban facilities were at 68%. It is important to note that availability of ANC services was higher in rural than in urban health facilities.

Figure 46: Map of antenatal care availability by county, Kenya 2018

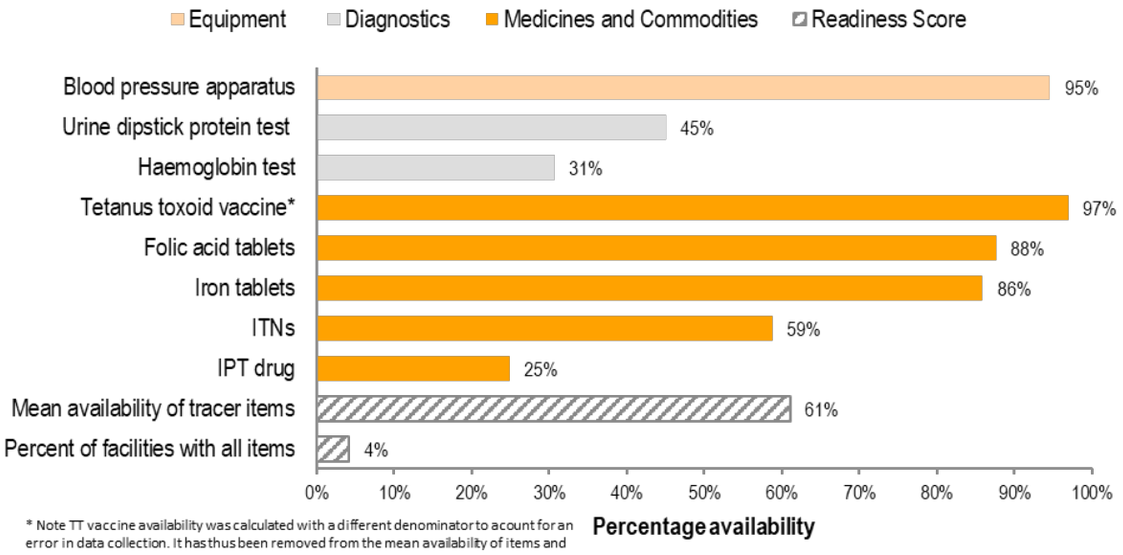


Service readiness

Facility readiness to provide antenatal care was assessed based on the availability of the eight tracer items found in **Table 8. Figure 47** shows the percentage availability of these tracer items in facilities that offer antenatal care (ANC) services (N=2541).

- The mean availability of tracer items was 61%, with only 4% of the facilities having all the tracer items available.
- The commonest tracer item available was tetanus toxoid vaccine (97%), followed by blood pressure apparatus (95%), folic acid tablets (88%), and iron tablets (86%).
- The least available items were IPT drug (25%) and heamoglobin testing (31%)

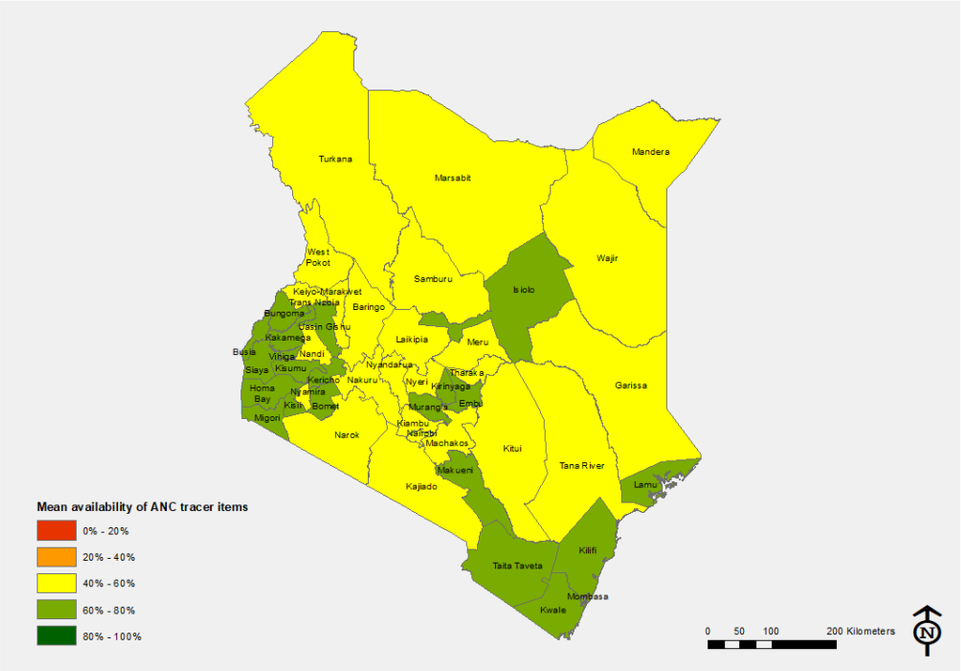
Figure 47: Proportion (%) of facilities that have tracer items for antenatal care services among facilities that provide that service (N=2541), Kenya 2018



Annex Table 20 shows availability of antenatal care tracer items by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location, while **Figure 48** shows the variation in antenatal care readiness by county.

- Kwale (80%), Busia (78%), Taita Taveta (77%) and Kisumu (76%) had the highest mean availability of ANC tracer items, being above 75%.
- The same counties had significantly lower availability of all tracer items: Kwale (34%), Busia (5%), Taita Taveta (16%) and Kisumu (19%).
- The lowest mean availability was in Marsabit (49%), Turkana (45%), Samburu (44%) and Wajir (42%).
- The counties with low mean availability also had low availability of all tracer items: Marsabit (0%), Turkana (0%), Samburu (1%) and Wajir (0%)
- Mean availability of the ANC tracer items was highest in public primary hospitals (78%) followed by secondary and tertiary hospitals (77%). The lowest was in medical clinics (57%).
- Looking at the urban-rural dynamics, the mean availability of tracer items determining facility readiness to provide ANC services according to focused ANC (FANC) was more in urban areas (64%) than in rural areas (60%).

Figure 48: Map of antenatal care readiness by county, Kenya 2018



5.1.3 Basic emergency obstetric and newborn care

Improving access to emergency obstetric care is an effective strategy for the reduction of maternal and infant mortality, in which complications of pregnancy and childbirth are identified and referred to a higher level if necessary. Basic emergency obstetric and newborn care (BEmONC) signal functions include the following: (1) parenteral administration of antibiotics, (2) parenteral administration of oxytocics, (3) parenteral administration of anticonvulsants, (4) assisted vaginal delivery, (5) manual removal of placenta, (6) manual removal of retained products, (7) neonatal resuscitation. Basic emergency obstetric care (BEmONC) includes capacity to provide all these seven signal functions. Guidelines jointly issued by WHO, UNICEF, and UNFPA recommend 4 facilities offering basic obstetric care for every 500,000 people.

Essential newborn care (ENC) is care which every newborn baby needs regardless of where he or she is born or his or her size. ENC should be applied immediately after the baby is born and continued for at least the first 7 days after birth. Many ENC interventions are simple and can be provided by a skilled birth attendant, trained community health worker, traditional birth attendant or a family member supporting the mother in a health facility or at home. They include: cleaning airway and stimulating crying, drying the baby with a clean, dry cloth, covering the head without wiping the vernix caseosa, and refraining from bathing the baby for 24 hours (warmth and appropriate hygiene), immediate warming by placing baby in skin-to-skin contact with the mother (using kangaroo mother care for a low birth weight baby), cleaning the umbilical cord, eye care, immediate and exclusive breastfeeding and recognition of danger signs and care-seeking for special care.

Table 9 outlines the tracer items necessary to delivery basic obstetric and newborn care by domain.

Table 9. Tracer items for basic obstetric and newborn care

Domain	Tracer items
Equipment	• Blood pressure apparatus • Delivery bed • Soap and running water or alcohol-based hand rub • Gloves • Delivery pack • Infant weighing scale • Sterilization equipment • Examination light • Suction apparatus • Neonatal bag and mask • Manual vacuum extractor • Vacuum aspirator or D&C kit
Medicines and commodities	• Antibiotic eye ointment • Skin disinfectant • Intravenous solution with solution set • Injectable antibiotic • Injectable uterotonic • Magnesium sulphate (injectable)

Service availability

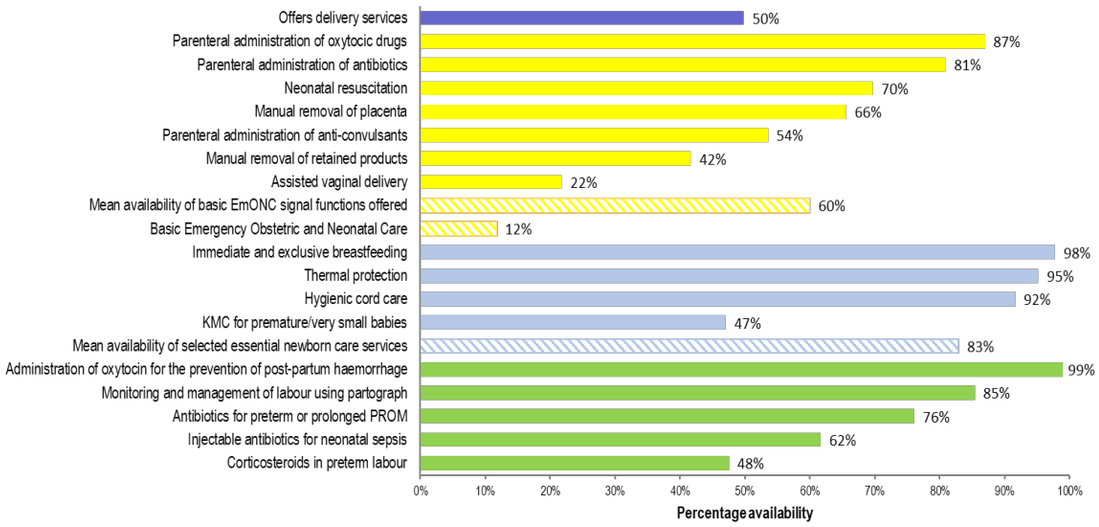
Figure 49 shows the percentage of facilities offering normal delivery services, BEmONC services, ENC services, and other maternal and newborn care services.

The facilities assessed on ability to offer BEmONC services were those that offered delivery services (n=1683).

- 50% of health facilities in Kenya offer delivery services.
- Only 12% of the facilities which offered delivery services offered all 7 BEmONC signal functions. Kenya therefore has not attained the WHO standard of having 4 facilities offering basic obstetric care for every 500,000 populations. Mean availability of the BEmONC signal functions was 60%.
- Among the 7 signal functions, the highest availability was parenteral administration of oxytocic drugs (87%), parenteral administration of antibiotics (81%) and neonatal resuscitation (70%).
- Among the 7 signal functions, the lowest availability was assisted vaginal delivery (22%).
- 99% of facilities administered oxytocin for prevention of post-partum haemorrhage, 85% were using partographs, 76% gave antibiotics for pre-term or prolonged premature rupture of membranes (PROM), only 62% had injectable antibiotics for neonatal sepsis, and 48% had corticosteroids to administer during pre-term labour.

- The parenteral administration of oxytocin is meant to be in all facilities offering delivery services, with oxytocin given to all mothers as part of active management of the third stage of labour. Efforts need to be put in place to ensure availability and use of oxytocin for all deliveries.

Figure 49. Proportion (%) of facilities that offer delivery services (N – 2927) and of those offering delivery services, proportion of facilities that offer basic obstetric and newborn care services (N=1683), Kenya 2018



Annex Table 21, Annex Table 22 and Annex Table 23 show the percentage of facilities offering key obstetric and newborn care services by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location, while **Figure 50** shows the variation in delivery service availability by county. **Figure 51** shows the variation in BEmONC service availability by county.

- By type of facility, 90% of secondary and tertiary hospitals offered delivery services, with 75% offering all BEmONC signal functions and 78% offered all BEmONC services. 98% of public primary hospitals offered delivery services; however, only 33% were BEmONC compliant, offering all 7 signal functions, which is very low. (As hospitals, they are expected to offer all BEmONC services.) 89% of health centres offered delivery services but only 14% of those offered all the BEmONC services. 52% of dispensaries offered delivery services, with 6% providing all the BEmONC signal functions. Dispensaries are meant to offer emergency delivery services for mothers who come in active labour. This likely explains why only 6% were fully BEmONC compliant.
- 93% of private/NGO/FBO primary hospitals offered delivery services, but only 28% were BEmONC compliant.
- 37% of facilities in urban areas offered delivery services, while 56% of rural facilities offered delivery services. This is likely because urban areas have more dispensaries and medical clinics, hence a greater number of facilities that do not offer delivery services.
- The counties with the highest proportion of facilities offering all 7 signal functions among those providing delivery services were Samburu (38%), Bungoma (38%), Uasin Gishu (38%), Tana River (34%) and Turkana (34%).

- The lowest availability of all 7 BEmONC signal functions was in Taita Taveta (0%), Homa Bay (0%), West Pokot (1%), Kirinyaga (2%), Elgeyo Marakwet (2%), Nyamira (2%) and Nyandarua (2%).
- This shows a great gap in the ability to provide basic emergency services, which may lead to poor quality of care, delay in getting services and unnecessary Caesarean sections. Efforts should be put in continuous assessment of the health facilities to ensure they provide all essential services. The disparity between availability of delivery services and availability of all 7 signal functions is shown in the Figure 50 and **Figure 51** below.

Figure 50: Map of delivery service availability by county, Kenya 2018

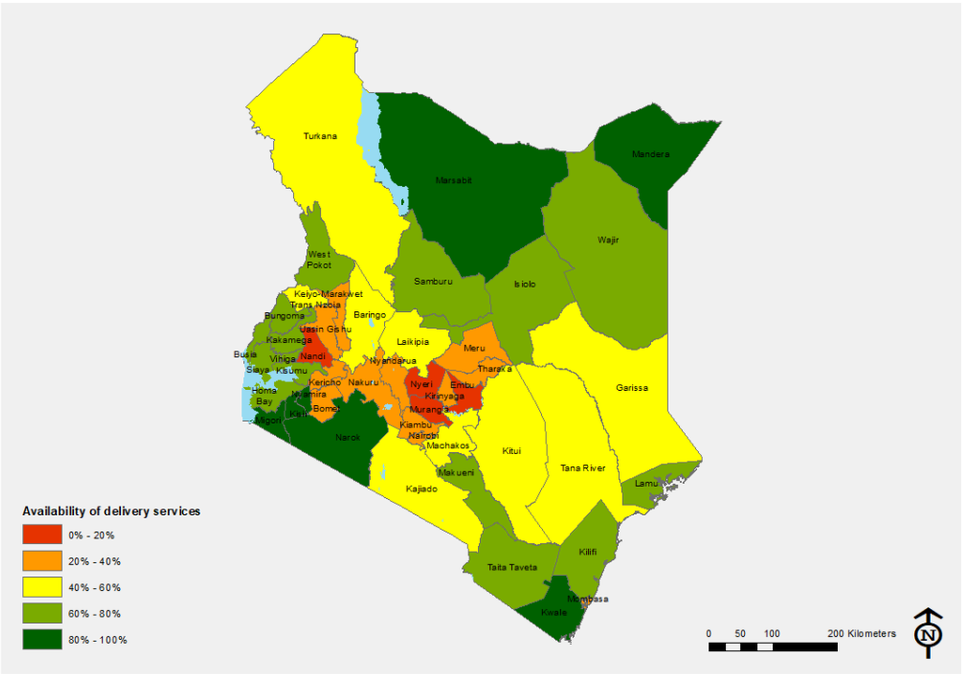
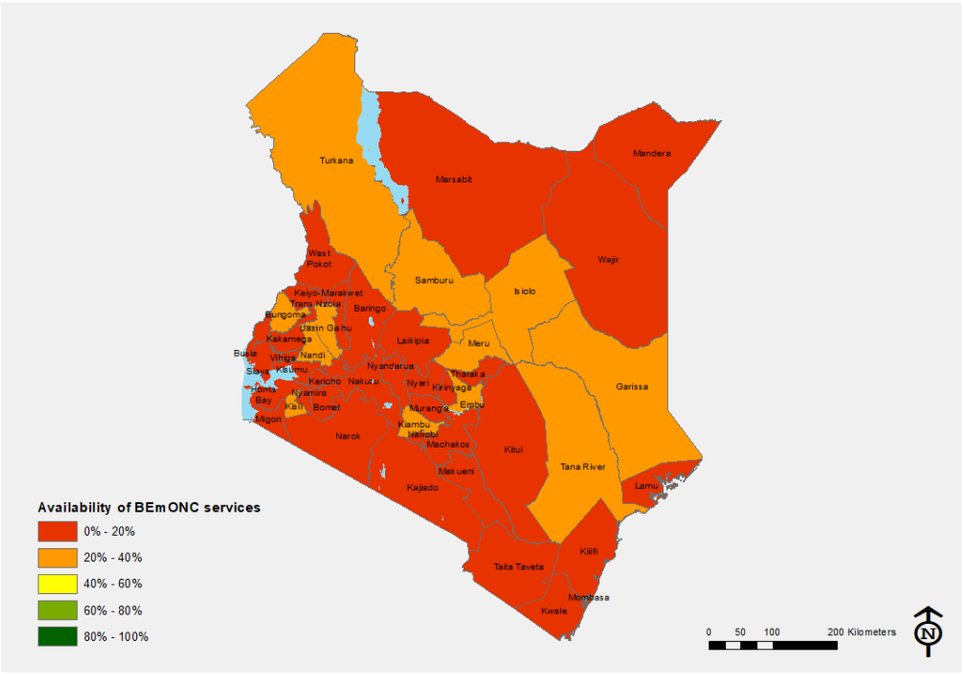


Figure 51: Map of BEmONC availability (all signal functions) by county, Kenya 2018



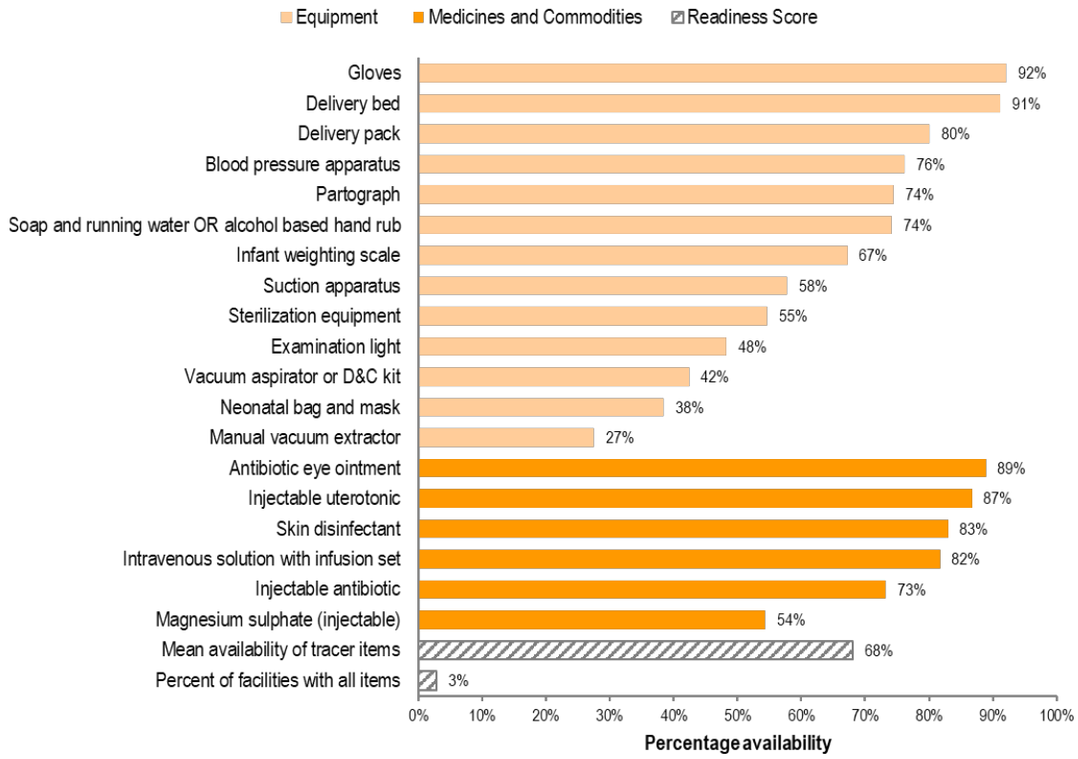
Amongst the other obstetric services, 99% of health facilities administered oxytocin for prevention of post-partum haemorrhage, 85% were using partographs, 76% gave antibiotics for pre-term, only 62% had injectable antibiotics for neonatal sepsis, and 48% had corticosteroids to administer during pre-term labour. Among the essential newborn care services assessed, kangaroo mother care for low birth weight newborns was the lowest at 47%, while hygienic cord care (92%), thermal protection (95%) and exclusive breast feeding (98%) were readily available.

Service readiness

Readiness to provide basic obstetric and newborn care was assessed based on the availability of the tracer items outlined in **Table 9**. **Figure 52** shows the percentage availability of tracer items for basic obstetric and newborn care at facilities that offer delivery services (N=1683).

- The mean BEmONC tracer item availability was 63% but availability of all BEmONC tracers was only 3% nationally.
- Gloves (92%), delivery bed (91%) and delivery pack (80%) were the most available equipment with neonatal bag and mask (38%) and manual vacuum extractor (27%) being the least available.
- The medicine with the lowest availability was magnesium sulphate. The lack of availability of this critical tracer item needs to be addressed to avert avoidable maternal deaths.

Figure 52. Proportion (%) of facilities that have tracer items for basic obstetric and newborn care among facilities that provide delivery services (N=1683), Kenya 2018



Annex Table 24 shows availability of basic obstetric and newborn care tracer items by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location while **Figure 53 and Figure 54** show the variation in basic obstetric care readiness by county.

- The mean availability of BEmONC tracer items was highest in Samburu (82%), Kiambu (81%), Murang'a (81%), and Nyandarua (80%). The counties with the lowest mean availability of tracer items were Nyamira (57%), Vihiga (57%), Trans-Nzoia (56%) and West Pokot (56%).
- The availability of all BEmONC tracer items was very low across all counties, with the highest availability being in Meru (25%), Tharaka Nithi (21%), Samburu (15%), Murang'a (14%), Kiambu (13%) and Uasin Gishu (10%).
- Taita Taveta, Garissa, Isiolo, Kwale, Nyeri, Lamu, Busia, Kirinyaga, Tana River, Bomet, Narok, Baringo, Makueni, Wajir, Nyamira, Vihiga, Tranz-Nzoia and West Pokot all had none of the facilities having all the BEmONC tracer items.

Comparison of mean availability of BEmONC tracer items and the availability of all BEmONC tracer items shows two different pictures. While mean availability of BEmONC seemed good, at the national average of 68%, the availability of all BEmONC tracer items was very low at 3%. The unavailability of even one tracer item could compromise the availability and quality of a lifesaving service to the mother and baby. For example, the availability of oxytocin but no magnesium sulphate may still result in the death of a mother. Availability of all tracer items was less than 20% in all the counties except Meru and Tharaka Nithi Counties, as shown in **Figure 53** and **Figure 54** below.

Figure 53: Map of basic obstetric care readiness (mean availability) by county, Kenya 2018

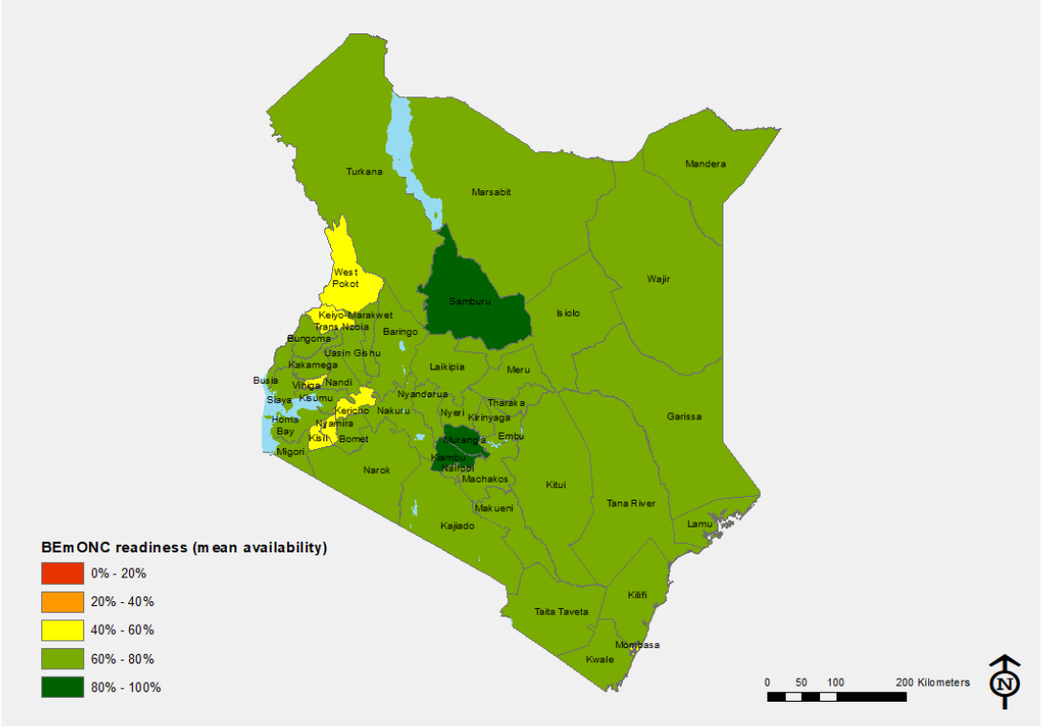
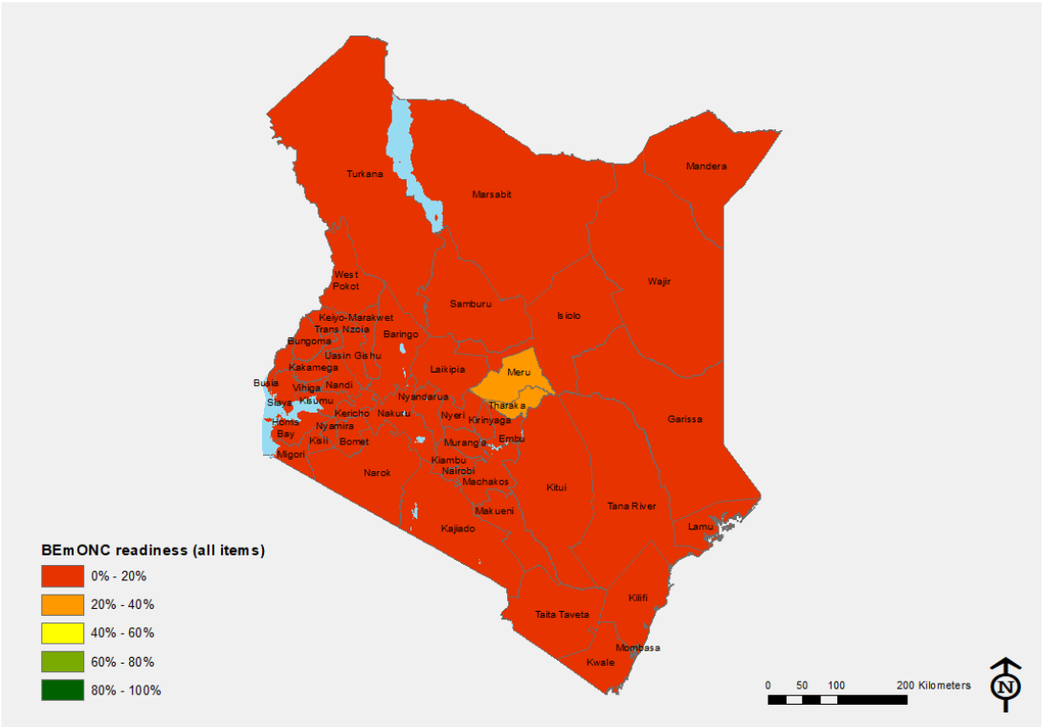


Figure 54: Map of basic obstetric care readiness (all items) by county, Kenya 2018



5.1.4 Comprehensive emergency obstetric care

In order to manage obstetric complications, a facility must have skilled personnel available or on call at all times (surgeon and anaesthetist), with the required equipment, supplies, and trained support staff to administer blood transfusions and anaesthesia (**Table 10**). Comprehensive emergency obstetric and newborn care (CEmONC) is generally offered at the hospital level and consists of all the functions of basic emergency obstetric care plus Caesarean section and safe blood transfusion. Guidelines jointly issued by WHO, UNICEF, and UNFPA recommend one facility offering comprehensive obstetric care for every 500,000 people.

Table 10. Tracer items for comprehensive obstetric care readiness

Domain	Tracer items
Trained staff and guidelines	• Staff trained in surgery (present in facility or on-call 24 hours a day) • Staff trained in anaesthesia (present in facility or on-call 24 hours a day)
Equipment	• Anaesthesia equipment • Incubator • Spinal needle • Oxygen • Resuscitation table
Diagnostics	• Capacity to conduct blood typing • Capacity to conduct cross-match testing
Medicines and commodities	• Blood sufficiency (no shortage of blood in the past 3 months) • Blood safety (blood obtained only from national or county blood bank, or blood obtained from other sources but screened for HIV and other transmissible infections) • Lidocaine • Epinephrine • Halothane • Atropine • Thiopental • Suxamethonium bromide • Ketamine

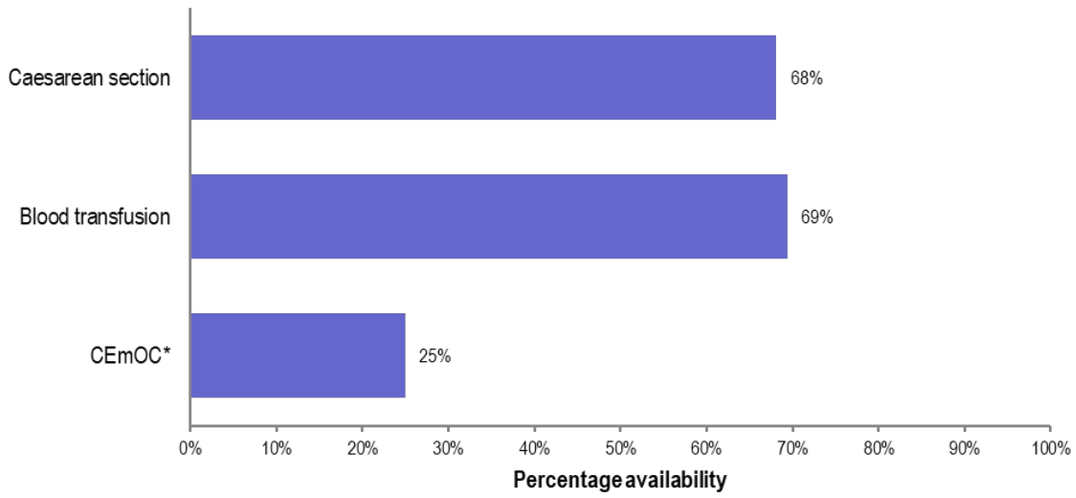
Service availability

Figure 55 shows the countrywide availability of comprehensive obstetric care services by facility type.

- Of the 411 hospitals sampled, 97% percent offered delivery services (n=397).
- All hospitals should be able to offer delivery services and the cause for some not offering this service could be due to sampling of specialist hospitals for non-obstetric cases or a facility being classified as a hospital without the capacity to provide the expected services at that level.
- Nationally, 68% of hospitals offered Caesarean section while 69% provided blood transfusion service.

- However, only 25% of hospitals provided CEmONC services (comprising all 7 signal functions plus both Caesarean section and blood transfusion).
- By hospital type, 78% of secondary and tertiary hospitals offered CEmONC services, while 23% of private hospitals, 33% of all NGO/FBO primary hospitals and 21% of public primary hospitals offered CEmONC services.

Figure 55. Proportion (%) of hospitals with delivery services offering comprehensive obstetric care services by facility type (N=397), Kenya 2018

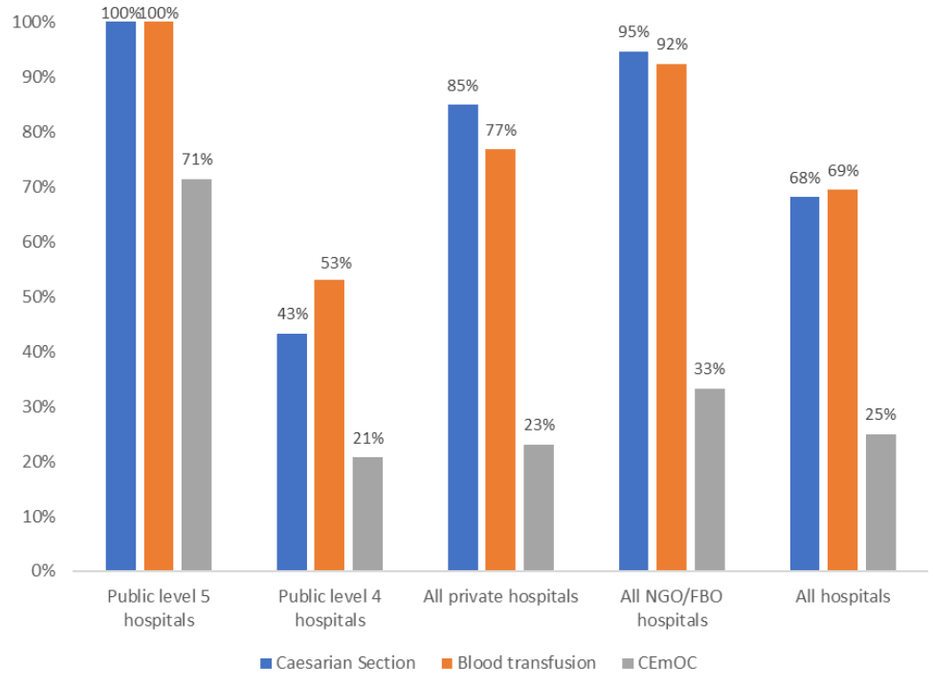


***Comprehensive emergency obstetric care (CEmONC) consist of the seven obstetric signal functions and the availability of blood transfusion services and caesarean section**

Figure 56 shows the countrywide availability of comprehensive obstetric care services at hospitals by type of hospital.

- By hospital type, all (100%) of the public level 5 hospitals provided Caesarean section and blood transfusion services but only 71% provided all 9 CEmONC signal functions. This means that some lacked some of the BEmONC signal function components.
- Availability of Caesarean section services at the level 4 facilities was low at 43%, with blood transfusion availability at 53%. CEmONC service availability was at 23%. This is very low and could imply that many level 4 facilities have been given the level 4 status without meeting the minimum requirements of service delivery at that level or that they are not maintaining the expected standards.
- Among the private hospitals, 85% offered Caesarean section services, 77% offered blood transfusion services but only 23% offered all the 9 signal functions. Among the NGO/FBO facilities, 95% offered Caesarean section services, 92% offered blood transfusion services but only 33% offered all the 9 signal functions.

Figure 56. Proportion (%) of hospitals with delivery services offering comprehensive obstetric care services by facility type (N=397), Kenya 2018

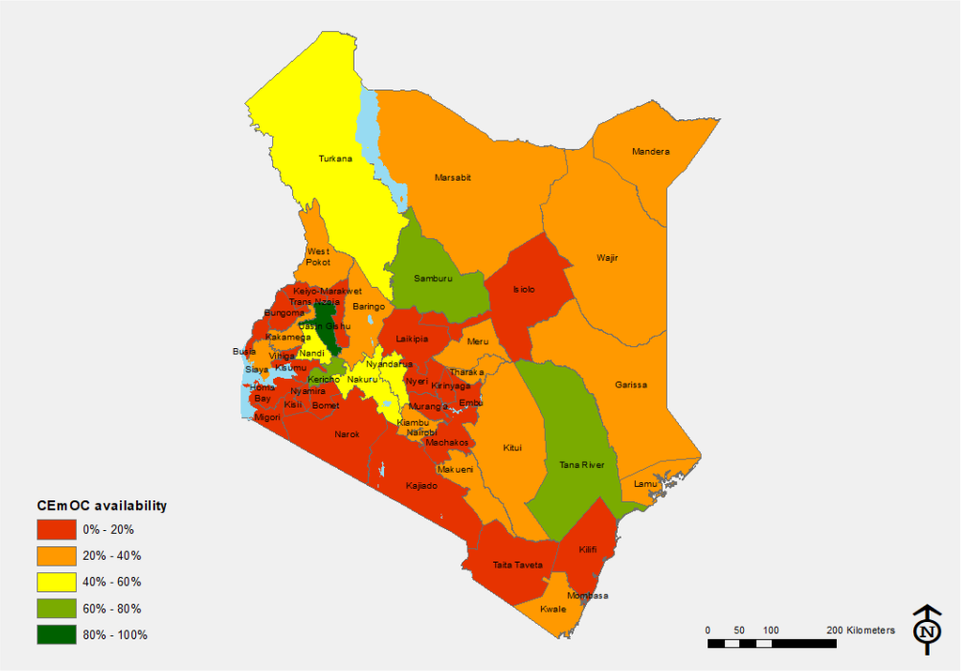


Annex Table 25 shows the proportion of facilities offering Caesarean section, blood transfusion and CEmONC by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location (N=397), while **Figure 57** shows the variation in the availability of CEmONC services by county.

It is key to note that 97% of the sampled hospitals conducted delivery services (397 out of 411 hospitals sampled). The assessment of CEmONC availability was based on these 397 facilities.

- Uasin Gishu (81%), Samburu (67%), Tana River (67%), Kericho (63%), Turkana (60%) had the largest proportion of hospitals offering CEmONC services. Bomet, Embu, Homa Bay, Isiolo, Nyamira and Taita Taveta had the lowest proportion (0%) of their hospitals offering CEmONC services.
- Availability of CEmONC services in hospitals offering delivery services was highest among the secondary and tertiary hospitals (78%), followed by private/NGO/FBO primary hospitals (26%) and was lowest among the public primary hospitals (21%).
- Among urban hospitals providing delivery services, 85% had availability of Caesarean section, 86% had blood transfusion availability and 33% of facilities offered CEmONC.
- Among rural hospitals providing delivery services, 49% had availability of Caesarean section services, 50% offered blood transfusion services and only 15% offered CEmONC services.
- CEmONC availability is higher in facilities in urban settings than in rural settings because there are more NGO/FBO facilities and also facilities in urban settings have well-equipped theatres with specialised doctors to perform Caesarean sections. They are also close to national and regional blood banks, which makes access to blood easy.

Figure 57: Map of CEmONC availability by county, Kenya 2018



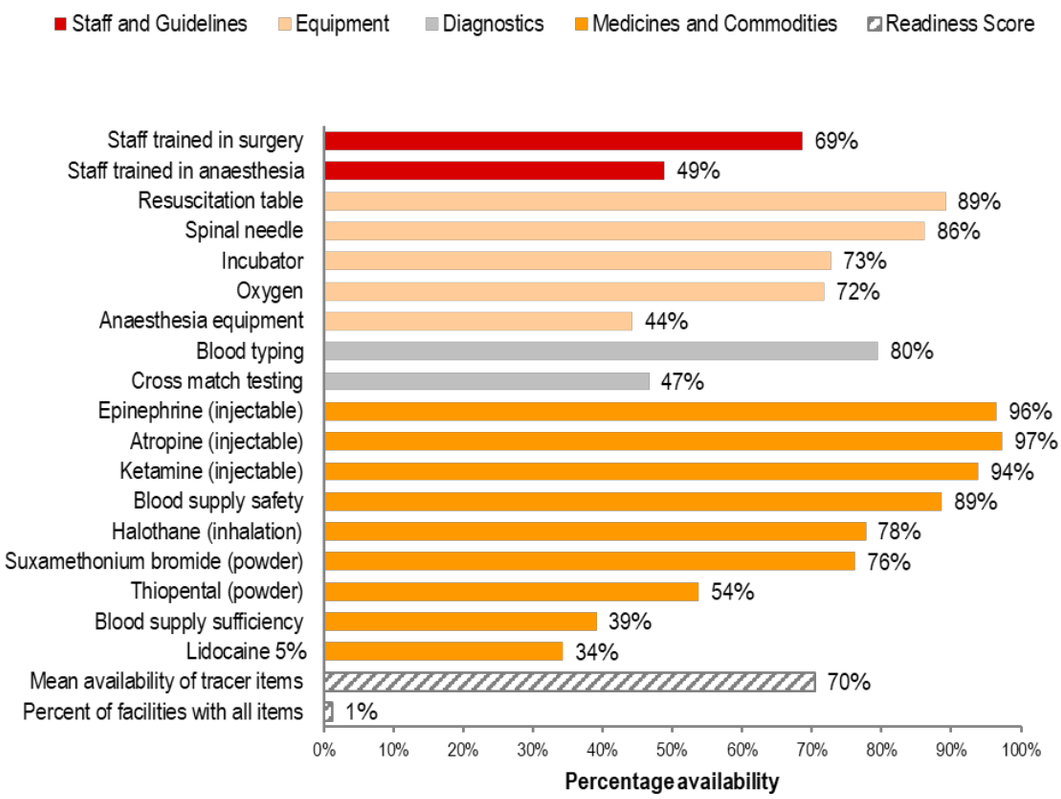
Service readiness

Service readiness to provide CEmONC services was assessed in hospitals providing Caesarean section services. Provision of Caesarean section services is a proxy for the availability of CEmONC services as it is expected that a facility providing the service should be ready to provide all 9 obstetric/newborn signal functions. The number of hospitals providing Caesarean section services was 213.

Readiness to provide CEmONC was assessed based on the presence of the 18 tracer items found in **Table 10**. **Figure 58** shows the percentage availability of these tracer items in hospitals that provide Caesarean section services (N=213).

- Nationally, the mean availability tracer items required for a facility to be considered ready to offer CEmONC services among hospitals offering Caesarean section services was 70%, with 1% of hospitals having all the tracer items.
- 69% of hospitals had staff trained in surgery, with 39% having staff trained in administering anaesthesia.
- Most hospitals had a resuscitation table (89%), spinal needle (86%), incubator (73%) and oxygen (72%,) with few hospitals (44%) having anaesthesia equipment. This implies that spinal anaesthesia is offered during Caesarean section more than general anaesthesia.
- Most hospitals were able to do blood typing (80%) but not cross match testing (47%).
- Most hospitals had epinephrine (96%), atropine (97%), and ketamine (94%), while very few hospitals had lidocaine (34%).

Figure 58. Proportion (%) of hospitals that have tracer items for comprehensive obstetric care services among facilities that provide Caesarean section services (N=213), Kenya 2018



Annex Table 26 shows the availability of CEmONC tracer items by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location while **Figure 59** and **Figure 60** show the variation in CEmONC readiness by county.

- The highest mean availability of CEmONC tracer items among those conducting Caesarean section services was Samburu (89%,) followed by Nakuru (85%) Turkana (85%), Meru (84%), Isiolo (83%) and Nyandarua (81%).
- Though mean availability for these counties was above 80%, none of the sampled hospitals offering Caesarean section services had all the CEmONC tracer items, except Bungoma which had 11% of the hospitals offering Caesarean section services having all CEmONC tracer items.
- There was a large difference between mean availability of tracer items compared to availability of all CEmONC. This is seen in **Figure 59** and **Figure 60** below. This means that these facilities, though providing Caesarean section services, are not ready to provide some of the BEmONC signal functions. This might lead to unnecessary Caesarean sections being performed or the administering of CEmONC services that are of suboptimal quality.

Figure 59: Map of CEmONC readiness (mean availability) by county, Kenya 2018

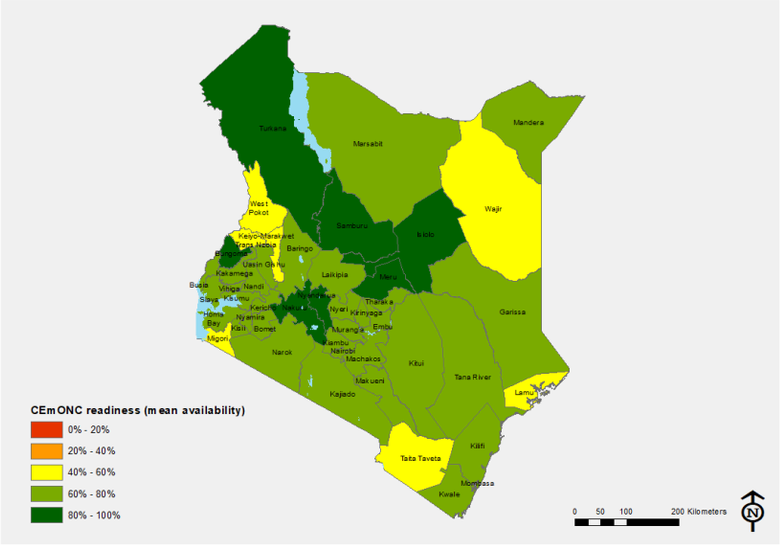
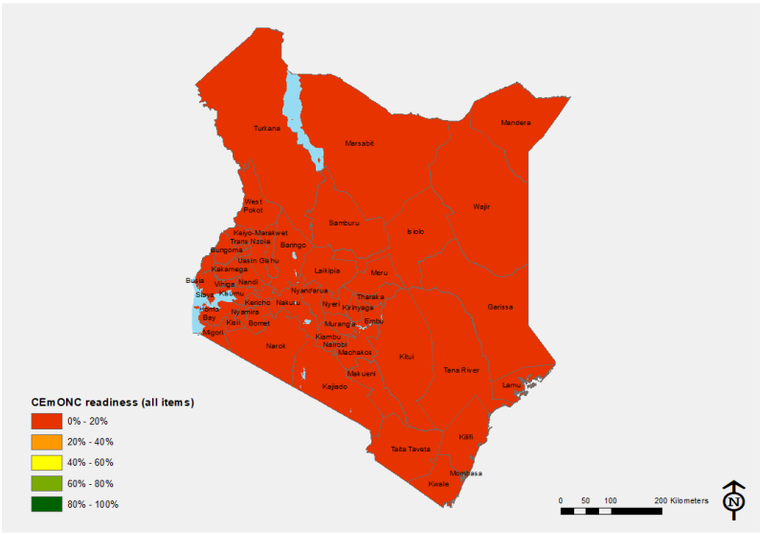


Figure 60: Map of CEmONC readiness (all items) by county, Kenya 2018

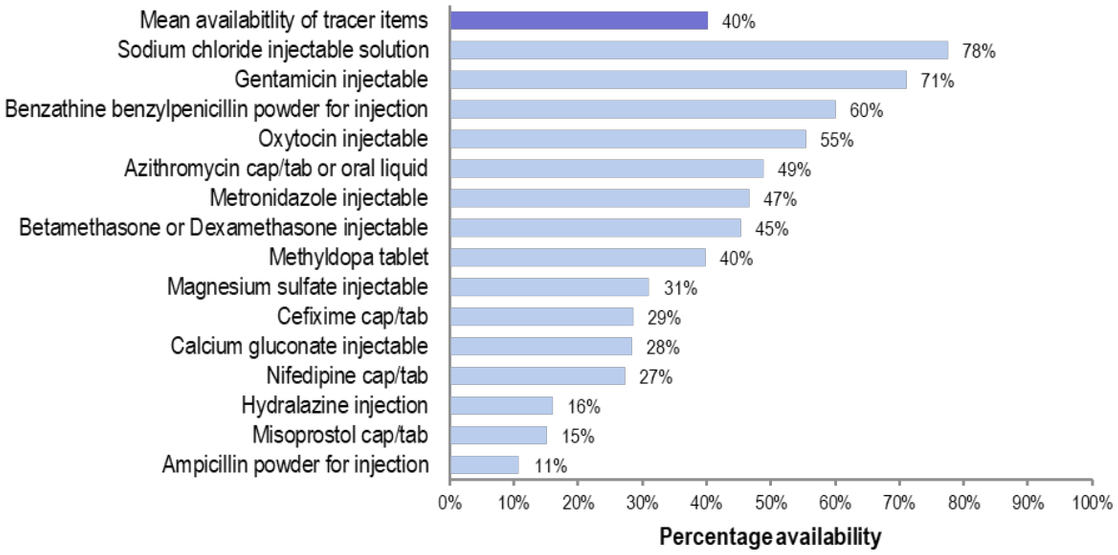


5.1.5 Essential medicines for mothers

Availability of essential medicines needed to provide maternal health services are detailed in the following section. **Figure 61** shows the percentage of facilities offering essential medicines for mothers.

- The mean availability of essential medicines for mothers nationally was 40%.
- The most available medicines were sodium chloride injectable solution at 78%, gentamicin injectable at 71%, and benthazine benzylpenicillin powder for injection at 60%.
- The least available medicines for mothers were ampicillin powder for injection at 11%, misoprostol capsules/tablets at 15%, and hydralazine at 16%.

Figure 61: Proportion (%) of facilities that have essential medicines for mothers observed in stock and valid (N=2927), Kenya 2018



Annex Table 27 shows the availability of essential medicines for mothers by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location.

- Only 5 counties had at least 50% of the essential medicines for mothers: Marsabit (62%), Samburu (61%), Mandera (52%), Isiolo (50%) and Kwale (50%). The county with the lowest mean availability of essential medicines for mothers was Tharaka Nithi (25%).
- Secondary and tertiary hospitals had the highest mean for tracer items for essential medicines (81%), with dispensaries having the lowest mean (33%).
- Private entities had the highest mean for tracer items for essential medicines, with government facilities having the lowest mean (36%).
- Facilities in urban settings had a higher mean (45%) compared to those in rural settings (38%).

5.1.6 Post-abortion care

Kenya's maternal mortality ratio (362 maternal deaths per 100,000 live births) is highest among women of peak reproductive age (25–39), and within this group, up to 8% of deaths may be associated with induced abortion[10]. The incidence of unsafe abortion in Kenya is among the highest in Africa, with the majority of women and girls arriving at healthcare facilities experiencing moderate to severe complications as a result. Such cases often require specialised treatment and exert pressure on already stretched human and material resources for health[11].

Post-abortion care (PAC) is designed to minimise morbidity and mortality associated with unsafe abortion by addressing incomplete abortion and treating complications, and to prevent recurrence by linking women to other reproductive health services, and providing them with post-abortion contraception. The tracer items required for post-abortion care service readiness are outlined in **Table 11**.

[10] CEMD Report 2017

[11] Incidence and Complications of Unsafe Abortion in Kenya: Key findings of a national study. Nairobi, Kenya: Ministry of Health; 2013.

Table 11. Tracer items for post-abortion care services

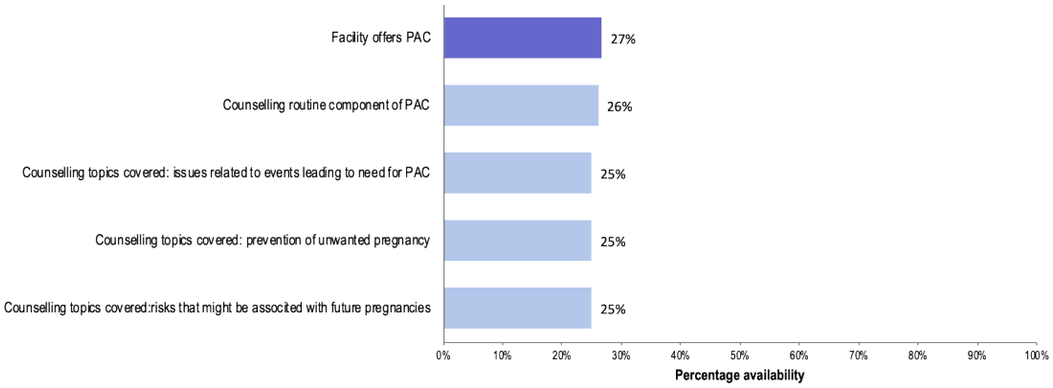
Domain	Tracer items
Equipment	• Vacuum aspirator or D&C kit (with speculum) • Sterile gloves
Medicines and commodities	• Antibiotics for postpartum sepsis (ampicillin and gentamicin, or ceftriaxone) • Pain medicine (acetaminophen or ibuprofen) • Antiseptic for washing perineum and opening of uterus

Service availability

Figure 62 shows the countrywide availability of post-abortion care services and by facility type.

- The national availability of PAC services is 27%.
- Routine PAC counselling was offered in 26% of visited facilities. Availability of PAC counselling follows a pattern similar to availability of PAC services.
- All aspects of counselling for PAC (events leading to PAC, prevention of unwanted pregnancy, and associated risks) are covered during counselling sessions in 25% of visited facilities.

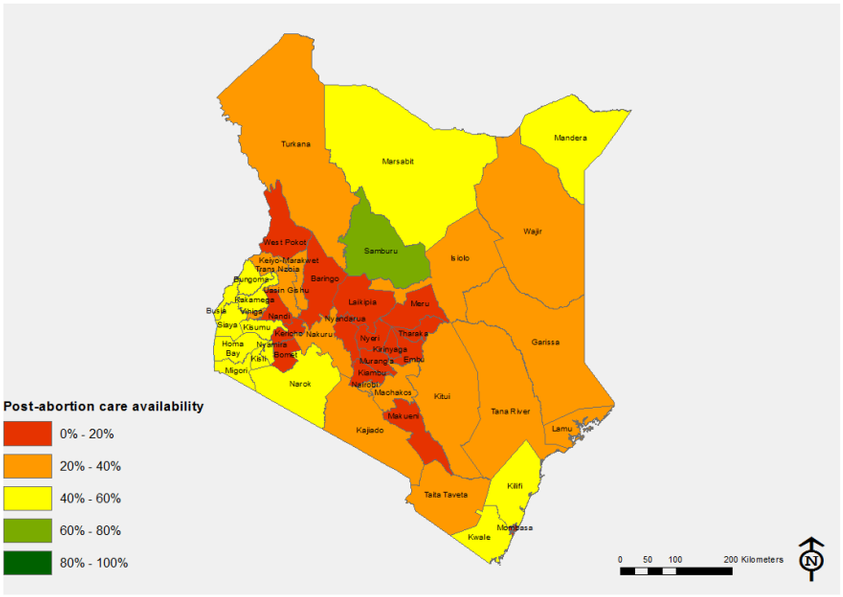
Figure 62. Proportion (%) of facilities that offer post-abortion care services (N=2927), Kenya 2018



Annex Table 28 shows the percentage of facilities offering post-abortion care services by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location while **Figure 63** shows the variation in post-abortion care service availability by county.

- PAC services availability ranged from 7% in Tharaka-Nithi, Nyeri, Embu, and Baringo to 65% and 60%, respectively in Samburu and Mandera.
- PAC services availability is higher in government (32%) than in private facilities (21%).
- Availability of PAC services did not seem to differ between the rural and urban areas.
- The availability of PAC services increased with the level of care from medical clinics (10%) to secondary and tertiary hospitals (90%).
- Overall, access to PAC services was low throughout the country. Thus, women of reproductive age seeking PAC services may not have access to this basic essential service that minimises morbidity and mortality associated with unsafe abortion.

Figure 63: Map of post-abortion care availability by county, Kenya 2018

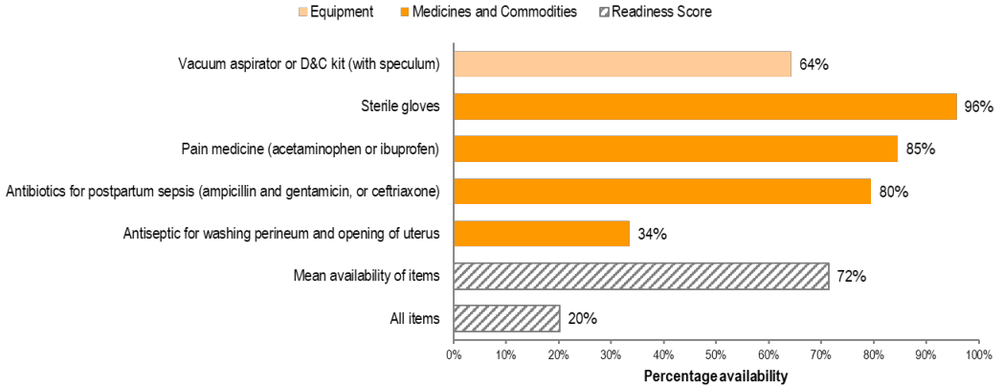


Service readiness

Readiness to offer post-abortion care services was assessed based on the availability of the five tracer items found in **Table 11. Figure 64** shows the percentage availability of these tracer items in facilities that offer post-abortion care services (N=964).

- Overall, 20% of facilities offering PAC services had all the tracer items required to deliver the service.
- On average, facilities offering PAC services had 72% of the tracer items required to deliver the service.
- Sterile gloves were the most available items (96%) while antiseptics were the least available items (34%) in facilities offering PAC services.

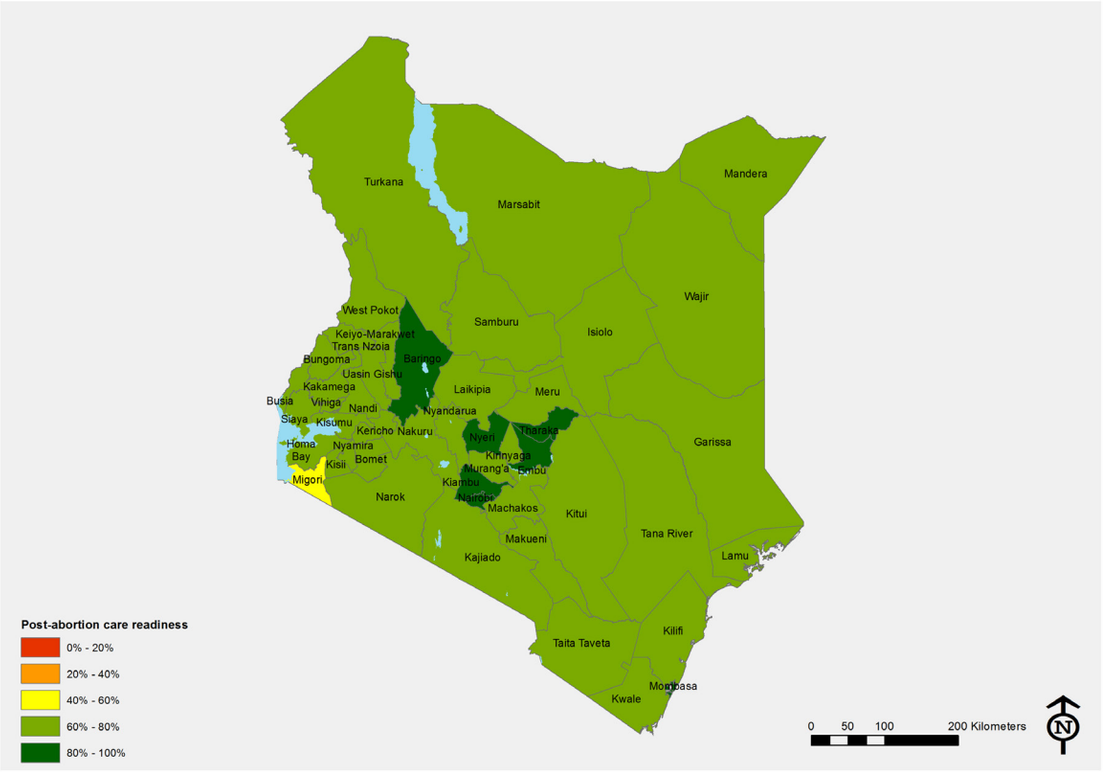
Figure 64: Proportion (%) of facilities that have tracer items for post-abortion care services among facilities that provide this service (N=964), Kenya 2018



Annex Table 29 shows availability of post-abortion care tracer items by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location while **Figure 65** shows the variation in post-abortion care service readiness by county.

- The availability of all items required for providing PAC care ranged from 0% in Kirinyaga and Nandi to 60% in Tharaka-Nithi.
- Quality of care in PAC services tended to improve with the level to care. While 85% of secondary and tertiary hospitals had all the tracer items on the day of the interview, only 9% of medical clinics had these items.
- Availability of all tracer items was higher in private facilities (32%) compared to government facilities (15%) and NGO/FBO facilities (14%). These items tend to be more available in urban (34%) vs. rural (14%) settings.

Figure 65: Map of post-abortion care readiness by county, Kenya 2018



5.1.7 Postnatal care for mothers and newborns

According to WHO guidelines, postnatal care (PNC) has been shown to improve healthcare outcomes for mothers and babies after delivery. PNC involves mitigation for post-delivery complications and postpartum counselling before discharge. For the KHFA, the tracer items that were reviewed for testing availability and readiness of health facilities to provide PNC for mothers and newborns are outlined in **Table 12**.

Table 12. Tracer items for postnatal care for mothers and newborns

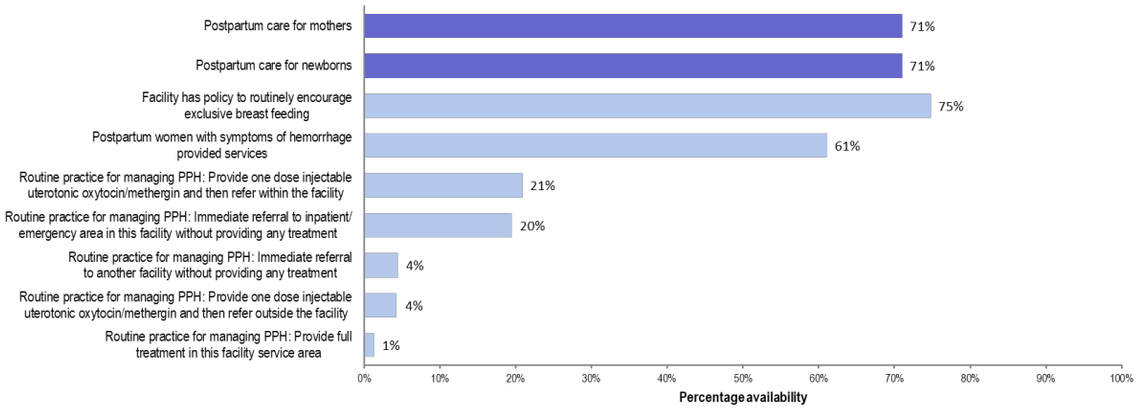
Domain	Tracer items
Equipment	• Room with visual and auditory privacy • Infant scale • Thermometer • ITNs for newborns
Medicines and commodities	• Chlorhexidine • BCG vaccine • Polio vaccine • Antibiotic for maternal sepsis • Gentamicin for newborn sepsis

Service availability

Figure 66 shows the countrywide availability of postnatal care for mothers and newborns as an outpatient service.

- Overall, 71% of facilities offer PNC for mothers as an outpatient service. Service offering had increased from 59% in 2010 (KSPA, 2010).
- Overall, 71% of facilities offer PNC for newborns as an outpatient service.
- 21% of surveyed facilities provided one dose injectable uterotonic oxytocin/methergine and then referred within the facility.
- 75% of surveyed facilities encouraged mothers to breastfeed when providing PNC outpatient services. .

Figure 66. Proportion (%) of facilities that offer postnatal care for mothers and newborns as an outpatient service (N=2927); Of those facilities offering outpatient postnatal care, availability of specific services (N = 2153), Kenya 2018

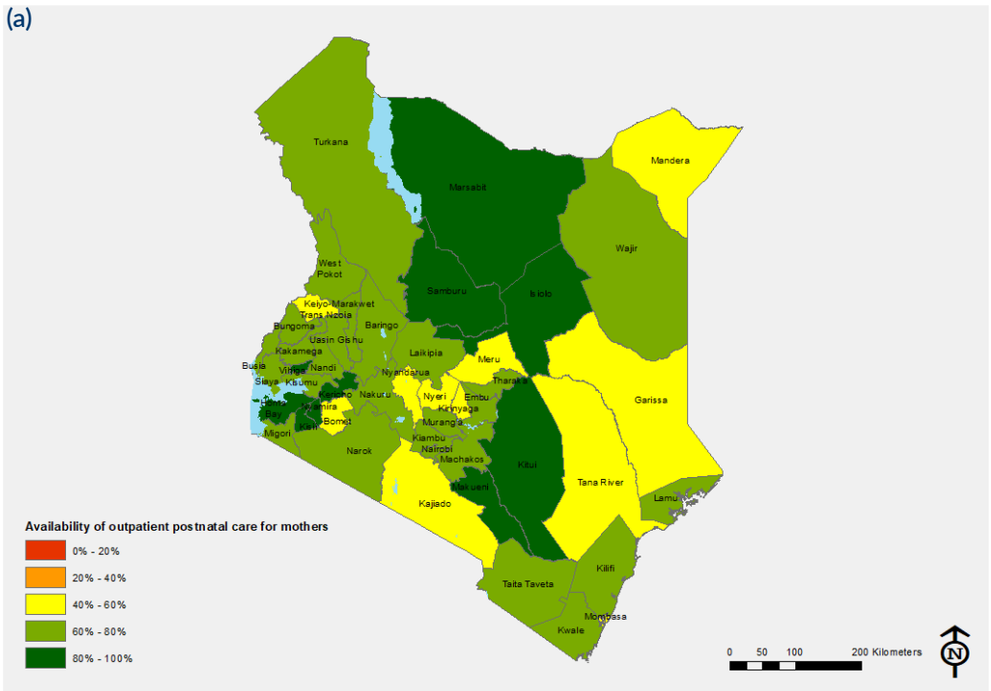


Annex Table 30 shows the percentage of facilities with postnatal care for mothers and newborns as an outpatient service by county, facility type, managing authority (governmental vs. non-governmental),

and by urban vs. rural location. **Figure 67** shows the variation in availability in outpatient postnatal care for mothers and newborns by county.

- Availability of PNC services for mothers varied by county from 46% in Meru to 96% in Nyamira.
- The majority of facilities offered PNC for mothers. However, less than half of medical clinics (43%) offered these services.
- PNC services are less available in private facilities (50%), compared to government and FBO/NGO facilities (respectively, 86 and 74%).
- In addition, PNC services for mothers are more available in rural (77%) than in urban (58%) areas.
- Facilities providing one dose injectable uterotonic oxytocin/methergine and then referring within the facility varied widely, from 0% in Laikipia to 55% in Isiolo. In addition, about a third of high-level facilities provided this service. However, only 14% of medical clinics did.
- Encouragement of mothers during PNC outpatient service with regards to breastfeeding varied by county. All facilities in Nyamira encouraged breastfeeding, while only 47% of facilities did in Meru. This percentage is overall above 80% in all facility types, except for medical clinics (47%).

Figure 67: Map of outpatient postnatal care availability for mothers and newborns by county, Kenya 2018 (a) and (b)



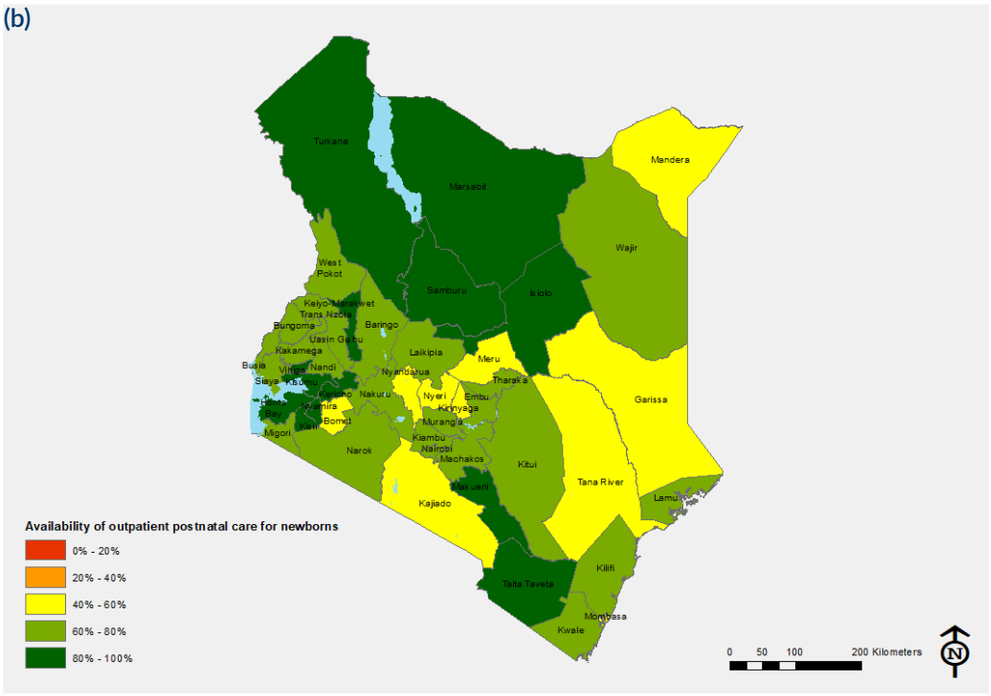
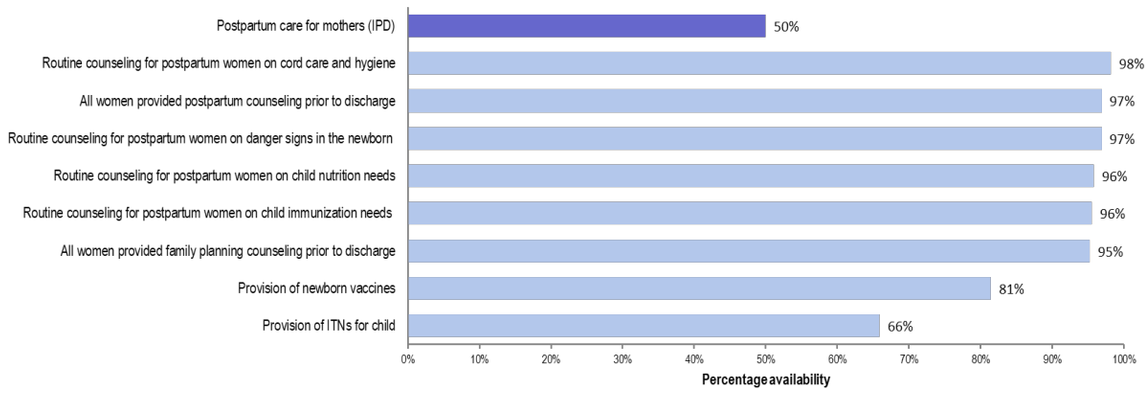


Figure 68 shows the countrywide availability of postnatal care for mothers and newborns as an inpatient service.

- Half of all health facilities offer PNC care as an inpatient service.
- Among facilities that provide inpatient PNC care, the most common services provided included routine counselling on cord care and hygiene (98%), general counselling and counselling on danger signs in the newborn (97%), counselling on women's nutritional needs and counselling on child nutrition (96%). Provision of ITNs for children was the less available service (66%).

Figure 68. Proportion (%) of facilities that offer postnatal care for mothers and newborns as an inpatient service (N=2927); Of those facilities offering inpatient postnatal care, availability of specific services (N = 1682), Kenya 2018

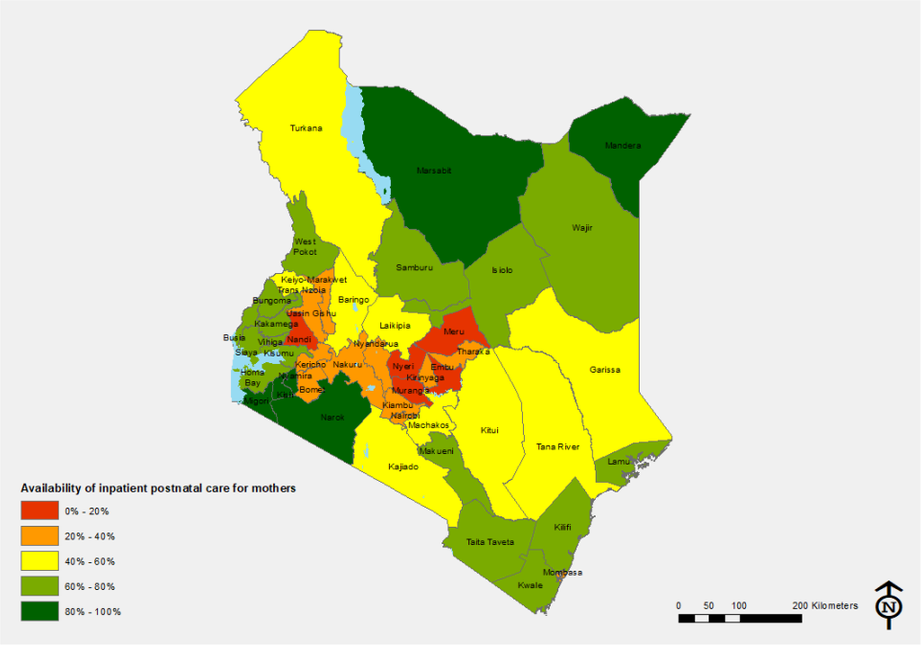


Annex Table 31 shows the percentage of facilities offering postnatal care for mothers and newborns as an inpatient service by county, facility type, managing authority (governmental vs. non-governmental),

and by urban vs. rural location while **Figure 69** shows the variation in availability of inpatient postnatal care for mothers and newborns by county.

- The proportion of facilities offering PNC as an inpatient service was highest in Nyamira (95%), Marsabit (84%), Migori (81%) and Kwale (80%).
- Kiambu (22%), Meru (20%), Nandi(19%), Nyeri(17%), Murang'a (16%) and Embu (13%) had the lowest proportion of facilities providing inpatient PNC services. This is likely because some of these counties have level 5 referral facilities (Kiambu, Meru, Nyeri, Embu) hence a large number of deliveries and inpatient PNC is given in these large facilities and they have fewer primary hospital facilities to provide inpatient PNC services.
- Inpatient PNC services were offered in 90% of secondary and tertiary hospitals, in 98% of public primary hospitals, in 93% of private/NGO/FBO primary hospitals, 89% of health centres, 52% of dispensaries and 18% of medical clinics.

Figure 69: Map of inpatient postnatal care for mothers, availability by county, Kenya 2018

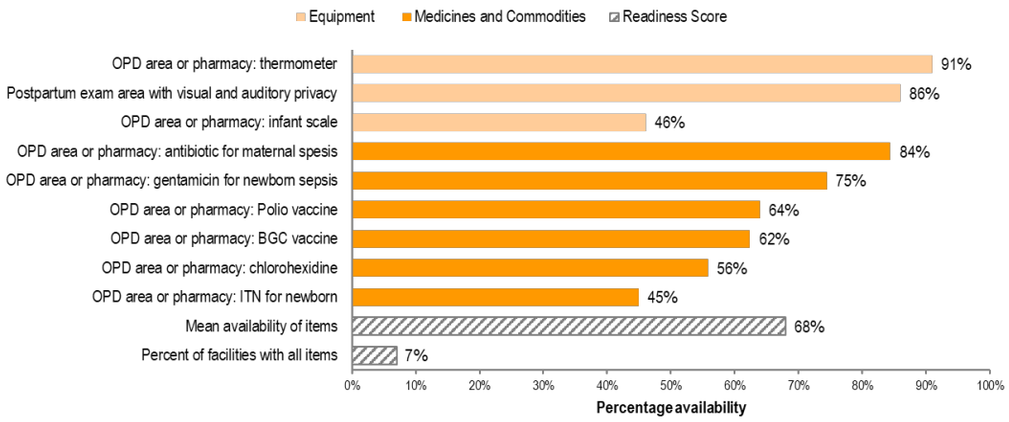


Service readiness

Readiness to offer postnatal care for mothers and newborns was assessed based on the availability of the ten tracer items found in **Table 12. Figure 70** shows the percentage availability of these tracer items in facilities that offer postnatal care for mothers and newborns (N=2153).

- Overall, percentage availability of all tracer items for inpatient PNC was very low (7%).
- Mean availability of the tracer items was 68%.
- The most common items were: thermometer (91%), visual and auditory privacy (86%), and antibiotics for maternal sepsis (84%). Chlorhexidine for newborn (56%) and ITNs (45%) for newborns was the lowest. ITN availability for newborns was low because these were only provided in malaria endemic areas.

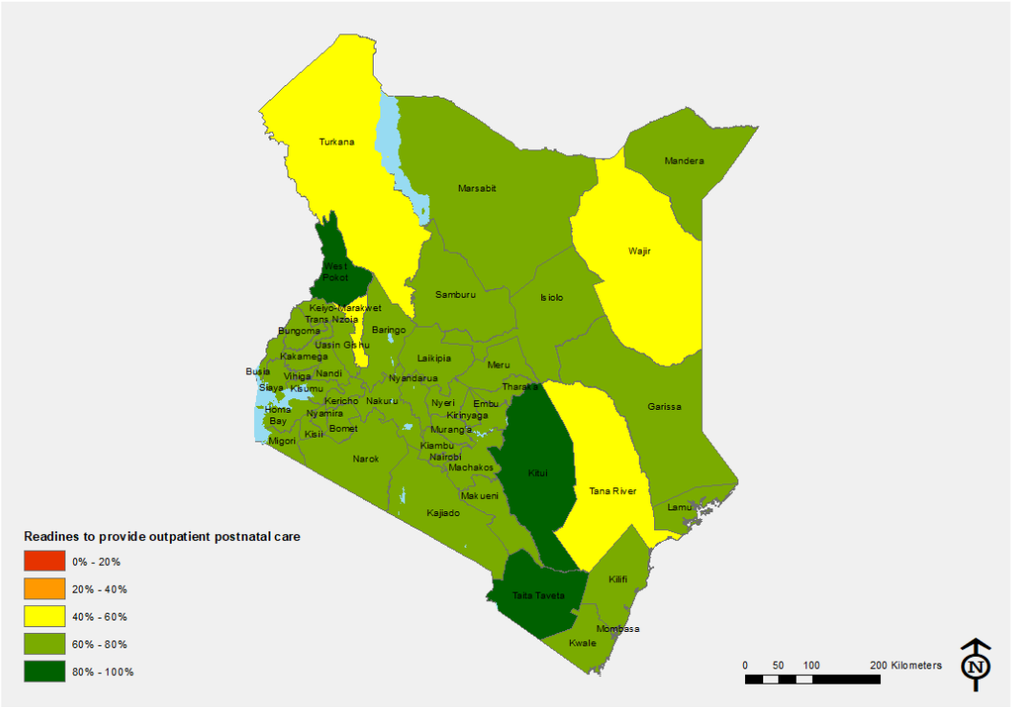
Figure 70: Proportion (%) of facilities that have tracer items for postnatal care for mothers and newborns among facilities that provide both maternal and newborn postnatal care (N=2105), Kenya 2018.



Annex Table 32 shows availability of postnatal care for mothers and newborns tracer items by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location while **Figure 71** shows the variation in postnatal care for mothers and newborns readiness by county.

- West Pokot had the highest percentage of facilities with all tracer items (41%) followed by Taita Taveta (34%) and Kitui (33%).
- These same counties had the highest mean availability of tracer items for PNC services: West Pokot (81%), Taita Taveta(84%) and Kitui (82%) .
- 35 counties had less than 10% of facilities with all tracer items.
- In 10 counties none of the facilities had all trace items. These were Elgeyo Marakwet, Embu, Laikipia, Migori, Nairobi, Nakuru, Samburu, Nyeri, Uasin Gishu and Wajir.

Figure 71: Map of postnatal care for mothers and newborns readiness by county, Kenya 2018



5.1.8 Care for low birth weight and sick newborns

Pre-term birth (born before 37 weeks of pregnancy) and being small for gestational age, which are the reasons for low-birth weight (LBW), are important indirect causes of neonatal deaths. LBW contributes to 60% to 80% of all neonatal deaths. Reduction in neonatal and infant mortality rates can be achieved by improving the care for low birth weight and sick newborns. Experience has clearly shown that appropriate care of LBW infants, including their feeding, temperature maintenance, hygienic cord and skin care, and early detection and treatment of infections and complications including respiratory distress syndrome can substantially reduce mortality. The tracer items required for care for low birth weight and sick newborns service readiness are outlined in **Table 13**.

Table 13. Tracer items for care for low birth weight and sick newborns

Domain	Tracer items
Equipment	• Bed for caregiver providing KMC • Register to record KMC

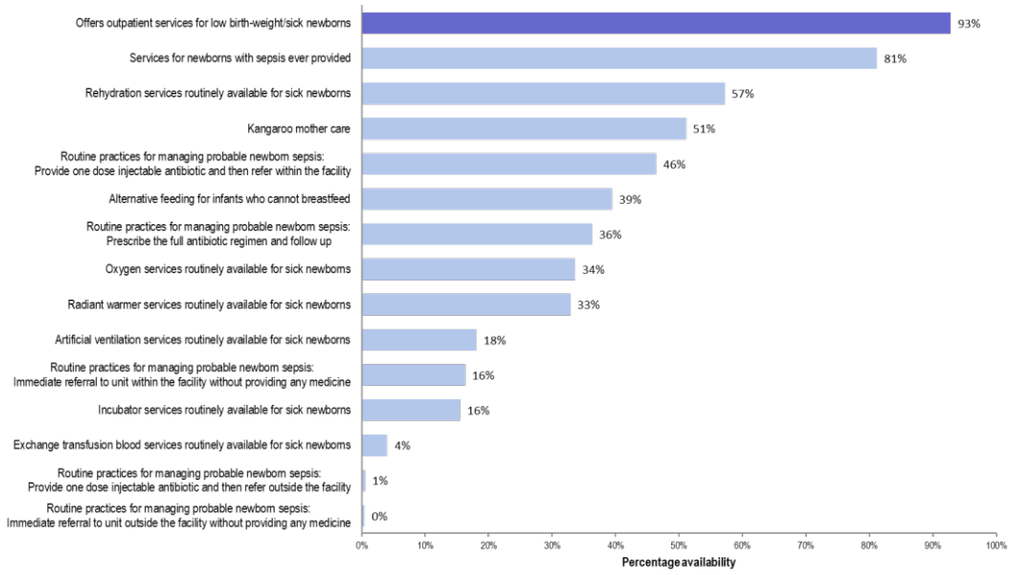
Service availability

Figure 72 shows the countrywide availability of care for low birth weight and sick newborns services.

- 93% of facilities that provide delivery services offer outpatient services for LBW and sick newborns.

- Among facilities offering outpatient services for LBW and sick newborns care, the most common services provided cover services for newborns with sepsis (81%), rehydration services (57%), provision of one dose of injectable antibiotic before referral within the facility (46%), alternative feeding for infants who cannot breastfeed (39%), and artificial ventilation services (18%).

Figure 72. Proportion (%) of facilities that offer care for low birth weight and sick newborns among facilities that provide delivery services (N=1682), Kenya 2018



Annex Table 33 shows the percentage of facilities offering key care for low birth weight and sick newborns services by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location.

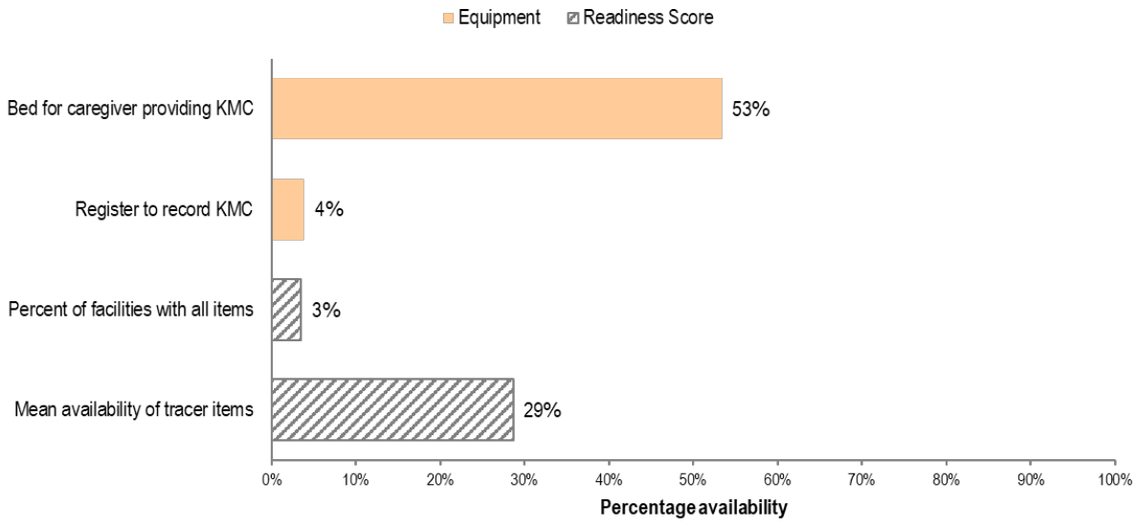
- Distribution across the country shows that in 14 counties, all facilities offered services for small and sick newborns. The lowest coverage was found in Makueni at 63%.
- All secondary and tertiary hospitals offered LBW and sick newborn care while 99% of public primary hospitals offered these services.
- Availability of care for LBW and sick newborns did not differ according to managing authorities (all 93%) but did vary slightly by settings (rural 92% vs. urban 96%).

Service readiness

Readiness to offer care for low birth weight and sick newborns was assessed based on the availability of the two tracer items found in **Table 13. Figure 73** shows the percentage availability of these tracer items in facilities that offered care for low birth weight and sick newborns (N=832).

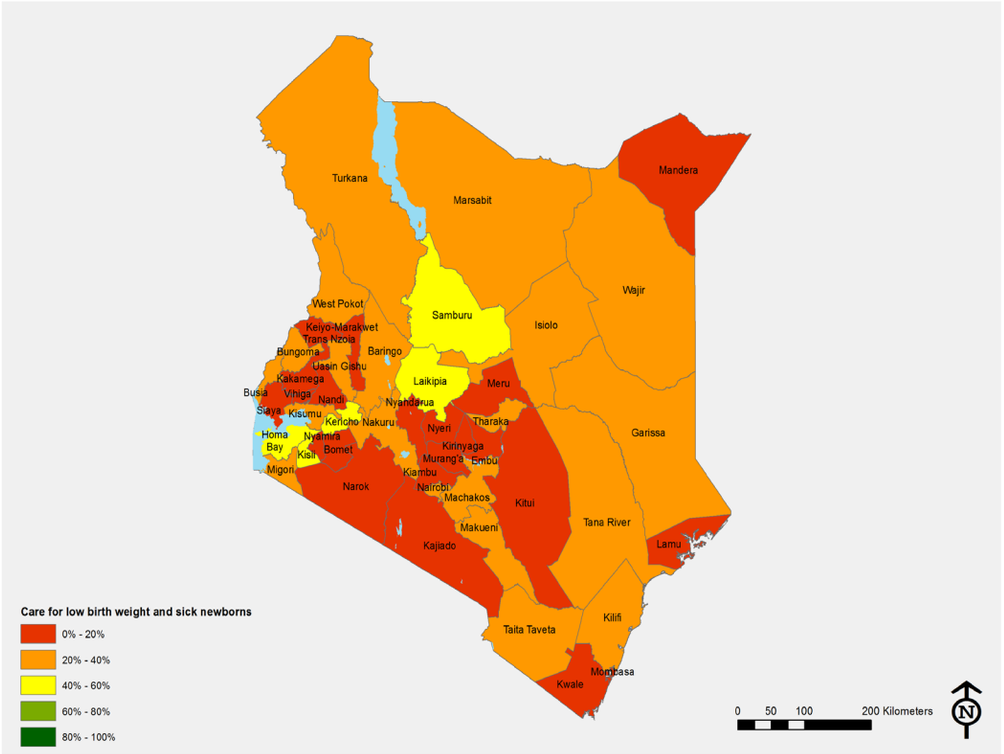
Overall, the mean availability of requisite tracer items among facilities offering LBW and sick newborn care stood at 29% nationally, with 53% having a bed for the caregiver providing KMC. However, only 4% of the facilities had a register to record KMC on the day of the interview. Only 3% of facilities had both tracer items for LBW and sick newborn care.

Figure 73: Proportion (%) of facilities that have tracer items for care for low birth weight and sick newborns among facilities that provide KMC (N=832), Kenya 2018



Annex Table 34 shows availability of care for low birth weight and sick newborns tracer items by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location while **Figure 74** shows the variation in care for low birth weight and sick newborns service readiness by county.

Figure 74: Map of care for low birth weight and sick newborns readiness by county, Kenya 2018



5.1.9 Routine child immunization

Immunization is a proven tool for controlling and eliminating life-threatening infectious diseases. It is one of the most cost-effective health investments, with proven strategies that make it accessible to even the most hard-to-reach and vulnerable populations. It has clearly defined target groups; it can be delivered effectively through outreach activities; and vaccination does not require any major lifestyle change. Scaling up immunization services is critical to the reduction of child mortality. Tracer items needed to provide routine child immunization services are outlined in **Table 14**.

Table 14. Tracer items needed to provide routine child immunization services, Kenya 2018

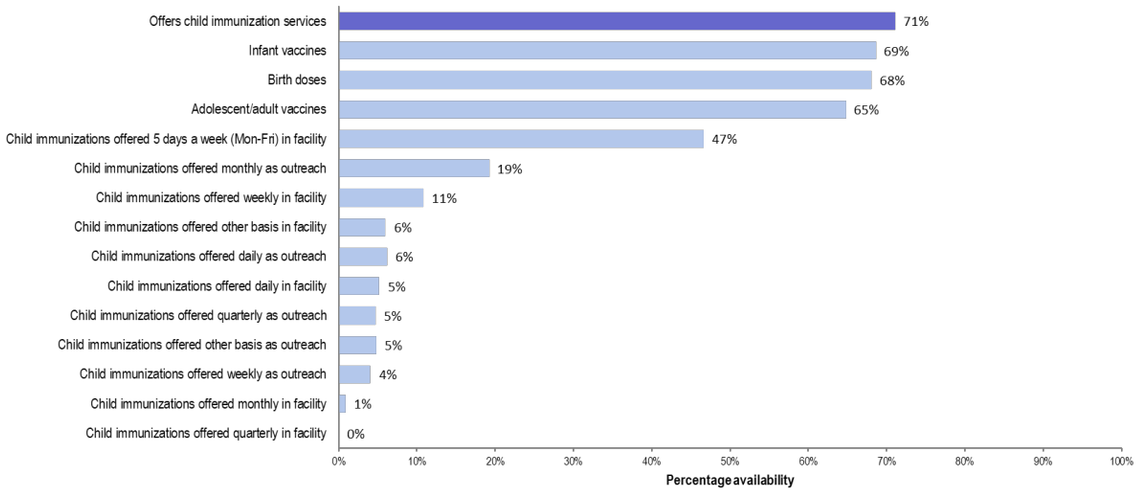
Domain	Tracer items
Equipment	• Cold box or vaccine carrier with ice packs • Refrigerator • Sharps container • Auto-disable syringes • Temperature monitoring device in refrigerator • Adequate refrigerator temperature • Immunization cards • Immunization tally sheets
Medicines and commodities	• Measles vaccine • DTP-Hib-HepB vaccine • Oral polio vaccine • BCG vaccine • Pneumococcal vaccine • Rotavirus vaccine • Inactivated poliovirus vaccine • Human papillomavirus vaccine

Service availability

Figure 75 shows the countrywide availability of child immunization services.

- The national average percentage of facilities offering immunization services was 71%.
- 47% of all facilities offered child immunizations 5 days a week (Monday-Friday)
- Overall, daily, weekly, monthly and quarterly child immunization outreaches were only registered in about 5% of the facilities covered under the KHFA 2018 survey.

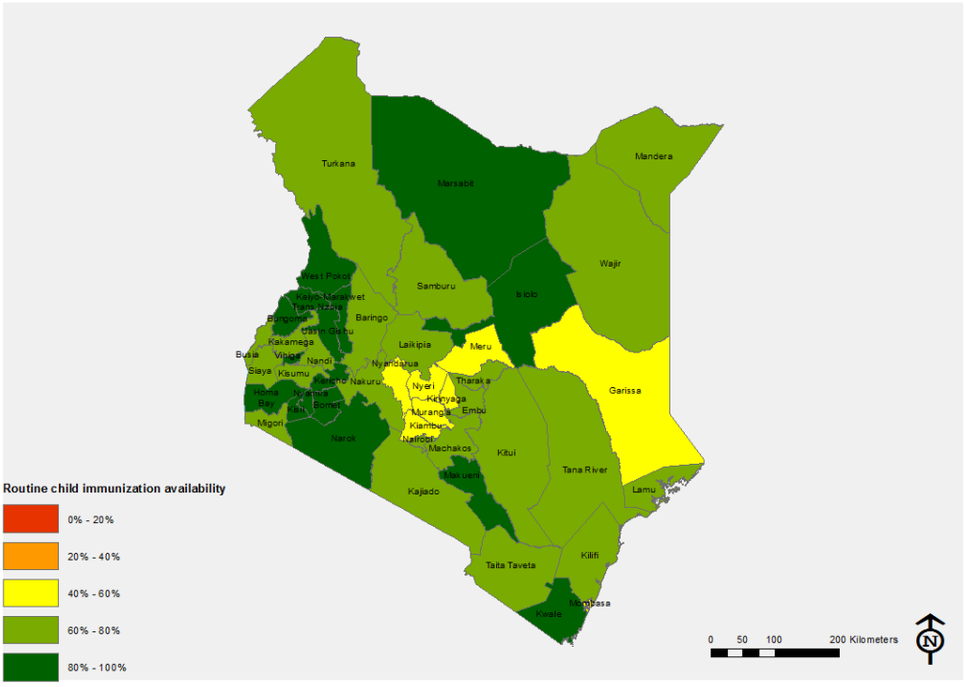
Figure 75. Proportion (%) of facilities that offer child immunization services (N=2927), Kenya 2018



Annex Table 35 shows the percentage of facilities offering key child immunization services by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location while **Figure 76** shows the variation in child immunization service availability by county.

- The counties with the highest proportion of facilities offering immunization services were: Homa Bay (93%), Elgeyo-Marakwet and Nyamira (92%), Kericho (91%) and Narok (90%), while the counties with the lowest proportion of facilities offering immunization services (< 50%) were Mombasa, Nyeri, Meru and Kirinyaga.
- Public primary hospitals had the highest percentage offering immunization services (98%), followed by secondary tertiary hospitals (95%), dispensaries (89%), health centres (86%), compared to private/NGO/FBO primary hospitals and medical clinics (83% and 36%, respectively).
- The proportion of government-managed health facilities offering immunization services was 92% followed by those managed by NGO/FBOs, which was at 79%. Only 42% of privately managed facilities offered immunization services. .
- Rural health facilities led in offering immunization services, at 80%, compared to urban facilities, at 54%.
- Adolescent/adult vaccines were available in 84% of government facilities, 72% of NGO/FBO facilities, and 39% of private facilities. These vaccines were more available in rural health facilities at 72% than in urban facilities at 90%.

Figure 76: Map of child immunization availability by county, Kenya 2018

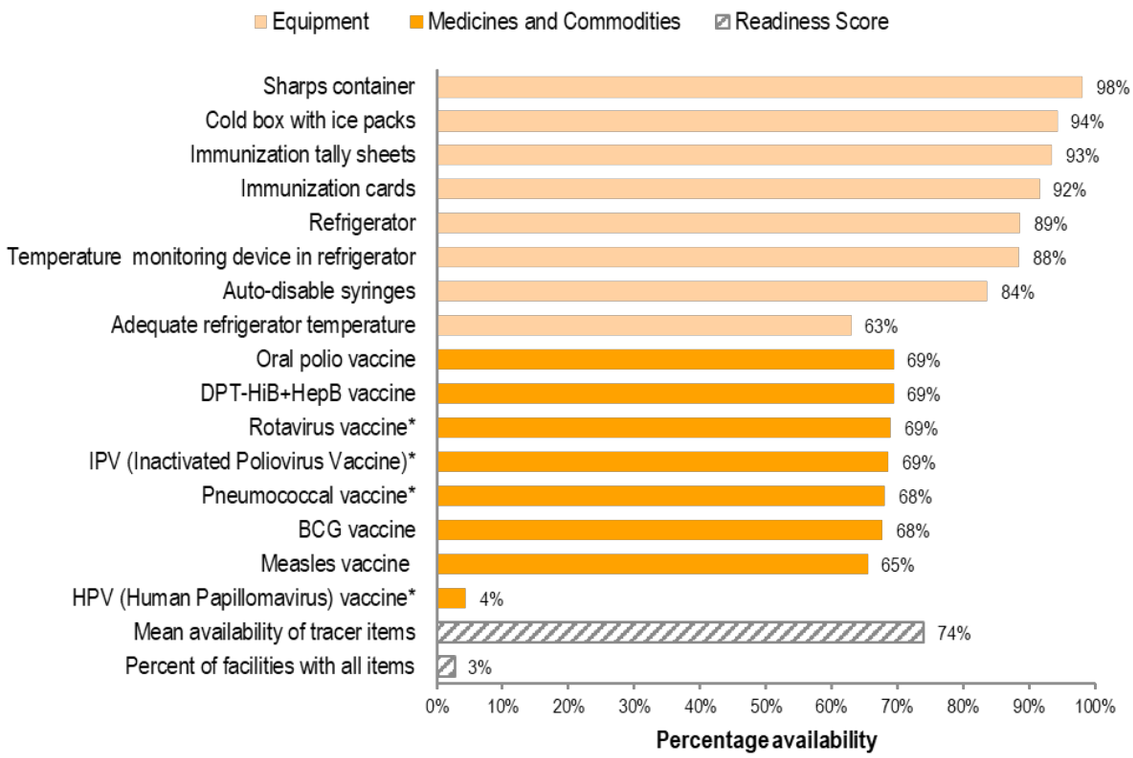


Service readiness

Readiness to offer child immunization services was assessed based on the availability of the 16 tracer items found in **Table 14. Figure 77** shows the percentage availability of these tracer items in facilities that offer child immunization services (N=2192).

- Mean availability of all the tracer items stood at 74% of all facilities assessed.
- Overall, the percent of facilities that had all the identified requisite tracer items was only 3% of all the facilities assessed during this survey.

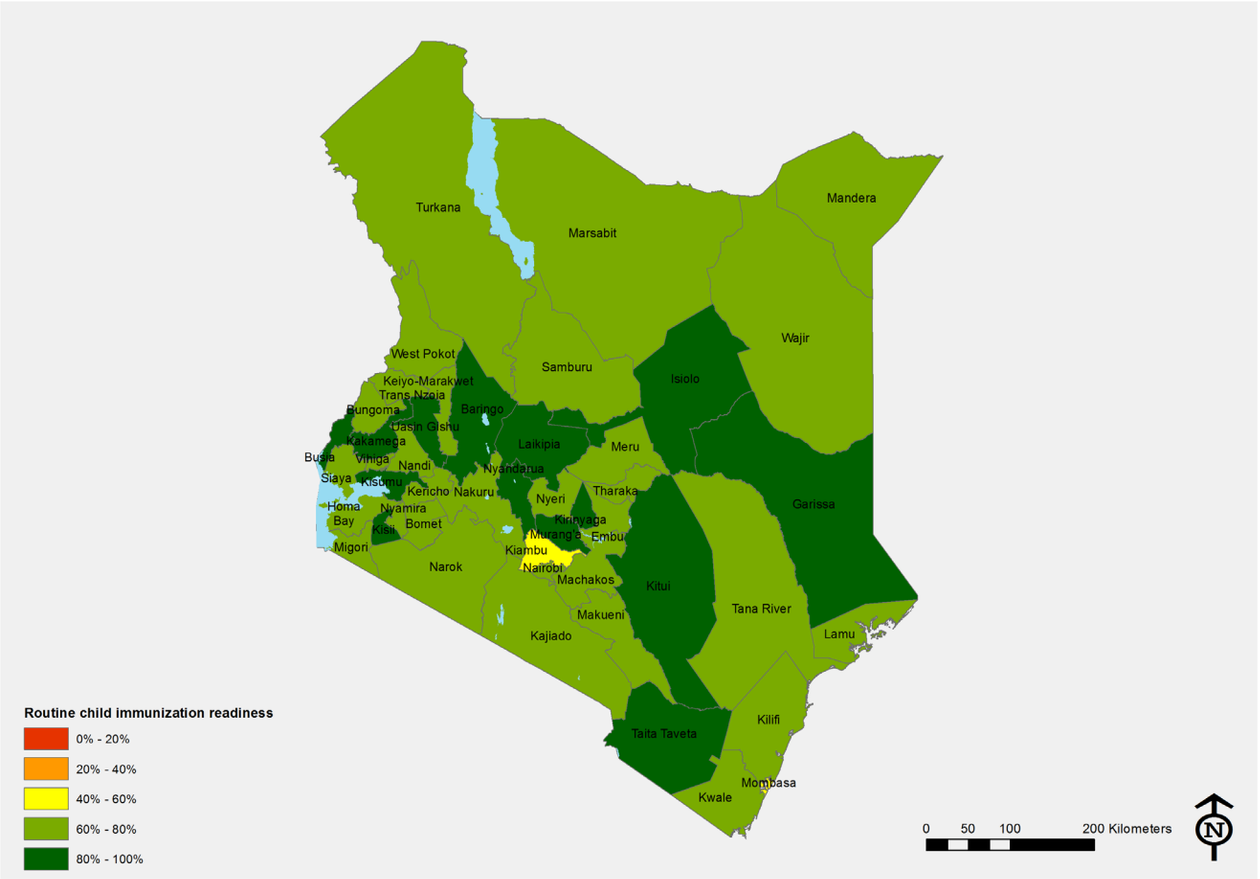
Figure 77: Proportion (%) of facilities that have tracer items for child immunization services among facilities that provide this service (N=2192), Kenya 2018



Annex Table 36 shows availability of child immunization tracer items by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location while **Figure 78** shows the variation in child immunization service readiness by county.

- Counties with facilities having a cold box ranged from 80% to 100% with the lowest being in Kiambu, and the highest in Baringo, Graissa, Marsabit, Murang'a, Nakuru, Nyandarua, Narok, Samburu, and Turkana.
- Immunization tally sheets were available in all Secondary & tertiary hospitals as well as the public primary hospitals, 97% in Private/NGO/FBO primary hospitals and dispensaries, 94% in health centres, and 83% in medical clinics.
- By managing authority, the mean availability of the tracer5 items in government, NGO/FBO, and private facilities was 80%, 73%, and 58% respectively.
- Generally, the availability of the tracer items was higher in rural than urban facilities at 76% and 67% respectively.

Figure 78: Map of child immunization service readiness by county, Kenya 2018



5.1.10 Child health preventive and curative care services

More than half of under-5 child deaths are due to diseases that are preventable and treatable through simple, affordable interventions. Strengthening health systems to provide such interventions to all children will save many young lives. The 2018 KHFA assessed the following child preventive and curative care services: preventive and curative care for children under 5 years; malnutrition diagnosis and treatment; vitamin A supplementation; iron supplementation, oral rehydration salt (ORS) and zinc supplementation; growth monitoring; treatment of pneumonia; administration of amoxicillin for the treatment of pneumonia in children; and treatment of malaria in children. **Table 15** outlines the items necessary for facilities to offer child health preventive and curative care services.

Table 15. Tracer items needed to provide child health preventive and curative care services

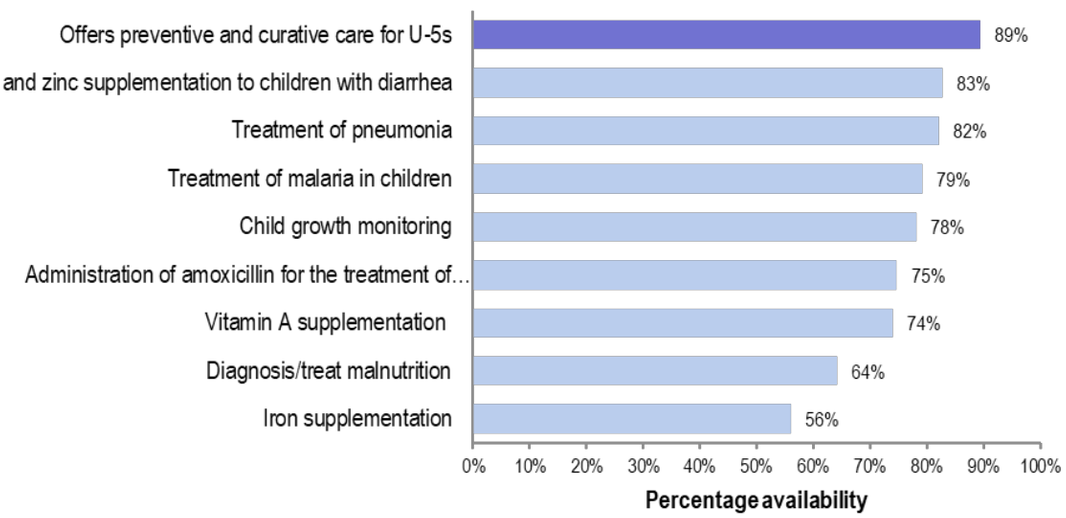
Domain	Tracer items
Equipment	• Child scale and infant scale • Length/height measurement equipment • Thermometer • Stethoscope
Diagnostics	• Capacity to conduct malaria testing • Haemoglobin test • General microscopy (to test for parasite in stool)
Medicines and commodities	• Oral rehydration solution (ORS) • Albendazole/mebendazole • Co-trimoxazole suspension • Vitamin A • Amoxicillin syrup/suspension • Zinc tablets/syrup

Service availability

Figure 79 shows the countrywide availability of child preventative and curative care services.

- In all the health facilities sampled nationally, 89% offered preventive and curative care for children under the age of 5 years.
- On specific child health services, ORS and zinc supplementation for children with diarrhoea was offered by 83 % of health facilities, closely followed by facilities offering treatment of pneumonia (82%). Iron supplementation was the lowest child health service (56%).

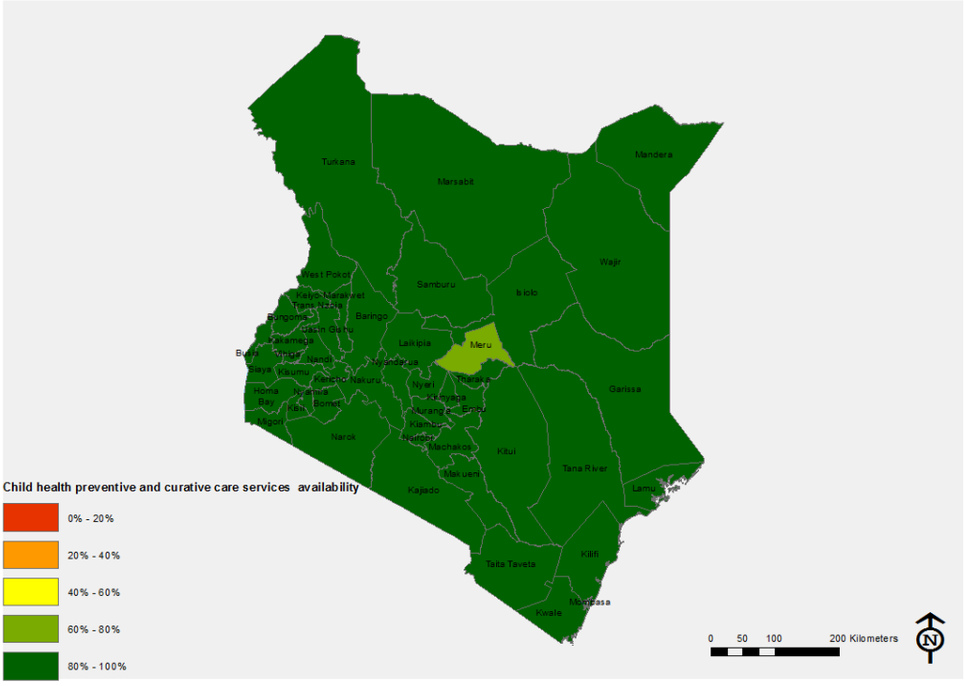
Figure 79. Proportion (%) of facilities offering key child preventive and curative care services (n=2927), Kenya 2018



Annex Table 37 shows the percentage of facilities offering key child preventative and curative care services by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location while **Figure 80** shows the variation in child preventative and curative care service availability by county.

- Percentage of facilities that offered child health preventative and curative care services was highest in Elgeyo Marakwet (100%), Muranga (98%) and Tharaka Nithi (98%).
- All counties had above 80% of the facilities able to offer child health preventative and curative care services, except Meru County, which was at 70%.
- Public primary hospitals had the highest child health preventive and curative care services availability at 99%, followed by health centres and dispensaries at 96%, secondary tertiary hospitals at 95%, and private /NGO/FBO primary hospitals at 92%. Medical clinics had the lowest child health preventive and cure care services at 76%.
- In government health facilities, availability of child health preventive and curative care services was at 98%, followed by NGO/FBO facilities at 89%, and private facilities at 79%.
- Rural health facilities were leading in availability of child health preventive and curative care services at 94%, compared to urban facilities, which were at 79%.

Figure 80: Map of child preventative and curative care service availability by county, Kenya 2018

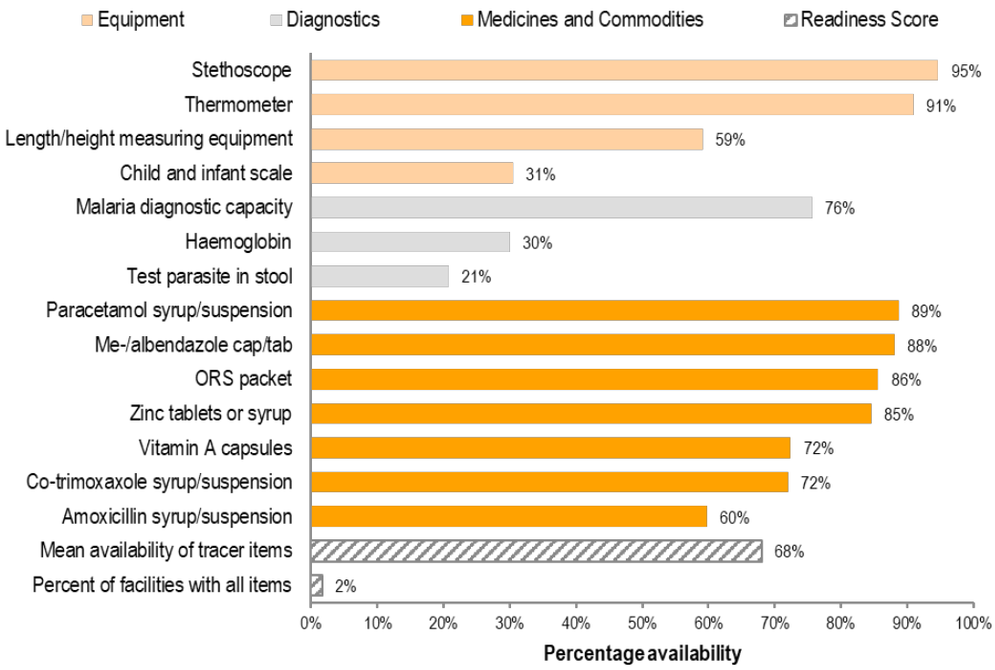


Service readiness

Readiness to offer child preventative and curative care services was assessed based on the availability of the 13 tracer items found in **Table 15. Figure 81** shows the percentage availability of these tracer items in facilities that offer child preventative and curative care services (N=2659).

- Nationally, the mean availability of all tracer items is at 68%.
- Only 2% of the facilities nationally had all the tracer items for child preventive and curative care services.
- For diagnostic tests, 76% of the facilities had the capacity to test for malaria, 30% for haemoglobin, and 21% for parasite in stool.
- Regarding equipment, 95% of the facilities had a stethoscope, 91% a thermometer, 59% had length height measuring equipment and 31% had child and infant scales.. Regarding medicines and commodities, 89% of the facilities had paracetamol suspension syrup, 88% had Me-/albendazole tablets, 86% had ORS packets, and 85% had zinc tablets or syrup. 72% of facilities had Vitamin A capsules and cotrimoxazole syrup, while 60% had amoxicillin syrup suspension.

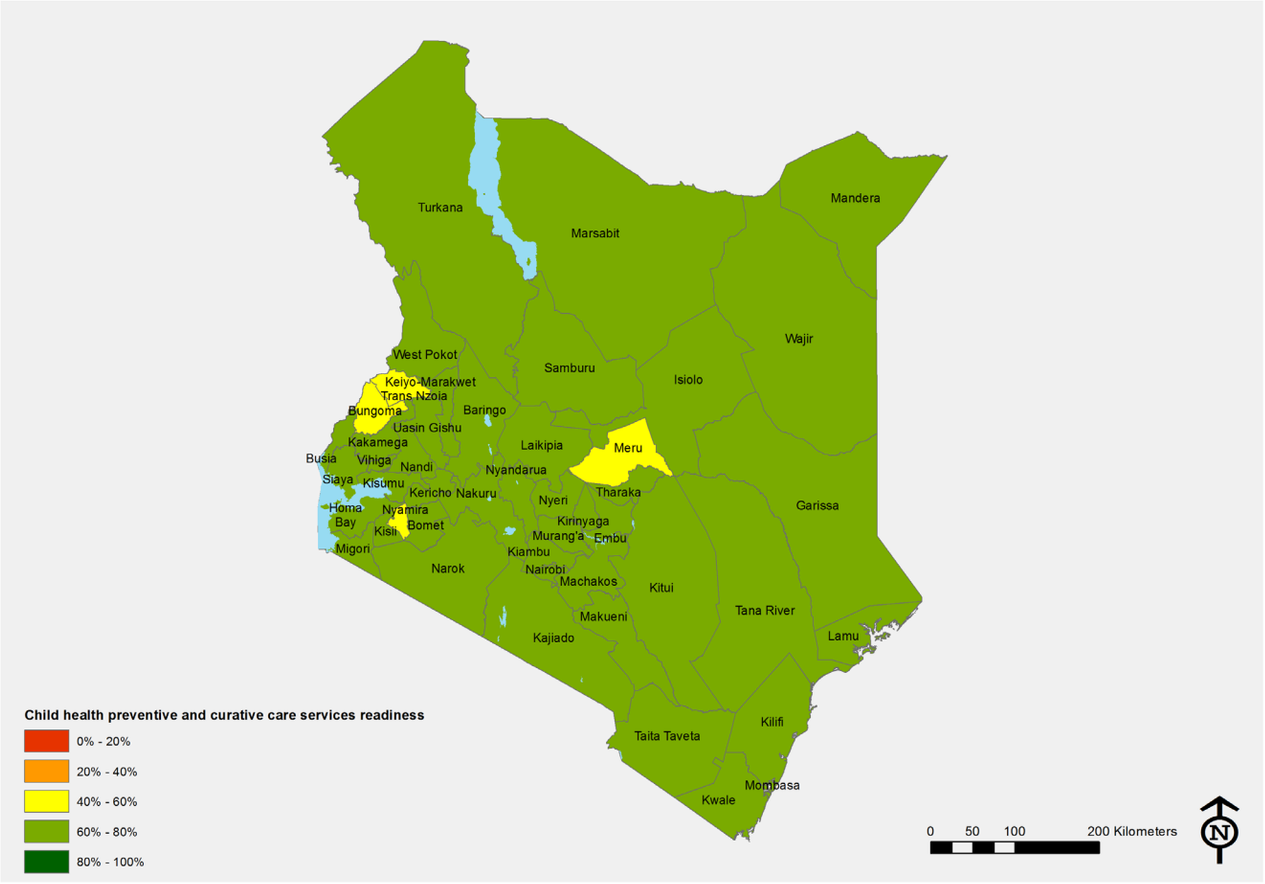
Figure 81: Proportion (%) of facilities that have tracer items for child preventative and curative care services among facilities that provide this service (N=2659), Kenya 2018



Annex Table 38 shows availability of child preventative and curative care tracer items by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location while **Figure 82** shows the variation child preventative and curative care readiness by county.

- 21% of secondary and tertiary hospitals had all tracer items followed by private/NGO/FBO primary hospitals (7%). Only 6% of public primary hospitals had all tracer items.
- In terms of facility type, health centres had the highest mean availability of tracer items at 73%, while dispensaries and clinics stood at 67% and 63%, respectively.
- The mean availability of tracer items remained constant across the counties, with Taita Taveta County leading at 77%, while Trans Nzoia County had the least at 54%.

Figure 82: Map of child preventative and curative care readiness by county, Kenya 2018

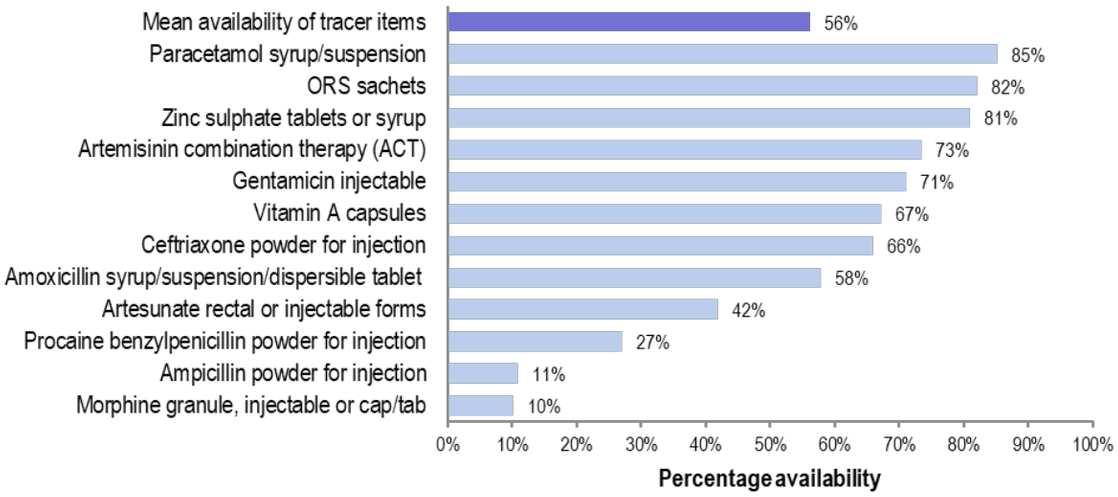


5.1.11 Essential medicines for children

Availability of essential medicines needed to provide child health services are detailed in the following section. **Figure 83** shows the percentage of facilities offering essential medicines for children.

- The mean availability of essential medicines for children nationally was 56%.
- The highest available items were paracetamol syrup (85%), ORS (82%), and zinc sulphate tablets/ syrup (81%).
- The least available was morphine granules injections/capsules/tablets (10%), ampicillin powder (11%), and procaine penicillin (27%).

Figure 83: Proportion (%) of facilities that have essential medicines for children observed in stock and valid (N=2927), Kenya 2018



Annex Table 39 shows the availability of essential medicines for children by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location.

- In a quarter of the counties, less than 50% of the health facilities had amoxicillin syrup/suspension/ dispersible tablets. Tharaka Nithi county had the highest percentage (92%) of its facilities having this item.
- Only 7 counties had less than 50% of facilities stocking ceftriaxone, with Kwale (90%), Marsabit (92%) and Narok (94%) ranking as the counties with the highest percentage of health facilities that had ceftriaxone.
- All except 4 counties had 70% and above of their health facilities stocked with ORS sachets.
- All except 4 counties had 73% or above of their health facilities stocked with paracetamol suspension. 2 counties, Marsabit and Murang'a, had all of their facilities stocked with paracetamol suspension.
- Generally, secondary and tertiary hospitals were best stocked with essential medicines for children, with an average of 85%, while dispensaries and medical clinics were the least stocked, at 55% and 50%, respectively.
- There was no significant difference in stock levels of essential medicines for children between government, NGO/FBO and private facilities nor between urban and rural facilities.

5.1.12 Adolescent health services

Globally, approximately 1 in 6, or 1.2 billion of the world's population, is an adolescent. In Kenya, adolescents constitute an even larger proportion of the population: 24% of the population, or approximately 9.2 million. While most adolescents are healthy, this age cohort suffers from substantial premature death and illness mainly due to unsafe sexual activity, injuries/road accidents, violence, substance abuse, and mental illness. Kenya's total fertility rate declined to 3.9 in 2014, but there has been no change in teenage pregnancy with one in five (18%) of adolescents in the 15 to 19 years age group having started child bearing. This has been a result of early marriage, high unmet need for contraception and poor access to family planning services.

Kenya has made significant strides in the response to HIV and AIDS, but adolescents still continue to bear the biggest brunt of the disease. According to the last Kenya Demographic and Health Survey (KDHS), approximately 29% of all new HIV infections are among adolescents and youth, and AIDS is the leading cause of death and morbidity among adolescents and young people in Kenya, with approximately 9,720 adolescents and young people dying of AIDS in Kenya in 2014. Coverage indicators for HIV prevention, care and treatment are poor, with only 23.5% of adolescents knowing their HIV status.

Items needed to provide adolescent health services are detailed in **Table 16**.

Table 16. Tracer items for adolescent health services

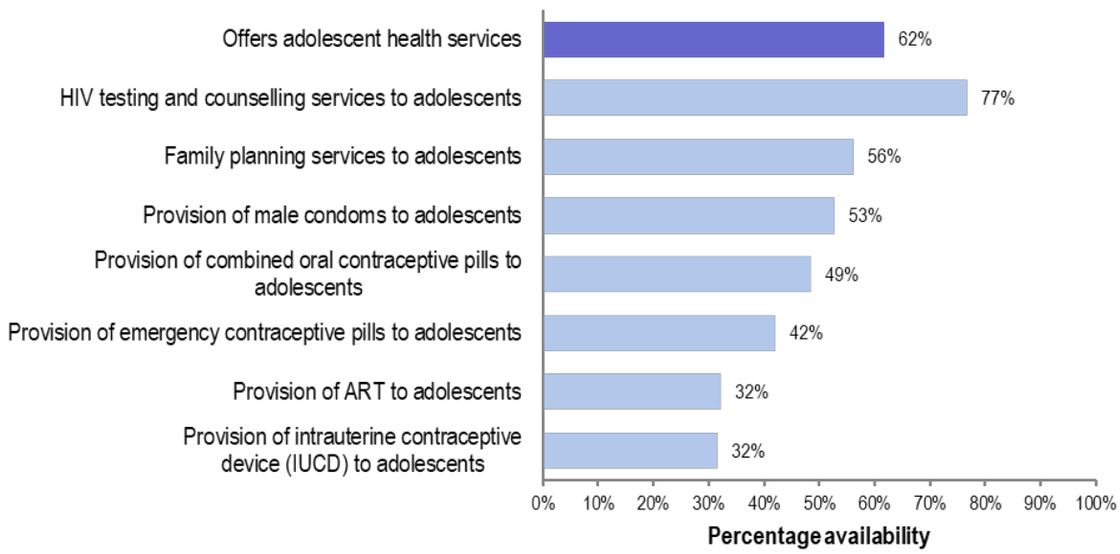
Domain	Tracer items
Diagnostics	• HIV diagnostic capacity
Medicines and commodities	• Condoms

Service availability

Figure 84 shows the countrywide availability of adolescent health services.

- The national average of facilities offering adolescent health services is 62%.
- HIV testing and counselling services were the highest (77%) services available, while provision of antiretroviral therapy (ART) and provision of intrauterine contraceptive device (IUCD) to adolescents were the least available services (32% each).

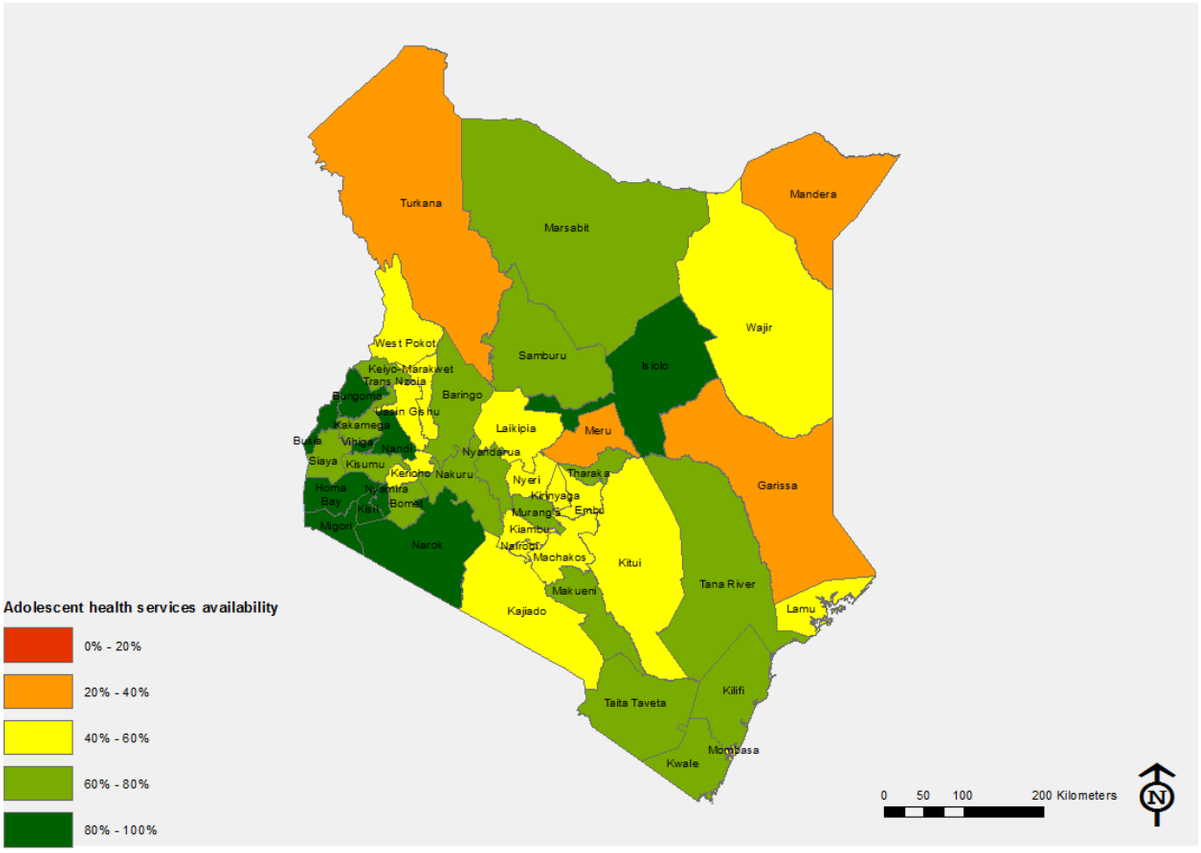
Figure 84. Proportion (%) of facilities that offer adolescent health services (N=2927), Kenya 2018



Annex Table 40 shows the percentage of facilities offering key adolescent health services by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location while **Figure 85** shows the variation in adolescent health service availability by county.

- Counties with the highest proportion of facilities offering adolescent health services were Homa Bay (93%), Kisii (92%) and Nyamira (91%) while counties with the lowest proportion of facilities offering the services were Mandera (29%) and Meru (28%).
- Public primary hospitals had the highest adolescent services availability at 88%, followed by secondary tertiary hospitals at 85%, health centres at 73%, and dispensaries at 68% compared to and private/NGO/FBO primary hospitals and medical clinics, which were at 68% and 45%, respectively.
- In government health facilities, availability of adolescent health services was at 75%, followed by NGO/FBO facilities, which were at 59% and private facilities, which were at 47%.
- Rural health facilities were leading in the availability of adolescent health services at 67%, while urban facilities were at 50%.
- There was more availability of adolescent health services in public facilities than in FBO/NGO and private facilities.
- It is also important to note that the availability of adolescent health services was more in the rural than in urban health facilities.
- The national adolescent health services availability index was slightly above average (62%).
- Private and NGO facilities should be encouraged to offer adolescent health services.

Figure 85: Map of adolescent health availability by county, Kenya 2018

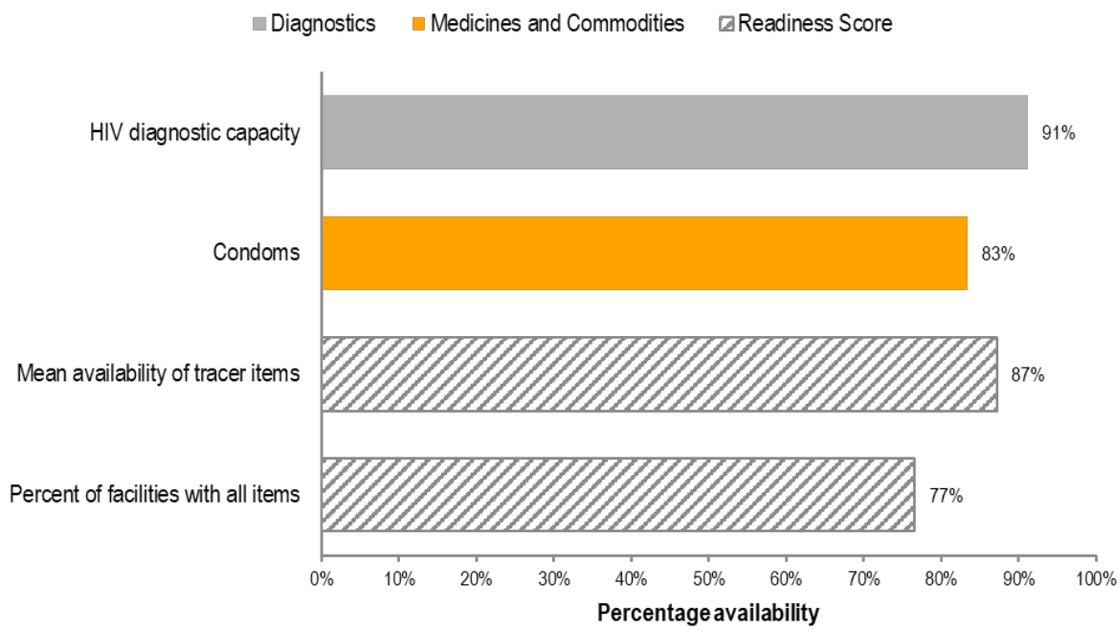


Service readiness

Readiness to offer adolescent health services was assessed based on the availability of the two tracer items found in **Table 16. Figure 86** shows the percentage availability of these tracer items in facilities that offer family planning/birth spacing services (N=1931).

- Overall, the main availability of tracer items stood at 87% nationally and the percent of facilities with all items was 77%. HIV diagnostic capacity scored the highest at 91%.

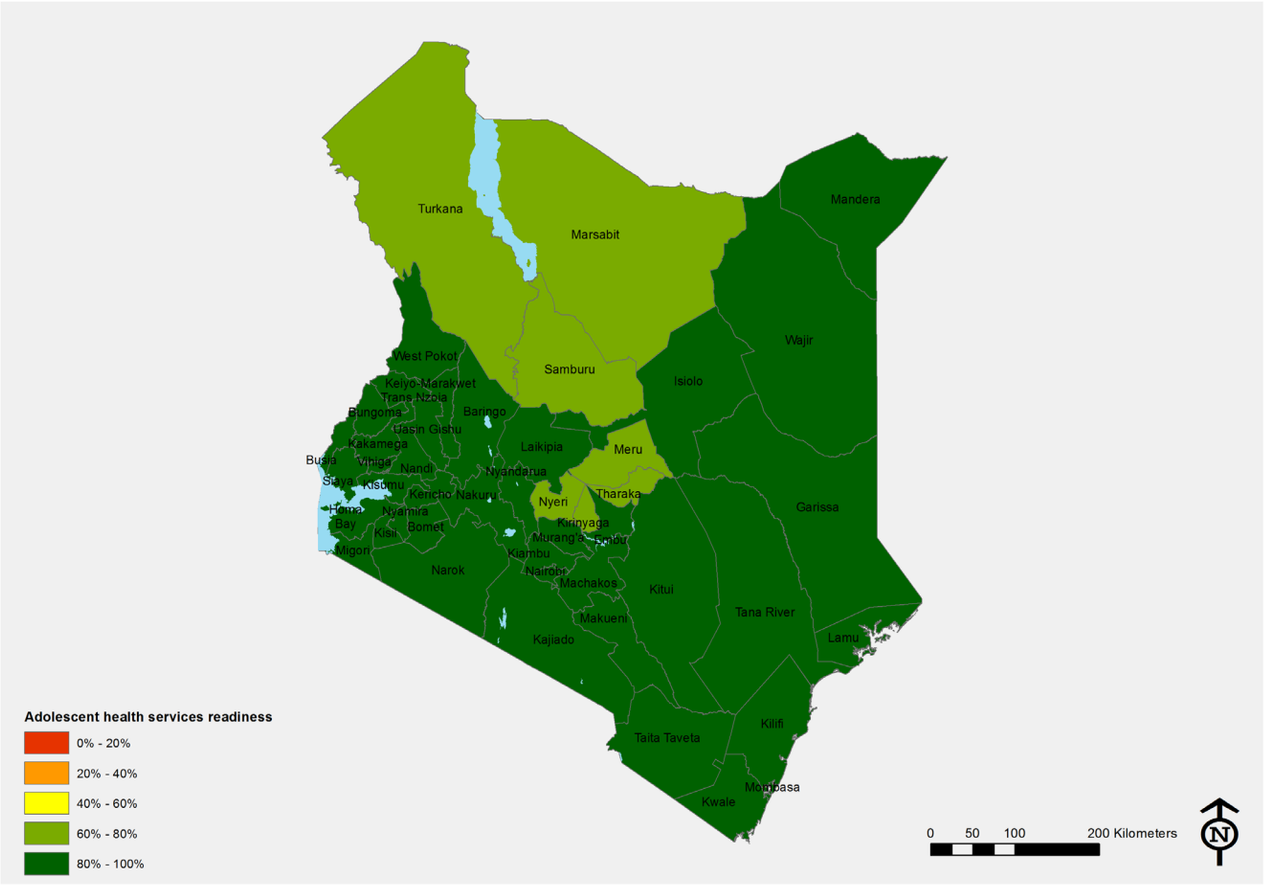
Figure 86: Proportion (%) of facilities that have tracer items for adolescent health services among facilities that provide this service (N=1931), Kenya 2018



Annex Table 41 shows availability of adolescent health tracer items by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location while **Figure 87** shows the variation in adolescent health readiness by county.

- Counties with proportion of facilities having both the adolescent health tracer items ranged from 53% to 95%. Highest availability (over 90%) was in Garissa, Kaijiado, Kilifi, Nyamira, Siaya, and Tana River.
- By facility type, the mean availability was highest in Public primary hospitals at 98%, followed by Secondary & tertiary hospitals at 91%. Lowest availability was recorded in NG/FBO facilities at 76%.
- 79% of rural facilities had the tracer items available as compared to 70% of the urban facilities.

Figure 87: Map of adolescent health readiness by county, Kenya 2018



5.2 Communicable diseases

Communicable diseases account for the highest proportion of the disease burden in Kenya, with the leading causes being HIV/AIDS, malaria and tuberculosis (TB). Communicable diseases are still a major cause of death and disability in Kenya. The overall availability of services for communicable diseases in Kenya can be seen in **Figure 88**.

- The most commonly available service for communicable diseases was for malaria; 91% of all facilities provided this service.
- 85% of Kenyan health facilities offered HIV counselling and testing and services for sexually transmitted infections (STIs).
- More than three-quarters of health facilities in Kenya offered PMTCT services.
- About 40% of facilities offered TB services and HIV care and support services.
- ARV prescription and client management services were available in 35% of facilities.
- The least available communicable disease services were for neglected tropical diseases (NTDs), with only 31% of facilities offering these services.

Figure 88. Availability of services for communicable diseases (N = 2927), Kenya 2018

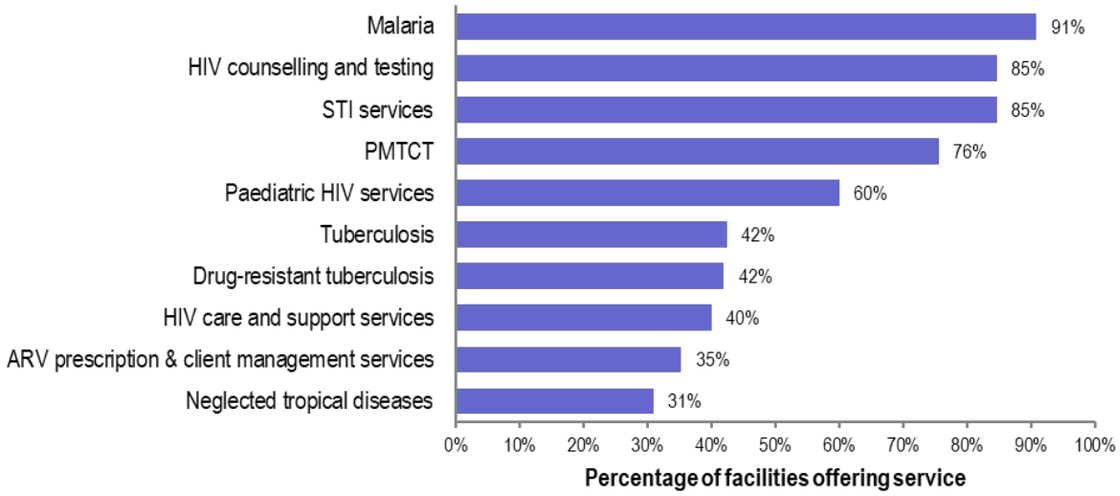
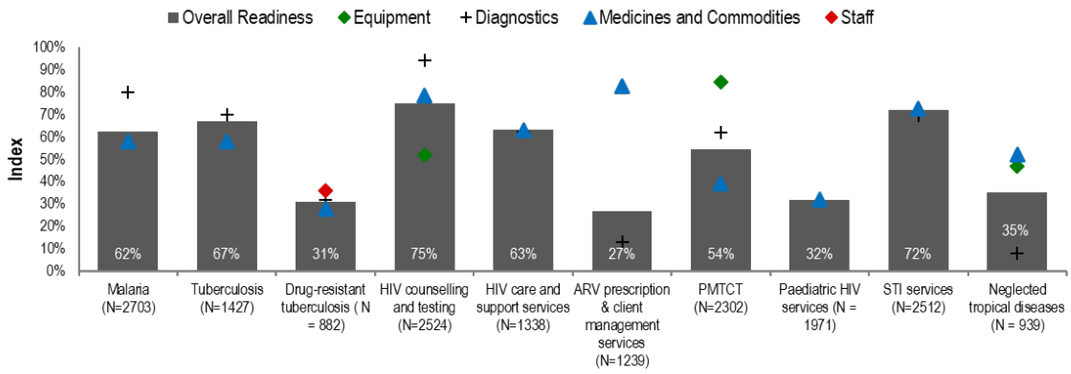


Figure 89 depicts the readiness for services for communicable diseases for each type of service and domain.

- The communicable disease service readiness index was highest for HIV counselling and testing (75%), meaning that 3 in 4 Kenyan health facilities were ready to provide HIV counselling and testing services.
- The lowest communicable disease service readiness index was for ARV prescription and client management services (27%). Only 1 in 4 health facilities were ready to provide ARV services. Diagnostic readiness was the main service dimension pulling the readiness down.
- More than 7 in 10 health facilities were ready to provide services for STIs.
- The communicable disease service readiness index was about 67% for TB, 63% for HIV care and support services, and 62% for malaria. This means that about 3 in 5 facilities were ready to provide TB, malaria, or HIV care and support services.
- The service area with the highest level of equipment was PMTCT, while the service area with the highest level of diagnostics was HIV counselling and testing. ARV prescription and client management services and HIV counselling and testing services had the highest indices for medicines and commodities.

Figure 89. Readiness to provide communicable disease treatment services, Kenya 2018



*** The readiness score corresponds to the average availability (%) of the tracer items of the four domains (« Equipment », « Diagnostic capacity », « Medicines and commodities », and « Staff»).**

5.2.1 Malaria

Malaria remains a significant public health concern in Kenya. Three-quarters of the population is at risk of contracting the disease, and older children aged between 10 and 14 years have the highest prevalence at 11%. More importantly, the burden of the disease varies across the country. The country has experienced a decrease in the prevalence of malaria among children aged 6 months to 14 years in the lake endemic areas, from 38% in 2010 to 27% in 2015, and a slight increase in prevalence in the coast endemic areas, from 4% in 2010 to 8% in 2015. In Kenya, there are four malaria epidemiological zones namely: the endemic zone of stable malaria around Lake Victoria and the Coast; seasonal malaria transmission zone in the arid and semi-arid areas of northern and south-eastern regions; the malaria epidemic-prone zone of the western highlands; and low-risk malaria areas in the central highlands and Nairobi 12.

The country continues to make progress in malaria control through multi-faceted approaches, primarily prevention and case management interventions. These interventions include distribution of long-lasting insecticide-treated nets (LLINs) through mother and child health (MCH) for pregnant women and children under 1 year of age in endemic and epidemic-prone areas, intermittent preventive treatment in pregnancy (IPTp) in endemic areas, and diagnosis and treatment of malaria cases available across the whole country. The country has therefore prioritised malaria among the diseases targeted for elimination in the first objective of the KHSSP, which is to accelerate the reduction of the burden of communicable diseases, including malaria.

[12] National Malaria Control Programme. (2019). *Kenya Malaria Strategy 2019–2023*. Nairobi: Ministry of Health.

Items needed to provide malaria services are outlined in **Table 17**.

Table 17. Items needed to provide malaria treatment services

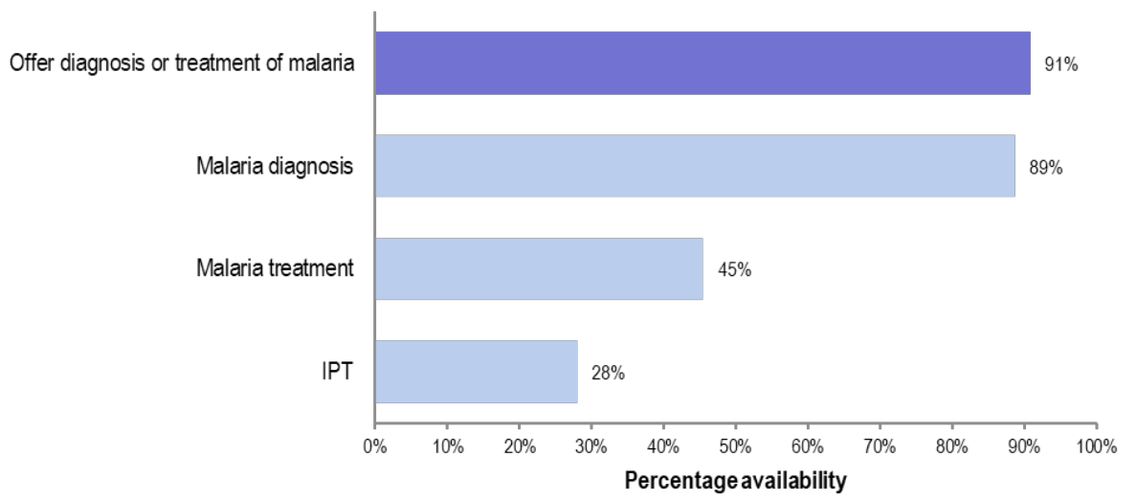
Domain	Tracer items
Diagnostics	• Malaria diagnostic capacity
Medicines and commodities	• First line antimalarial in stock • Paracetamol capsules/tablets (not usually included as a tracer malaria medicine as it is a non-specific ant-pyretic) • IPT drug • ITN

Service availability

Figure 90 shows the countrywide availability of malaria diagnosis or treatment services. It should be noted that case management services should be offered across the whole country and IPTp services are only offered in malaria endemic areas.

- Overall, 91% of health facilities in Kenya offered malaria diagnosis or treatment services.
- Among the services reported, facilities were most likely to offer malaria diagnosis (89%), followed by malaria treatment (45%), while the least offered service was intermittent preventive treatment (IPT) (28%). It should be noted that intermittent preventive treatment for pregnant women (IPTp) was only offered in malaria endemic areas.

Figure 90. Proportion (%) of facilities that offer malaria services (N=2927), Kenya 2018

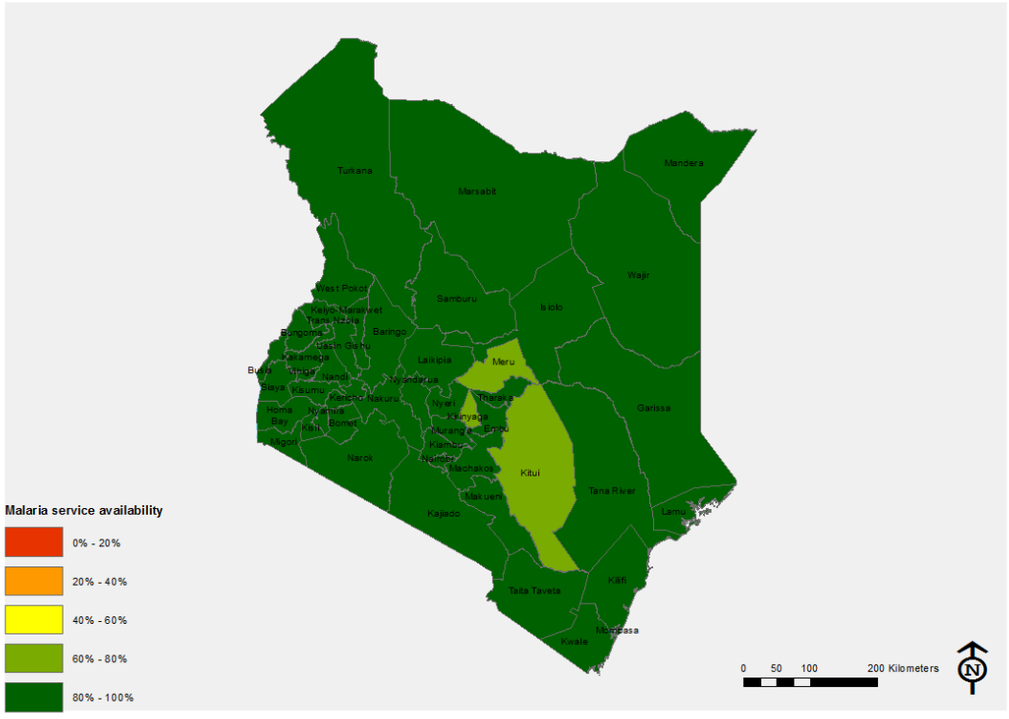


*** Mean availability and all items scores do not include ITNs or ITP drug**

Annex Table 42 shows the percentage of facilities offering services to diagnose and treat malaria services county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location while **Figure 91** shows the variation in malaria service availability by county.

- Among the counties, all health facilities in Kakamega, Marsabit, Siaya, Samburu, Tana River, Trans Nzoia, and Vihiga offered malaria services (all 100%). The lowest performing counties were Meru (67%) and Kitui (71%). In health facilities in Meru, 61% offered malaria diagnosis, but only 35% offered malaria treatment.
- Secondary and tertiary hospitals and private/NGO/FBO primary hospitals were the most equipped to diagnose and treat malaria; all (100%) had services to treat malaria, , followed by public primary hospitals, at 99%, health centres, at 97%, and dispensaries, at 91%. Medical clinics were least likely to offer malaria services (85%) compared to other facility types.
- Availability of malaria services was 92% for both government and NGO/FBO health facilities, compared to 89% for private facilities.
- Availability of malaria services was slightly higher in rural health facilities (92%), compared to urban facilities (89%).

Figure 91: Map of malaria treatment service availability by county, Kenya 2018



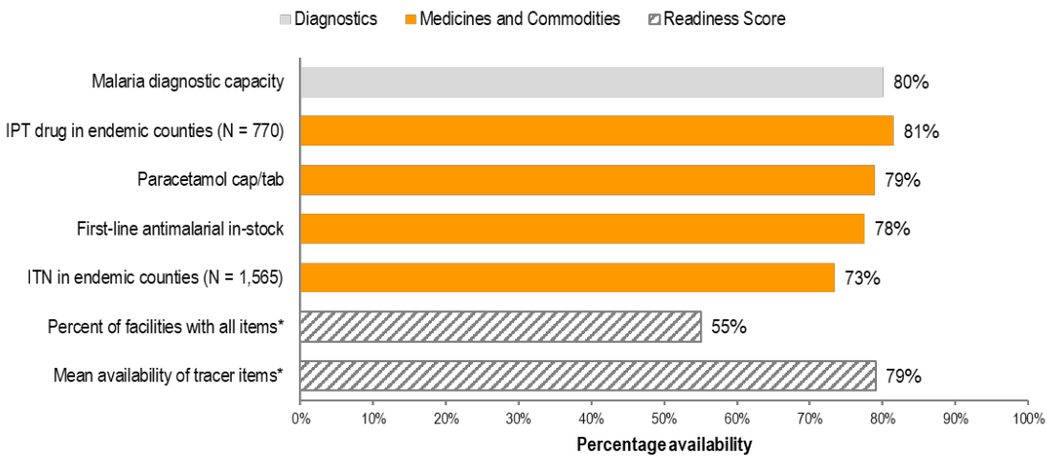
Service readiness

Readiness to provide malaria services was assessed based on the presence of the 5 tracer items found in **Table 17. Figure 92** shows the percentage availability of these tracer items in facilities that offer malaria services (N=2703).

- Among health facilities offering malaria services, 80% had malaria diagnostic capacity.

- Among health facilities offering malaria services, 79% had paracetamol capsules/tablets and 78% had the first-line antimalarial in stock on the day of the survey.
- ITNs were available in 73% of facilities located in malaria endemic counties while IPT drugs were available in 81% of facilities in malaria endemic counties.
- Overall, the mean availability of malaria tracer items was 79%. However, 55% of facilities that offered malaria service had all items available on the day of the survey – first-line antimalarial, paracetamol, and malaria diagnostic capacity.

Figure 92. Proportion (%) of facilities that have tracer items for malaria services among facilities that provide this service (N=2703), Kenya 2018

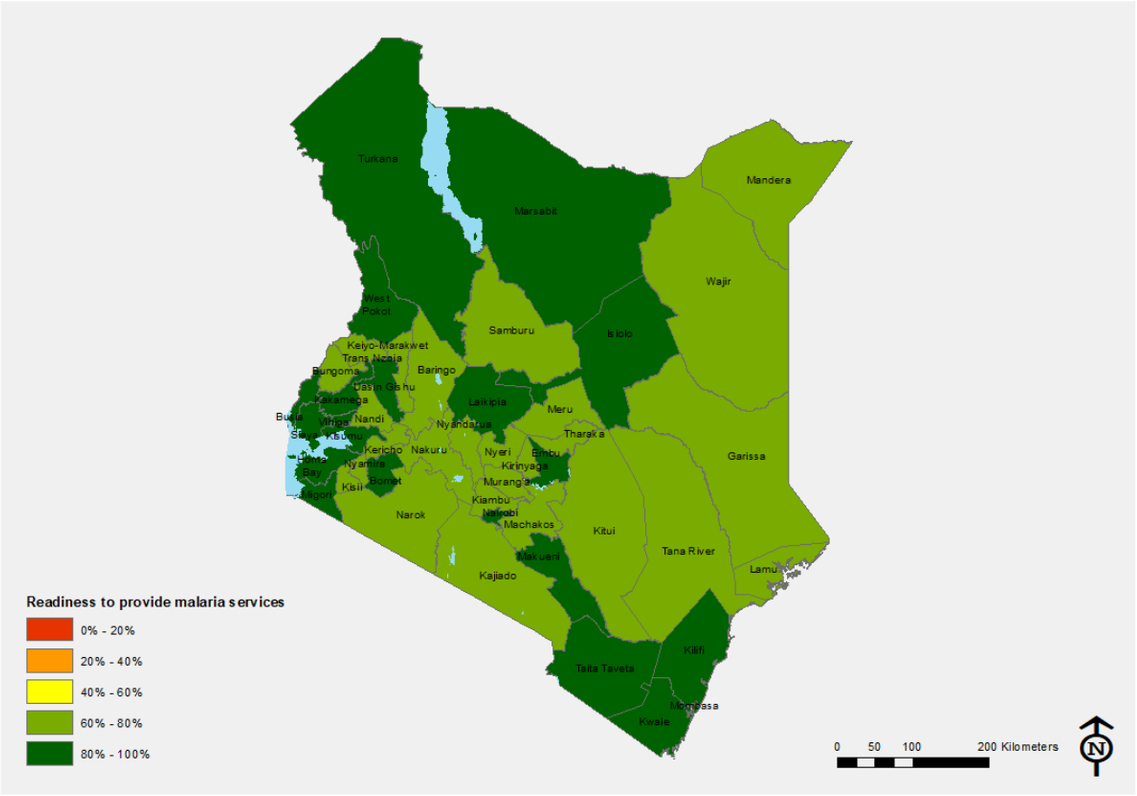


Annex Table 43 shows availability of malaria tracer items by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location while

Figure 93 shows the variation in malaria readiness by county.

- Counties where facilities had the highest mean availability of malaria tracer items included Kwale (95%), Homa Bay (91%), Busia (91%) and Turkana (90%), while the counties with the lowest mean availability included Meru (61%), Nyamira (65%), Elgeyo Marakwet (67%), and Trans Nzoia (69%)
- Among health facilities that offered malaria treatment services, facilities in Kwale (90%), Homa Bay (80%%), and Kisumu (79%%) had all the malaria tracer items. Facilities in Nyamira (25%), Muranga (33%) and Meru (36%) had low availability of tracer items necessary for malaria services on the day of the survey.
- Secondary and tertiary hospitals had the highest mean availability of malaria tracer items, at 93% and private/NGO/FBO/ primary hospitals were also at 93%. This was followed by public primary hospitals, at 89%. Dispensaries had the lowest mean availability of malaria tracer items, at 76%.
- By managing authority, NGO/FBO facilities (85%) and private facilities (80%) had a higher mean availability of malaria tracer items, compared to public facilities (76%).
- There was not much of a difference between the mean availability of malaria tracer items in rural (78%) and urban (81%) facilities.

Figure 93: Map of malaria treatment service readiness by county, Kenya 2018



5.2.2 Tuberculosis diagnosis and treatment

Tuberculosis (TB) is a disease of major public health importance in Kenya. Despite the considerable investment done by the government and partners in TB care and prevention in the past 20 years, the disease is still the 5th leading cause of death, with Kenya listed by the World Health Organization (WHO) as among the 30 high burden countries.

Regarding TB control, the country conducted its first post-independence TB prevalence survey in 2016, which revealed that the true burden of TB in Kenya was 426 cases per 100,000 population. It is estimated that 158,000 persons fell ill with TB in 2017, yet only about 85 thousand were notified[13]. This therefore means that about 50 percent of estimated TB cases were not diagnosed, treated and/or notified annually. The trends for children are presumed to be similar. Mortality among people with TB is high, with an estimated 43,000 deaths. With regard to drug resistant TB (DR-TB), it is estimated that Kenya had 2,800 incident cases in 2017 out of which 577 were detected and notified over the same period[14]. The TB prevalence survey found that nearly two-thirds of people with symptoms of TB had not yet sought treatment. Chest radiography was found to be a highly sensitive screening tool for identifying people with TB. Patient pathway showed that patients visited facilities up to 5 times before they were diagnosed with TB.

[13] World Health Organization. (2018). Global Tuberculosis Report. Geneva: World Health Organization.

[14] National Tuberculosis, Leprosy and Lung Disease. (2018). Annual Tuberculosis Report. Nairobi: National Tuberculosis, Leprosy and Lung Disease

Tracer items necessary for providing TB diagnosis and treatment services are outlined in **Table 18**.

Table 18. Tracer items needed to provide TB diagnosis and treatment services

Domain	Tracer items
Trained staff and guidelines	• Guidelines for TB infection control
Diagnostics	• Capacity to conduct on site TB microscopy • Capacity to conduct HIV test • System for diagnosis of HIV among TB clients
Medicines and commodities	• All first-line TB medications

Tracer items necessary for providing additional TB diagnosis and treatment services are outlined in **Table 19**.

Table 19: Tracer items needed to provide additional TB diagnosis and treatment services

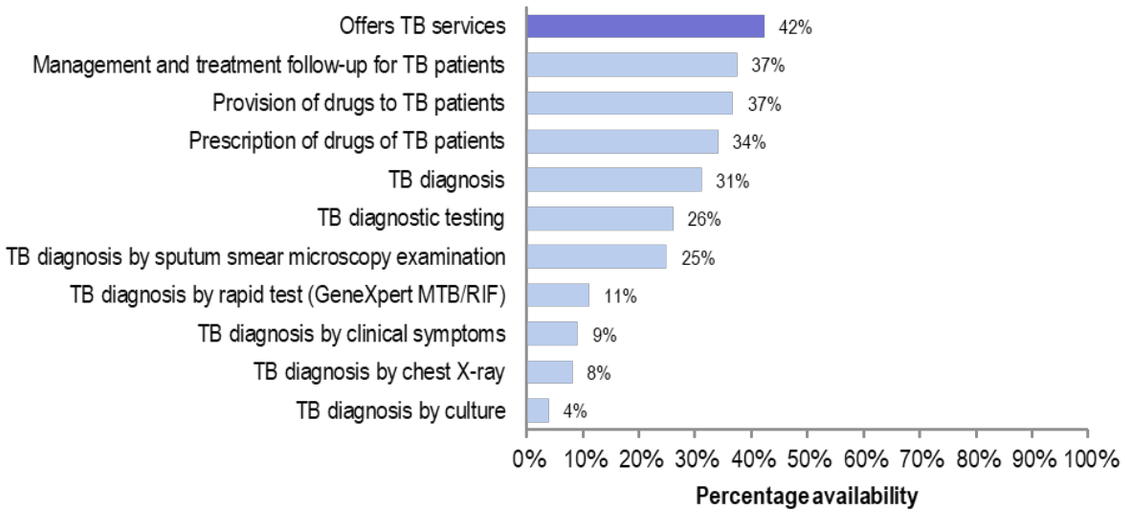
Domain	Tracer items
Equipment	• Waste receptacle with lid, plastic bin, and foot pedal • Sputum cup • Masks • Tissues
Diagnostics	• Systems for sending sputum outside facility and receiving results
Staff procedures for infection control	• Facility staff routinely fast track coughing patients for clinical and diagnostic evaluation o Staff move coughing patients ahead of other patients o Staff ask coughing patients to move to separate areas o Place coughing patients in separate area o Posters instruct patients to use masks if coughing • Facility staff routinely identify and segregate coughers who come to the outpatient clinic

Service availability

Figure 94 shows the countrywide availability of tuberculosis diagnosis and treatment services.

- In Kenya, 42% of health facilities offer TB diagnosis and treatment services.
- Management and treatment follow-up for TB patients and provision of drugs to TB patients were the most likely services offered (both 37%), followed by prescription of drugs to TB patients (34%).
- Only 31% of health facilities offered TB diagnosis, while 25% offered TB diagnosis by sputum smear microscopy examination. Only 11% of facilities offered TB diagnosis by rapid test.
- Less than 10% of facilities offered the following TB diagnosis services: TB diagnosis by clinical symptoms (9%), TB diagnosis by chest X-ray (8%), and TB diagnosis by culture (4%).

Figure 94. Proportion (%) of facilities that offer TB diagnosis and treatment services (N=2927), Kenya 2018



Annex Table 44 shows the percentage of facilities offering key tuberculosis diagnosis and treatment services by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location while **Figure 95** shows the variation in tuberculosis diagnosis and treatment service availability by county.

- The availability of TB diagnosis and treatment services was highest in the facilities in 5 counties: Nyamira (78%), Bungoma (74%), Kisumu (73%), Kisii (72%), and Siaya (72%). The availability of TB services is lowest in Kiambu (18%), Baringo (25%), Kajiado (25%), and Mandera (25%).
- The availability of TB diagnosis was highest in facilities in four counties – Vihiga (68%), Siaya (64%), Kisumu (62%), and Busia (61%). TB diagnosis services were lowest in Kiambu (9%) and Baringo (10%).
- TB diagnosis and treatment services were more available in hospitals, both secondary and tertiary, and public primary hospitals. Public primary hospitals (98%) had the highest availability of TB diagnosis and treatment services, followed by secondary and tertiary hospitals (95%), private/NGO/FBO primary hospitals (65%), health centres (64%), and dispensaries (52%). Medical clinics were the least likely to offer TB diagnosis and treatment services (12%).
- Prescription and provision of TB drugs was highest in public hospitals. Among secondary and tertiary hospitals, 95% offered drug prescriptions and 90% provided drugs to TB patients. Similarly, 95% of public primary hospitals prescribed drugs and 96% provided drugs to TB patients. In comparison, 64% of private/NGO/FBO primary hospitals prescribed drugs and 61% provided drugs to TB patients. Only 45% of dispensaries provided drugs to TB patients.
- Private health facilities ranked low in offering TB diagnosis and treatment services (15%), while government health facilities (63%) and NGO/FBO facilities (51%) were more likely to offer TB diagnosis and treatment services. Less than half of government facilities (46%) offered TB diagnosis services.
- More than half of government facilities prescribe (52%) or provide (57%) drugs to TB patients. In comparison, 40% of NGO/FBO facilities prescribe and 45% provide drugs to TB patients. Further, only 10% of private facilities prescribe and 9% provided drugs to TB patients.

- Nearly half of rural health facilities offered TB services (49%), compared to 29% of urban facilities. Only 35% of rural facilities offered TB diagnosis services.

Figure 95: Map of tuberculosis diagnosis and treatment services availability by county, Kenya 2018

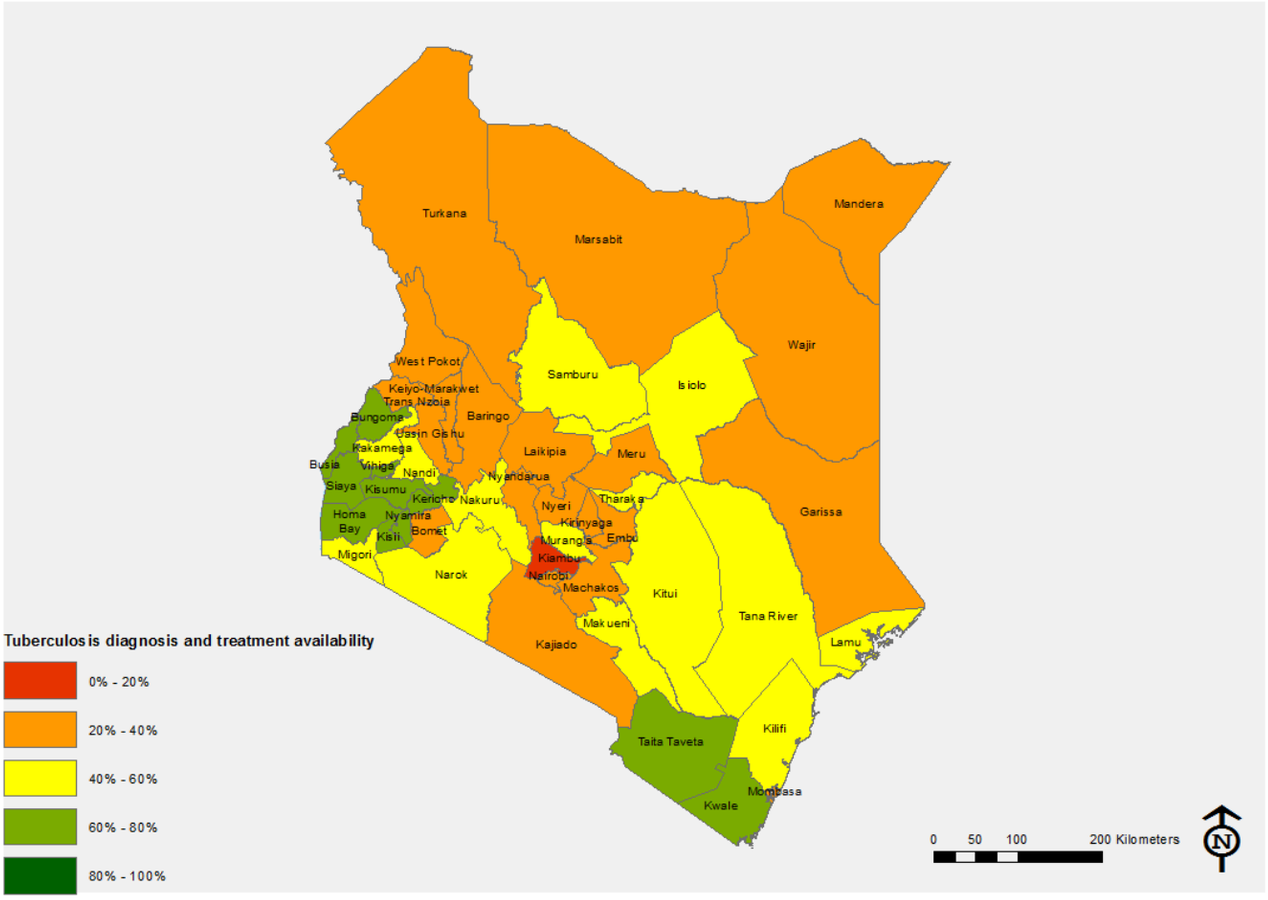
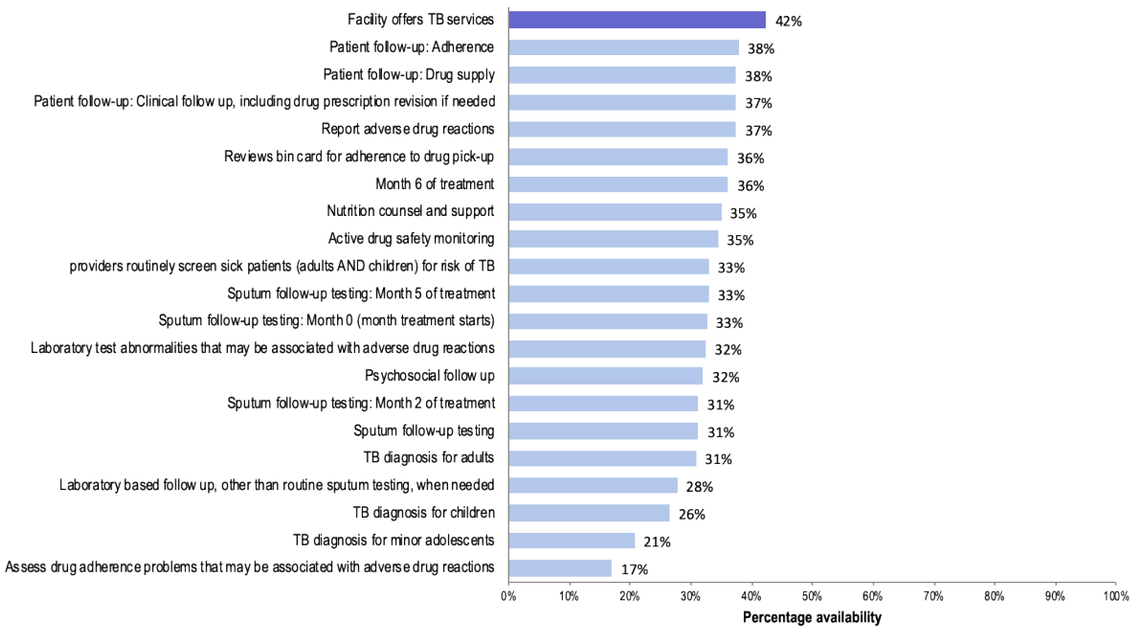


Figure 96 shows the countrywide availability of additional tuberculosis services.

The survey assessed the availability of a range of additional TB services. While most facilities that provided TB services also provided follow-up of TB patients, only about half provided diagnostic services for minor adolescents and children.

Figure 96. Proportion (%) of facilities that offer additional tuberculosis services (N=2927), Kenya 2018



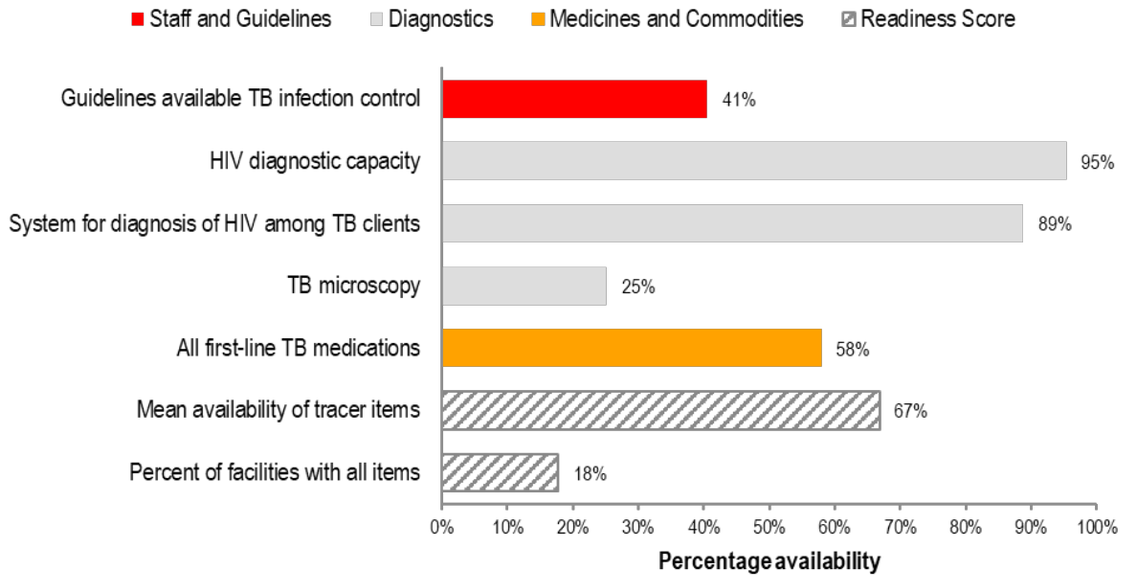
Annex Table 46 shows the percentage of facilities offering additional tuberculosis services by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location.

Service readiness

Readiness to provide TB diagnosis and treatment services was assessed based on the presence of the five tracer items found in **Table 18. Figure 97** shows the percentage availability of these tracer items in facilities that offer TB diagnosis and treatment services (N=1427).

- Nationally, the mean availability of TB tracer items is 67%.
- Amongst the facilities offering TB diagnosis and treatment services, 58% had all first-line TB medications, while only 25% have TB microscopy.
- Among health facilities offering TB diagnosis and treatment services, 95% had HIV diagnostic capacity and 89% had a system for diagnosis of HIV among TB clients.
- Among health facilities that offer TB diagnosis and treatment services, only 18% had all TB tracer items.

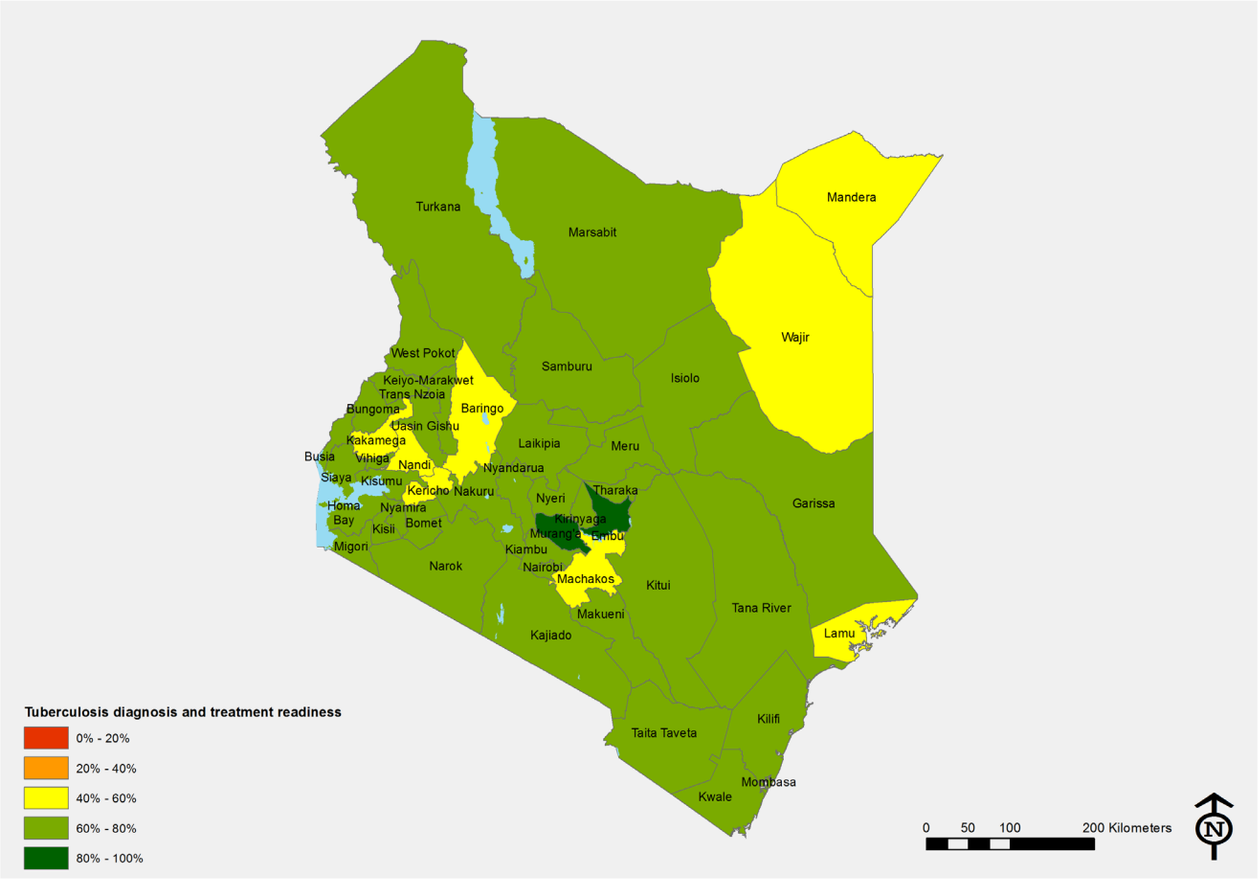
Figure 97. Proportion (%) of facilities that have tracer items for TB diagnosis and treatment services among facilities that provide this service (N=1427), Kenya 2018



Annex Table 45 shows availability of tuberculosis diagnosis and treatment tracer items by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location while **Figure 98** shows the variation in of tuberculosis diagnosis and treatment service readiness by county.

- The mean availability of TB tracer items was highest in Embu and Murang'a (both 84%) and lowest in Kericho (51%) and Mandera (52%).
- Among facilities that offered TB diagnosis and treatment services, more than 50% of facilities in Embu (52%) and Murang'a (54%) had all TB tracer items. Less than 10% of facilities in the following counties had all TB tracer items available:: Baringo (7%), Isiolo (8%), Kericho (8%), Kitui (4%), Lamu (8%), Machakos (8%), Migori (6%), Nandi (5%), Tana River 7%), and West Pokot (8%).
- Many health facilities that offered TB diagnosis and treatment services in the counties had a system for diagnosing HIV among TB clients (95%). However, the counties with the lowest proportion of facilities diagnosing HIV among TB clients were Mandera (52%), Kericho (55%), and Garissa (62%).
- Availability of all first-line TB medications in facilities that offered TB services was highest in Tana River (87%), Laikipia (83%), Isiolo (81%), and lowest in Lamu (19%), Wajir (24%), and Mandera (25%).
- TB microscopy was most available in Murang'a (72%), Embu (66%), and Nyandarua (56%) and lowest in Kitui (5%) and Isiolo and West Pokot (8% each).
- By facility type, the mean availability of TB tracer items was highest in secondary and tertiary hospitals (86%) and public primary hospitals (84%) and lowest in medical clinics (53%).
- By managing authority, the mean availability of TB tracer items was highest in NGO/FBO facilities (70%) and lowest in private facilities (56%).
- Across various TB tracer items, there was little variation between urban and rural facilities.

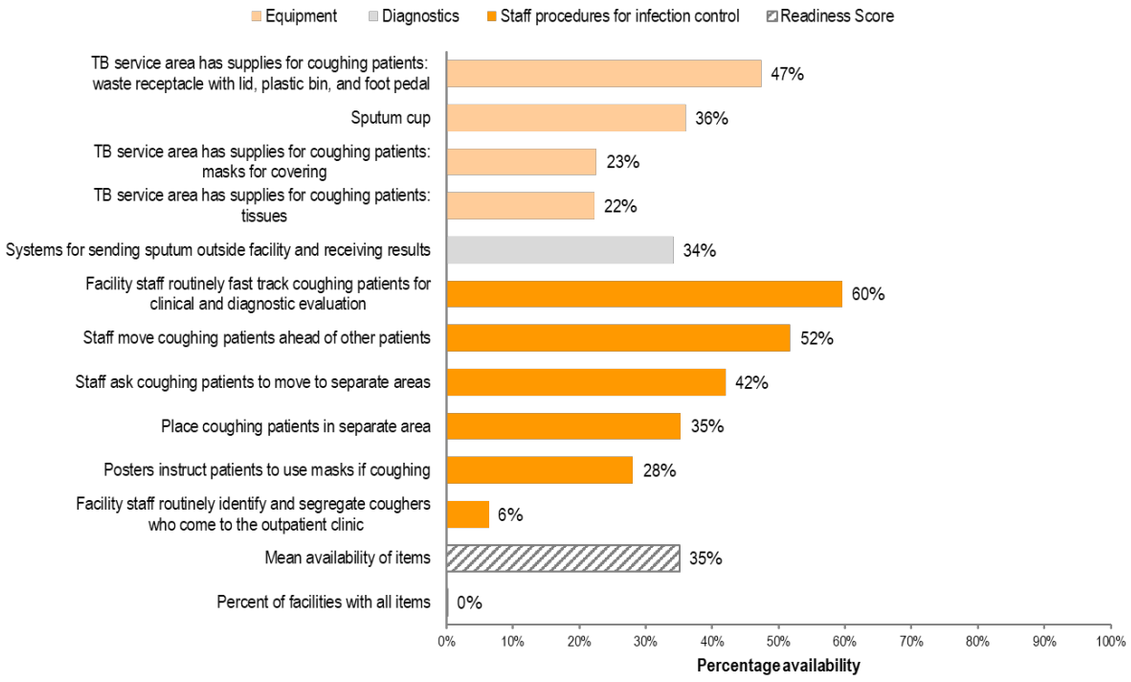
Figure 98: Map of tuberculosis diagnosis and treatment readiness by county, Kenya 2018



Readiness to offer additional TB services was assessed based on the availability of the 11 tracer items found in **Table 19. Figure 99** shows the percentage availability of these tracer items in facilities that offer TB services (N=1427).

- The service readiness index for additional TB services was 35%. No facility had all additional TB tracer items.
- Less than half of the facilities that offered TB diagnosis and treatment services had each of the following additional TB equipment items: supplies for coughing patients, like waste receptacle (47%), sputum cup (36%), masks for covering (23%), and tissues (22%).
- 34% of facilities had a system for sending sputum outside the facility and receiving the results.
- The availability of staff procedures for TB infection control ranged from 6% of facilities with faculty staff routinely identifying and segregating coughers who come to the outpatient clinic to a high of 60% of facilities with facility staff routinely fast-tracking coughing patients for clinical and diagnostic evaluation.

Figure 99: Proportion (%) of facilities that have tracer items for additional TB services among facilities that provide this service (N=1427), Kenya 2018



Annex Table 47 shows availability of additional tuberculosis service tracer items by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location.

- The additional TB service readiness index was above 50% in 5 counties: Kisumu 51%, Siaya 51%, Nyandarua 52%, Homa Bay 54%, and Kisii 56%. Seven counties have additional TB service readiness index below 20%: Garissa 14%, Baringo 17%, Mandera 17%, Marsabit 17%, Tharaka-Nithi 17%, Kitui 19%, and Laikipia 19%.
- By facility type, secondary & tertiary hospitals (55%) and private/NGO/FBO primary hospitals (53%) had the highest additional TB service readiness index, while dispensaries (31%) and medical clinics (34%) had the lowest additional TB service readiness index.
- By managing authority, NGO/FBO facilities had the highest additional TB service readiness index, while government facilities had the lowest index (41% and 34%, respectively).

5.2.3 Drug resistant tuberculosis diagnosis and treatment

Drug-resistant TB remains a major public health concern in many countries. Multi-drug resistant tuberculosis (MDR-TB) is TB that is resistant to both rifampicin and isoniazid, the two most powerful anti-TB drugs. It requires treatment with a second-line regimen. Rifampicin-resistant tuberculosis (RR-TB) also requires treatment with second-line drugs.

Kenya remains a high burden country for both drug sensitive TB (DS-TB)) and drug resistant TB (DR-TB).. Despite the decline in case notification of drug susceptible TB cases, the case detection of DR-TB cases has been increasing over the years. The trend is expected to rise with increasing access to drug sensitivity testing following the scale up of gene Xpert machines and the increased capacity for 1st and 2nd line probe assay (LPA) in the country.

It is estimated that worldwide in 2017, 558,000 people developed TB that was resistant to rifampicin (RR-TB), the most effective first line drug, and of these, 82% had multi-drug-resistant TB[15].

The tracer items required for drug resistant tuberculosis service readiness are outlined in **Table 20**.

Table 20. Tracer items for drug resistant tuberculosis diagnosis and treatment services

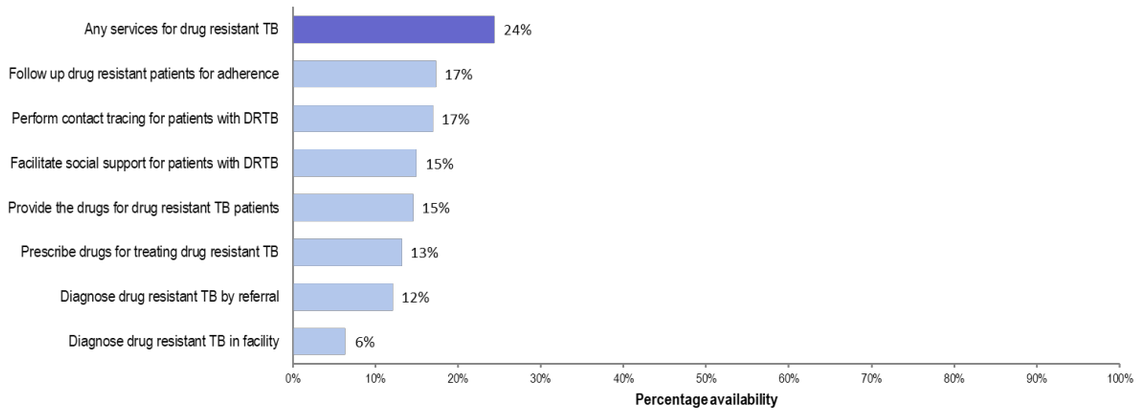
Domain	Tracer items
Staff and guidelines	• All facility staff screened for TB in last 12 months
Medicines	• National treatment medicines for drug resistant TB
Diagnostics	• Facility capacity or system for testing rifampicin drug resistance externally, with documented feedback on results

Service availability

Figure 100 shows the countrywide availability of drug resistant tuberculosis diagnosis and treatment services.

- Only 24% of facilities in Kenya provide any services for drug resistant TB.
- Facilities are more likely to follow up drug resistant patients for adherence (17%), to perform contact tracing for patients with DR-TB (17%), to facilitate social support for patients with DR-TB (15%), and to provide the drugs for DR-TB patients (15%).
- Only 6% of the facilities diagnose DR-TB at the facility while 12% of health facilities diagnose by referral.

Figure 100. Proportion (%) of facilities that offer drug resistant tuberculosis diagnosis and treatment services (N=2927), Kenya 2018

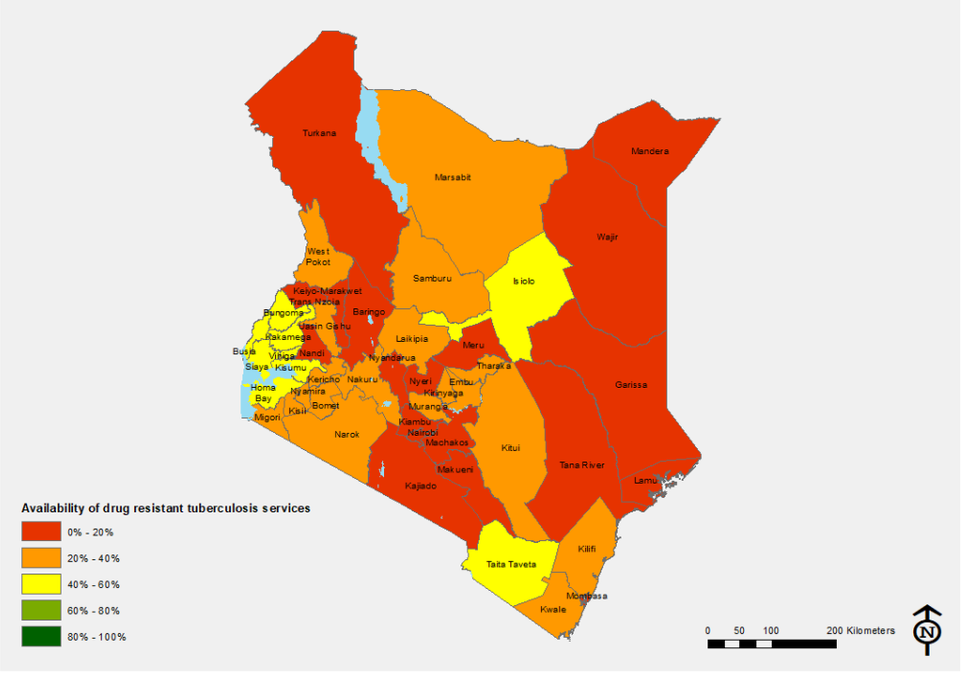


Annex Table 48 shows the percentage of facilities offering key drug resistant tuberculosis services by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location while **Figure 101** shows the variation in drug resistant tuberculosis service availability by county.

[15] World Health Organization. (2018). Global Tuberculosis Report. Geneva: World Health Organization.

- More than 50% of facilities in the following four counties offer any services for drug resistant TB: Kisumu (56%), Bungoma (56%), Siaya (55%) and Homa Bay (51%). The lowest availability of drug resistant TB service was in Kiambu (10%), Kajiado (11%), Trans Nzoia (12%), Mandera (13%), and Nandi (13%).
- 95% of secondary and tertiary hospitals and 82% of public primary hospitals offered any services for drug resistant TB. Only 3% of medical clinics offered these services.
- Availability of services for drug resistant TB was highest in government facilities (39%), followed by NGO/FBO facilities (29%), and was lowest in private facilities (5%).
- Over one quarter of rural facilities (28%) offered services for drug resistant TB, compared to 17% of urban facilities.
- Kisumu was the only county where one third or more of facilities diagnosed drug resistant TB within the facility (33%). In 5 counties, only 1% or less of facilities diagnosed drug resistant TB: Garissa (1%), Kiambu (1%), Kitui (1%), Kericho (0%), and Trans Nzoia (0%).
- 44% of public primary hospitals and 95% of secondary and tertiary hospitals diagnosed drug resistant TB in the facility. Only 1% of medical clinics offered these services.
- 6% of rural facilities diagnosed drug resistant TB compared to 8% of urban facilities.
- In two counties, 40% of all facilities or more diagnosed drug resistant TB by referral: Siaya (40%) and Vihiga (32%). In five counties, less than 5% of the facilities diagnosed drug resistant TB by referral: Wajir (1%), Bomet (2%), Kajiado (3%), Madera (3%), and West Pokot (4%).
- Among the facilities sampled, diagnosis of drug resistant TB by referral was 30% in public primary hospitals, 0% in secondary and tertiary hospitals and 1% in medical clinics.
- Diagnosis for drug resistant TB by referral was highest in government facilities (20%), followed by NGO/FBO facilities (13%), and lowest in private facilities (2%).
- 15% of rural facilities diagnose drug resistant TB by referral compared to 7% of urban facilities.
- In two counties, more than 40% of facilities performed contact tracing for patients with drug resistant TB: Siaya (48%) and Kisumu (44%). Less than 5% of the facilities in the following 5 counties performed contact tracing: Kajiado (3%), Garissa (4%), Kericho (4%), Nyandarua (5%), and Wajir (5%).
- Contact tracing for patients with drug resistant TB was performed by 73% of public primary hospitals, 90% of secondary and tertiary hospitals and 1% of medical clinics.
- Contact tracing for patients with drug resistant TB was performed by 27% of government facilities followed by NGO/FBO facilities (22%), and was lowest in private facilities (3%).
- 19% of rural facilities performed contact tracing for patients with drug resistant TB compared to 12% of urban facilities.

Figure 101: Map of drug resistant tuberculosis diagnosis and treatment service availability by county, Kenya 2018

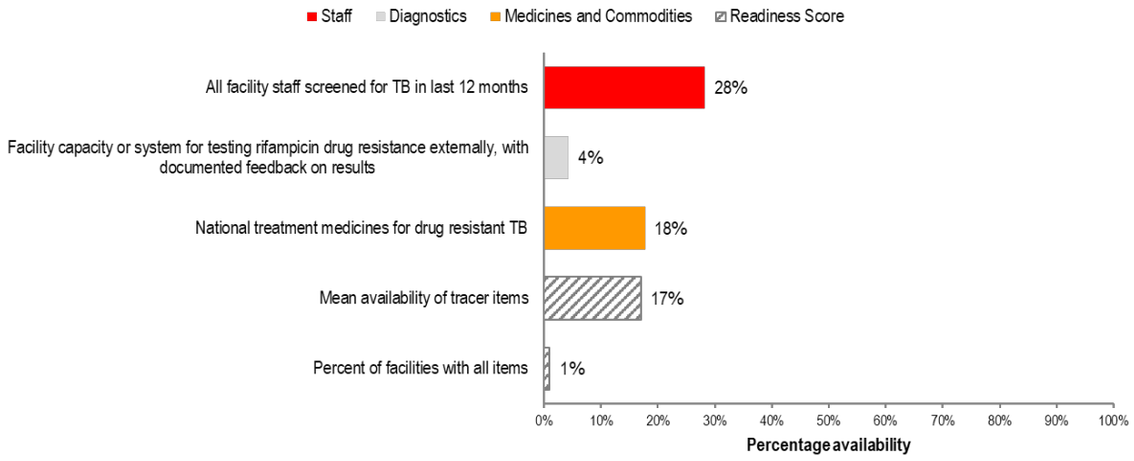


Service readiness

Readiness to offer drug resistant tuberculosis services was assessed based on the availability of the three tracer items found in **Table 20. Figure 102** shows the percentage availability of these tracer items in facilities that offer drug resistant tuberculosis services (N=882).

- In Kenya, service readiness for drug resistant TB was 17%. Only 1% of facilities had all drug resistant TB tracer items
- 28% of facility staff were screened for TB in the last 12 months before the survey
- 4% of facilities had the capacity or a system for testing rifampicin drug resistance externally with documented feedback on results
- National treatment medicines for drug resistant TB were available in 18% of the facilities

Figure 102: Proportion (%) of facilities that have tracer items for drug resistant tuberculosis diagnosis and treatment services among facilities that provide this service (N=882), Kenya 2018

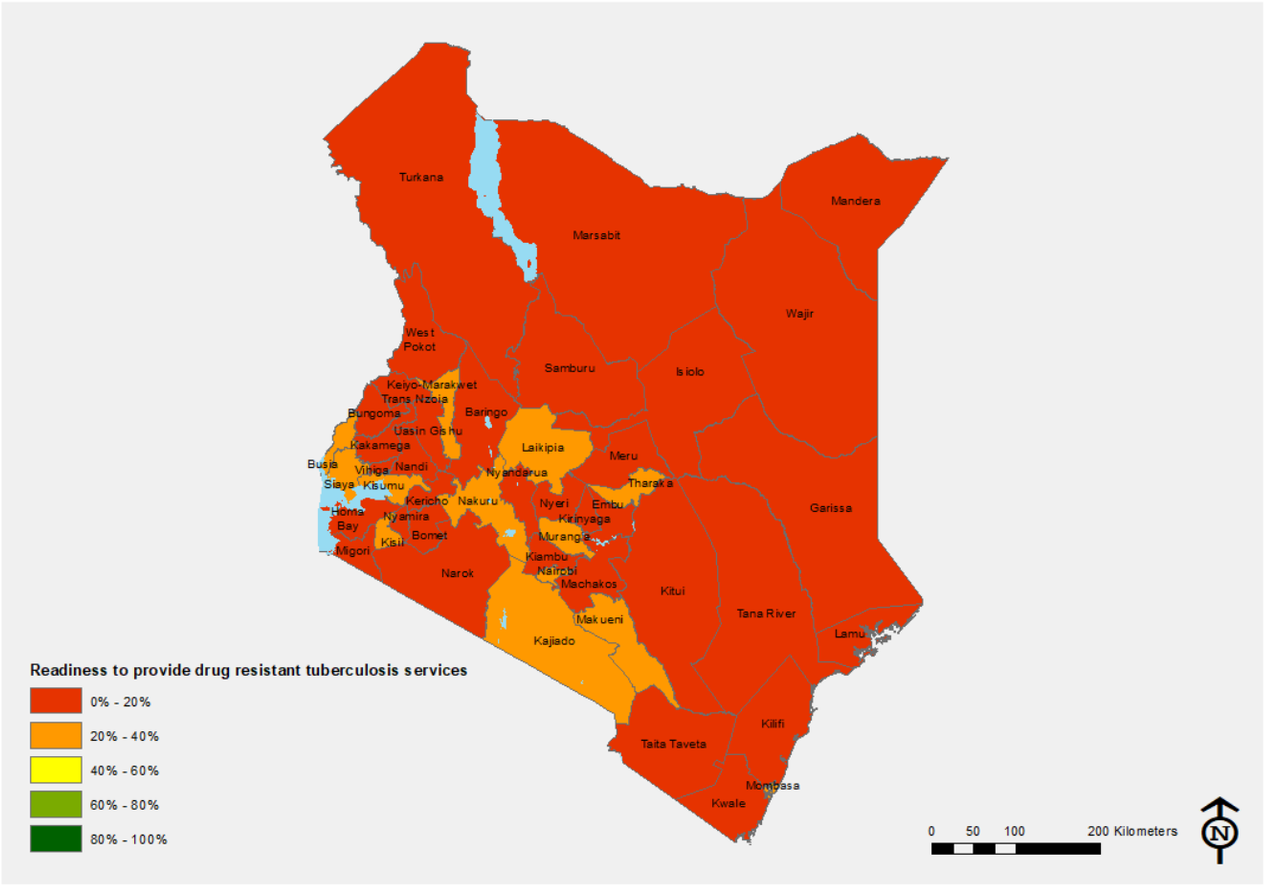


Annex Table 49 shows availability of drug resistant tuberculosis tracer items by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location while **Figure 103** shows the variation in drug resistant tuberculosis service readiness by county.

- The mean availability of drug resistant TB tracer items was highest in Kisumu (30%) and Laikipia (30%) while it was lowest in Kericho (5%) and Wajir (2%)
- The mean availability of drug resistant TB tracer items was 44% in secondary and tertiary hospitals, 37% in public primary hospitals and 10% in medical clinics
- By managing authority, the mean availability of drug resistant TB tracer items for government facilities was 17%, 18% for NGO/FBO facilities and 16% for private facilities
- The mean availability of drug resistant TB tracer items was higher for facilities in urban (26%) than in rural (14%) areas.
- Turkana was the only county where more than 5% of facilities had all tracer items (9%). In 32 counties, none of the facilities have all tracer items
- By facility type, none of the medical clinics had all the drug resistant TB tracer items compared to secondary and tertiary hospitals (11%) and public primary hospitals (6%)
- By managing authority, 1% of the government facilities had all the drug resistant TB tracer items followed by NGO/FBO facilities (1%) and private facilities (0%)
- In 4 counties, more than half of facilities offering any services for drug resistant TB had all the facility staff screened for TB in the last 12 months: Laikipia (72%), Kisumu (59%), Murang'a (53% and Nyandarua (53%). Less than 5% of the facilities in the following 4 counties had all the facility staff screened for TB in the last 12 months: Meru (0%), Garissa (4%), Isiolo (4%) and Kajiado (4%)
- By facility type, 37% of the public primary hospitals had all the facility staff screened for TB in the last 12 months, while secondary and tertiary hospitals had 32% of staff screened and only 19% of medical facilities had their staff screened.

- 28% of the government facilities had all the facility staff screened for TB in the last 12 months compared to 34% in NGO/FBO facilities and 26% in private facilities.
- 28% of rural facilities had all the facility staff screened for TB in the last 12 months compared to 32% of urban facilities

Figure 103: Map of drug resistant tuberculosis diagnosis and treatment readiness by county, Kenya 2018



5.2.4 HIV/AIDS counselling and testing

Kenya has recorded significant progress towards ending HIV/AIDS by the year 2030. However, HIV remains the leading disease burden in Kenya, comprising 24% of the total disease burden in Disability Adjusted Life Years. Over 29% of all hospital mortality is attributable to HIV-related morbidities.

In 2015, the HIV prevalence stood at 5.9%. New HIV infections among adult (15+) population has declined from 88,622 (2013) to 56,100 (2016) per year and among children from 12,940 (2013) to 4,900 (2016) per year. The country has recorded a 66% reduction in mother-to-child transmission of HIV, from 14% in 2013 to 6% in 2016. An estimated 1.5 million Kenyans are living with HIV, of whom 1,136,000 were on antiretroviral (ARV) therapy by December 2017. So far about 400,000 lives have been saved due to ARVs.

Table 21 details the tracer items necessary for health facilities providing this service.

Table 21. Tracer items needed to provide HIV/AIDS counselling and testing services

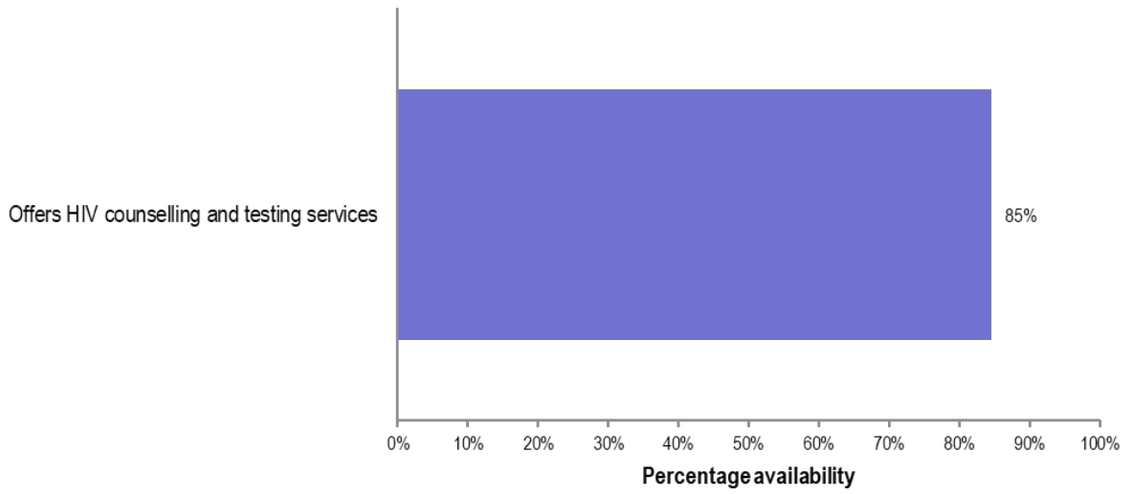
Domain	Tracer items
Equipment	• Room with visual and auditory privacy
Diagnostics	• Capacity to conduct HIV diagnostic test on site
Medicines and commodities	• Male condoms

Service availability

Figure 104 shows the countrywide availability of HIV counselling and testing services.

- Overall, 85% of health facilities in Kenya offer HIV counselling and testing services.

Figure 104. Proportion (%) of facilities offering HIV counselling and testing services, by county (N=2927), Kenya 2018



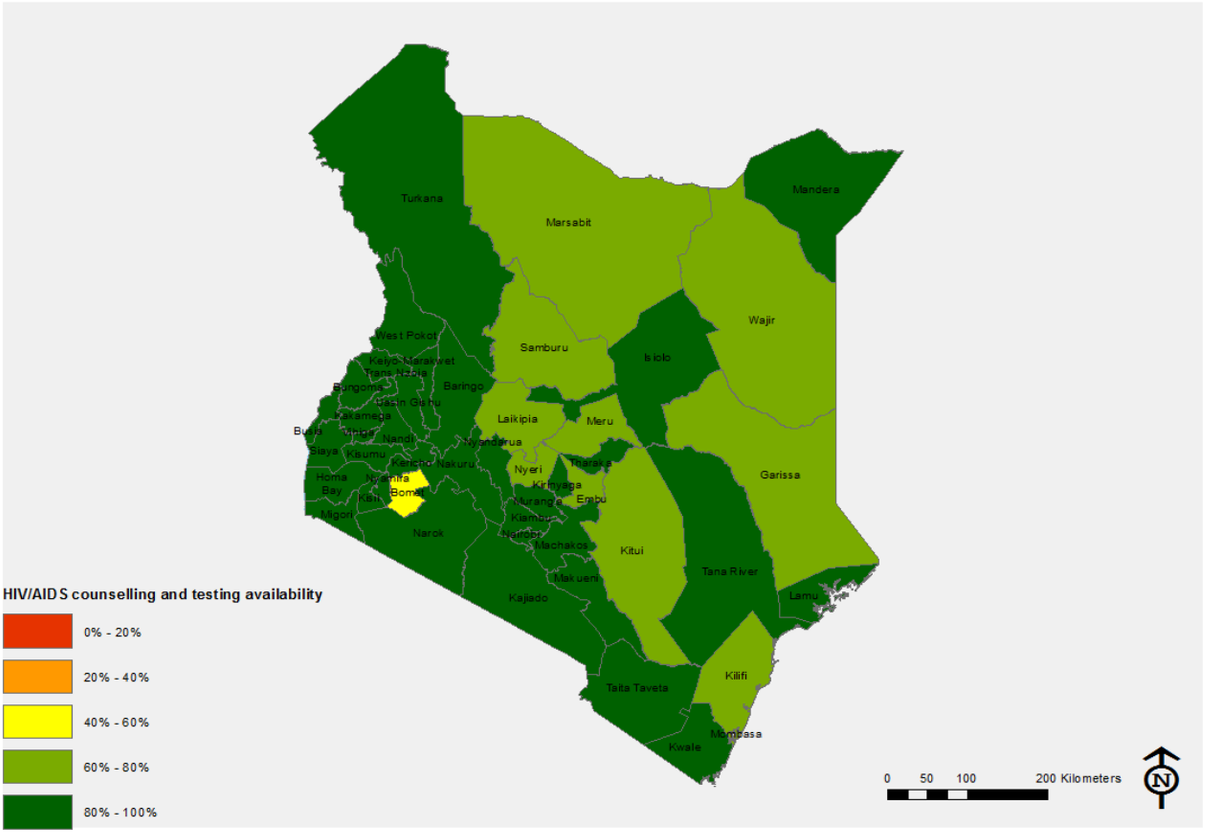
Annex Table 50 shows the percentage of facilities offering key HIV counselling and testing services by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location while **Figure 105** shows the variation in HIV counselling and testing service availability by county.

- All facilities in Nyamira and Elgeyo Marakwet counties offered HIV counselling and testing services. Facilities in Bomet (59%), Meru (60%), and Kitui (63%) had the lowest percentages of HIV counselling and testing services. Among high HIV incidence/prevalence counties, HIV counselling and testing service availability ranged from 83% in Turkana to 95% in Kisii. The other priority counties were as follows: Siaya (84%), Kiambu (88%), Kisumu (88%), Nakuru (89%), Nairobi (91%), Homa Bay (91%), and Migori (92%). Bomet had the lowest availability, with only 59% of facilities providing HIV counselling and testing.
- By facility type, availability of HIV counselling and testing services was 90% and above in secondary and tertiary hospitals (100%), 99% in public primary hospitals, 94% in private/NGO/FBO primary

hospitals, 92% in health centres, and 90% in dispensaries. Only 72% of medical clinics offered HIV counselling and testing services.

- By managing authority, 92% of government facilities offered HIV counselling and testing services, followed by 91% of NGO/FBO facilities. Only three-quarters (74%) of private facilities offered HIV counselling and testing services.
- Rural health facilities were more likely to offer HIV counselling and testing services than urban facilities (87% versus 79%).

Figure 105: Map of HIV counselling and testing availability by county, Kenya 2018

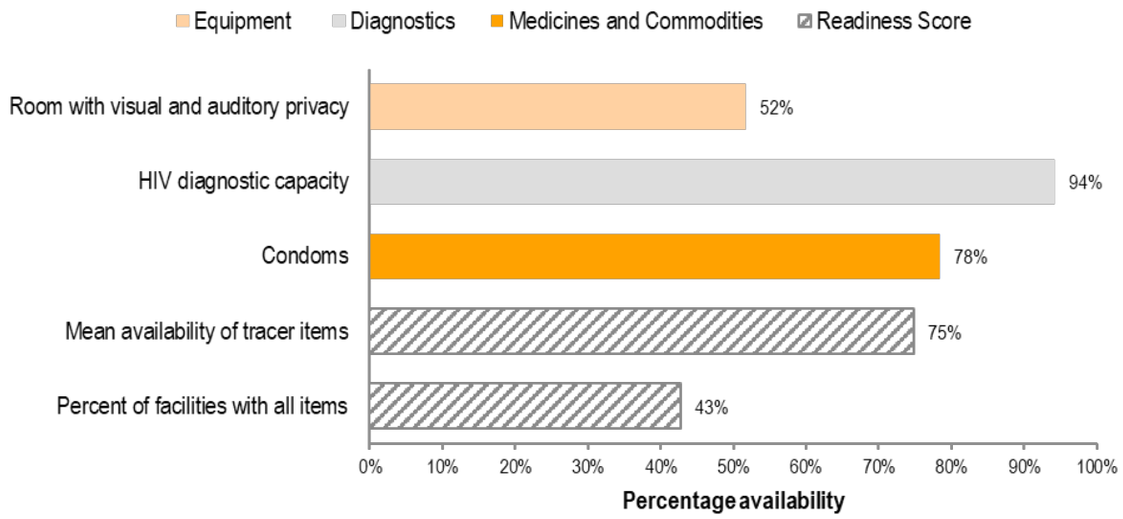


Service readiness

Readiness to provide HIV counselling and testing services was assessed based on the presence of the three tracer items found in **Table 21. Figure 106** shows the percentage availability of these tracer items in facilities that offer HIV counselling and testing services (N=2524).

- The mean availability of tracer items for HIV counselling and testing services nationally was 75%, while the percentage of the facilities which reported to have all tracer items for HIV counselling and testing readiness was 43%.
- Health facilities were most likely to have HIV diagnostic capacity (94%) and least likely to have rooms with visual and auditory privacy (52%). Only 78% of health facilities had condoms available on the day of the survey.

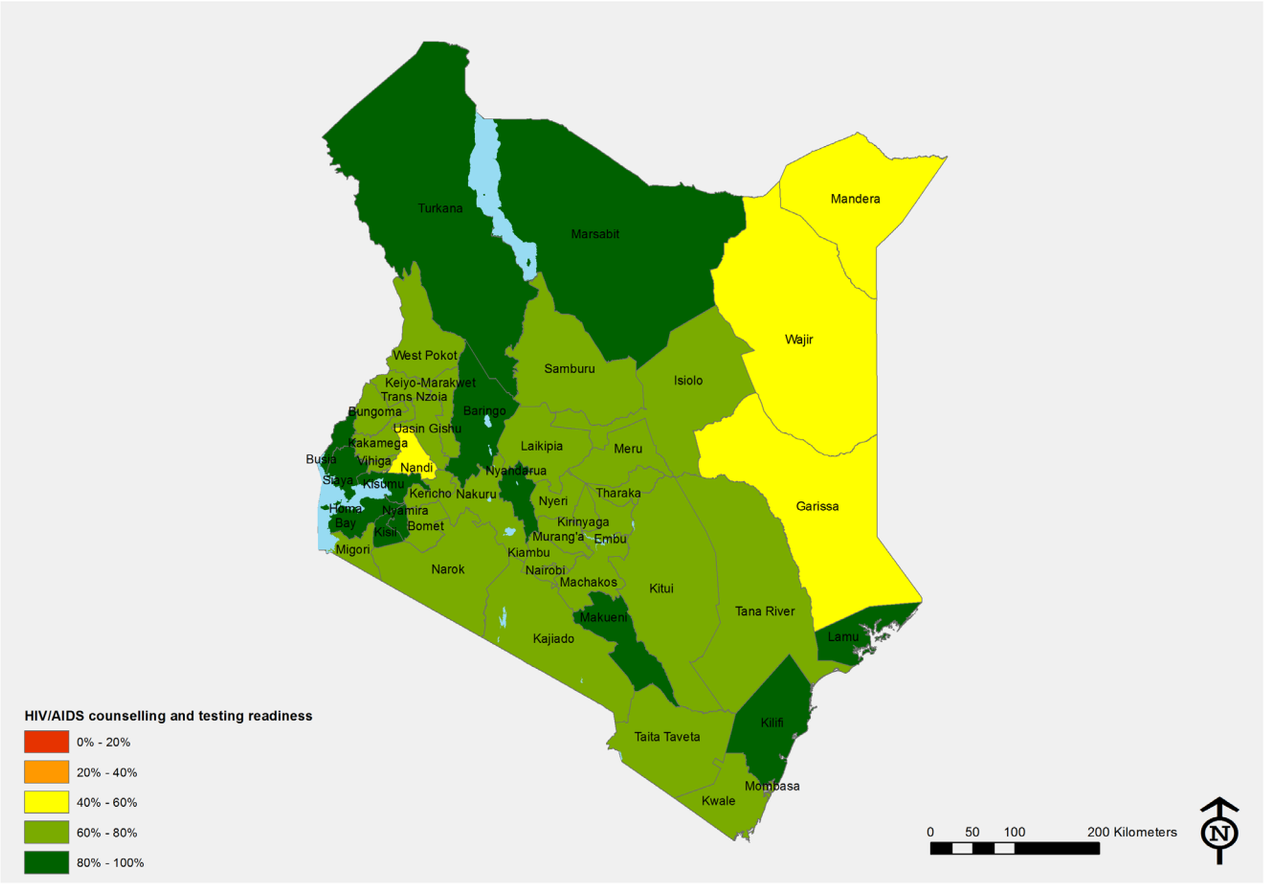
Figure 106. Proportion (%) of facilities that have tracer items for HIV counselling and testing services among facilities that provide this service (N=2524), Kenya 2018



Annex Table 51 shows availability of HIV counselling and testing tracer items by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location while **Figure 107** shows the variation in HIV counselling and testing service readiness by county.

- The mean availability of HIV counselling and testing tracer items was highest in Turkana (91%) and Siaya (88%) and lowest in Garissa (56%). Among other priority counties, HIV counselling and testing service readiness was as follows: Homa Bay (83%), Kisumu (81%), Migori (76%), Nakuru (72%), Nairobi (68%), and Kiambu (69%).
- About 1 in 10 facilities in Wajir (10%), Nandi (11%), and Garissa (11%) had all HIV counselling and testing tracer items. More than 70% of facilities in Siaya (73%) and Turkana (72%) had all tracer items. Among other priority counties, the availability of HIV counselling and testing tracer items was as follows: Homa Bay (63%), Kisumu (53%), Migori (39%), Nakuru (28%), Nairobi (39%), and Kiambu (35%).
- Among the three tracer items, HIV diagnostic capacity was the most available in all counties (above 80%) with all facilities in Laikipia, Lamu, Migori, and Nyandarua having HIV diagnostic capacity.
- By facility type, the HIV counselling and testing service readiness scale ranged from 64% in medical clinics to 89% in public primary hospitals. Public primary hospitals were most likely to have all HIV counselling and testing tracer items (69%), compared to other facility types.
- By managing authority, government facilities had the highest HIV counselling and testing service readiness index at 84%, followed by NGO/FBO facilities (67%) and private facilities (63%). More than half of government facilities (58%) had all HIV counselling and testing tracer items, while only 23% of private facilities had all items.
- Rural facilities had a higher HIV counselling and testing service readiness index than urban facilities (78% versus 67%). Nearly half of rural facilities (47%) had all HIV counselling and testing tracer items, compared to one-third of rural health facilities.

Figure 107: Map of HIV counselling and testing readiness by county, Kenya 2018



5.2.5 HIV/AIDS care and support services

The 2018 edition of the "Guidelines on Use of Antiretroviral Drugs for Treating and Preventing HIV Infection in Kenya" provides an update on the comprehensive HIV prevention and treatment guidelines released in 2016. All people living with HIV (PLHIV) should receive a package of services that are known to promote health, improve the quality of life, prevent further HIV transmission, and prevent HIV disease progression and mortality.

The standard package of care for PLHIV includes: antiretroviral therapy (all PLHIV are eligible for ART irrespective of CD4 cell count or percentage, WHO clinical stage, age, pregnancy status, or comorbidities); lifelong cotrimoxazole preventive therapy (CPT); positive health, dignity and prevention (PHDP) services; screening and support in cases of gender-based violence (GBV) or intimate-partner violence (IPV); screening and prevention of specific opportunistic infections including screening for TB and assessed for Isoniazid Preventive Therapy if screened negative for TB; reproductive health services; screening for and management of non-communicable diseases; mental health screening and management; nutritional services; and prevention of other infections.

Table 22 provides information on the tracer items necessary for health facilities offering HIV care and support services.

Table 22. Tracer items needed to provide HIV/AIDS care and support services

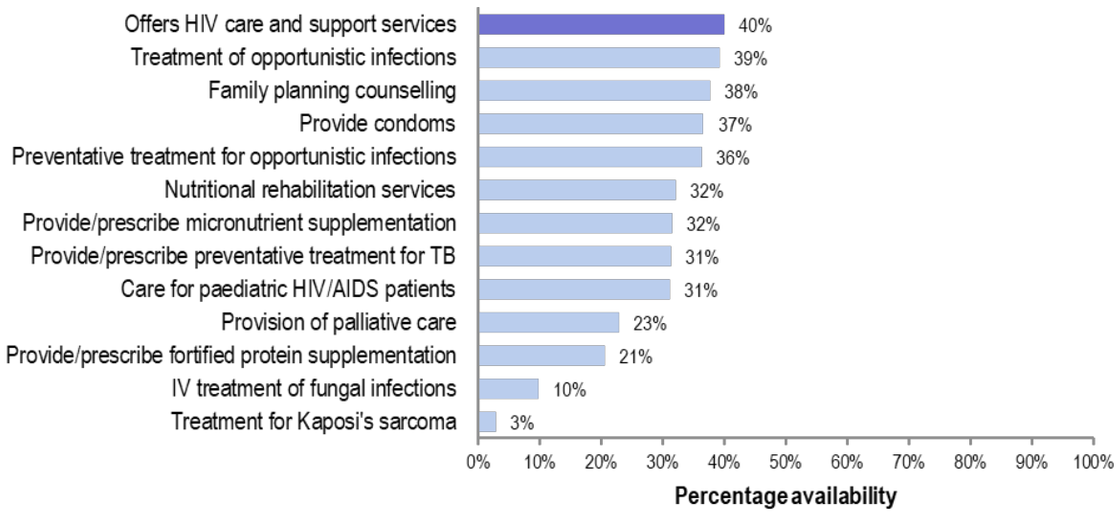
Domain	Tracer items
Diagnostics	• System for diagnosis of TB among HIV positive patients
Medicines and commodities	• Intravenous solution with infusion set • Intravenous treatment of fungal infections • Co-trimoxazole • All four first-line TB treatment medications • Palliative care pain management medication • Male condoms

Service availability

Figure 108 shows the countrywide availability of HIV/AIDS care and support services.

- Overall, 40% of health facilities offered HIV/AIDS care and treatment services. Facilities were most likely to offer treatment for opportunistic infections (39%), family planning counselling (38%), and provision of condoms to clients (37%).
- The services least available at health facilities were the treatment of Kaposi's Sarcoma (3%) and intravenous (IV) treatment of fungal infections (10%).

Figure 108. Proportion (%) of facilities that offer HIV/AIDS care and support services (N=2927), Kenya 2018



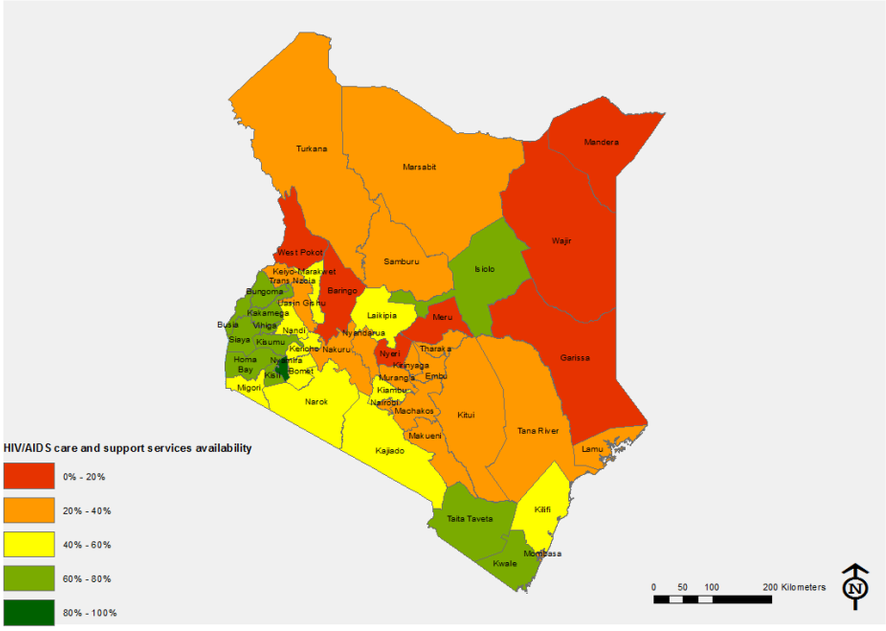
Annex Table 52 shows the percentage of facilities offering key HIV/AIDS care and support services by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location, while **Figure 109** shows the variation in HIV/AIDS care and support service availability by county.

- Kisii and Nyamira counties had the highest percentage of facilities offering HIV/AIDS care and support services at 77% and 83%, respectively, while the counties with the lowest percentage of facilities offering these services were Mandera and Wajir (both 7%). Among other priority counties,

availability of HIV care and support services was as follows: Homa Bay (68%), Kisumu (64%), Siaya (69%), Migori (58%), Nakuru (39%), Nairobi (32%), and Kiambu (50%).

- All secondary and tertiary hospitals offered HIV/AIDS care and support followed by public primary hospitals (94%), private/NGO/FBO primary hospitals (62%), health centres (59%), dispensaries (44%), and medical clinics (18%).
- More than half (54%) of government facilities offered HIV/AIDS care and support services, while slightly less than half (48%) of NGO/FBO facilities and 21% of private facilities offered these services.
- In rural areas 44% of facilities provided HIV/AIDS care and support services compared to 32% of urban facilities.
- National availability of paediatric HIV care was 31% with Kisii (72%) and Nyamira (65%) having highest availability. Paediatric HIV care was least available at facilities in Wajir (2%) and Garissa (4%).

Figure 109: Map of HIV/AIDS care and support availability by county, Kenya 2018



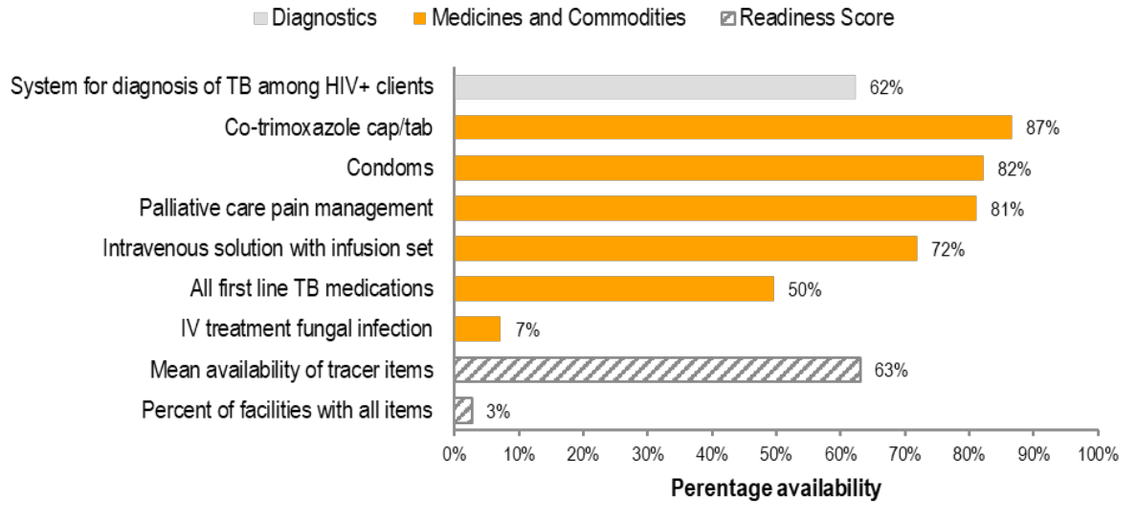
Service readiness

Readiness to provide HIV/AIDS care and support services was assessed based on the presence of seven tracer items found in **Table 22. Figure 110** shows the percentage availability of these tracer items in facilities that offer HIV/AIDS care and support services (N=1338).

- Nationally the mean availability of tracer items for HIV care support was 63%, while the percentage of facilities with all HIV care and support tracer items was 3%.
- Among facilities that offered HIV care and support service, 62% of the facilities had a system for diagnosis of TB among HIV+ clients.

- More than 80% of health facilities that offered HIV care and support services had the following items: cotrimoxazole capsules/tablets (87%), condoms (82%), and palliative care pain management (81%). Nearly three-quarters (72%) of these facilities had intravenous solution with infusion set, while half had all first-line TB medications. Only 7% of facilities that offered HIV care and support services had IV treatment for fungal infection.

Figure 110. Proportion (%) of facilities that have tracer items for HIV care and support services among facilities that provide this service (N=1338), Kenya 2018

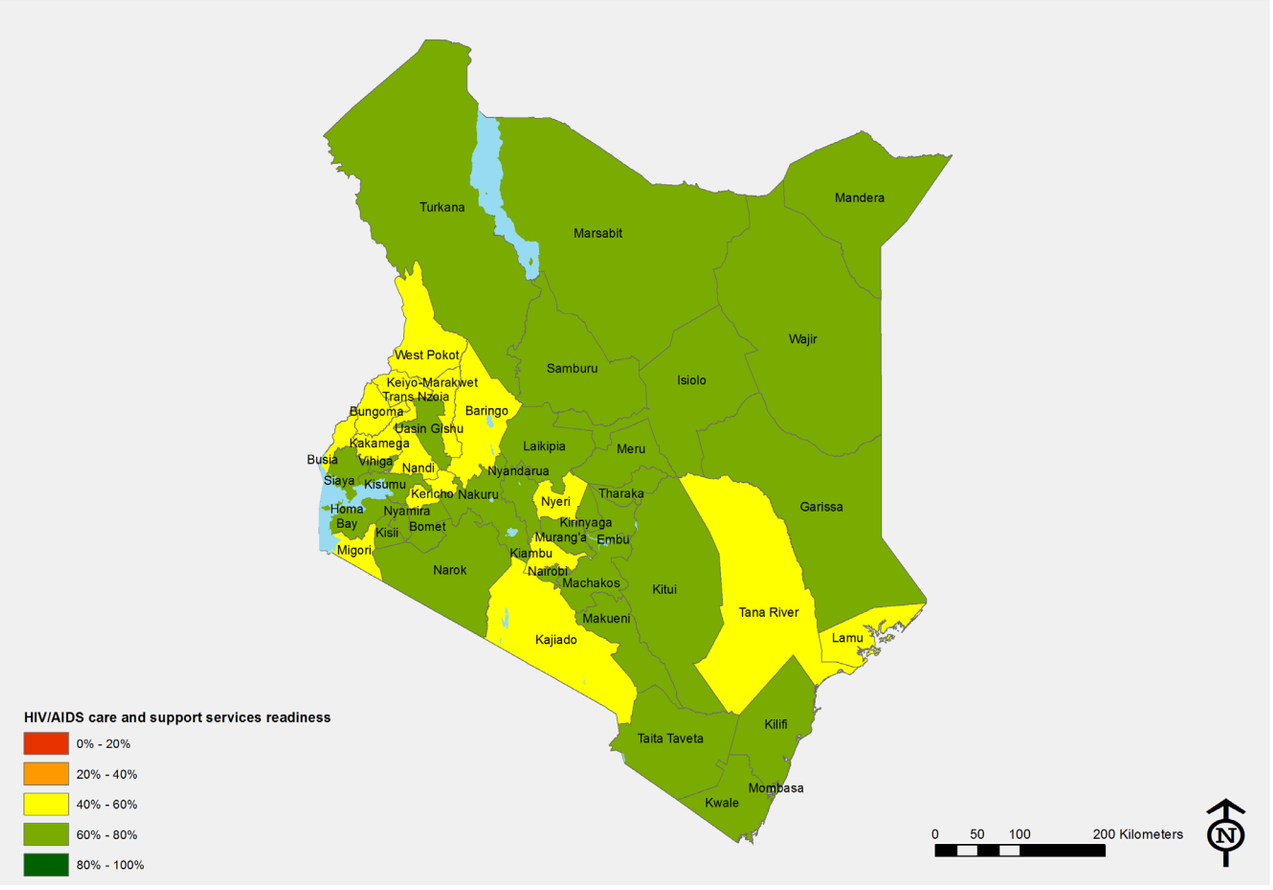


Annex Table 53 shows availability of HIV/AIDS care and support tracer items by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location, while **Figure 111** shows the variation in HIV/AIDS care and support service readiness by county.

- Among facilities that offered HIV care and support services, the mean availability of care and support tracer items was highest in facilities in Kitui (76%) and Laikipia (74%), while the lowest mean availability was in Elgeyo-Marakwet and Kiambu (both 50%). Among priority counties, the HIV care and support service readiness was as follows: Homa Bay (64%), Kisumu (71%), Siaya (61%), Migori (66%), Nakuru (39%), Nairobi (69%), Turkana (68%), and Kiambu (50%).
- Among facilities that offered HIV care and support services, the percentage of facilities that had all tracer items was above 10% in Mandera (12%) and Trans Nzoia (13%). Among priority counties, 10% or less had all tracer items to provide HIV care and support services.
- By facility type, HIV care and support service readiness among facilities that offered HIV care and support services was highest in secondary and tertiary hospitals (89%) and public primary hospitals (83%) and lowest in dispensaries (60%) and medical clinics (49%). Public primary hospitals (92%) and secondary and tertiary hospitals (90%) were more likely to have a system for diagnosis of TB among HIV+ clients, compared to 79% of private/NBO/FBO primary hospitals and 74% of health centres.
- By managing authority, the HIV care and support service readiness was 66% in government facilities, 61% in NGO/FBO facilities, and 55% in private facilities. Government facilities were

most likely to have a system for diagnosis of TB among HIV+ clients (72%), cotrimoxazole capsules/ tablets (88%), all first line TB medications (59%), and condoms (92%), compared to NGO/FBO and private facilities.

Figure 111. Map of HIV/AIDS care and support service readiness by county, Kenya 2018



5.2.6 HIV/AIDS antiretroviral prescription and client management services

The goal of antiretroviral therapy (ART) is to suppress viral replication with the aim of reducing the patient's viral load (VL) to undetectable levels. All individuals with confirmed HIV infection are eligible for ART, irrespective of CD4 count/%, WHO clinical stage, age, pregnancy or breastfeeding status, coinfection status, risk group, or any other criteria, provided that the individual is willing and ready to take ART and adhere to follow-up recommendations.

ART should be started in all patients as soon as possible (preferably within 2 weeks of confirmation of HIV status). All patients who are virally suppressed on a first line regimen should be considered for optimization towards the current recommended first line regimen through introduction of better medicines, diagnostics and patient centred approaches in service delivery.

Table 23 shows the tracer items needed for health facilities providing this service.

Table 23. Tracer items needed to provide HIV/AIDS antiretroviral and client management services

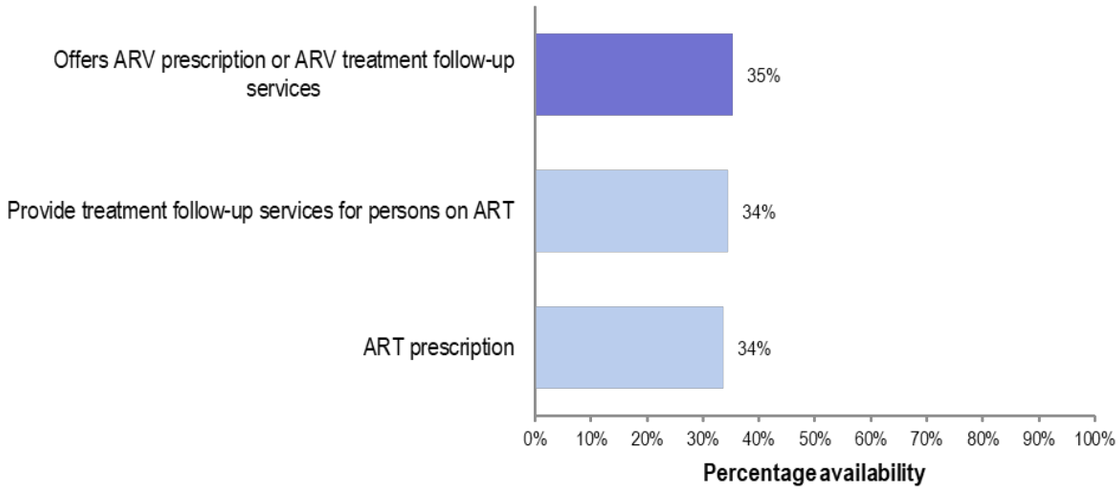
Domain	Tracer items
Diagnostics	• Full blood count • CD4 or viral load • Renal function test • Liver function test
Medicines and commodities	• Three first-line antiretrovirals

Service availability

Figure 112 shows the countrywide availability of HIV/AIDS antiretroviral and client management services.

- Overall, 35% of facilities offered ARV prescription or ARV treatment follow-up services. One-third of facilities provided treatment follow-up for persons on ART, and one-third of facilities offered ART prescriptions.

Figure 112. Proportion (%) of facilities that offer ARV services (N=2927), Kenya 2018

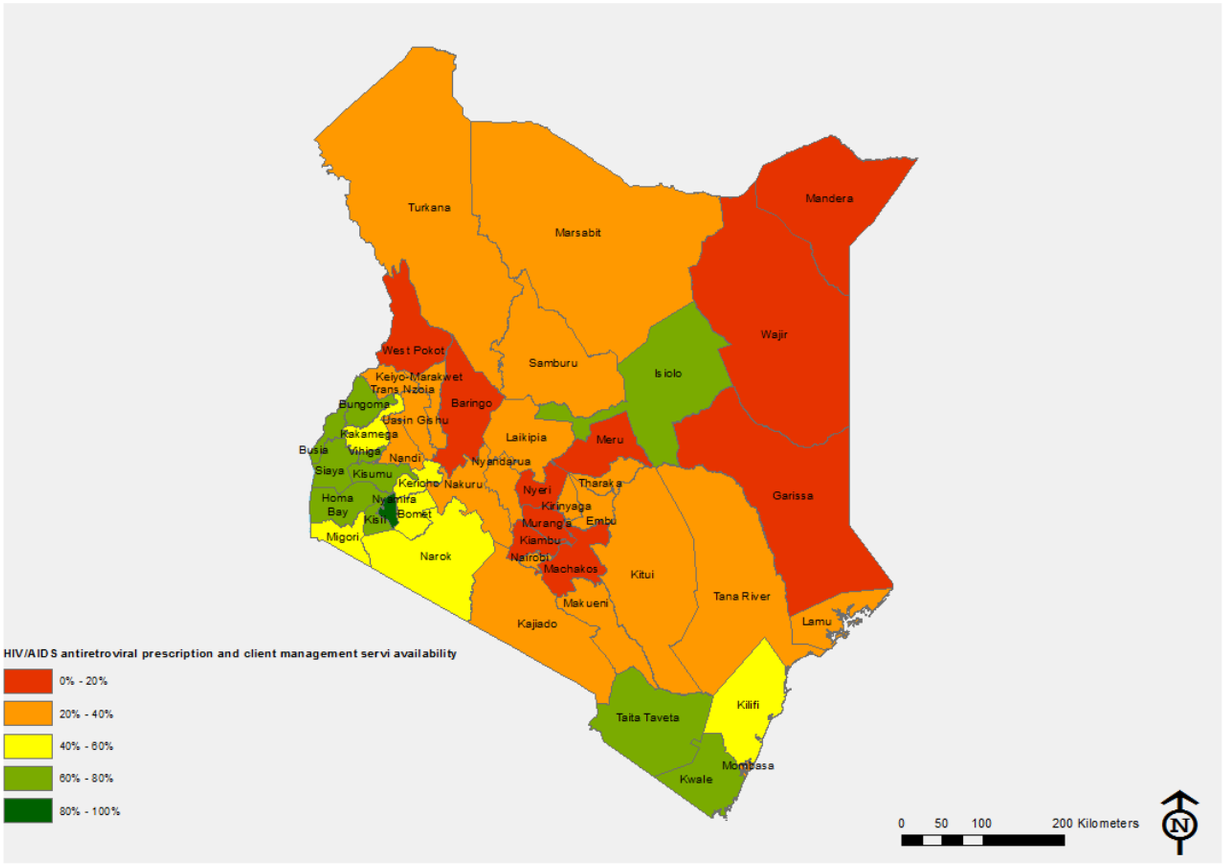


Annex Table 54 shows the percentage of facilities offering key ARV services by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location, while **Figure 113** shows the variation in ARV service availability by county.

- Eighty-one percent of facilities in Nyamira offered ARV prescription or ARV treatment follow-up services, followed by 77% of facilities in Kisii. Less than 10% of facilities in Mandera (7%) and Wajir (6%) offered ARV prescription or ARV treatment follow-up services. Among priority counties, the percentage that offer ARV prescription or ARV treatment follow-up services was as follows: Homa Bay (70%), Kisumu (63%), Siaya (67%), Migori (60%), Nakuru (38%), Nairobi (33%), Turkana (30%), and Kiambu (12%).
- All secondary and tertiary hospitals and 97% of public primary hospitals offered ARV prescription or ARV treatment follow-up services, while 62% of private/NGO/FBO primary hospitals and 60% of health centres offered these services.

- About half of government facilities (51%) offered ARV prescription or ARV treatment follow-up services, compared to 45% of NGO/FBO facilities.
- Rural facilities were more likely to offer ARV prescription or ARV treatment follow-up services than urban facilities (40% versus 27%).

Figure 113: Map of ARV service availability by county, Kenya 2018

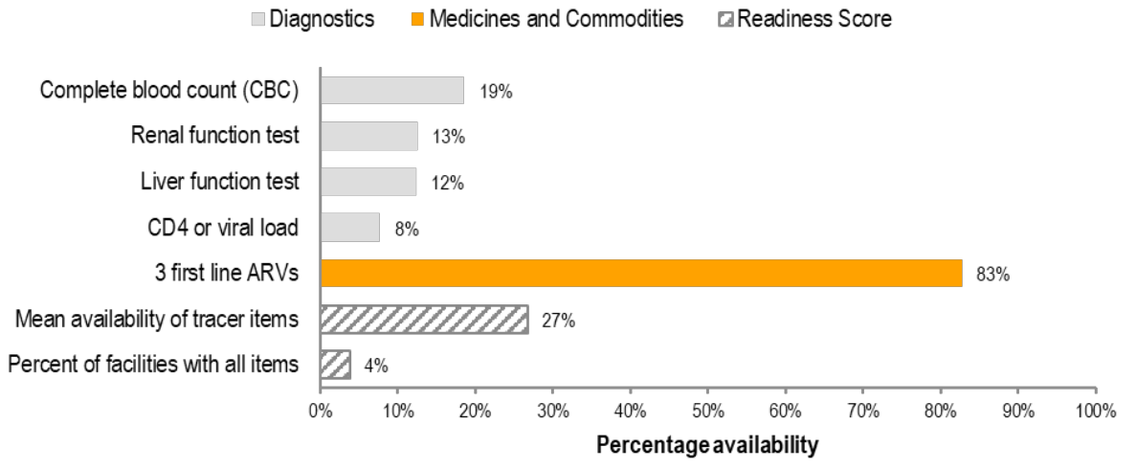


Service readiness

Readiness to provide antiretroviral therapy was assessed based on the presence of the five tracer items found in **Table 23. Figure 114** shows the percentage availability of these tracer items in facilities that offered ARV services (N=1239).

- Among facilities that offered ARV treatment or ARV follow-up services, the ARV service readiness was 27% nationally. Only 4% of facilities that offered ARV treatment or ARV follow-up services had all ARV tracer items.
- Overall, 83% of facilities that offered ARV treatment or ARV follow-up services had the three 1st line ARVs.
- Less than 20% of facilities that offered ARV treatment or ARV follow-up services had the following diagnostics: complete blood count (19%), renal function test (13%), and liver function test (12%). CD4 or viral load was the least available item at 8%, amongst the facilities.

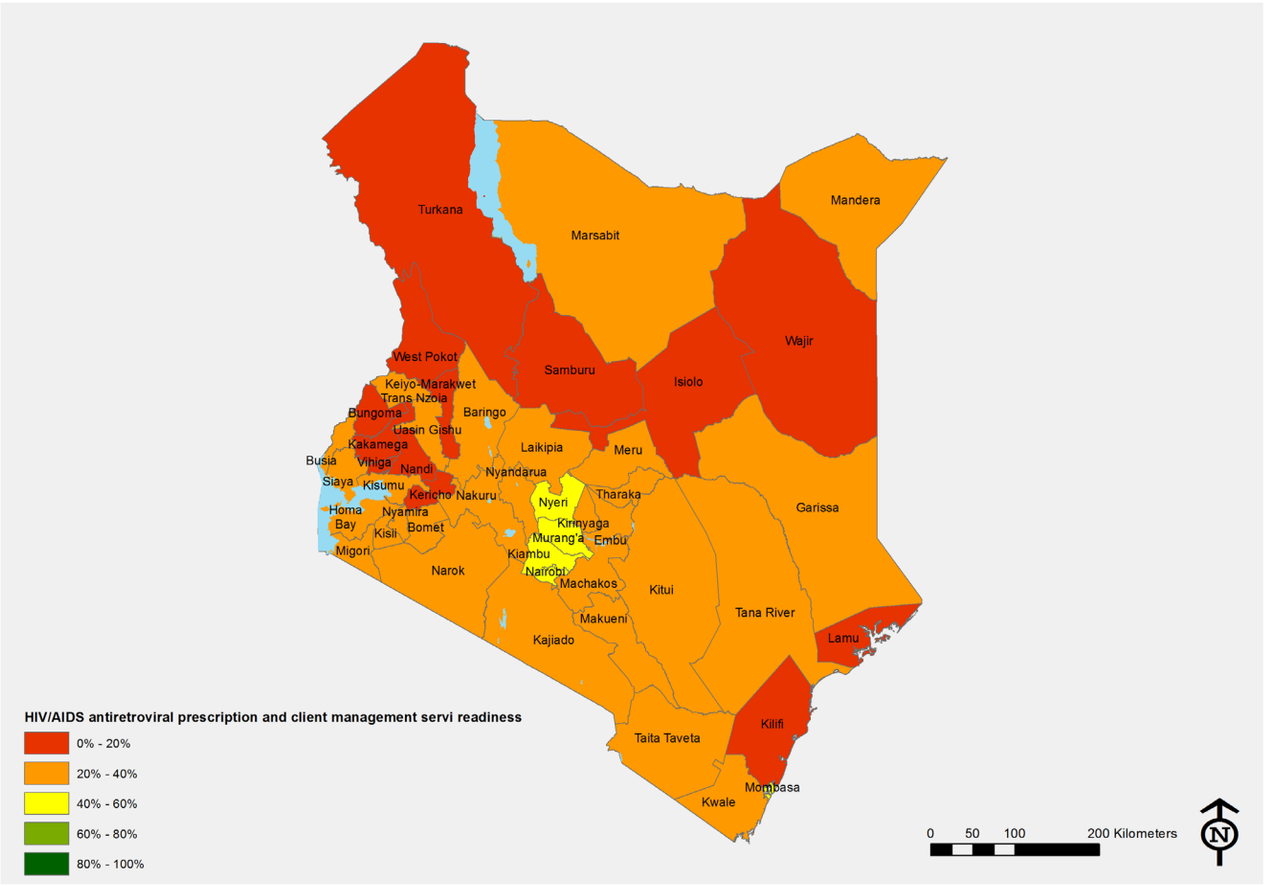
Figure 114. Proportion (%) of facilities that have tracer items for ART services among facilities that provide this service (N=1239), Kenya 2018



Annex Table 55 shows availability of ARV service tracer items by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location while **Figure 115** shows the variation in ARV service readiness by county.

- Counties that had the highest ARV service readiness index included Nairobi (55%) and Kiambu (44%), while facilities with the lowest ARV service readiness index were in Wajir (14%) and Nandi (11%). Among other priority counties, the ARV service readiness was as follows: Homa Bay (23%), Kisumu (29%), Siaya (21%), Migori (25%), Nakuru (35%), and Turkana (19%).
- Among facilities that offered ARV treatment or ARV treatment follow-up services, all facilities in Murang'a and Kitui had three first-line ARVs, while only 41% of facilities in Wajir and 45% in Kericho had three first-line ARVs. Among priority counties, the percentage that had all three first-line ARVs was as follows: Homa Bay (91%), Kisumu (90%), Siaya (78%), Migori (95%), Kisii (89%), Nakuru (91%), Nairobi (86%), Turkana (71%), and Kiambu (77%).
- As expected, secondary and tertiary hospitals had the highest ARV service readiness index, at 87%, while dispensaries had the lowest ARV service readiness index (17%). Secondary and tertiary hospitals had the highest readiness in offering the following diagnostics: complete blood count (90%), CD4 or viral load (80%), renal function test (90%), and liver function test (90%).
- By managing authority, NGO/FBO and private facilities' ARV service readiness indices (both 40%) were twice that of government facilities (21%).

Figure 115: Map of ARV readiness by county, Kenya 2018



5.2.7 PMTCT Services

Kenya adopted the WHO four-pronged approach to prevention of mother-to-child transmission (PMTCT) which includes: preventing new HIV infections among women of childbearing age; preventing unintended pregnancies among women living with HIV; preventing HIV transmission from a woman living with HIV to her baby; and providing appropriate treatment, care and support to mothers living with HIV and their children and families. To complement the four-pronged approach, Kenya adopted universal ART for all pregnant and breastfeeding women in 2013. In 2015, 75% of pregnant/ breastfeeding women living with HIV were on ART compared to 68% in 2013. However, audits have demonstrated missed opportunities in uptake of PMTCT interventions, which places infants at risk of contracting HIV.

Items required for health facilities offering this service are outlined in **Table 24**.

Table 24. Tracer items needed to provide PMTCT services

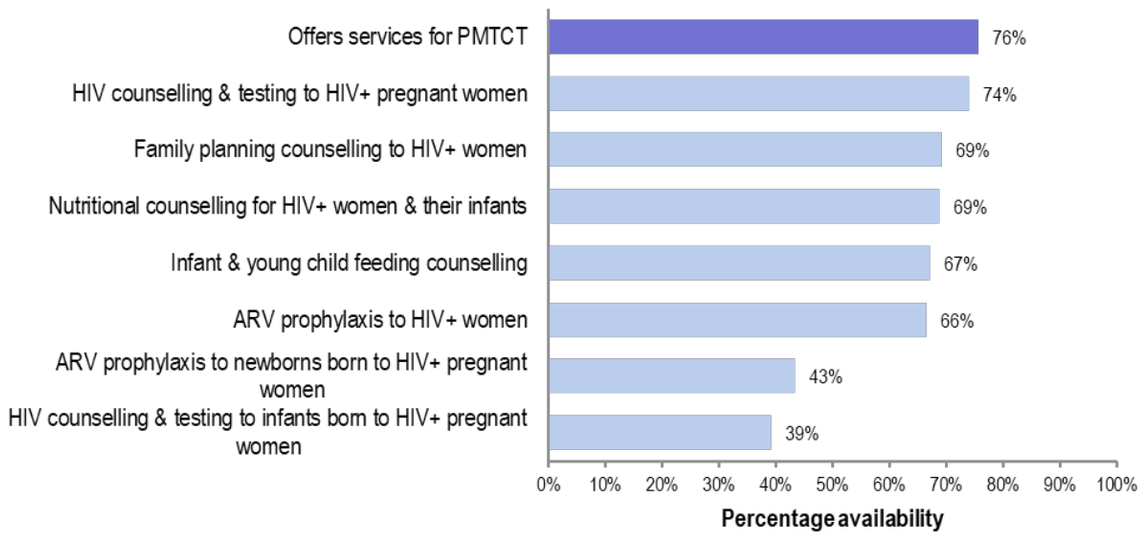
Domain	Tracer items
Equipment	• Room with visual and auditory privacy
Diagnostics	• Capacity to conduct HIV diagnostic testing on site • Dried blood spot (DBS) filter paper for diagnosing HIV in newborns
Medicines and commodities	• Zidovudine syrup • Nevirapine syrup • Maternal ARV prophylaxis

Service availability

Figure 116 shows the countrywide availability of PMTCT services.

- In Kenya, 76% of health facilities offer PMTCT services.
- Kenyan health facilities are most likely to offer HIV counselling and testing to HIV+ pregnant women, and least likely to offer HIV counselling and testing to infants born to HIV+ pregnant women. This is probably because testing pregnant women requires a rapid diagnostic test (RDT) on site, while testing infants requires dried blood spot (DBS) testing that is sent to the National Reference Laboratory.
- More than 60% of health facilities offered the following services: family planning counselling to HIV+ women (69%); nutritional counselling for HIV+ women & their infants (69%); infant & young child feeding counselling (67%); and ARV prophylaxis to HIV+ women (66%).
- Only 43% of facilities offered ARV prophylaxis to newborns born to HIV+ pregnant women.

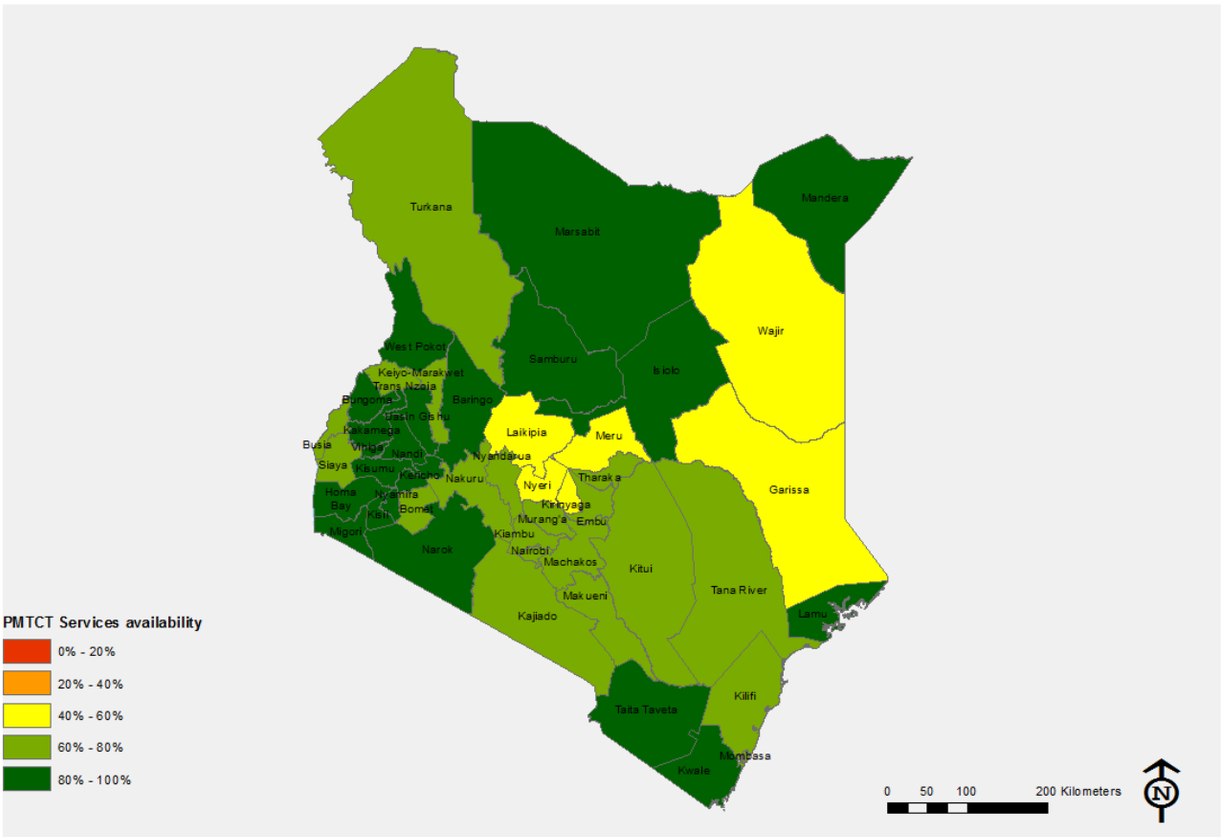
Figure 116. Proportion (%) of facilities that offer PMTCT services (N=2927), Kenya 2018



Annex Table 56 shows the percentage of facilities offering key PMTCT services by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location while **Figure 117** shows the variation in PMTCT service availability by county.

- Nyamira (98%), Baringo (92%), and Isiolo (92%) counties had the highest availability of PMTCT services, while the lowest performing counties included Kirinyanga (49%), Laikipia (53%), and Wajir (54%). Among counties with the highest mother-to-child transmission (MTCT)rates, the availability of PMTCT services was as follows: Wajir (54%), Garissa (58%), Murang'a (71%), Tharaka-Nithi (79%), West Pokot (83%), Mandera (84%), Samburu (85%), Marsabit (89%), and Isiolo (92%).
- Among counties with MTCT rates, the availability of ARV prophylaxis to newborns born to HIV+ pregnant women ranged from a low of 7% in Wajir to a high of 64% in Isiolo and 65% in Marsabit. Other counties ranking was follows: Mandera (13%), West Pokot (16%), Garissa (19%), Tharaka-Nithi (30%), Murang'a (48%), and Samburu (57%).
- By facility type, more than 90% of public primary hospitals (99%), secondary and tertiary hospitals (95%), and health centres (92%) offered PMTCT services. Only half of medical clinics offered PMTCT services.
- Nine in ten government facilities offered PMTCT services, compared to 80% of NGO/FBO facilities and 56% of private facilities.
- Eighty-two per cent of rural facilities offered PMTCT services, compared to 63% of urban facilities.

Figure 117: Map of PMTCT availability by county, Kenya 2018

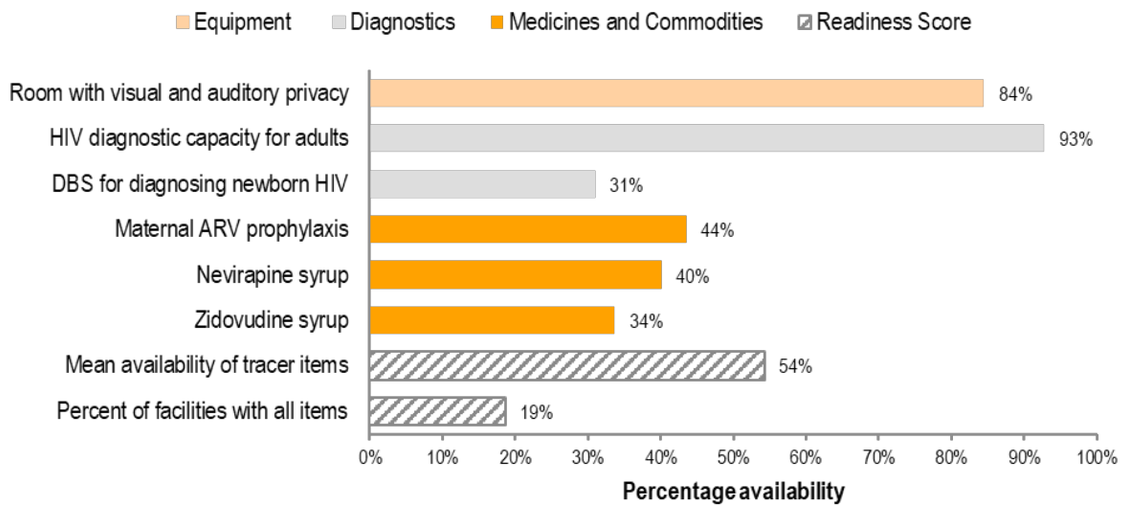


Service readiness

Readiness to provide PMTCT services was assessed based on the presence of the six tracer items found in **Table 24**. **Figure 118** shows the percentage availability of these tracer items in facilities that offer PMTCT services (N=2302).

- Among facilities offering PMTCT services, the mean readiness score to provide PMTCT services was 54%, while only 19% had all PMTCT tracer items.
- Ninety-three per cent of facilities that offered PMTCT services had HIV diagnostic capacity for adults and 84% had a room with visual and auditory privacy.
- Among PMTCT medicines and commodities, health facilities were most likely to have maternal ARV prophylaxis (44%), followed by nevirapine syrup (40%), and zidovudine syrup (34%).
- Only 31% of facilities that offered PMTCT services had dried blood spot (DBS) for diagnosing newborns with HIV.

Figure 118. Proportion (%) of facilities that have tracer items for PMTCT services among facilities that provide this service (N=2302), Kenya 2018

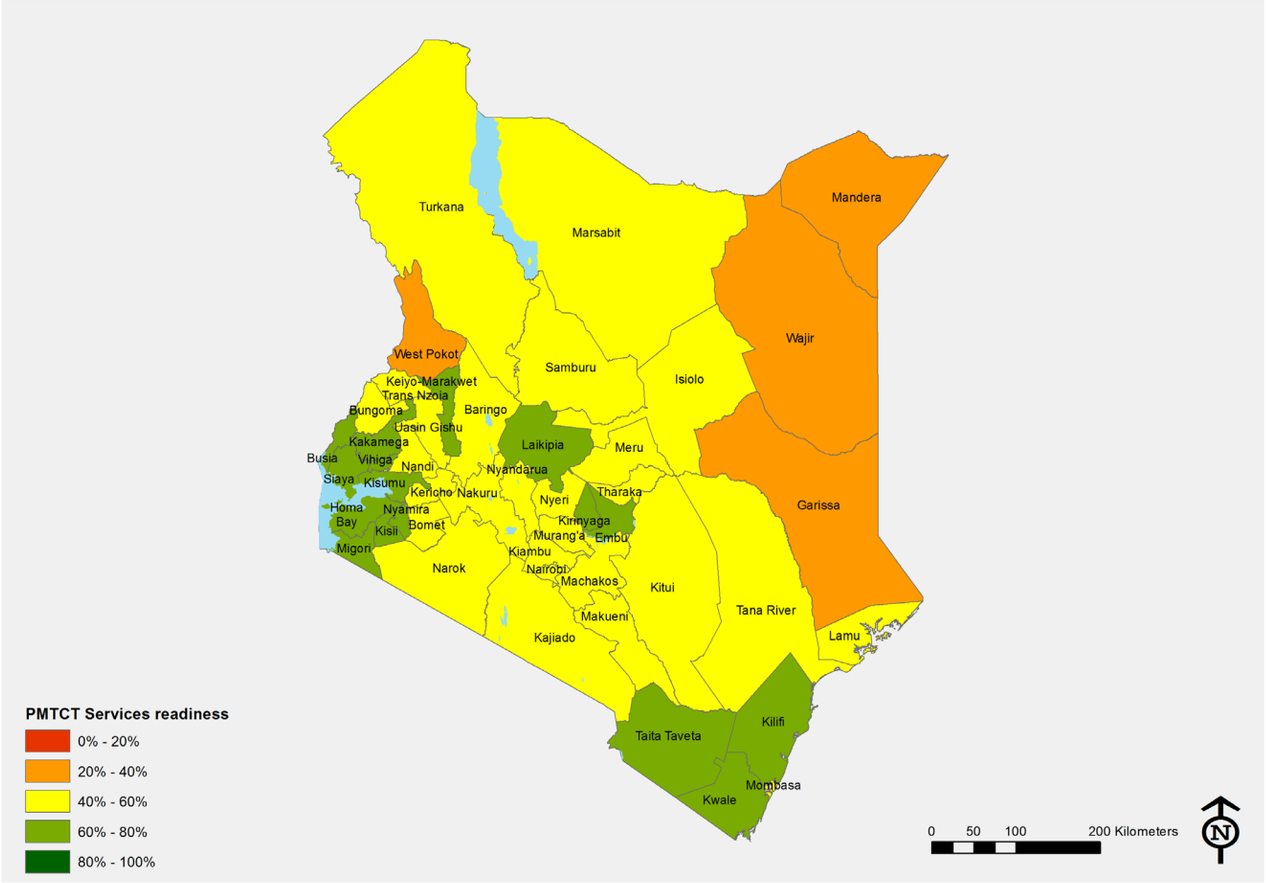


Annex Table 57 shows availability of PMTCT tracer items by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location, while **Figure 119** shows the variation in PMTCT service readiness by county.

- PMTCT service readiness was highest in Nyamira (76%), Busia (75%), and Homa Bay (75%) and lowest in Wajir (22%) and Mandera (30%). Among facilities offering PMTCT services, the percentage of facilities that had all PMTCT items ranged from a high of 43% in Homa Bay and 40% in Siaya to a low of 0% in Marsabit, 1% in Garissa, and 1% in Mandera.
- Among counties that had high MTCT rates, PMTCT readiness was as follows: Wajir (22%), Mandera (30%), West Pokot (38%), Garissa (39%), Samburu (45%), Tharaka-Nithi (45%), Marsabit (48%), Murang'a (51%), and Isiolo (57%). Among facilities offering PMTCT services, the availability of all items was 15% and above in three counties: Tharaka-Nithi (15%), Isiolo (16%), and Murang'a (18%).

- Public primary hospitals (89%) and secondary and tertiary hospitals (88%) had the highest PMTCT service readiness indices. DBS for diagnosing HIV in newborns was most available in public primary hospitals (85%) and least available in medical clinics (8%).
- By managing authority, the mean readiness score was 62% for NGO/FBO facilities and 60% of government facilities. Forty percent of NGO/FBO facilities and 38% of government facilities that offered PMTCT services had DBS for diagnosing HIV in newborns.

Figure 119: Map of PMTCT readiness by county, Kenya 2018



5.2.8 Paediatric HIV services

Without treatment for HIV, 1 in 3 HIV positive children die in their first year of life and half before they reach their second birthday. There were about 1.8 million children (<15 years) estimated to be living with HIV in 2016[16]. Only half (52%) of all children living with HIV were getting treatment and 110,000 children died of AIDS-related illnesses in 2017[17]. Over 400 children are newly infected with HIV every day.

The tracer items required for paediatric HIV service readiness are outlined in **Table 25.**

[16] UNAIDS, http://www.unaids.org/

[17] UNAIDS, Global AIDS Update, 2018

Table 25. Tracer items needed to provide paediatric HIV treatment services

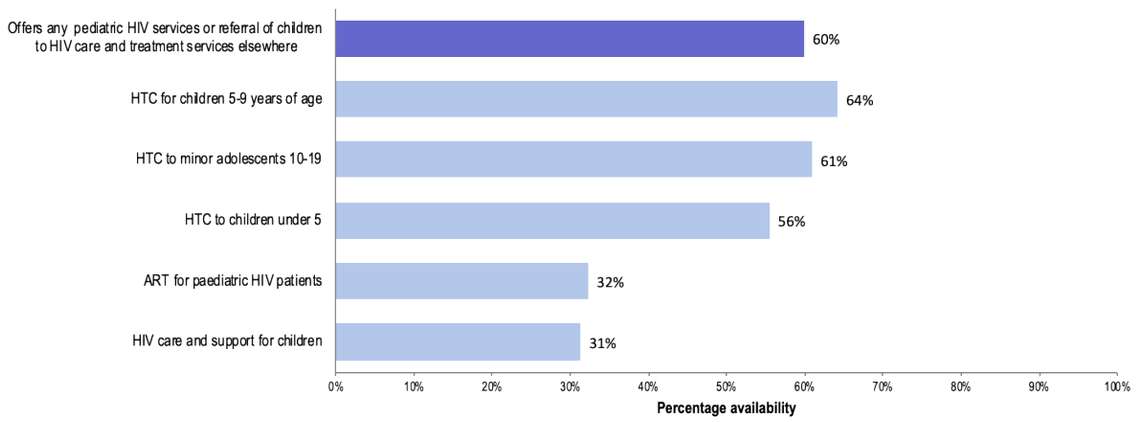
Domain	Tracer items
Medicines and commodities	• Nevirapine (NVP) syrup • Lamivudine (3TC) syrup • Efavirenz (EFV) syrup • Lopinavir (LPV) syrup • Cotrimoxazole syrup or dispersible tablets

Service availability

Figure 120 shows the countrywide availability of paediatric HIV treatment services.

- Six in ten health facilities in Kenya offer any paediatric HIV services or referral of children to HIV care and treatment services elsewhere.
- For children under the age of 15, guardian consent is required to test children for HIV. Additionally, children under 5 years should be tested annually for HIV with guardian consent. The most commonly available paediatric HIV care and treatment services were HIV testing and counselling (HTC) for children aged between 5 and 9 years (64%) and HTC to minor adolescents aged between 10 and 19 years (61%). More than half of the facilities offered HTC to children under the age of 5 (56%).
- Nearly one-third of facilities offered ART for paediatric HIV patents, while only 31% of facilities offered HIV care and support services for children.

Figure 120. Proportion (%) of facilities that offer paediatric HIV care and treatment services (N=2927), Kenya 2018

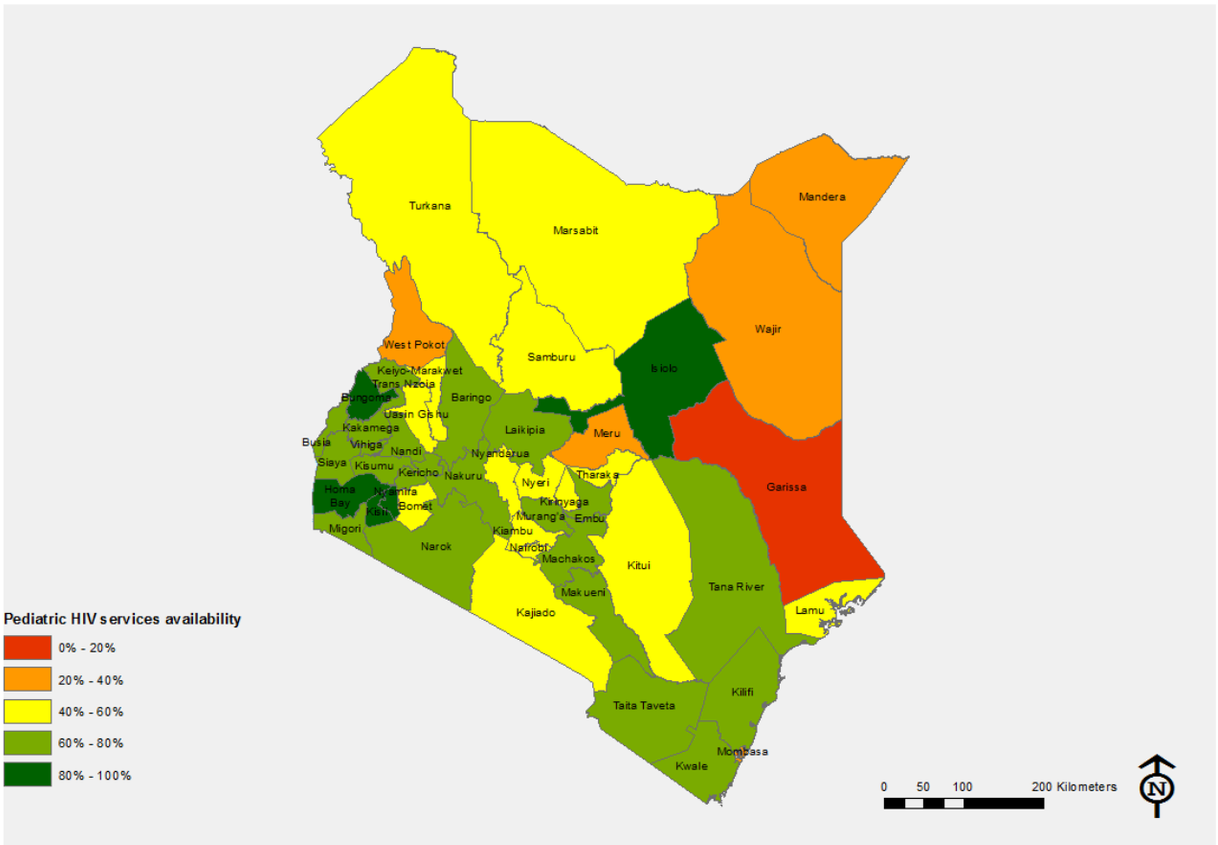


Annex Table 58 shows the percentage of facilities offering key paediatric HIV services by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location while **Figure 121 shows** the variation in paediatric HIV service availability by county.

- The availability of paediatric HIV care and treatment services or referral of children to HIV care and treatment services elsewhere was highest in Nyamira (95%) and Bungoma (91%) and lowest in Mandera (21%) and Wajir (25%).

- Among counties with the highest number of new infections among children age between 0 and 14 years, the availability of paediatric HIV services or referral of children to HIV care and treatment services elsewhere was as follows: Mombasa (34%), Nairobi (54%), Uasin Gishu (60%), Nakuru (63%), Kakamega (64%), Busia (75%), Kisumu (75%), Migori (77%), Siaya (77%), Homa Bay (84%), and Bungoma (91%). Among these counties, only 19% of facilities in Uasin Gishu offered ART for paediatric HIV patients, compared to more than 60% of facilities in Bungoma, Busia, Homa Bay, and Siaya.
- All secondary and tertiary hospitals and 97% of public primary hospitals offered paediatric HIV services or referral of children to HIV care and treatment services elsewhere. About three-quarters of private/NGO/FBO primary hospitals and health centres offered these services. ART for paediatric HIV patients was offered at 100% of secondary and tertiary hospitals and 95% of public primary hospitals.
- By managing authority, 74% of government facilities, 68% of NGO/FBO facilities, and 40% of private facilities offered paediatric HIV services or referral of children to HIV care and treatment services elsewhere.
- Nearly two-thirds of rural facilities offered paediatric HIV services or referral of children to HIV care and treatment services elsewhere, compared to half of urban facilities.

Figure 121: Map of paediatric HIV care and treatment service availability by county, Kenya 2018

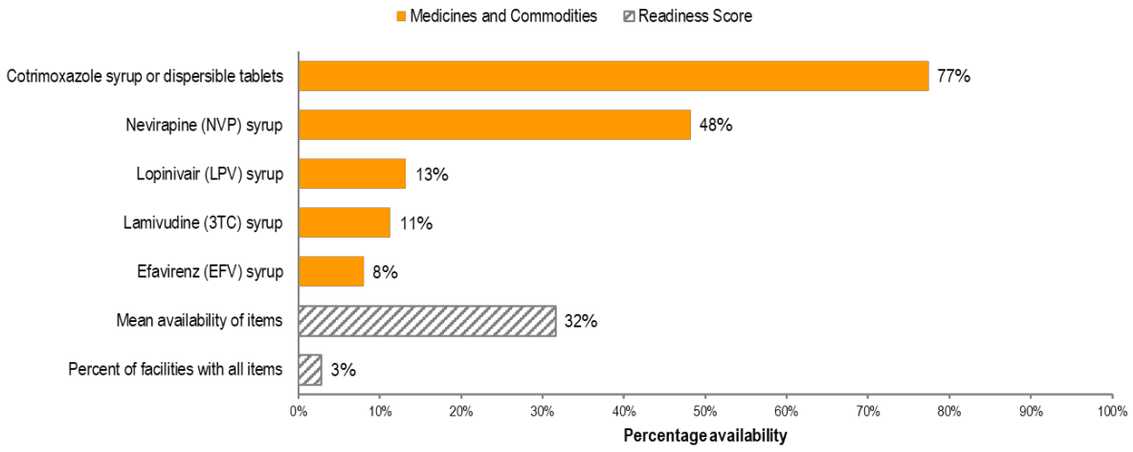


Service readiness

Readiness to offer paediatric HIV treatment and care services was assessed based on the availability of the five tracer items found in **Table 25. Figure 122** shows the percentage availability of these tracer items in facilities that offer paediatric HIV services (N=1871).

- In average, the mean readiness index was 32% for facilities that offer paediatric HIV services, while only 3% of health facilities have all paediatric HIV tracer items.
- The most available tracer item was cotrimoxazole syrup or dispersible tablets (77%) followed by nevirapine (NVP) syrup (48%).
- Few facilities had LPV syrup (13%), 3TC syrup (11%), or EFV syrup (8%).

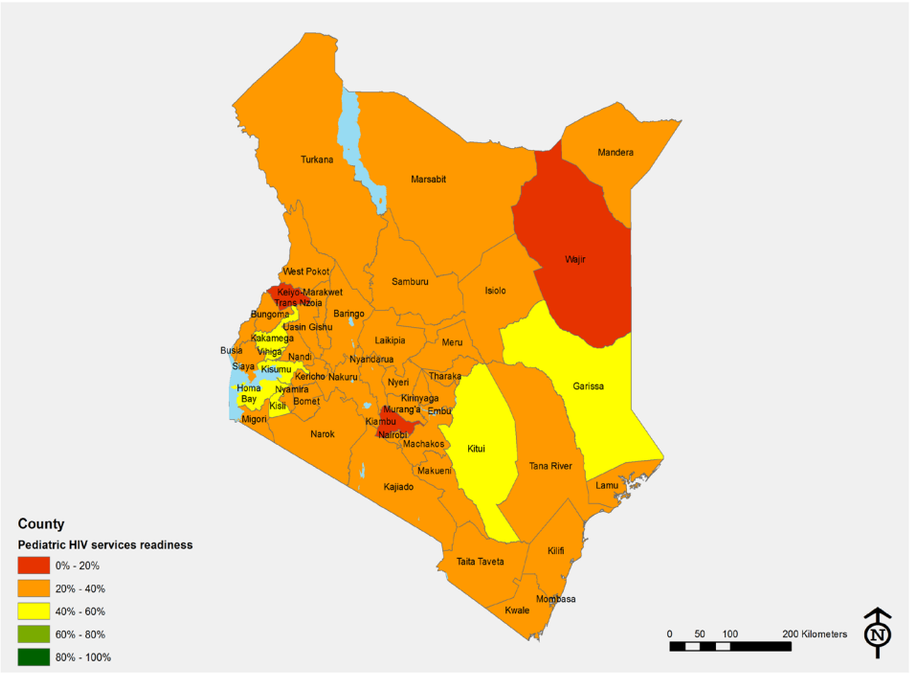
Figure 122: Proportion (%) of facilities that have tracer items for paediatric HIV care and treatment services among facilities that provide this service (N=1871), Kenya 2018



Annex Table 59 shows availability of paediatric HIV tracer items by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location, while **Figure 123** shows the variation in paediatric HIV service readiness by county.

- Counties where facilities had the highest paediatric HIV service readiness were Kisumu (52%), Kisii (47%) and Vihiga (43%). Among facilities that offered paediatric HIV services or referrals, 15% of facilities in both Kisumu and Kisii had all paediatric HIV tracer items.
- Among counties with the highest number of new infections among children aged between 0 and 14 years, the paediatric HIV service readiness index was as follows: Bungoma (21%), Nairobi (26%), Uasin Gishu (27%), Siaya (32%), Mombasa (34%), Nakuru (36%), Busia (37%), Migori (38%), Homa Bay (42%), Kakamega (42%), and Kisumu (52%).
- The paediatric HIV service readiness index was highest in secondary and tertiary hospitals (54%) and public primary hospitals (50%). Among these facilities, 10% or less had all paediatric HIV tracer items.
- About one-third of both NGO/FBO facilities and government facilities that offered paediatric HIV services or referrals were ready to provide paediatric HIV services.

Figure 123: Map of paediatric HIV care and treatment readiness by county, Kenya 2018



5.2.9 Sexually transmitted infection services

Sexually transmitted infections (STIs) are a major public health problem in Kenya and have far-reaching health, social and economic consequences. STIs have public health importance because of their magnitude, potential complications and their interaction with HIV/AIDS. They affect the health and social well-being of women and other priority populations disproportionately by producing significant impact on their sexual and reproductive health. At their core, they affect the quality of life of millions and can have far-reaching consequences on their victims, impacting on their reproductive health, and affecting child health through infertility. They have also proven to cause cancer and in many cases cause severe pregnancy complications.

The Kenya AIDS Indicator Survey from 2012 collected information on self-reported symptoms over a period of 12 months as a proxy for sexually transmitted infection. Overall, 6.2% of women and 1.5% of men reported abnormal genital discharge during this period. Genital ulcers were reported by 3.8% of women and 1.6% of men. Among persons who reported genital discharge, 11.8% were HIV-infected; among those that reported a genital ulcer, 17.5% were HIV infected[18]. The 2014 Kenya Demographic and Health Survey (KDHS 2014) found that among respondents who had ever had sex, 2% reported having had an STI in the 12 months preceding the survey, while 6% of women and 2% of men reported having recently experienced an STI or STI symptoms[19].

STIs can be managed through etiological, clinical and syndromic approaches, and in many cases a combination of all. Irrespective of the approach used, all STI patients should be provided with provider-initiated testing and counselling services for HIV. Since 1990, Kenya has adopted syndromic approaches to STI management to address the high cost of etiological treatment, responding to the

[18] KAIS 2012

[19] Kenya National Bureau of Statistics, 2014

limited availability of laboratory services for STI identification. A limited number of referral health facilities will, however, be equipped to provide etiological management of difficult STI cases and to generate data for antimicrobial resistance monitoring.

Table 26 outlines the tracer items needed to provide STI services in health facilities.

Table 26. Tracer items needed to provide STI services

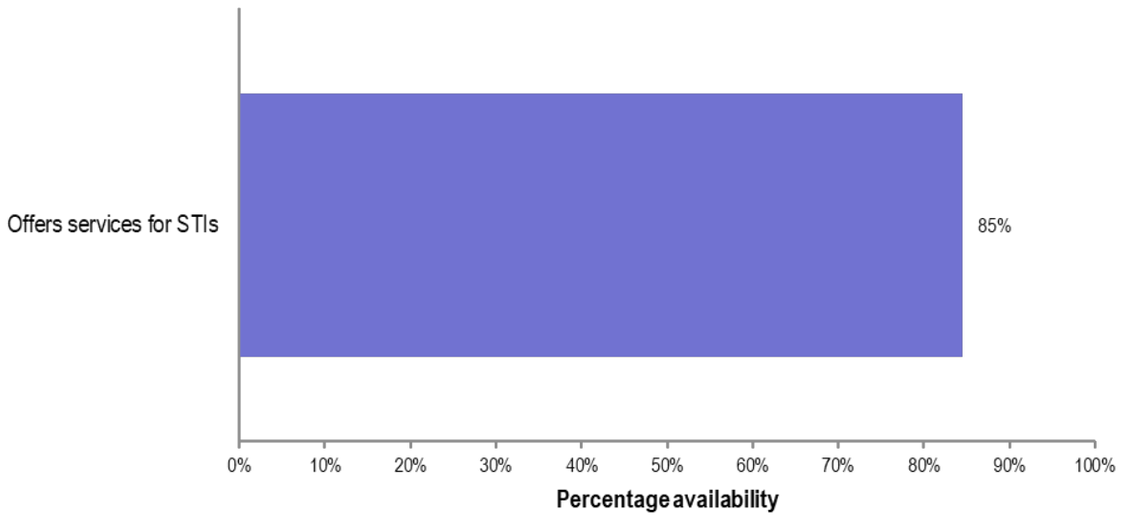
Domain	Tracer items
Diagnostics	• Capacity to conduct on site syphilis rapid test
Medicines and commodities	• Male condoms • Metronidazole • Ciprofloxacin • Ceftriaxone injection

Service availability

Figure 124 shows the countrywide availability of STI services.

- In Kenya, 85% of health facility offered STI services.

Figure 124. Proportion (%) of facilities that offer STI services (N=2927), Kenya 2018

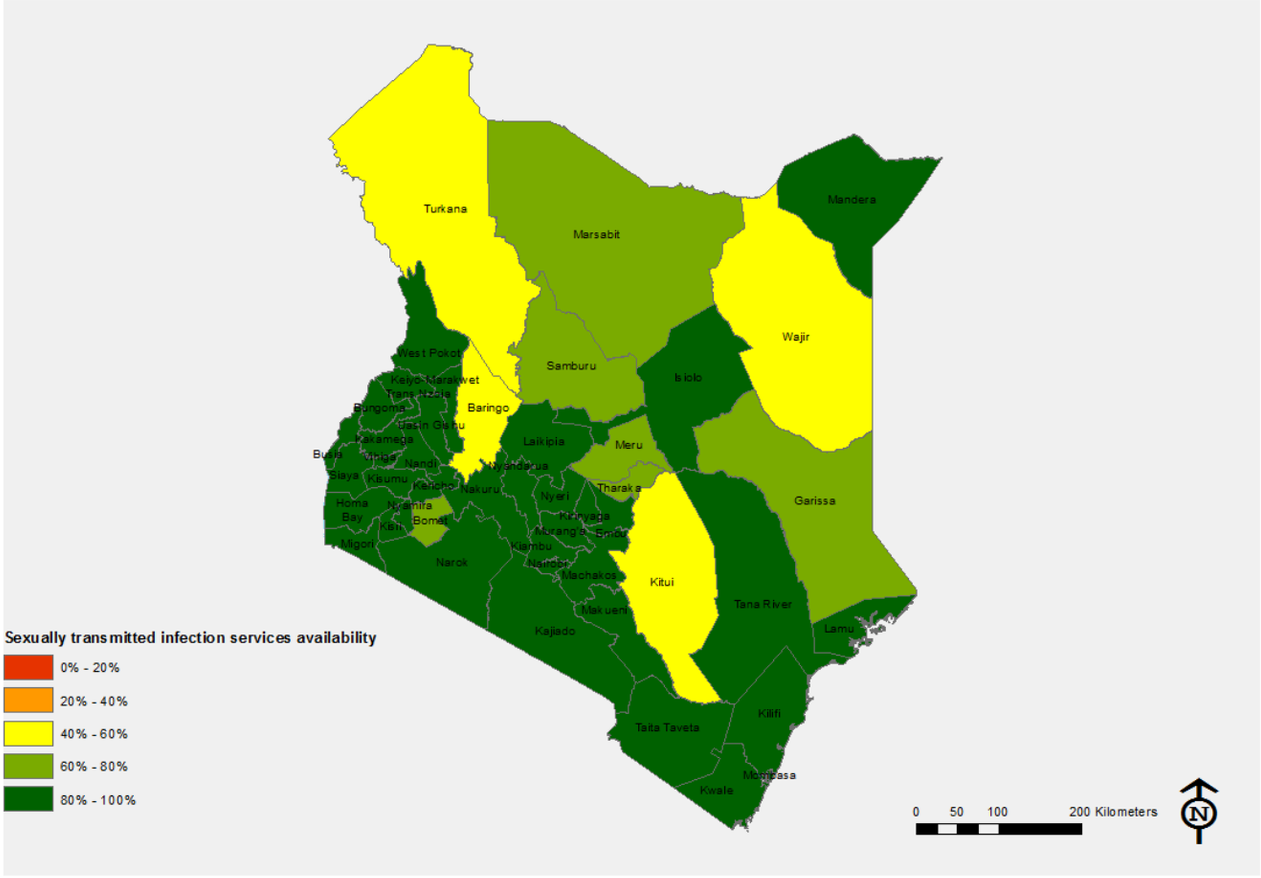


Annex Table 60 shows the percentage of facilities offering key STI services by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location while **Figure 125** shows the variation in STI service availability by county.

- Nearly all health facilities in the following counties offered STI services: Isiolo (98%), Nandi (97%), Homa Bay (96%), and Taita Taveta (96%). STI services were least likely to be offered in Turkana (55%), Wajir (58%), and Kitui (59%).

- Nearly all hospitals offered STI services: 100% of secondary and tertiary hospitals, 99% of public primary hospitals, and 99% of private/NGO/FBO primary hospitals. More than 80% of dispensaries and medical clinics also offered STI services.
- Nine in ten NGO/FBO facilities offered STI services, compared to 85% of private facilities and 83% of government facilities.
- More urban facilities offered STI services than rural facilities (88% versus 83%).

Figure 125: Map of STI service availability by county, Kenya 2018

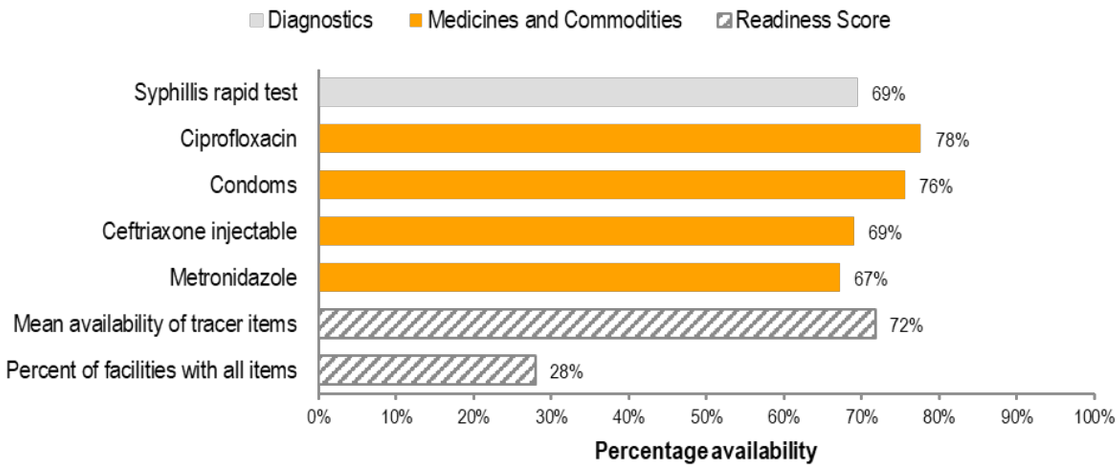


Service readiness

Readiness to provide STI services was assessed based on the presence of the five tracer items found in **Table 26. Figure 126** shows the percentage availability of these tracer items in facilities that offer STI services (N=2512).

- The mean availability of STI tracer items is 72%.
- Only 28% of facilities that offered STI services had all STI tracer items. Facilities were most likely to have ciprofloxacin (78%) and condoms (76%). Less than 70% of facilities that offered STI services had ceftriaxone injectable (69%) and metronidazole (67%).

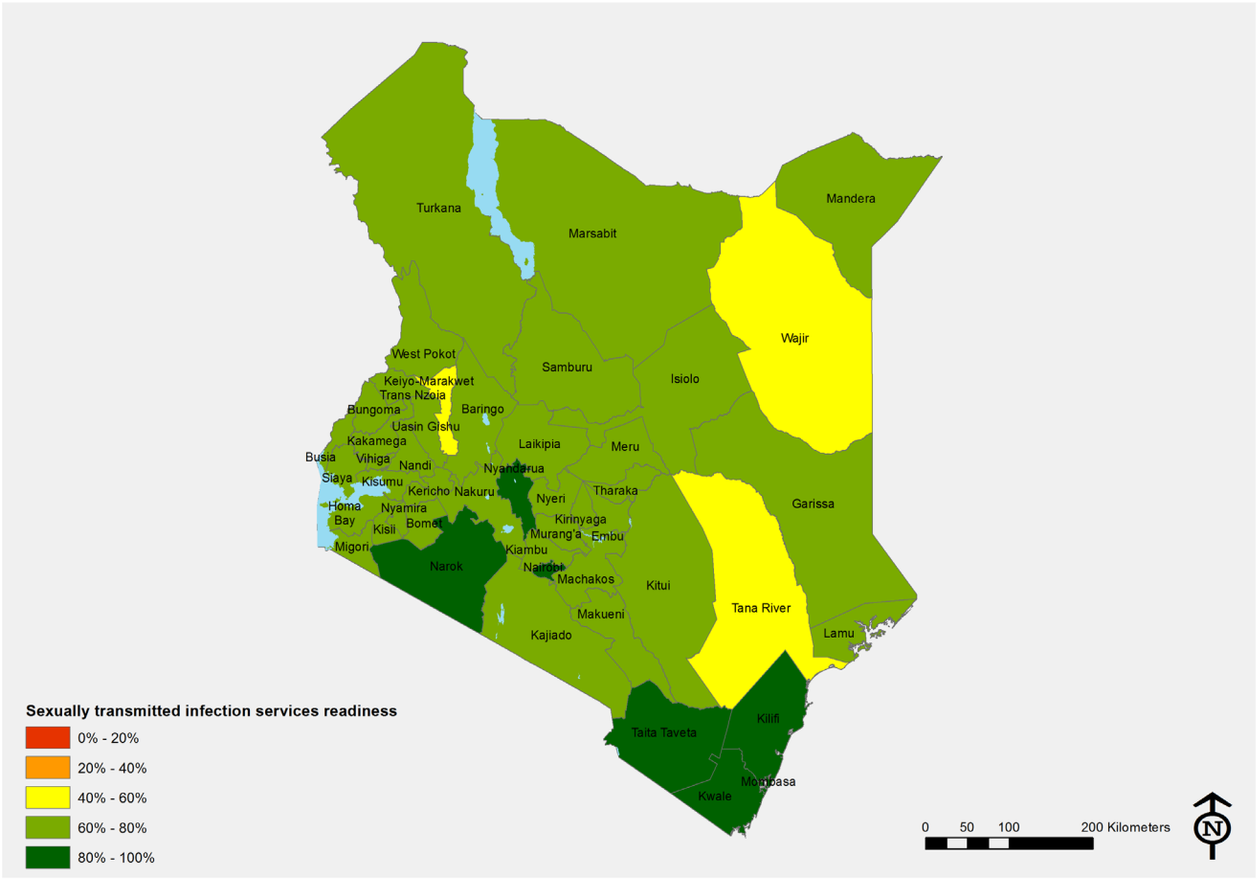
Figure 126. Proportion (%) of facilities that have tracer items for STI services among facilities that provide this service (N=2512), Kenya 2018



Annex Table 61 shows availability of STI tracer items by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location, while **Figure 127** shows the variation in STI service readiness by county.

- Elgeyo Marakwet (46%) and Wajir (53%) had the lowest STI service readiness index, while Narok (87%) and Taita Taveta (85%) had the highest STI service readiness index. Only half of facilities in Kirinyaga that offered STI services had condoms available on the day of the survey
- Among facilities that offered STI services, 56% of facilities in Kilifi and 54% of facilities in Taita Taveta had all STI tracer items. None of the facilities in Tana River and Wajir had all STI tracer items.
- Hospitals had the highest STI service readiness index; secondary and tertiary was the highest at 92%, followed by public primary hospitals (88%) and private/NGO/FBO primary hospitals (85%). The STI service readiness index was lowest in dispensaries (65%).
- By managing authority, NGO/FBO and private facilities had a higher STI service readiness index (both 76%) than government facilities (67%). Government facilities were most likely to have condoms available on the day of the survey (91%).
- Urban facilities had a slightly higher STI service readiness index than rural facilities (76% versus 70%). Rural facilities were more likely to have condoms (81%) than urban facilities (64%).

Figure 127: Map of STI service readiness by county, Kenya 2018



5.2.10 Neglected tropical diseases

Neglected tropical diseases (NTDs) is a diverse group of communicable diseases that prevail in tropical and subtropical conditions in 149 countries, affect more than one billion people, and cost developing economies billions of dollars every year. Populations living in poverty, without adequate sanitation and in close contact with infectious vectors and domestic animals and livestock are those worst affected. The Sustainable Development Goals (SDG) Goal 3 is to ensure healthy lives and to promote wellbeing for all ages. The Target is by 2030 to end the epidemics of AIDS, tuberculosis, malaria, and neglected tropical diseases and combat hepatitis, water-borne diseases, and other communicable diseases. Examples of NTDs include dengue, rabies, trachoma, buruli ulcer, yaws, leprosy, chagas disease, human African trypanosomiasis (sleeping sickness), leishmaniases, taeniasis and neurocysticercosis, dracunculiasis (guinea-worm disease), echinococcosis, foodborne trematodiases, lymphatic filariasis, onchocerciasis (river blindness), schistosomiasis, soil-transmitted helminthiases, and mycetoma. The tracer items required for NTD service readiness are outlined in **Table 27**.

In Kenya, sixteen neglected tropical diseases (NTDs) exist out of the twenty listed by the World Health Organization. Out of the sixteen, the following are confirmed to be of public health importance: schistosomiasis, soil-transmitted helminthiasis (STH), lymphatic filariasis (LF), trachoma, leishmaniasis, dengue fever and chikungunya, snake bites envenoming, ecto-parasites, rabies, leprosy, onchocerciasis,

and human African trypanosomiasis. In Kenya, the distribution and burden of the following diseases is not very clear: cystic echinococcosis, food borne trematodiasis, and teaniasis.

NTDs constitute a serious impediment to socio-economic development and quality of life. In addition, they have an enormous impact on individuals, families, and communities in terms of disease burden, loss of productivity, and the aggravation of poverty and high cost of long-term care. NTDs cause disfigurement and disability leading to stigma and social discrimination.

Major interventions have been implemented to control NTDs in Kenya. Approximately 13 million school-age children were dewormed, while mass treatment of lymphatic filariasis was implemented in 23 endemic sub-counties in 2015 and 2016 whereby 63% treatment coverage was achieved. Targeting 14 million people, the mass drug administration (MDA) for trachoma achieved national coverage of 79% in 2015.

Table 27. Tracer items for neglected tropical disease diagnosis and treatment services

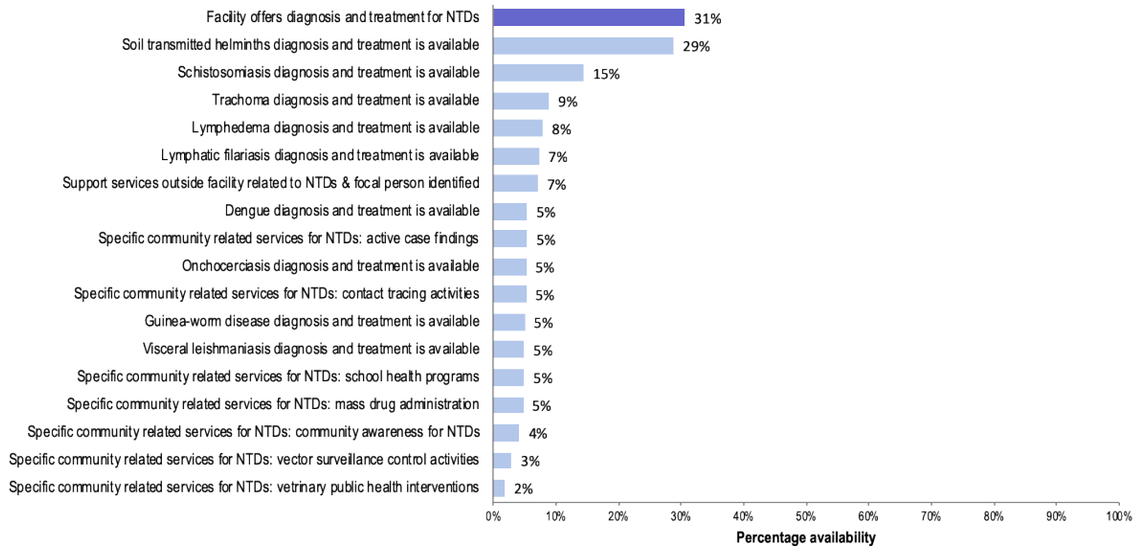
Domain	Tracer items
Diagnostics	• Stool or urine microscopy • Urine filtration or centrifuge • Kato katz test (for helminth) • Rapid test for dengue or microscopy for dengue • LF Diagnostic capacity: Microscopy (microfilaria), filariasis test strip (FTS) • Visceral leishmaniasis Diagnostic capacity: VL RDT or VL DAT or Microscopy, or molecular test (PCR)
Medicines and commodities	• Praziquantel • Albendazole/mebendazole • Ivermectin • Trachoma Treatment: Azithromycin, tetracycline eye ointment • Lymphatic filariasis (LF) Treatment: Diethylcarbamazine (DEC), Ivermectin, albendazole

Service availability

Figure 128 shows the countrywide availability of NTD services.

- Thirty-one percent of facilities nationally offer any service for neglected tropical diseases (NTDs).
- Nearly 3 in 10 facilities offer soil-transmitted helminths diagnosis and treatment and 15% offer schistosomiasis diagnosis and treatment. Availability of other NTD diagnosis and treatment services were below 10%.

Figure 128. Proportion (%) of facilities that offer neglected tropical disease diagnosis and treatment services (N=2927), Kenya 2018

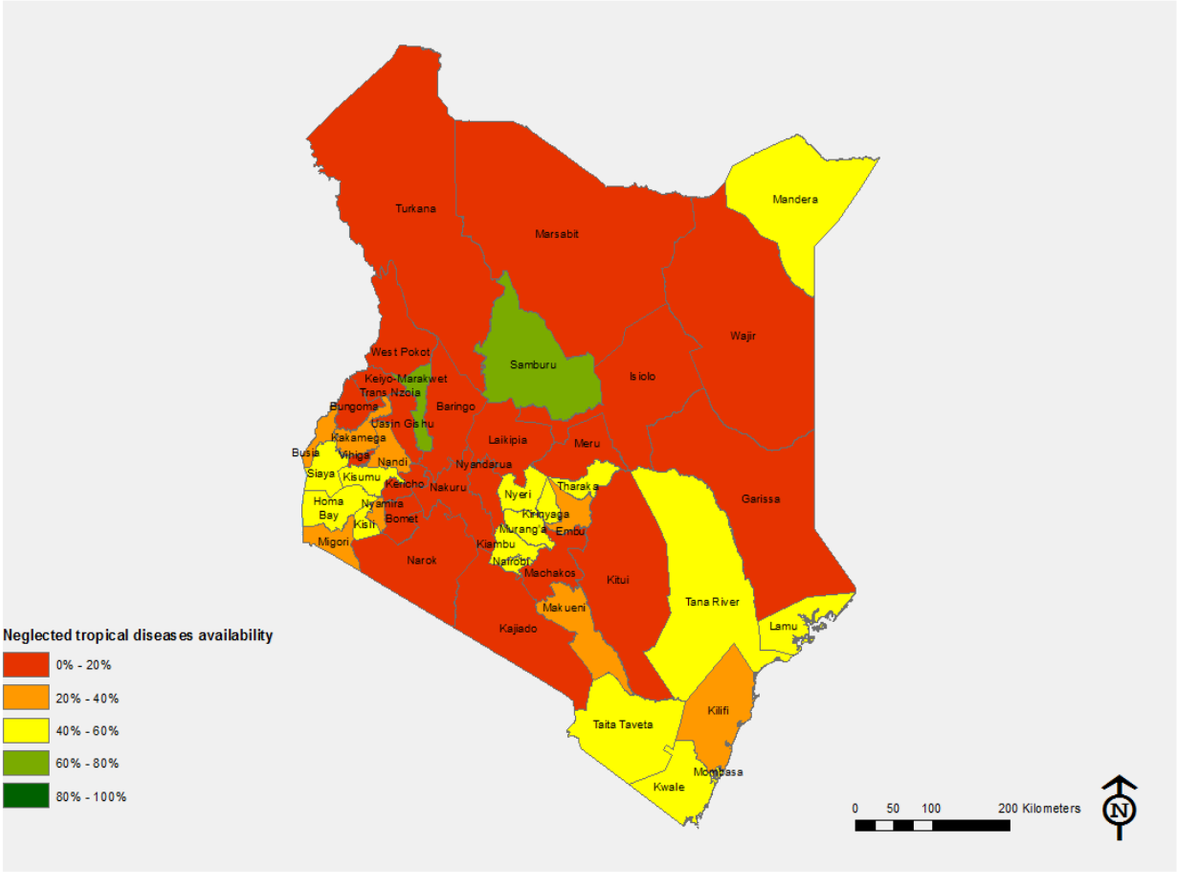


Annex Table 62 shows the percentage of facilities offering key NTD diagnosis and treatment services by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location, while **Figure 129** shows the variation in NTD diagnosis and treatment service availability by county.

- More than 50% of health facilities in 10 counties offered diagnosis and treatment services for NTDs. Elgeyo Marakwet (70%), Samburu (65%), and Nairobi (60%) had the highest availability of NTD diagnosis and treatment services. Less than 10% of facilities in 11 counties offered any service for treating NTDs; no facilities in Laikipia offered any NTD diagnosis and treatment services.
- Soil-transmitted helminths (STH) infections are common in the lake, central, and coastal Kenyan counties, according to the 2016-2020 Kenya NTD Master Plan. Elgeyo-Marakwet was the county with the highest availability of soil-transmitted helminths diagnosis and treatment services, but it is not located in these areas. Among counties in the lake area, Homa Bay had the highest availability of STH treatment services. In the central area, 60% of Nairobi's health facilities offered STH services. In the coast area, 58% of facilities in Lamu offered STH diagnosis and treatment service.
- Schistosomiasis infection is more common in the lake, central, coast, and lower eastern regions, according to the 2016-2020 Kenya NTD Master Plan. Within the regions, schistosomiasis treatment services were more commonly available in Tana River (48%), Nairobi (27%), Kisumu (46%), and Machakos (14%).
- According to the 2016-2020 Kenya NTD Master Plan, Turkana and Samburu have a prevalence of trachoma of 30% or higher. Only 5% of facilities in Turkana offered trachoma services, while 62% of facilities in Samburu offered trachoma services.
- All secondary and tertiary hospitals offered services to treat NTDs, followed by 71% of private/NGO/FBO primary hospitals and 62% of public primary hospitals. Health centres (38%), medical clinics (28%), and dispensaries (24%) had the lowest availability of NTD diagnosis and treatment services.

- NGO/FBO facilities had the highest availability of NTD diagnosis and treatment services (42%), while government facilities had the lowest availability (26%).
- Urban facilities were more likely to offer NTD diagnosis and treatment services than rural facilities (38% versus 27%).

Figure 129: Map of neglected tropical disease diagnosis and treatment availability by county, Kenya 2018

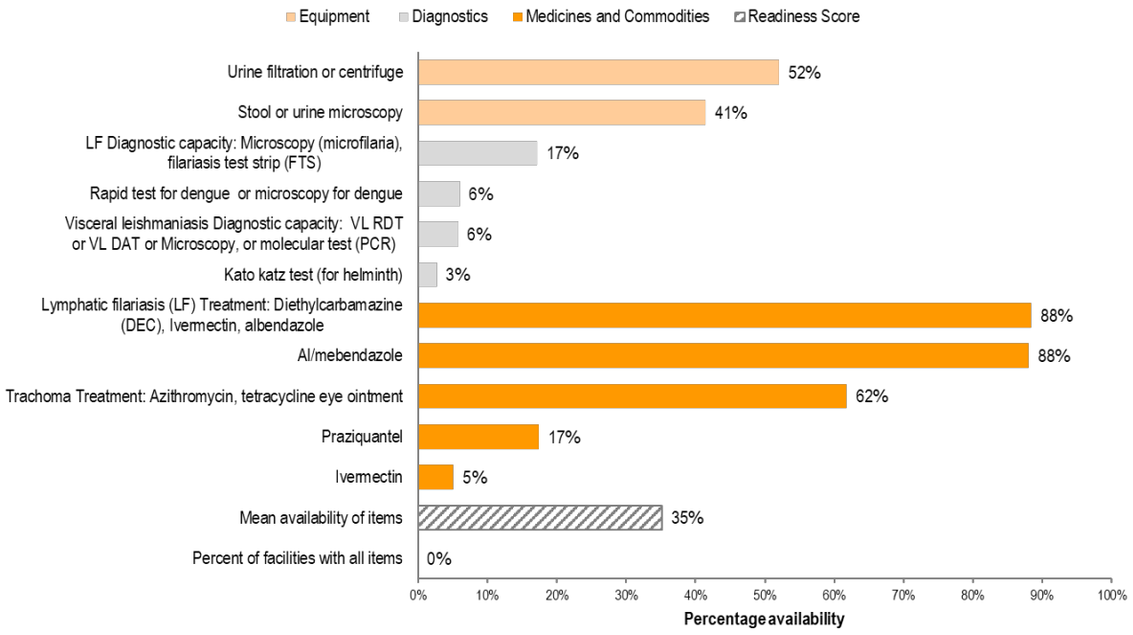


Service readiness

Readiness to offer NTD services was assessed based on the availability of the eleven tracer items found in **Table 27. Figure 130** shows the percentage availability of these tracer items in facilities that offer NTD diagnosis and treatment services (N=939).

- NTD treatment service readiness index was 35%, meaning that facilities in average had about one-third of the tracer items required to offer NTD treatment services.
- The most commonly available tracer items included lymphatic filariasis treatment (88%), albendazole/mebendazole (88%), and trachoma treatment (62%).
- The least available NTD tracer items were diagnostics - LF diagnostic capacity (17%), rapid test for dengue (6%), VL diagnostic capacity (6%), and Kato Katz test (3%). The least available medicine and commodity was Ivermectin (5%) to treat parasitic infections.

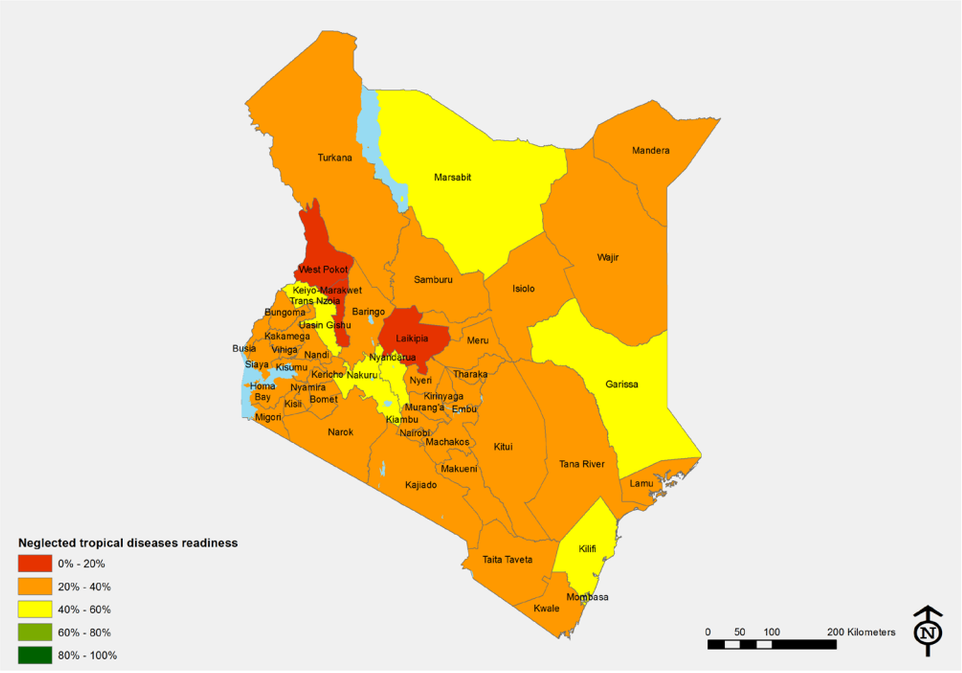
Figure 130: Proportion (%) of facilities that have tracer items for neglected tropical disease diagnosis and treatment services among facilities that provide this service (N=939), Kenya 2018



Annex Table 63 shows availability of NTD tracer items by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location while **Figure 131** shows the variation in NTD service readiness by county.

- NTD diagnosis and treatment service readiness was highest in Marsabit (57%), Uasin Gishu (49%), Garissa (49%), and Mombasa (48%). NTD diagnosis and treatment service readiness was lowest in Elgeyo-Marakwet (16%) and West Pokot (19%). No county had all NTD tracer items in any facility.
- By facility type, secondary and tertiary hospitals (59%) and private/NGO/FBO primary hospitals (51%) had the highest NTD service readiness index. NTD service readiness was less than 40% in health centres (37%), medical clinics (34%), and dispensaries (29%).
- By managing authority, the NTD service readiness ranged from 30% in government facilities to 39% in NGO/FBO facilities.
- The NTD service readiness index was higher in urban facilities than in rural facilities (41% versus 31%).

Figure 131: Map of neglected tropical disease diagnosis and treatment service readiness by county, Kenya 2018



5.3 Non-communicable diseases

Non-communicable diseases (NCDs) account for 38% of total deaths and over 50% of total hospital admissions in Kenya[20]. The major NCDs are cardiovascular conditions, cancers, diabetes, chronic respiratory diseases, mental illnesses, and violence and injuries with their sequelae and their shared risk factors. According to the Kenya Health Sector Strategic Plan (KHSSP) 2013-2018, one of the strategic objectives is halting and reversing the rising burden of NCDs through integrating health service provision and mechanisms and processes as well as establishing screening programmes for all NCDs in community and health facilities.

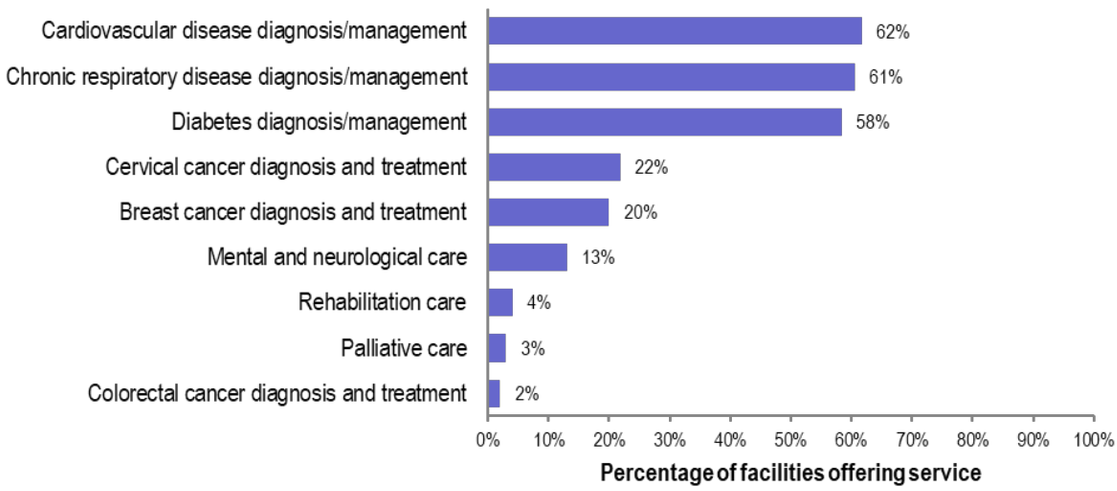
The KHFA assessed availability of services for the prevention, management and control of cardiovascular diseases, chronic respiratory diseases, diabetes, cervical cancer, colorectal cancer, breast cancer, mental and neurological care, rehabilitation care, and palliative care in the sampled health facilities.

The overall availability of NCD prevention, management and control services in Kenya can be seen in **Figure 132**.

- Nationally, availability of management and diagnosis of cardiovascular diseases and chronic respiratory disease was highest at 62% and 61%, respectively, while palliative care and diagnosis of colorectal cancer was lowest, at 3% and 2% respectively.

[20] Institute for Health Metrics and Evaluation (IHME). Global burden of Disease. https://vizhub.healthdata.org/gbd-compare

Figure 132. Availability of non-communicable disease prevention, management and control services (N = 2927), Kenya 2018

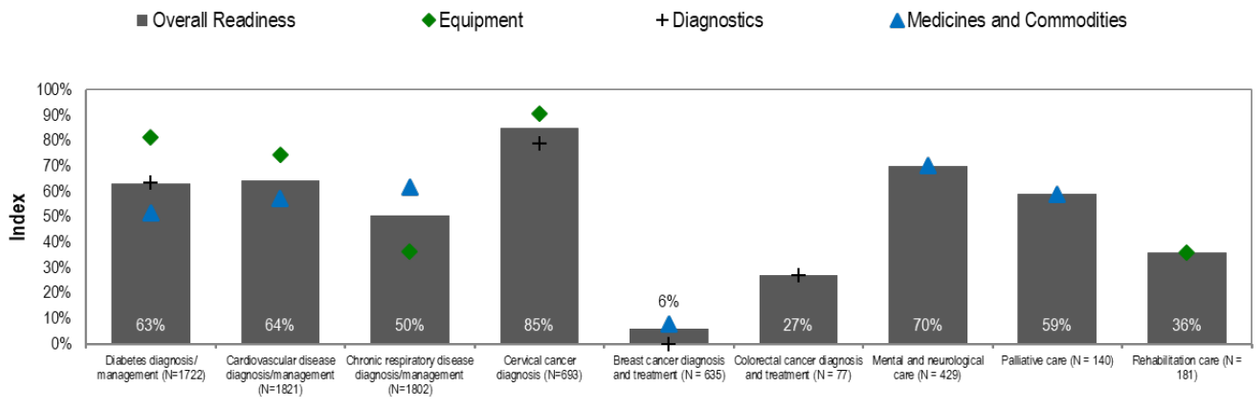


Further, the KHFA survey assessed readiness of facilities to provide NCD prevention, management and control services by assessing availability of medicines and commodities, equipment, and diagnostics necessary for diagnosis and management of NCDs.

Figure 133 depicts the readiness of non-communicable disease prevention, management and control services for each type of service and domain.

- From the findings, some facilities reported that they offered NCD prevention, management and control services. However, they did not have the requisite items necessary to provide the services.
- Overall, readiness to offer NCD prevention, management and control services was highest for cervical cancer at 85%, and lowest for breast cancer care at 6%.
- Medicines and commodities necessary for the management of diabetes, cardiovascular and chronic respiratory diseases, mental illnesses and palliative care were mostly readily available in more than 50% of facilities that offered these services. Medicines and commodities for breast cancer care were least available at 6%.
- Other than for cervical cancer (75%), diagnostics for other cancers like breast and colorectal cancer were not readily available.
- Equipment necessary for the diagnosis of cervical cancer, diabetes and cardiovascular diseases was most readily available, while equipment for chronic respiratory diseases and rehabilitation care was least available.

Figure 133. Readiness to provide non-communicable disease prevention, management and control services, Kenya 2018



*** The readiness score corresponds to the average availability (%) of the tracer items of the three domains (« Equipment », « Diagnostic capacity » and « Medicines and commodities »).**

5.3.1 Diabetes care

The burden of diabetes is associated with demographic and social changes, such as globalisation, urbanisation, aging population, and adoption of unhealthy lifestyles, such as consumption of unhealthy diets, physical inactivity, and excessive alcohol consumption. As the prevalence of diabetes mellitus is escalating, patients face an even greater threat from long-term complications, such as foot, cardiovascular, eye, nerve and renal complications that are the hallmark of diabetes and its impact[21].

Table 28 outlines the tracer items necessary for health facilities providing diabetes care services.

Table 28. Tracer items needed to provide diabetes care services

Domain	Tracer items
Equipment	• Blood pressure apparatus • Adult scale • Measuring tape
Diagnostics	• Blood glucose testing • Urine dipstick – protein • Urine dipstick – ketones
Medicines and commodities	• Metformin • Glibenclamide • Insulin regular injectable • Glucose 50% injectable • Gliclazide or glipizide tablet

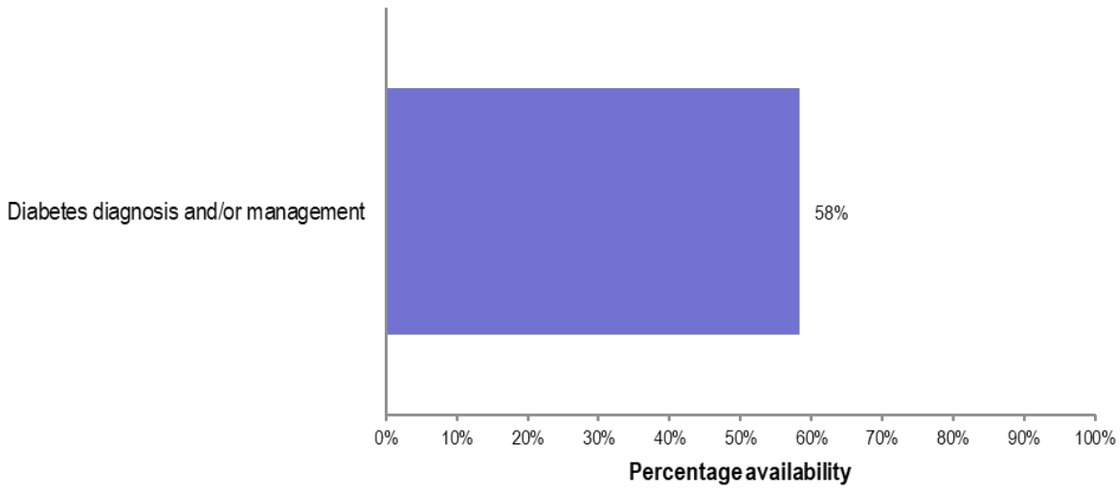
[21] Diabetes Atlas, 2017

Service availability

Figure 134 shows the countrywide availability of diabetes care services.

- Nationally, 58% of health facilities offer diabetes services.

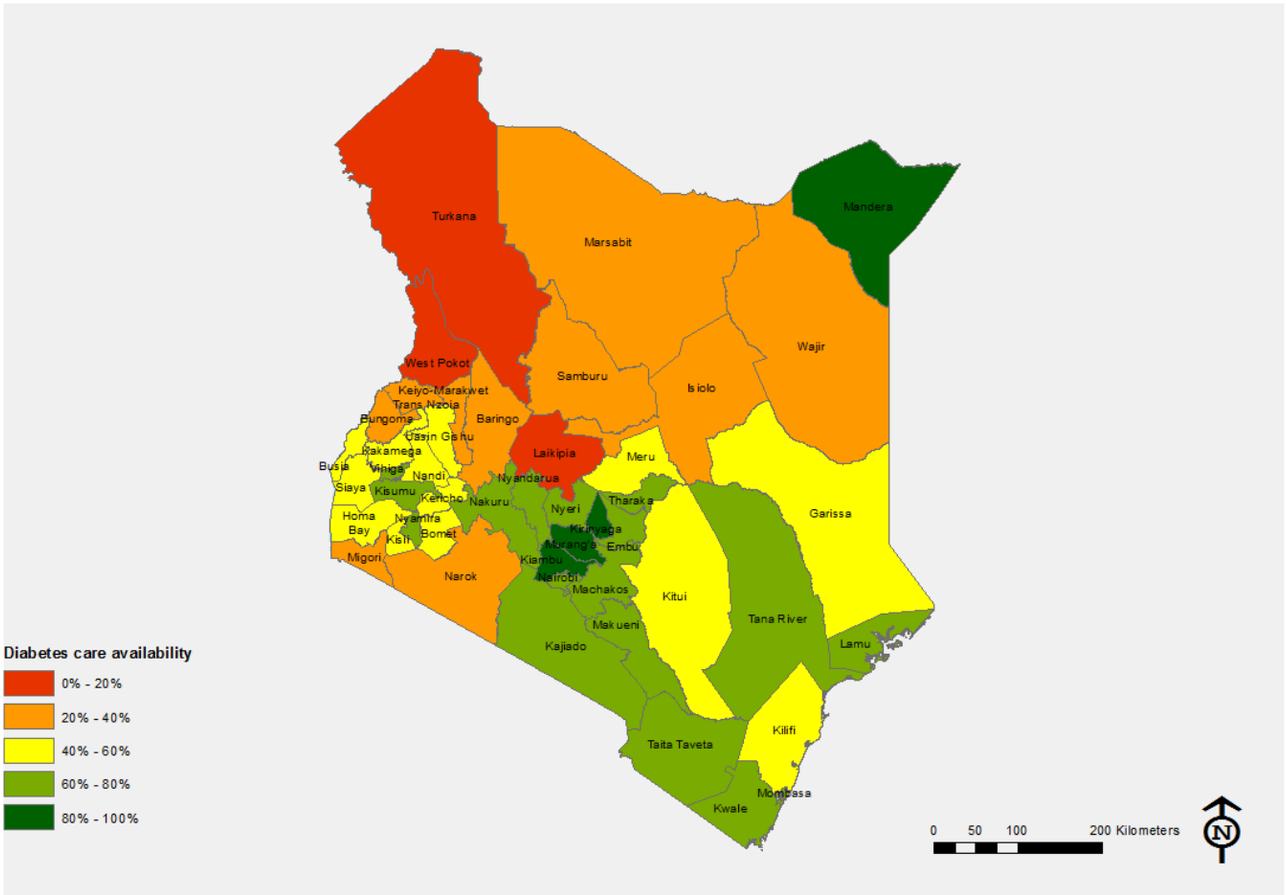
Figure 134. Proportion (%) of facilities that offer diabetes services, by county (N=2927), Kenya 2018



Annex Table 64 shows the percentage of facilities offering key diabetes care services by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location, while **Figure 135** shows the variation in diabetes care service availability by county.

- Murang'a County had the highest availability of diabetes services, at 87%, followed by Mandera, at 84%, while the lowest availability was in Turkana, at 6%, followed by West Pokot, at 13%, and Laikipia, at 20%.
- The services were available in all of the tertiary, secondary and primary hospitals, as well as in private, NGO/FBO facilities.
- In terms of location, more urban facilities (70%) offered the services as compared to 52% of rural facilities.

Figure 135: Proportion (%) of facilities that offer diabetes care services, by county (N=2927), Kenya 2018



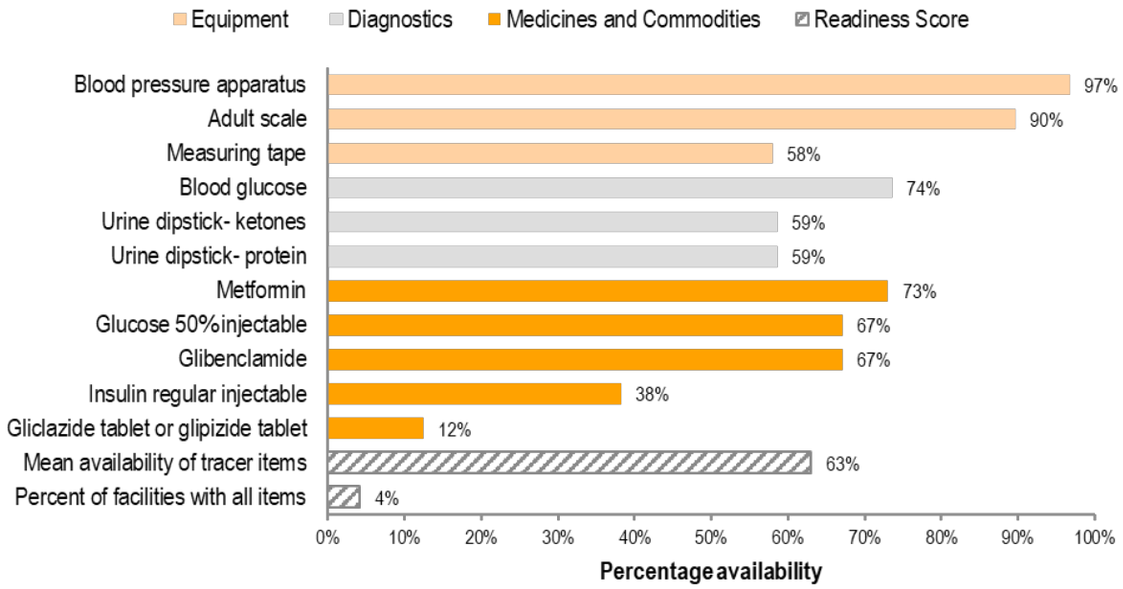
Service readiness

Readiness to provide diabetes services was assessed based on the presence of the 11 tracer items necessary for health facilities to provide diabetes care services found in **Table 28**.

Figure 136 shows the percentage availability of these tracer items in facilities that offered diabetes care services (N=1722)

- The mean availability of the 11 tracer items was 63%, with only 4% of the facilities having all the tracer items.
- Regarding equipment, 97% of facilities had blood pressure apparatus and 90% had an adult scale.
- The most available medicine was metformin at 73%, while the least available was gliclazide or glipizide tablets at 12 %.
- Blood glucose was the most readily available diagnostic at 74% of facilities, while urine dipstick for ketones and proteins was at available in 59% of facilities.

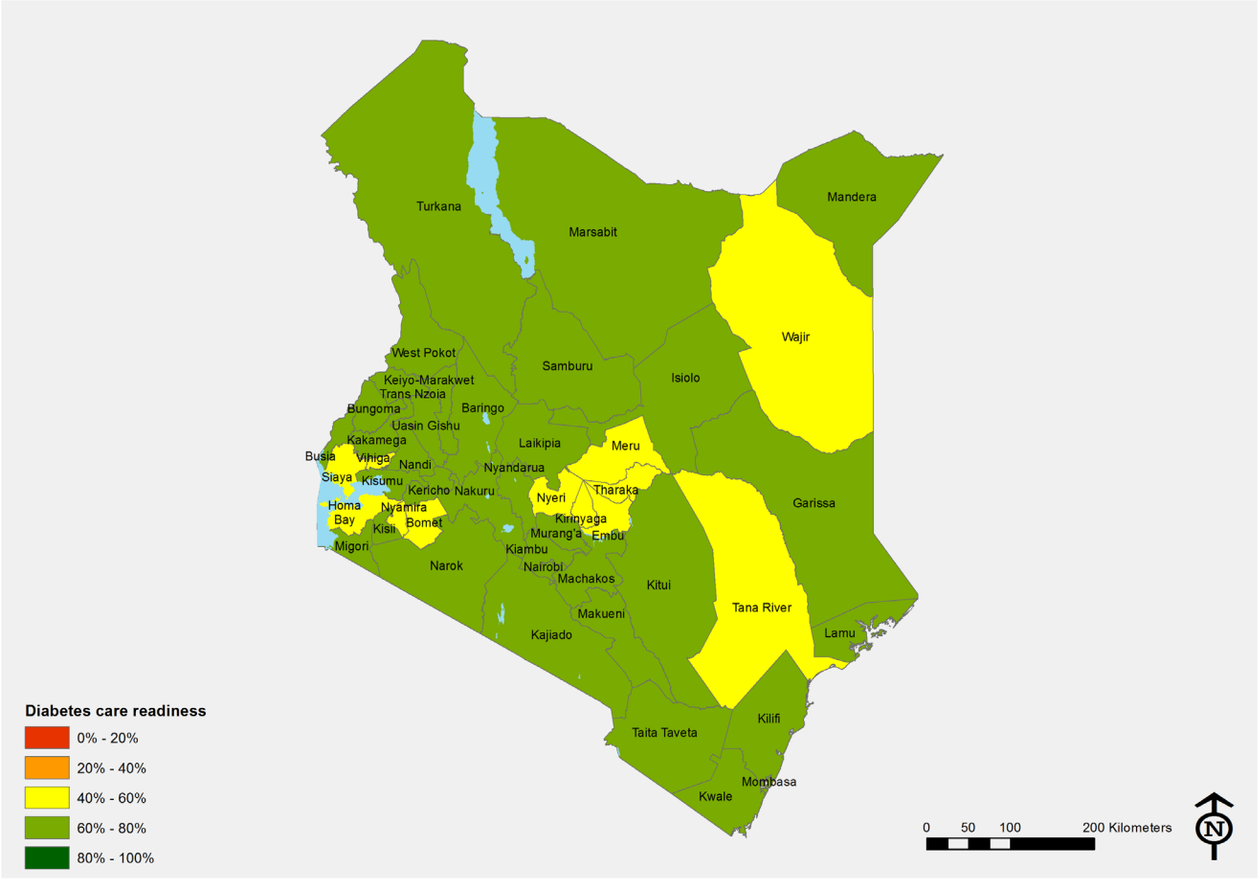
Figure 136. Proportion (%) of facilities that have tracer items for diabetes services among facilities that provide this service (N=1722), Kenya 2018



Annex Table 65 shows availability of diabetes tracer items by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location while **Figure 137** shows the variation in diabetes service readiness by county.

- There was varied mean availability of tracer items across the country, with Nairobi County having the highest availability of tracer items at 78%, and Embu County the least with 48%..
- Turkana County had the highest proportion of facilities with all the tracer items for diabetes (16%). In 15 counties, none of the facilities had all of the tracer items.
- There was a significant difference in the availability of tracer items between rural and urban facilities, with urban facilities having a readiness index of 70% as compared to slightly above half (58%) of those in rural settings.
- Among the facility types, 30% of the tertiary and secondary hospitals had all the tracer items available while none of the dispensaries had all the tracer items.
- However, overall, only 1% of government facilities had all the tracer items compared to 4% for NGO/FBO facilities and 7% for private facilities.

Figure 137: Map of diabetes care readiness by county, Kenya 2018



5.3.2 Cardiovascular disease services

Cardiovascular disease (CVD) is one of the top 10 causes of morbidity and mortality in the country, increasing incrementally over the years (especially among young and unemployed people). It is therefore important that as a country we are ready to combat cardiovascular diseases at all stages and in all cohorts to revert the current trends. The mortality due to CVDs in Kenya ranges from 6%[22] to 8%[23], while autopsy studies suggest that more than 13% of cause-specific deaths among adults could be due to CVDs[24]. The prevalence of hypertension in the country is 24%.

Tracer items needed to provide CVD services are outlined in **Table 29.**

[22] KHSSP – 2013-2018

[23] World Health Organization, 2014

[24] Bloomfield et al, 2014, Ogeng'o, Gatonga, & Olabu, 2011

Table 29. Tracer items needed to provide cardiovascular disease diagnosis and management services

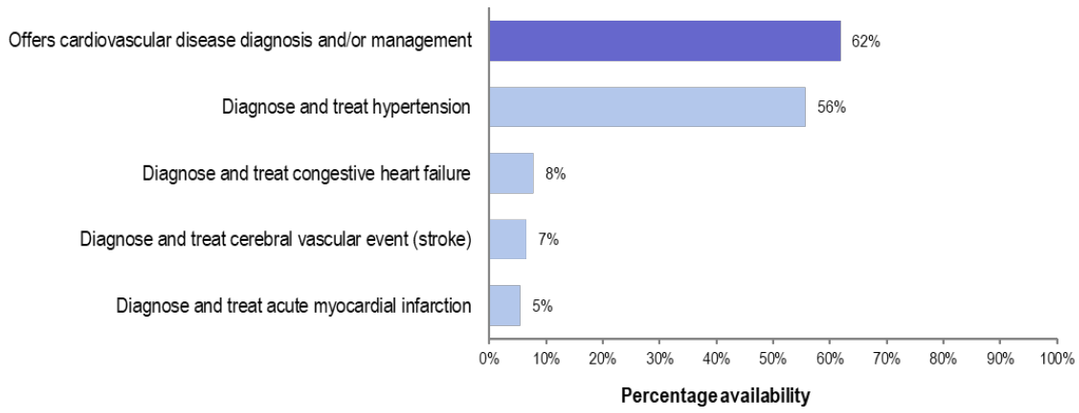
Domain	Tracer items
Equipment	• Blood pressure apparatus • Stethoscope • Adult scale • Oxygen • Tape measure • ECG
Medicines and commodities	• ACE inhibitors • Hydrochlorothiazide tablet or other thiazide diuretic tablet • Beta blockers • Calcium channel blockers • Aspirin • Simvastatin or other statin

Service availability

Figure 138 shows the countrywide availability of CVD services.

- Nationally, 62% of health facilities offered cardiovascular disease diagnosis and/management.
- Hypertension care services were most available at 56%, while availability of services to diagnose and treat congestive heart failure, cerebral vascular event and acute myocardial infarction was low at 8%, 7% and 5%, respectively.

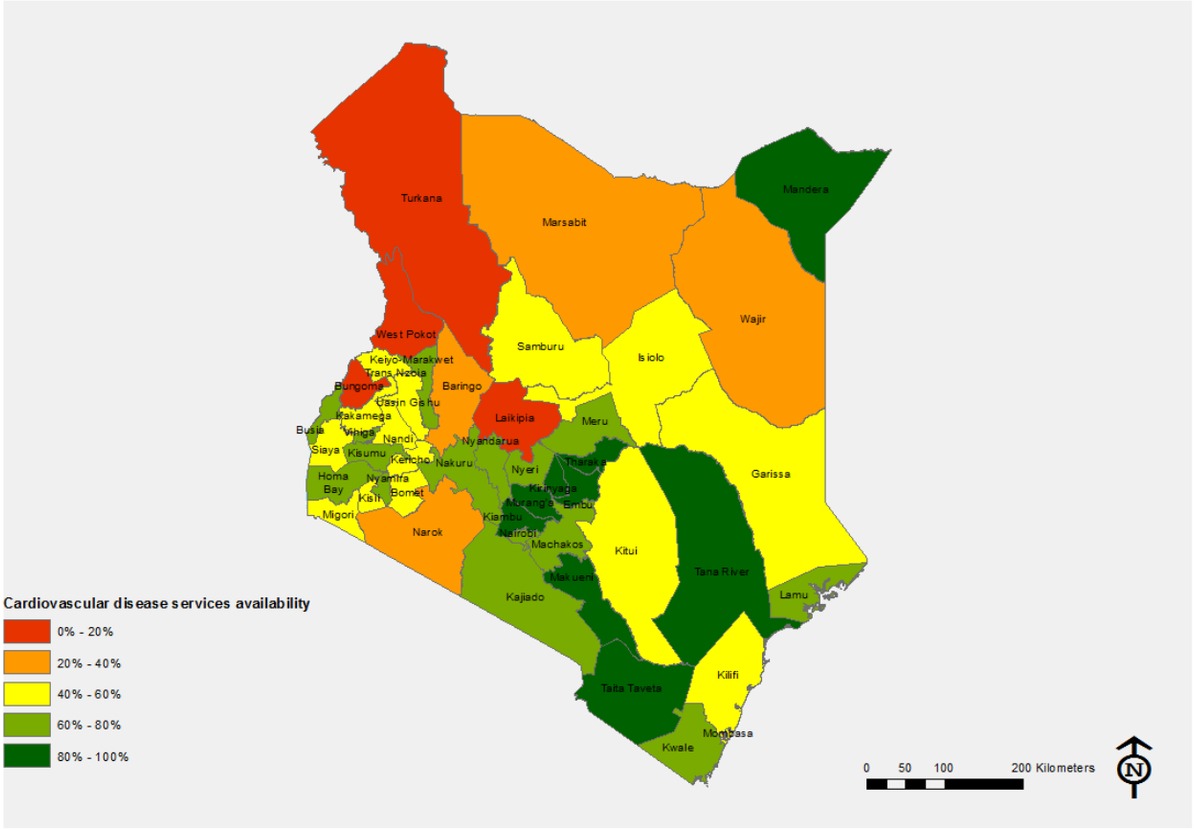
Figure 138. Proportion (%) of facilities that offer cardiovascular disease diagnosis and management services by county (N=2927), Kenya 2018



Annex Table 66 shows the percentage of facilities offering CVD services by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location while **Figure 139** shows the variation in CVD service availability by county.

- Turkana County had the lowest proportion of facilities offering services to diagnose and/treat CVD at 5%, while Embu County had the highest, at 92%.
- Generally, counties within central Kenya were offering services to diagnose and/or treat CVD in more than three-quarters of the facilities, ranging between 92% in Embu and 63% in Meru counties.
- Notably, all levels of care except dispensaries (48%) were ready to diagnose and/or treat CVD, ranging from 100% of all secondary and tertiary hospitals to 65% of medical clinics.
- In terms of managing authority, majority (71%) of the private facilities offered CVD diagnosis and management services compared to slightly above half (53%) of government facilities.
- Notably, more urban facilities (71%) offered CVD diagnosis and management services as compared to rural facilities (57%). This is important to note owing to studies that have linked urban settings with an increased risk of CVDs as compared to rural areas.
- Tharaka Nithi County had the highest percentage of facilities (89%) offering hypertension care services as compared to Turkana that had 4% of facilities offering the service.
- Generally, availability of services to diagnose and treat congestive heart failure, cerebral vascular event and acute myocardial infarction was low across the counties, with less than 30% of facilities in the counties offering any of these services

Figure 139: Map of cardiovascular disease diagnosis and management service availability by county, Kenya 2018



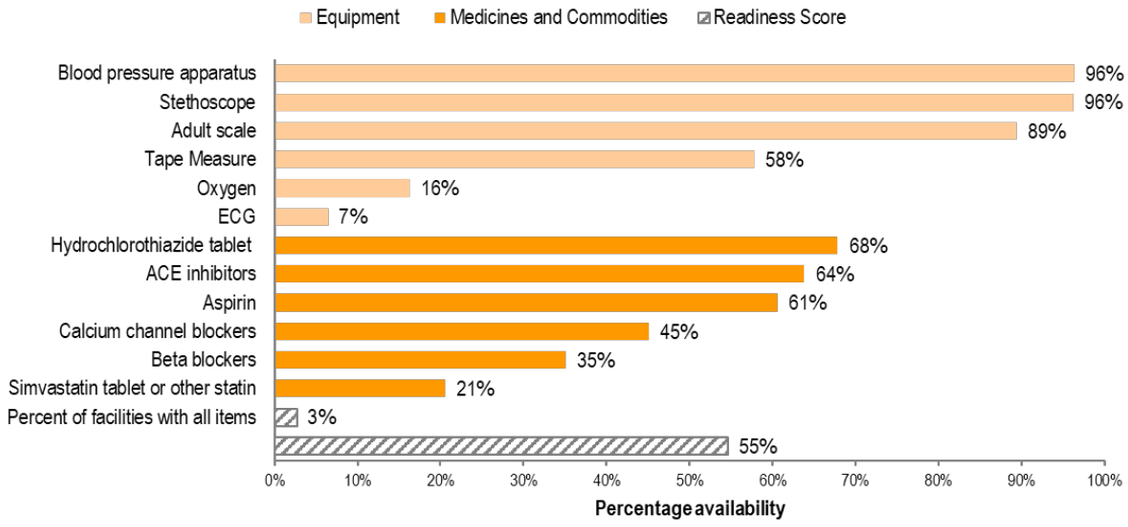
Service readiness

Readiness to provide cardiovascular disease diagnosis and/or management services was assessed based on the presence of the ten tracer items found in **Table 29**.

Figure 140 shows the percentage availability of these tracer items in facilities that offer CVD diagnosis and management services (N=1821).

- The average readiness score for CVD diagnosis and management across the country was 55%
- Of all the CVD tracer items, availability of electrocardiogram (ECG) was the lowest (7%), with stethoscope and blood pressure apparatus the highest (96%).
- The basic diagnostic equipment (stethoscope, blood pressure apparatus and adult scale) for CVD diagnosis were available in more than 85% of facilities.
- All the tracer items were available only in 3% of facilities.

Figure 140. Proportion (%) of facilities that have tracer items for cardiovascular disease diagnosis and management services among facilities that provide this service (N=1821), Kenya 2018

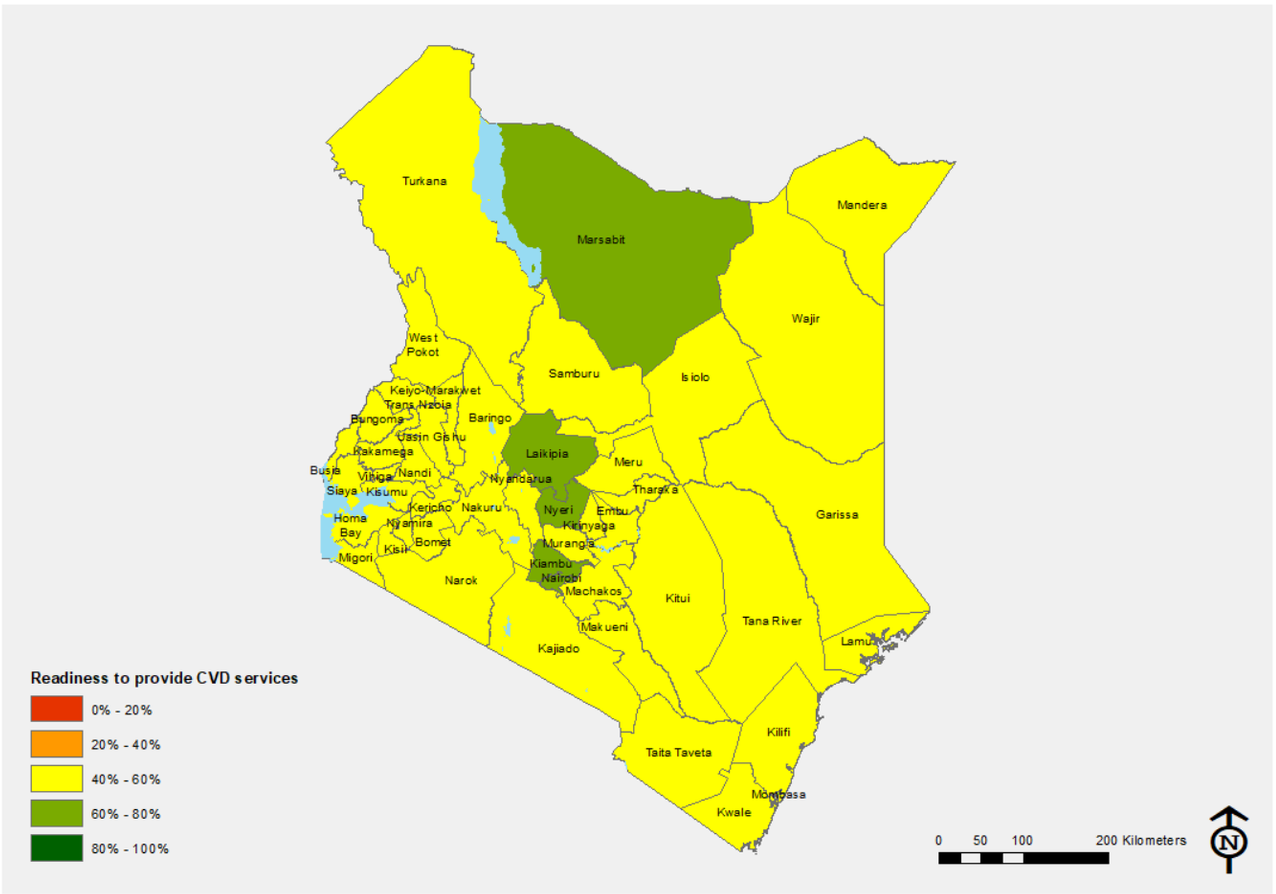


Annex Table 67 shows availability of CVD tracer items by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location while **Figure 141** shows the variation in CVD service readiness by county.

- The county with the highest mean availability of CVD tracer items was Nairobi County (73%) and the lowest mean availability of CVD tracer items was in Homa Bay county (42%)
- Of the facilities in Wajir County, none (0%) had oxygen while Laikipia County had the highest number of facilities with oxygen (54%).
- ECG was the tracer item with lowest availability (7%). While 75% of secondary and tertiary hospitals had ECG, only 5% of public primary hospitals had this tracer.
- Aspirin was available only in 17% of facilities in Turkana, as compared to 42 counties where aspirin was available in more than 40% of facilities.

- 26 counties had no facility with all the CVD tracer items
- Availability of all tracer items was reported in only 1% of the public primary hospitals. The other were secondary and tertiary hospitals (35%), private/NGO/FBO (28%), health centres (1%) and dispensaries (1%)
- One per cent of government facilities had all the tracer items, compared to 5% of NGO/FBO facilities and 4% of private health facilities.
- The availability of all tracer items in facilities in rural areas was 1% compared to 6% in the urban areas.
- Cardiovascular diseases are the leading cause of death among the NCDs and therefore a mean readiness score of 55% is considerably low. It is worrying that only 5% of public primary hospitals had access to ECG. There is a slight improvement in the availability of drugs compared to the SARAM assessment of 2013. For example, the availability of beta blockers is 35% compared to 19% in 2013, calcium channel blockers is 45% compared to 12% in 2013, and aspirin is 61% compared to 55% in 2013.

Figure 141: Map of cardiovascular disease diagnosis and management service readiness by county, Kenya 2018



5.3.3 Chronic respiratory disease services

Chronic respiratory disease (CRD) describes chronic lung diseases that cause limitations in lung airflow. CRD is an often under-diagnosed, life-threatening lung disease that may progressively lead to death. Despite high prevalence in developed nations, almost 90% of CRD deaths occur in low- and middle-income countries. The main drivers of CRD include tobacco smoking, indoor air pollution (from the use of biomass fuel for cooking and heating), outdoor air pollution, and occupational dusts and chemicals. Within sub-Saharan Africa, limited data on CRD exists but the Burden of Lung Disease (BOLD) study reported CRD in 22.2% of men and 16.7% of women aged above 40 years. In Kenya CRD is estimated to cause approximately the same amount of disability-adjusted-life years (DALYs) as ischemic heart disease, stroke, and epilepsy. Tracer items necessary for health facilities providing CRD diagnosis and management services are outlined in **Table 30.**

Table 30. Tracer items needed to provide chronic respiratory disease diagnosis and management services

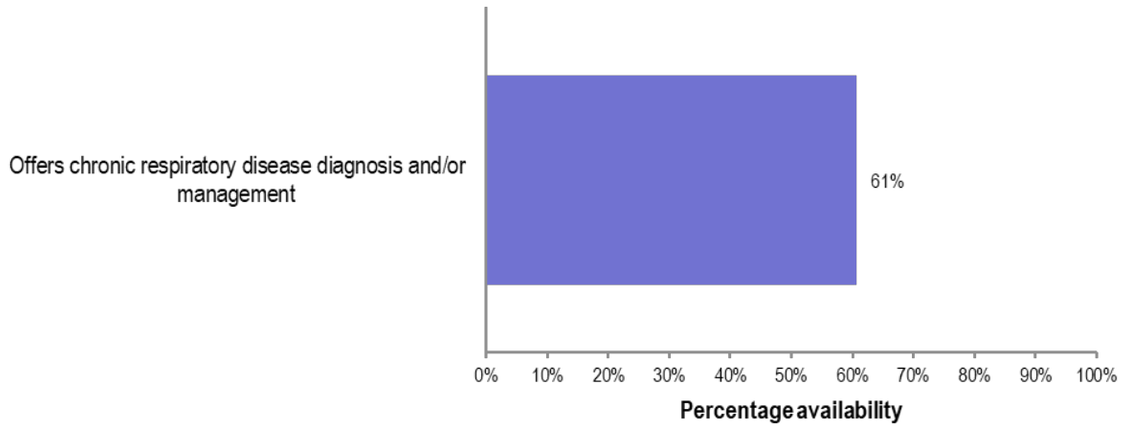
Domain	Tracer items
Equipment	• Stethoscope • Peak flow meter • Spacers for inhalers • Oxygen • Nebulizer • Masks for babies
Medicines and commodities	• Salbutamol inhaler • Beclomethasone inhaler • Prednisolone • Hydrocortisone • Epinephrine

Service availability

Figure 142 shows the countrywide availability of CRD diagnosis and management services.

- Overall, 61% of the health facilities offer chronic respiratory disease diagnosis and/or management services.

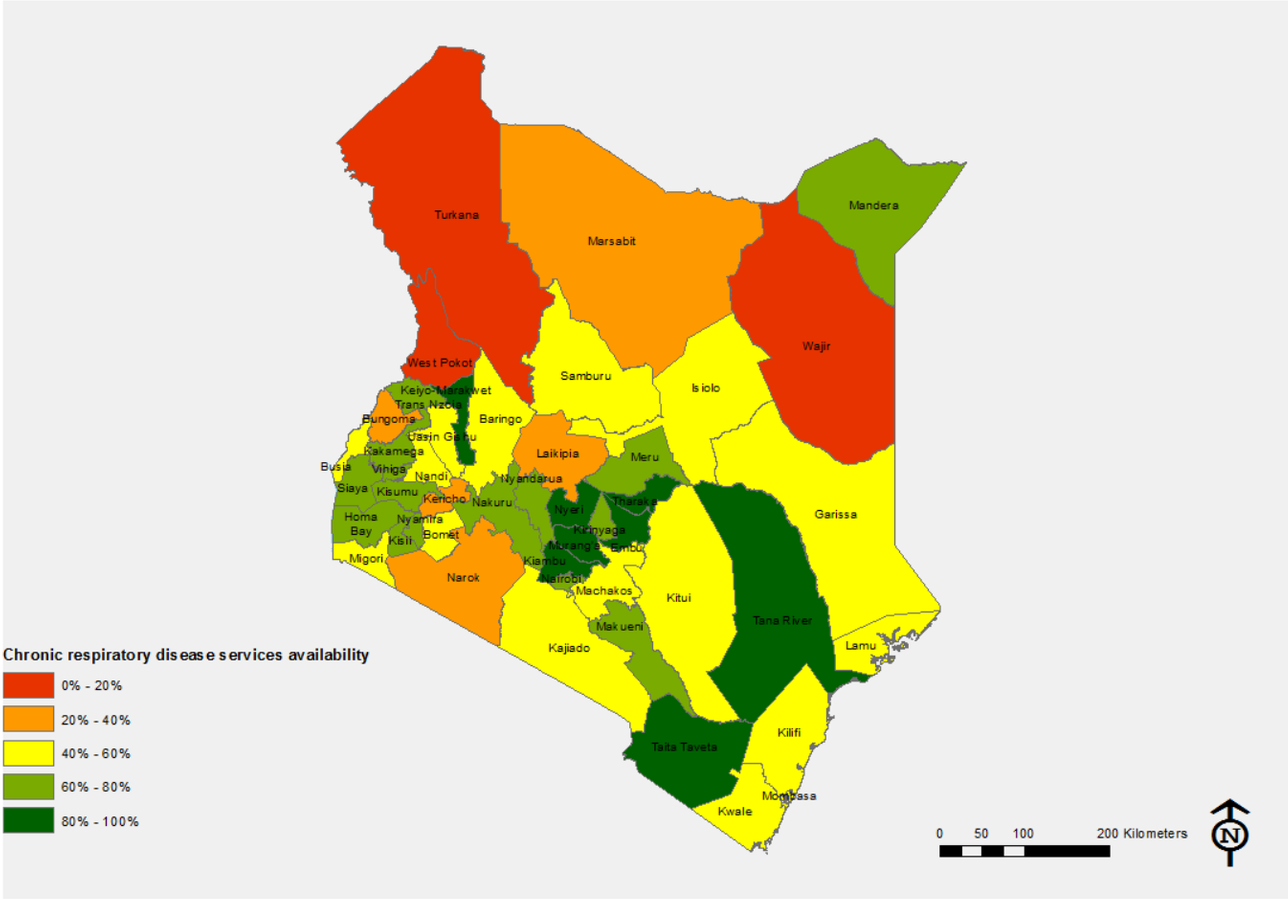
Figure 142. Proportion (%) of facilities that offer CRD diagnosis and management services by county (N=2927), Kenya 2018



Annex Table 68 shows the percentage of facilities offering CRD diagnosis and management services by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location, while **Figure 143** shows the variation in CRD diagnosis and management service availability by county.

- The county with the highest availability of chronic respiratory disease diagnosis and/or management services was in Tharaka Nithi at 91%, and lowest was in Turkana, at 8%.
- 34 out of 47 counties had more than 50% of facilities offering chronic respiratory disease diagnosis and/or management services.
- Chronic respiratory disease diagnosis and/or management services were more likely available in hospitals than other facility types (varying from 95% in hospitals and 48% in dispensaries).
- This service was also more likely available in NGO/FBO facilities compared with government facilities at 67% and 53%, respectively.
- More than 90% of all hospitals were offering chronic respiratory disease diagnosis and/or management services, while 64% of medical clinics and 75% of health centers were offering these services. Less than half (48%) of dispensaries were offering these services.
- 68% of urban facilities reported offering the services compared to 57% of rural facilities.

Figure 143: Map of chronic respiratory disease diagnosis and management availability by county, Kenya 2018

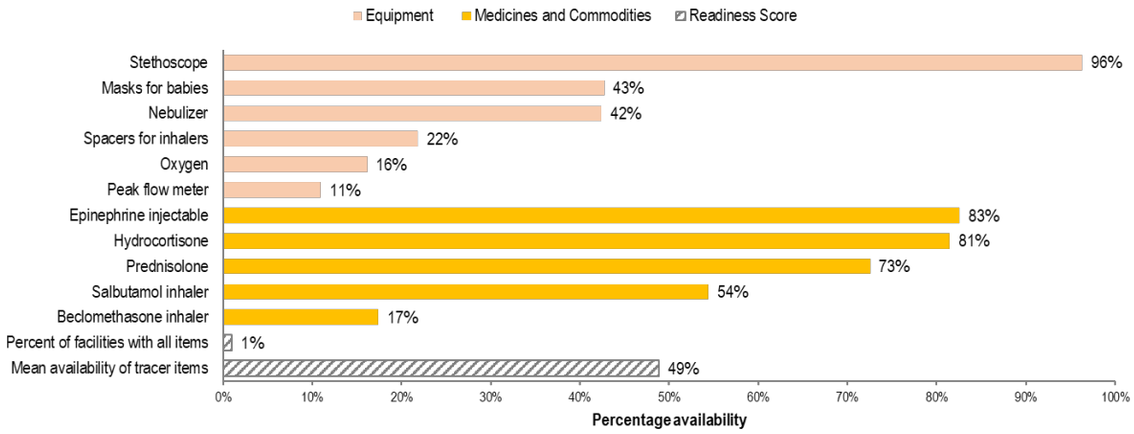


Service readiness

Readiness to provide CRD diagnosis and management services was assessed based on the presence of the eleven tracer items found in **Table 30.** **Figure 144** shows the percentage availability of these tracer items in facilities that offer CRD diagnosis and management services (N=1802).

- Only 1% of health facilities reported to be having all the tracer items for the diagnosis and/or management of CRDs.
- The rest of the tracer items, namely, peak flow meter, spacers for inhalers and oxygen, had a low coverage at 11%, 22% and 16%, respectively.
- Regarding medicine availability, epinephrine injectable and prednisolone were readily available (83% and 73%, respectively) while coverage of salbutamol inhaler was low (54%).
- Availability of epinephrine injection was 83% compared to 18% in 2013, beclomethasone inhaler availability was 17% compared to 11%in 2013, prednisone availability was 73% is compared to 31% in 2013. This portrays a marked improvement, and these should be improved and further strengthened.

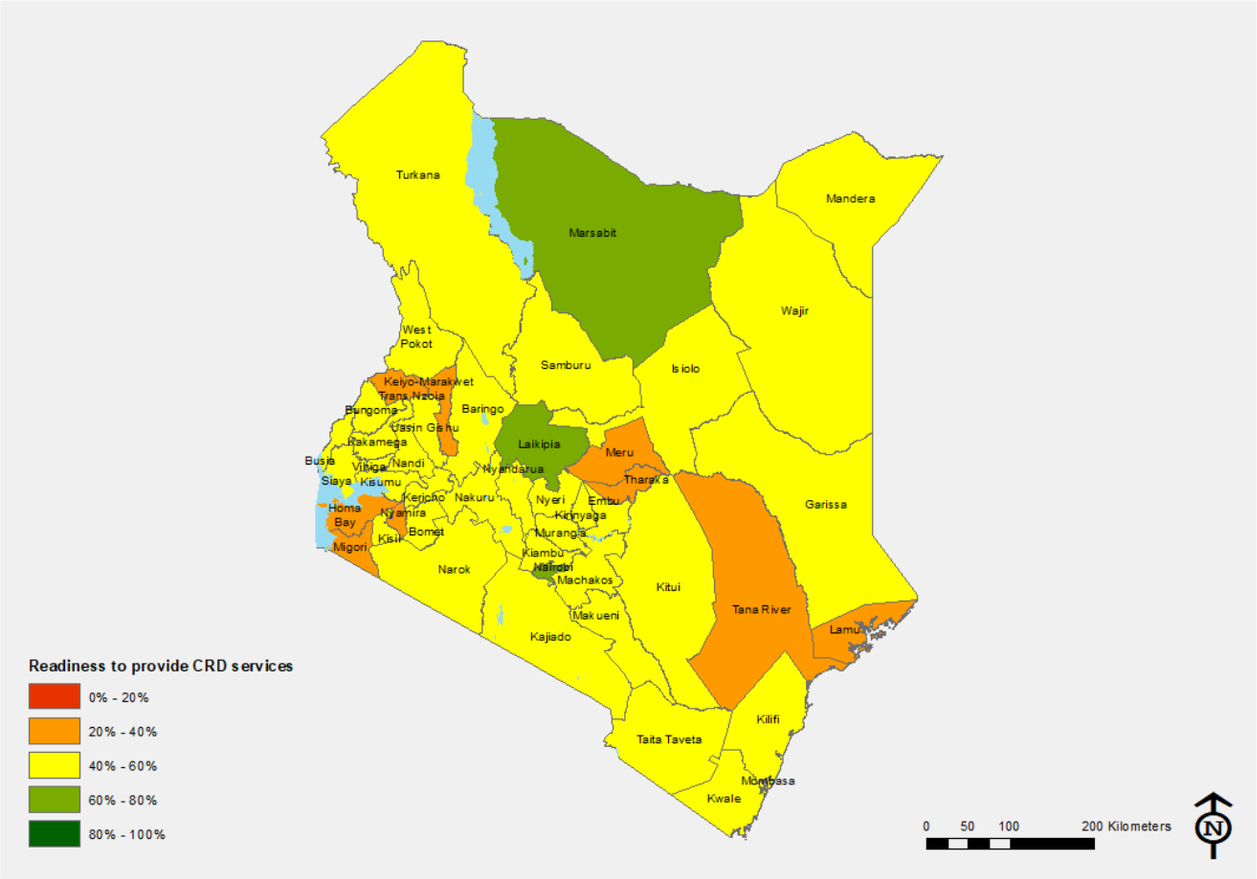
Figure 144. Proportion (%) of facilities that have tracer items for chronic respiratory disease diagnosis and management services among facilities that provide this service (N=1802), Kenya 2018



Annex Table 69 shows availability of CRD tracer items by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location, while **Figure 145** shows the variation in CRD service readiness by county.

- Nationally, the mean availability of CRD tracers was 49%, with Laikipia County at 65% and Nyamira County at 36%.
- Availability of all tracer items in facilities was low at 1%, with 28 counties having no facility with all tracer items.
- Average availability of tracers in hospitals ranged between 79% and 81% as compared to 53% in health centers and 39% in dispensaries
- All tracer items were found in 25% of secondary and tertiary facilities while no dispensary had all tracers.
- All tracer items were in 2% of the urban facilities and in none of the rural facilities.
- The national strategy for NCD prevention and control stresses the need to improve service delivery by ensuring availability of medicines at all levels. CRD services were notably less available in rural areas and primary level facilities so efforts should be focused on strengthening CRD diagnosis and management services in these facilities.

Figure 145: Map of CRD diagnosis and management service readiness by county, Kenya 2018



5.3.4 Cervical cancer screening

Cervical cancer is a consequence of long-term infection with human papillomavirus (HPV). Globally, it ranks fourth in both incidence and cancer-related mortality amongst women, with an estimated 569,847 new cases and 311,365 deaths annually. It accounts for 13.1% of all new female cancers globally. In Eastern Africa, cervical cancer remains the most common cancer in women with estimated age-standardised incidence and mortality rates of 40.1 and 30.0 per 100,000 respectively[25]. In Kenya, cervical cancer contributes 5,250 (12.9%) of the new cancer cases annually and 3,286 (11.84%) of all cancer deaths annually. It is the leading cause of cancer related deaths in Kenya and the second most common cancer among females[26].

The target population for cervical cancer screening is women aged between 25 and 49 years. Testing for the human papilloma virus (HPV) is recommended as the primary screening method. Visual inspection with acetic acid (VIA) alone or combined with visual inspection with Lugol's iodine (VILI) can also be used as primary screening methods where facilities for HPV testing are not available.

Items necessary for health facilities to provide cervical cancer care are outlined in **Table 31.**

[25] GLOBOCAN, 2018

[26] GLOBOCAN, 2018

Table 31. Tracer items needed to provide cervical cancer prevention and control services

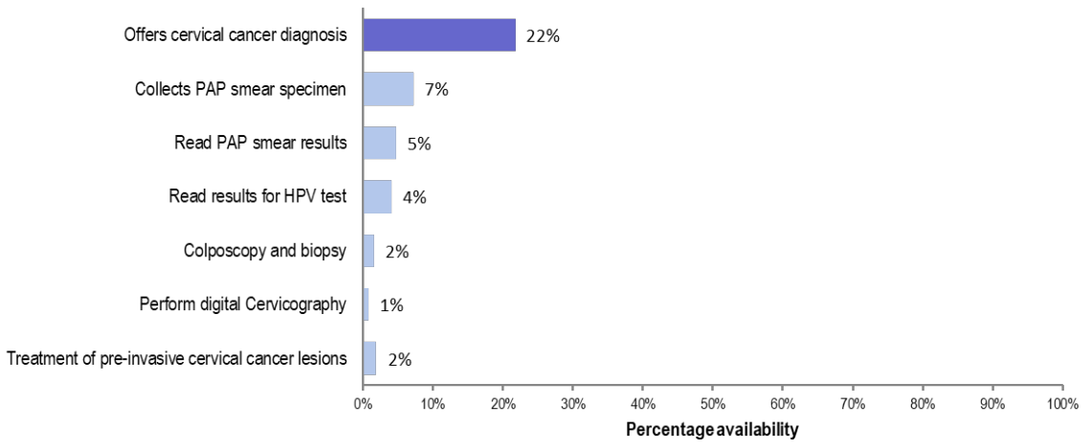
Domain	Tracer items
Equipment	• Speculum • Examination light • LEEP machine for treatment of precancerous lesions • Cryotherapy • Urinary catheter • Colposcopy equipment
Diagnostics	• Acetic acid or Lugol's iodine • Histopathology services • Molecular testing platforms for HPV testing 6319 • Ultrasound

Service availability

Figure 146 shows the countrywide availability of cervical cancer care services.

- Nationally, availability of cervical cancer prevention and control services was low, with only 22% of facilities offering the services.
- According to the KHSSP 2013-2018, the five-year target was 75% of women of reproductive age being screened for cervical cancer. However, the 2015 STEP-wise survey for NCDs risk factors showed that only 11% of women of the reproductive age of 15 to 49 years had been screened. This is consistent with the low availability of cervical cancer prevention and control services from the KHFA survey.
- Nationally, availability of specific cervical cancer care services, such as collection of pap smear, colposcopy and biopsy, digital cervicography and treatment of pre-invasive cervical cancer, was also low at 7%, 2%, 1% and 2%, respectively.

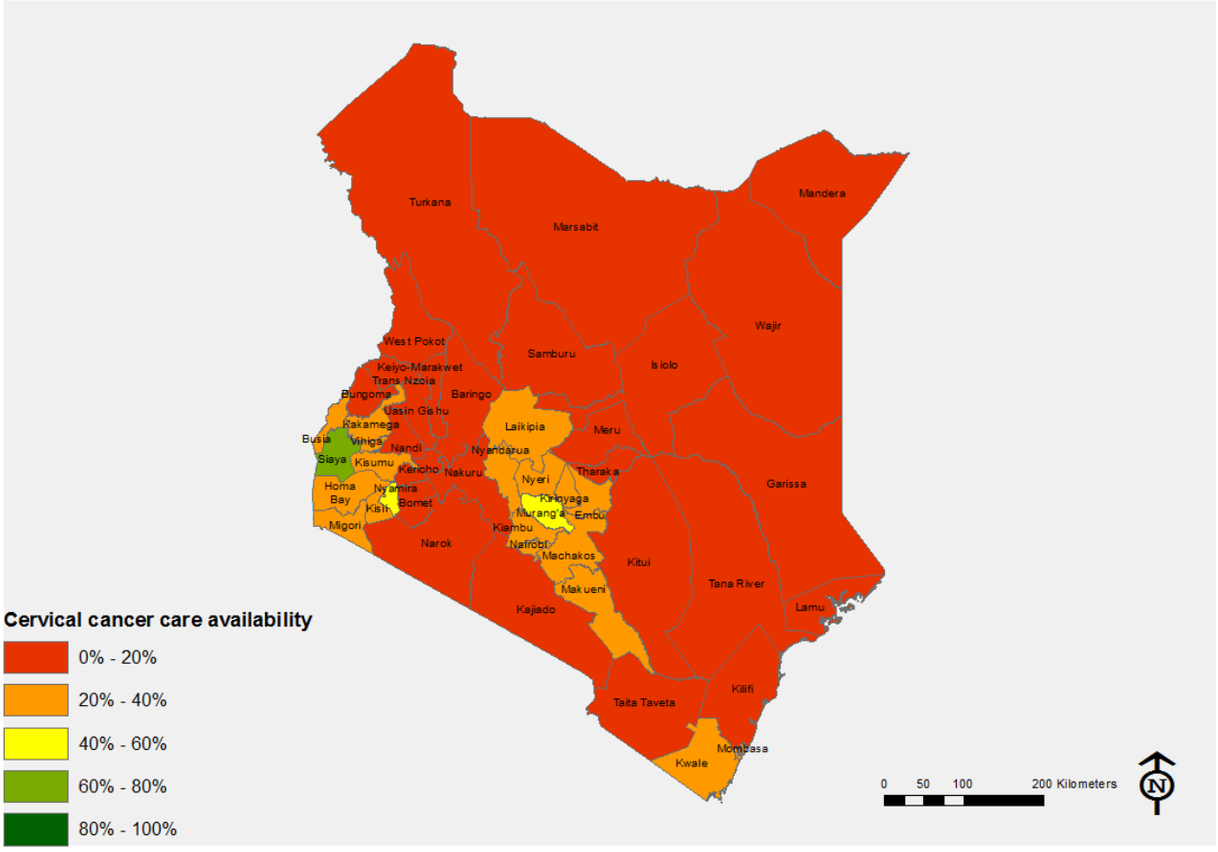
Figure 146. Proportion (%) of facilities that offer cervical cancer prevention and control services (N=2927), Kenya 2018



Annex Table 70 shows the percentage of facilities offering cervical cancer prevention and control services by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location, while **Figure 147** shows the variation in cervical cancer service availability by county.

- Siaya county had the highest proportion of facilities offering cervical cancer screening at 61%, while Mandera, Marsabit, and Wajir had no facilities offering the services.
- Only 20 counties were above the national average in provision of these services. With this low coverage of cervical cancer services in the country, achieving the KHSSP target may not be feasible.
- Generally, secondary and tertiary hospitals were leading in cervical cancer diagnosis at 90%, with dispensaries at 15%. There were no marked differences in facilities offering cervical cancer care services based on the location of the facility or the managing authority.
- Similar to the national findings, availability of specific cervical cancer prevention and control services, like collection of pap smear, colposcopy and biopsy, digital cervicography and treatment of pre-invasive cervical cancer, was also low in the counties, with less than 30% of facilities offering any of these services.

Figure 147: Map of cervical cancer prevention and control services availability by county, Kenya 2018

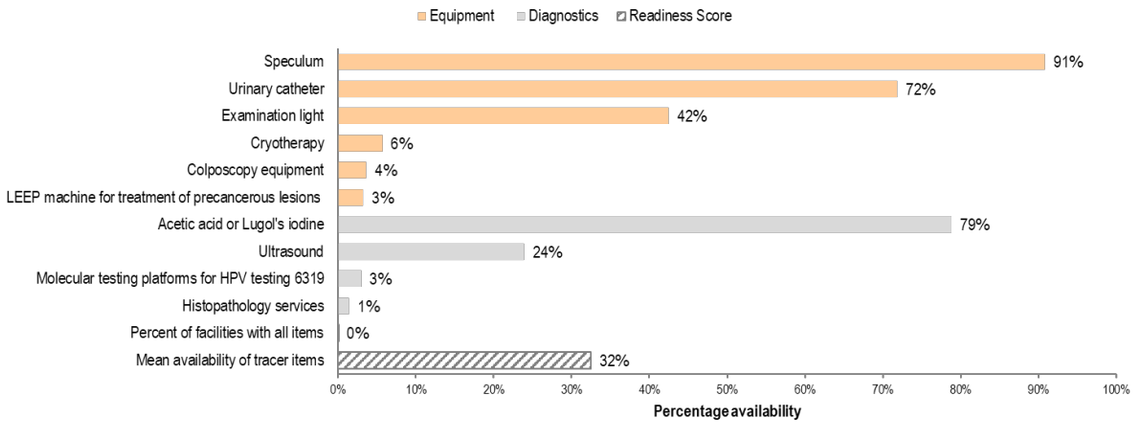


Service readiness

Readiness to provide cervical cancer prevention and control services was assessed based on the presence of the ten tracer items found in **Table 31. Figure 148** shows the percentage availability of these tracer items in facilities that offer cervical cancer services (N=693).

- Among health facilities that were providing diagnosis and/or management of cervical cancer, none of the health facilities had all the tracer items.
- The mean availability of tracer items was 32% in the facilities that reported to offer cervical cancer prevention and control services.
- Speculum was the most readily available equipment in cervical cancer care at 91%, while acetic acid or Lugol's iodine was the most readily available diagnostic at 79%.
- Notably, histopathology services were least readily available; only 1% of facilities offered this service yet it is key in definitive diagnosis of cervical cancer.
- Under facility type, mean availability of tracer items was 67% in secondary and tertiary hospitals and less than 50% in lower level facilities.
- There were no major differences in the mean availability of tracer items between government and private facilities at 30% and 33%, respectively and urban and rural facilities at 35% and 31% respectively.

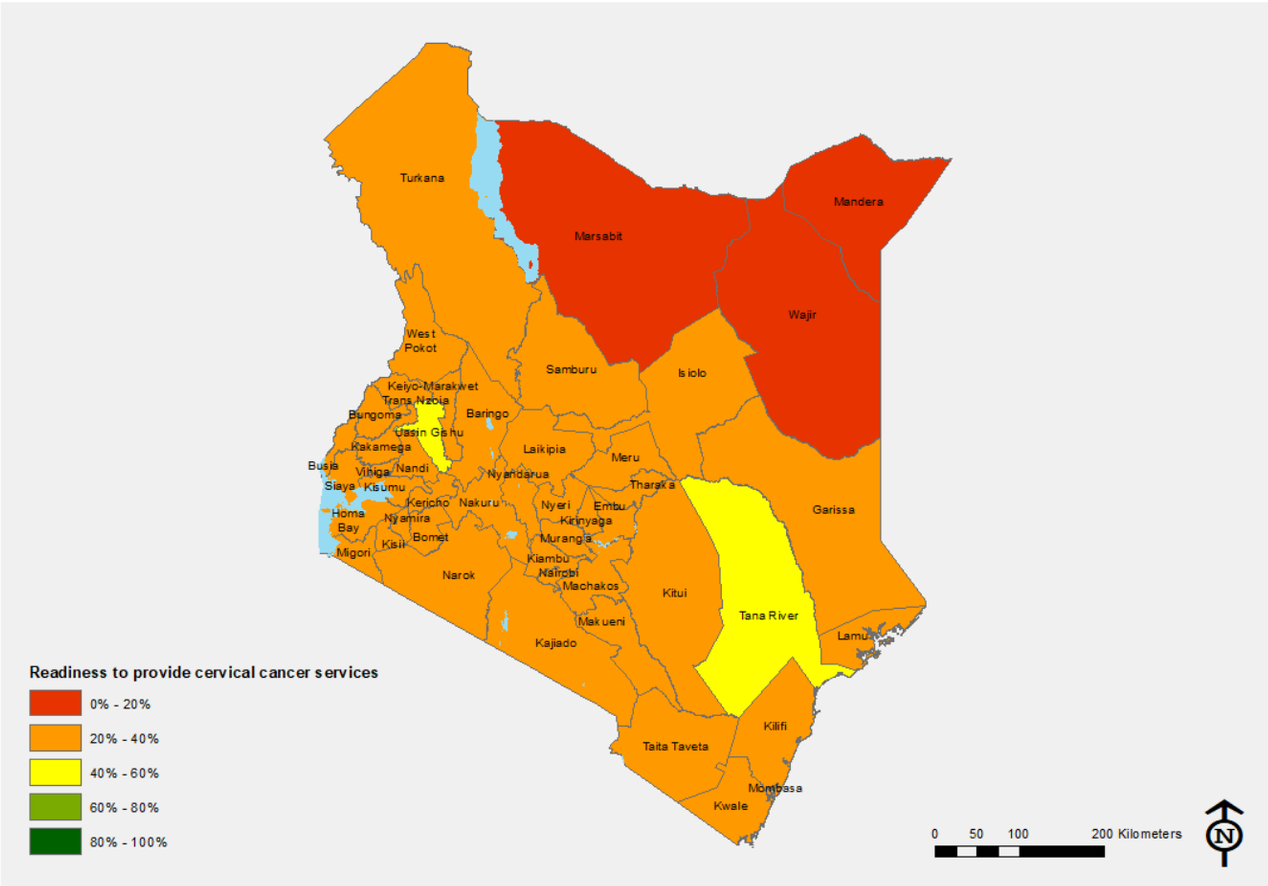
Figure 148. Proportion (%) of facilities that have tracer items for cervical cancer prevention and control services among facilities that provide this service (N=693), Kenya 2018



Annex Table 71 shows availability of cervical tracer items by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location while **Figure 149** shows the variation in cervical cancer service readiness by county.

- There was little variation by facility type, managing authority, and urban/rural location.
- However, counties were performing at different levels of readiness: Uasin Gishu (42%), Tana River (41%) and West Pokot (40%) had the highest availability, while Busia (25%), Machakos (24%) and Nandi (24%) had the lowest readiness indices.
- The survey data indicates that there was not much variation in readiness between public (30%), NGO/FBO (39%) and private health facilities (33%)
- There was also no big variation between urban (35%) and rural (31%).

Figure 149: Map of cervical cancer prevention and control service readiness by county, Kenya 2018



5.3.5 Breast cancer care

In Kenya, breast cancer is currently the most common cancer, with an age standardised rate of 40.3 per 100,000. It is the third leading cause of all cancer deaths27. Breast cancer tends to occur at a relatively young age (35-50 years) in Kenya, in comparison to Western countries (50-55 years), hence screening mammography is recommended from 40 years of age. Between 30% and 50% of cancer deaths could be prevented by modifying or avoiding key risk factors.

The tracer items required for breast cancer prevention and control service readiness are outlined in **Table 32**.

[27] Global Cancer Observatory (GLOBOCAN), 2018

Table 32. Tracer items for breast cancer prevention and control services

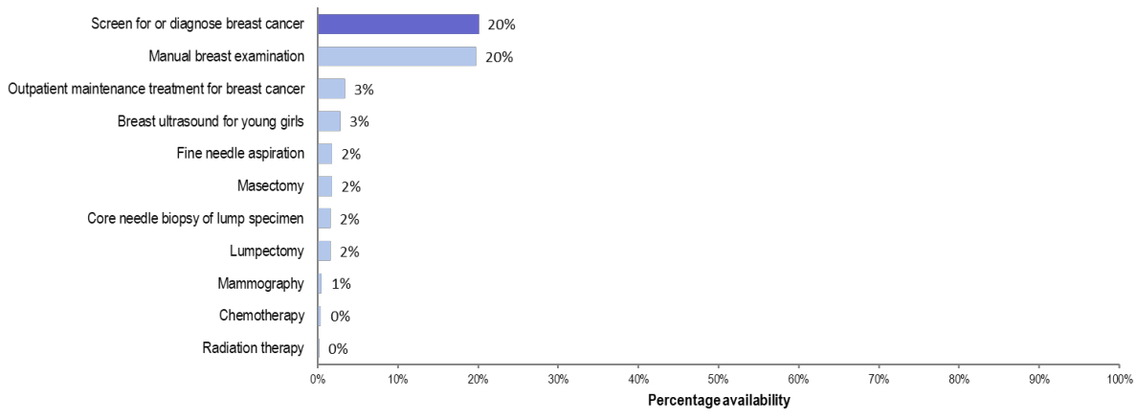
Domain	Tracer items
Medicines and commodities	• Tamoxifen • Cyclophosphamide • Morphine (oral or injectable)
Diagnostics	• Histopathologist and breast biopsy

Service availability

Figure 150 shows the countrywide availability of breast cancer services.

- Generally, there was low availability of breast cancer prevention and control services in Kenya, with 20% of facilities reporting to screen for or diagnose breast cancer.
- Only 20% of facilities said they performed manual breast examination, which is a basic examination that should be available in most facilities.
- Other definitive tests, like fine needle aspiration and core needle biopsy, were very low, with only 2% of facilities doing these investigations.
- None of the sampled facilities reported to offer radiation and chemotherapy services.

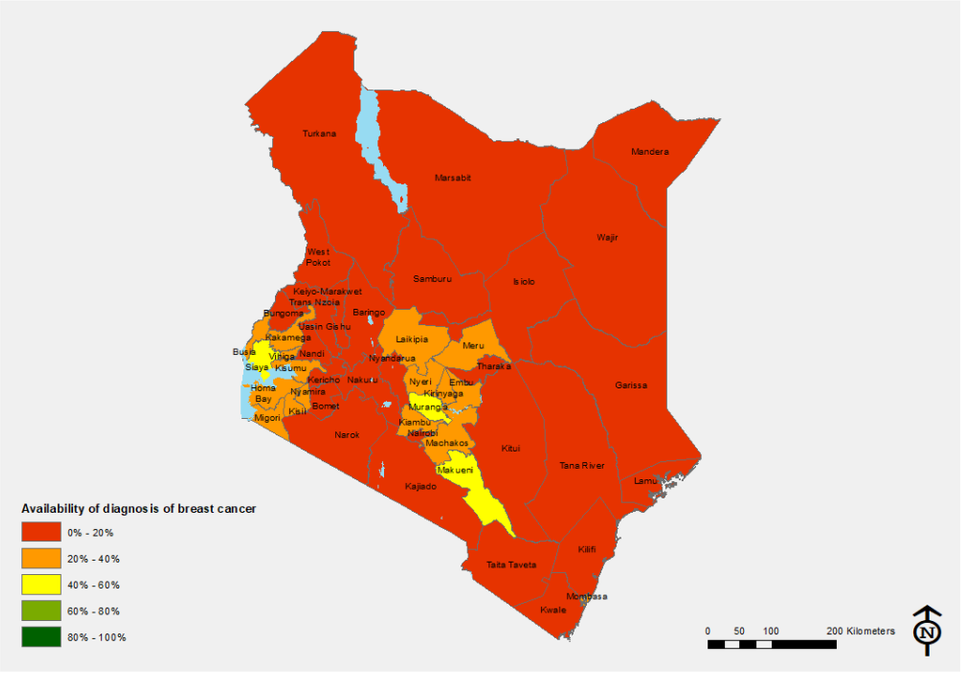
Figure 150. Proportion (%) of facilities that offer breast cancer prevention and control services (N=2,927), Kenya 2018



Annex Table 72 shows the percentage of facilities offering breast cancer services by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location, while **Figure 151** shows the variation in breast cancer service availability by county.

- Among the counties, Siaya County had the highest number of facilities (49%) that screen for or diagnose breast cancer, followed by Murang'a and Makueni counties at 46% and 42%, respectively.
- Similar to the national findings, other breast care prevention and control services were not readily available, with less than 10% of the facilities offering these services.

Figure 151: Map of breast cancer prevention and control service availability by county, Kenya 2018

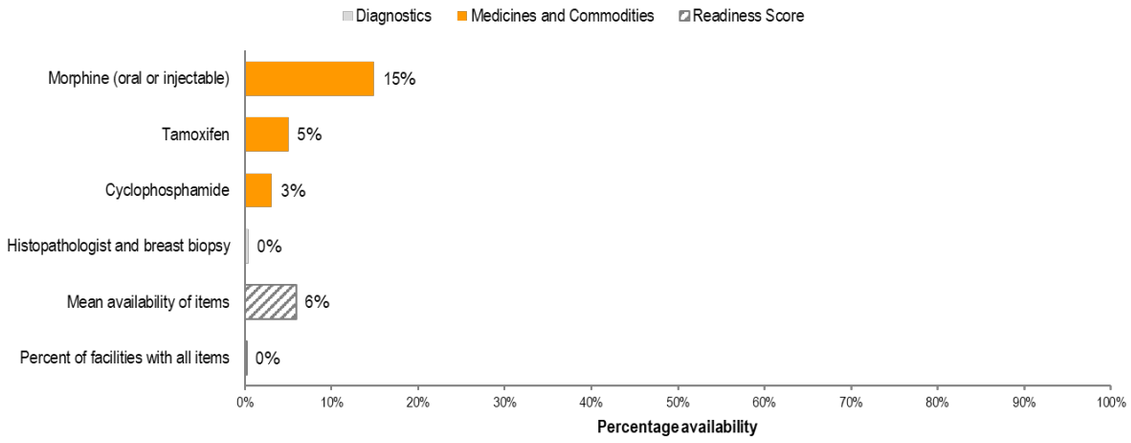


Service readiness

Readiness to offer breast cancer prevention and control services was assessed based on the availability of the four tracer items found in **Table 32. Figure 152** shows the percentage availability of these tracer items in facilities that offer breast cancer services (N=635).

- Nationally, the average availability of tracer items for breast cancer care was 4%.
- Morphine availability in the country was 15%, making it the most available tracer item. It was available in all sampled facilities in Bomet, Garissa and Turkana counties, while cyclophosphamide was the least available tracer at 3%.
- In most of the country, availability of all tracer items was 0%; however 1 to 2% of facilities in Nakuru, Nairobi and Uasin Gishu reported to have all tracer items.
- Mean availability of tracer items was highest in secondary and tertiary hospitals at 55%, followed by private/NGO/FBO primary facilities at 25%.
- The tracers were also more readily available in NGO/FBO facilities at 11%, as compared to 5% of private and 2% of government facilities.
- 24% of secondary and tertiary hospitals had all tracer items, while none of the other levels of care had all items available.
- According to the World Health Organization, prevention provides the most cost-effective long-term strategy for the control of cancer. Moreover, interventions which permit early detection, including screening and early diagnosis and effective treatment of the cases should be promoted. This may not be achieved owing to the low availability of medicines and diagnostics necessary for breast cancer care services, as indicated in the survey findings.

Figure 152: Proportion (%) of facilities that have tracer items for breast cancer prevention and control services among facilities that provide this service (N=635), Kenya 2018



Annex Table 73 shows availability of breast cancer tracer items by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location.

5.3.6 Prostate cancer care

Prostate cancer is one of the most common types of cancer in men in Kenya, with 2,864 new cases [28]. Studies have shown that compared with other countries, patients with prostate cancer in Kenya present at a similar mean age at diagnosis, but with more advanced disease and more aggressive tumours.[29]

The tracer items required for prostate cancer diagnosis and treatment service readiness are outlined in **Table 33.**

Table 33. Tracer items for prostate cancer diagnosis and treatment services

Domain	Tracer items
Medicines and commodities	• Surgical intervention
Diagnostics	• Digital rectal examination • Prostate specific antigen (PSA)

Service availability

Figure 153 shows the countrywide availability of prostate cancer services.

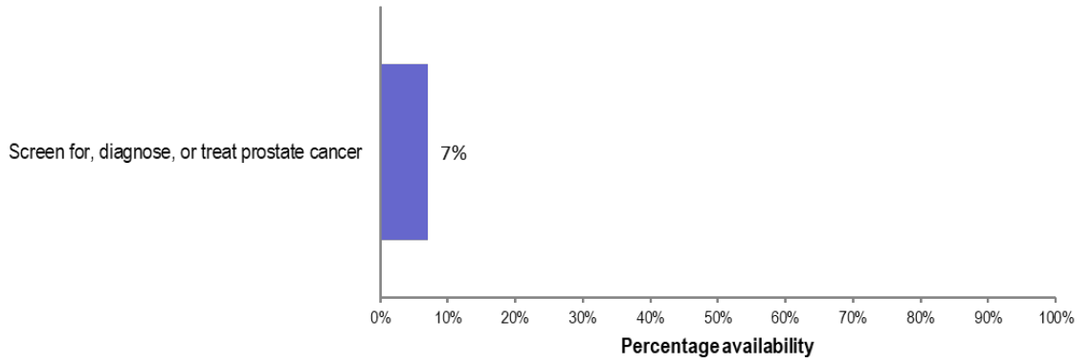
- In Kenya, availability of prostate cancer diagnosis and treatment services was low, with only 7% of facilities reporting that they screen for, diagnose or treat prostate cancer.
- Among the counties, 34 counties had less than 10% of their facilities screening for, diagnosing or treating prostate cancer.

[28] GLOBOCAN, 2018

[29] Dickstein et al, 2009; Jonnson et al; Hemed et al, 2014

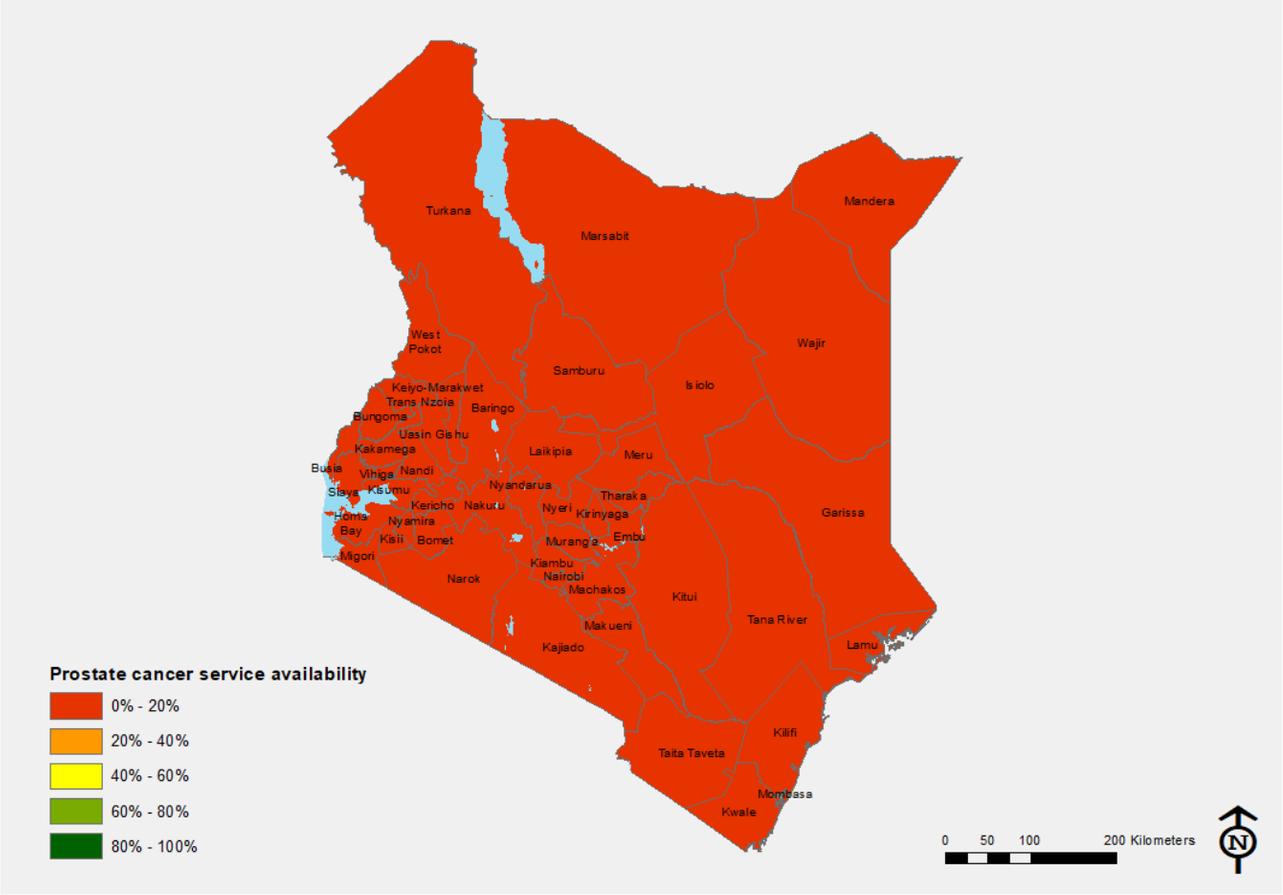
- Based on facility type, the majority of secondary and tertiary facilities (80%) were offering prostate cancer diagnosis and treatment services, followed by private and primary hospitals at 48%.
- Prostate cancer diagnosis and treatment services were more readily available in urban facilities (12%) than 5% in rural facilities.

Figure 153. Proportion (%) of facilities that offer prostate cancer diagnosis and treatment services (N=2,927), Kenya 2018



Annex Table 74 shows the percentage of facilities offering prostate cancer services by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location, while **Figure 154** shows the variation in prostate cancer service availability by county.

Figure 154: Map of prostate cancer diagnosis and treatment service availability by county, Kenya 2018

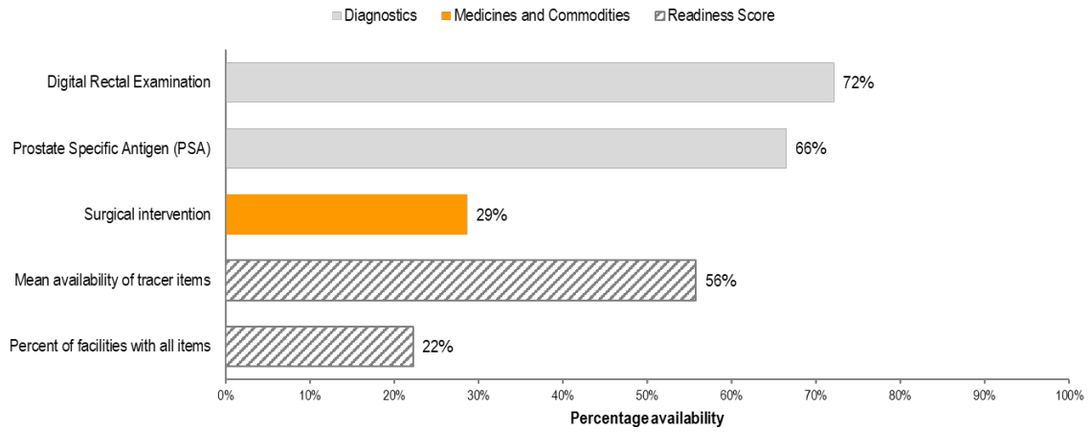


Service readiness

Readiness to offer prostate cancer services was assessed based on the availability of the three tracer items found in **Table 33. Figure 155** shows the percentage availability of these tracer items in facilities that offer prostate cancer services (N=248).

- The mean availability of tracer items was 56%.
- 22% of facilities that offered prostate cancer care had all the items.
- Diagnostics used in care for prostate cancer were more readily available compared to medicines and technologies.
- Notably, in the facilities that reported to offer prostate cancer diagnosis and treatment services, digital rectal examination and prostate specific antigen, which are the recommended screening tests, were widely available at 72% and 66%, respectively.
- Surgical intervention, which is a common treatment for prostate cancer, was available in 29% of facilities.

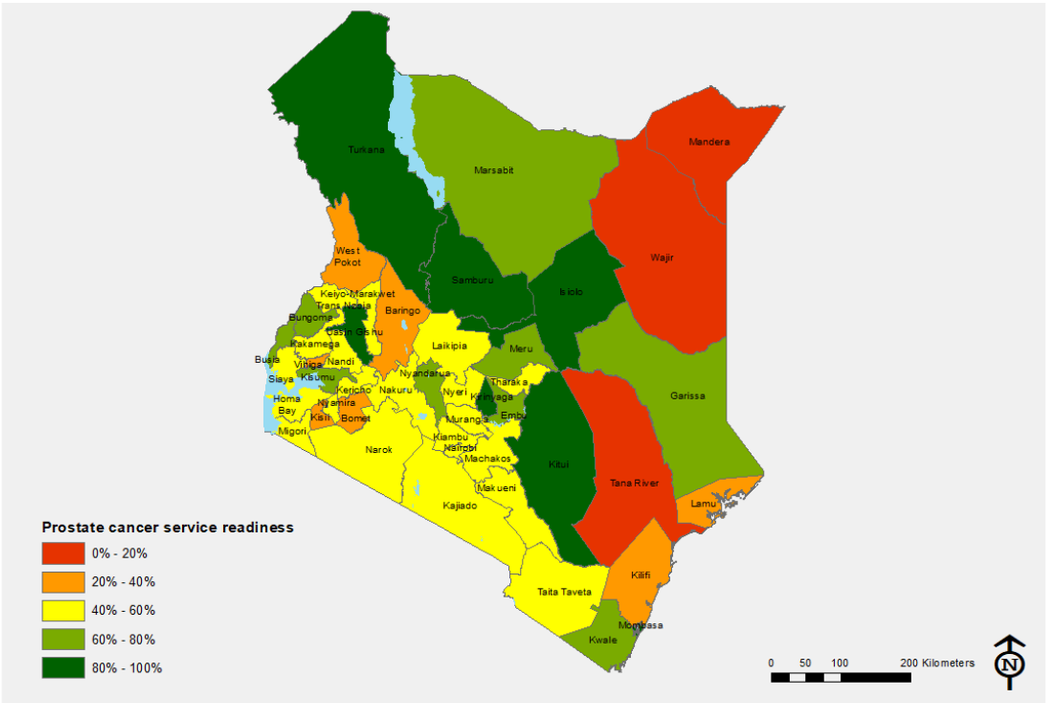
Figure 155: Proportion (%) of facilities that have tracer items for prostate cancer diagnosis and treatment services among facilities that provide this service (N=248), Kenya 2018



Annex Table 75 shows availability of prostate cancer tracer items by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location while **Figure 156** shows the variation in prostate cancer service readiness by county.

- Digital rectal examination was a widely available diagnostic service, with all facilities in 18 counties reporting to perform it. However, it was not available in any facility in 5 counties.
- The tracers were more readily available in tertiary, secondary and primary private facilities.

Figure 156: Map of prostate cancer diagnosis and treatment readiness by county, Kenya 2018



5.3.7 Colorectal cancer care

Colorectal cancer is the fifth most common cancer in Kenya, with an estimated 2,316 new cases and 1,466 deaths in 2018[30]. There are probably more cases and deaths from colorectal cancer that were not reported or diagnosed. The majority of colorectal cancer cases arise from benign polyps, hence the importance of screening. Screening can be done using stool tests (faecal occult blood tests) in average risk population and/or colonoscopy to visualise the inside part of the colon.

The tracer items used to assess colorectal cancer service readiness are outlined in **Table 34**.

Table 34. Tracer items for colorectal cancer diagnosis and treatment services

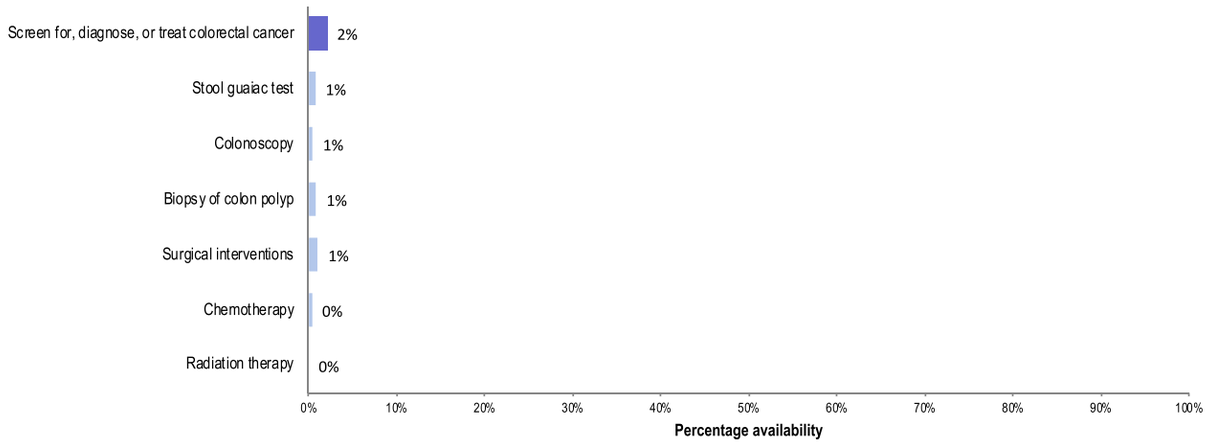
Domain	Tracer items
Medicines and commodities	• 5-Flourouracil injection • Alkylating agents (Cisplatin, Carboplatin) intravenous
Diagnostics	• Stool guaiac test • Colonoscopy • Histopathology

Service availability

Figure 157 shows the countrywide availability of colorectal cancer diagnosis and treatment services.

- Nationally, the provision of colorectal cancer diagnosis and treatment services was low, with only 2% of all health facilities offering these services.
- Overall, only 1% of facilities reported having colonoscopy services or did stool guaiac tests, which are the recommended screening tests for colorectal cancer.
- Across the country, treatment options for colorectal cancer were not readily available, with surgical interventions at 2% and none of the sampled facilities offering radiation or chemotherapy.

Figure 157. Proportion (%) of facilities that offer colorectal cancer services (N=2927), Kenya 2018

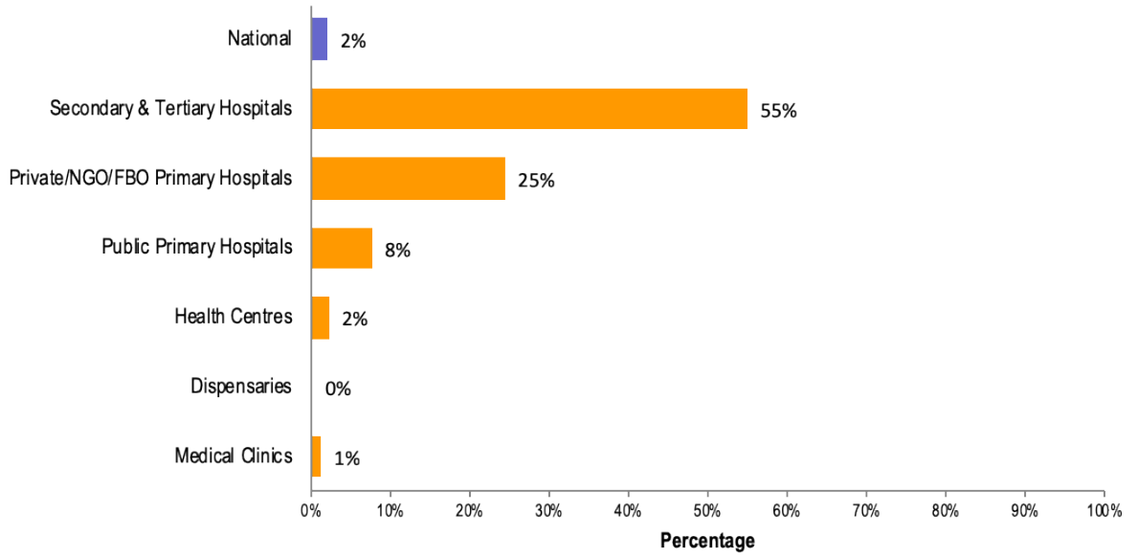


[30] GLOBOCAN, 2018

Annex Table 76 shows the percentage of facilities offering colorectal cancer services by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location while **Figure 158** shows the variation in colorectal cancer service availability by facility type.

- In Siaya County, 9% of the facilities either screened for, diagnosed or treated colorectal cancer. However, slightly less than half of the counties (20) did not offer any of the services.
- Radiation therapy for colorectal cancer was only offered in Narok (1%) and Vihiga (1%) health facilities..
- Only one fifth (9) of counties and no government facilities were offering colonoscopy services.
- About half of all the secondary and tertiary hospitals offered colorectal cancer diagnosis and treatment services while none of the dispensaries were offering these services.
- Out of the facilities in urban areas, 4% offered colorectal cancer diagnosis and treatment services compared to 1% in rural areas.

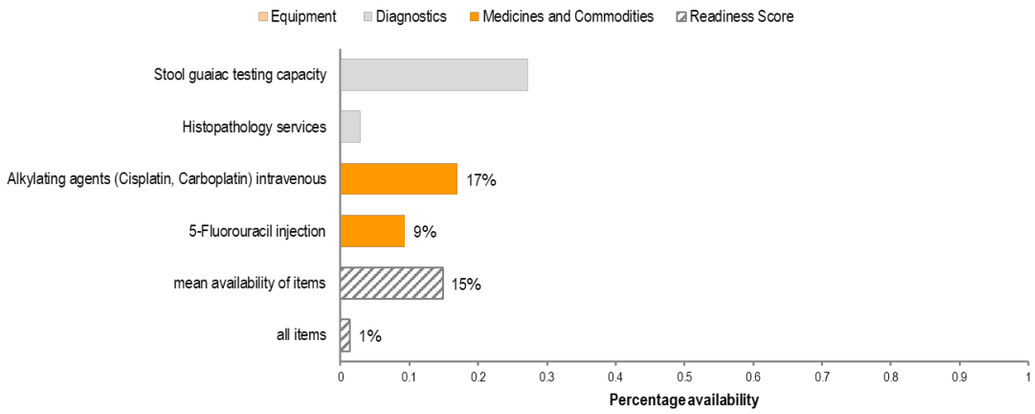
Figure 158: Proportion (%) of facilities that offer colorectal cancer diagnosis and treatment services by facility type (N=2927), Kenya 2018



Service readiness

Readiness to offer prostate cancer services was assessed based on the availability of the five tracer items found in **Table 33. Figure 159** shows the percentage availability of these tracer items in facilities that offer colorectal cancer diagnosis and treatment services (N=77).

Figure 159: Proportion (%) of facilities that have tracer items for colorectal cancer diagnosis and treatment services among facilities that provide this service (N=77), Kenya 2018



- The average availability of tracer items for colorectal cancer was 15% among the 77 facilities that said they offer colorectal cancer services.
- Only 1% of facilities had all the tracer items.
- While faecal occult blood test is one of the most common tests for colorectal cancer, the test was done in only 27% of facilities.

Annex Table 77 shows availability of colorectal cancer tracer items by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location.

5.3.8 Mental and neurological care

The global burden of disease related to mental health disorders is on the increase, with the World Health Organization estimating that over 450 million people are affected worldwide. Access to mental healthcare in low-income countries remains poor, with an 85% estimated treatment gap as compared with 35% to 50% in high-income countries. Mental illness is common in Kenya, with prevalence rates of 4% for major mental disorders. Prioritising resource allocation for mental health services in Kenya is often a challenge because of competing health priorities. The tracer items required for mental and neurological care service readiness are outlined in **Table 35**.

Table 35. Tracer items for mental health and neurological care services

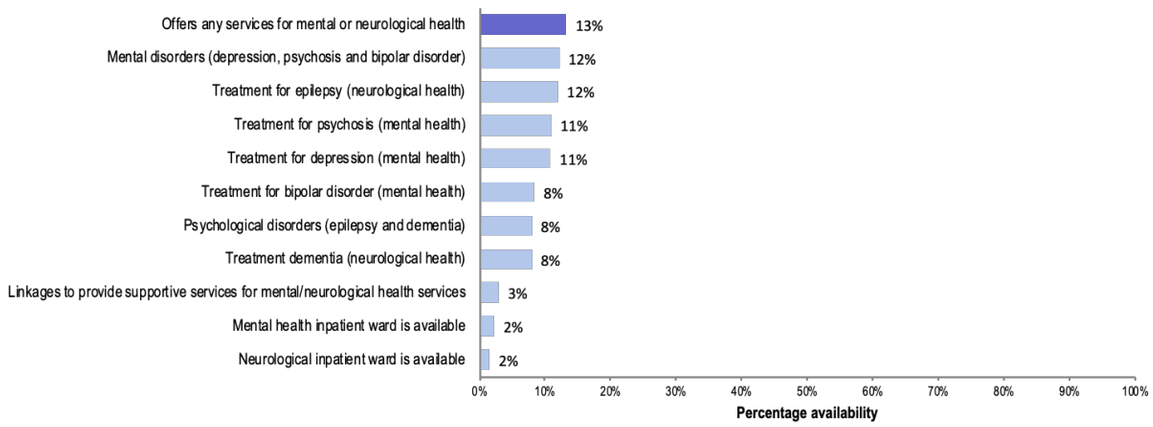
Domain	Tracer items
Medicines and commodities	• Medicines used in depression: (Amitriptyline, Fluoxetine) • Medicines used in psychosis: (Chlorpromazine, Clozapine, Fluphenazine, Haloperidol, Risperidone) • Medicines used in bipolar disorders: (Carbamazepine, Lithium, Sodium valproate) • Medicines used as Antiepileptics: (Carbamazepine, Diazepam, Lamotrigine, Lorazepam, Midazolam, Phenobarbital, Phenytoin, Sodium valproate)

Service availability

Figure 160 shows the countrywide availability of mental health and neurological care services.

- Nationally, 13% of the facilities offered any service for mental health or neurological health.
- The most commonly available mental health service is treatment of mental disorders, such as depression, psychosis, or bipolar disorder (12%) along with treatment for epilepsy (12%).
- Only 11% of facilities offered treatment for psychosis and depression.
- The least available services were inpatient wards for mental health or neurology services at 2%.
- Findings from this survey indicate low availability of mental health services, which is consistent with findings from *Mental Healthcare in Kenya: Exploring Optimal Conditions for Capacity Building*, which states that mental health services have received little attention in Kenya and remain a low policy and budgetary priority[31].

Figure 160. Proportion (%) of facilities that offer mental health and neurological care services (N=2927), Kenya 2018

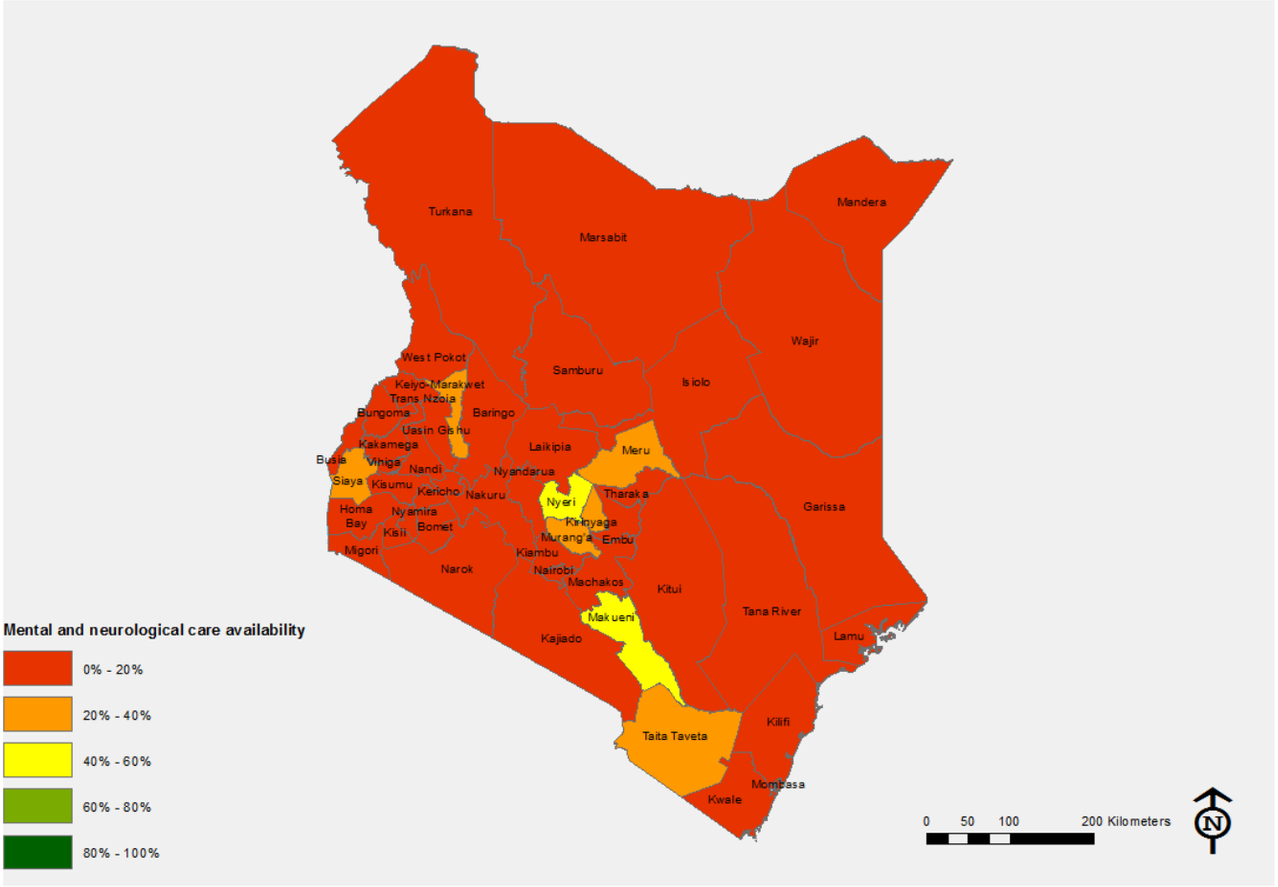


Annex Table 78 shows the percentage of facilities offering mental health and neurological care services by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location while **Figure 161** shows the variation in mental and neurological care service availability by county.

- Secondary and tertiary hospitals (90%) lead in the provision of the services.
- Nyeri County reported the highest number of facilities offering mental health facilities at 47%, while three counties did not offer any mental health services.
- Majority of secondary and tertiary hospitals reported offering most of the mental health and neurological services.

[31] Marangu et al 2014

Figure 161: Map of mental health and neurological care service availability by county, Kenya 2018

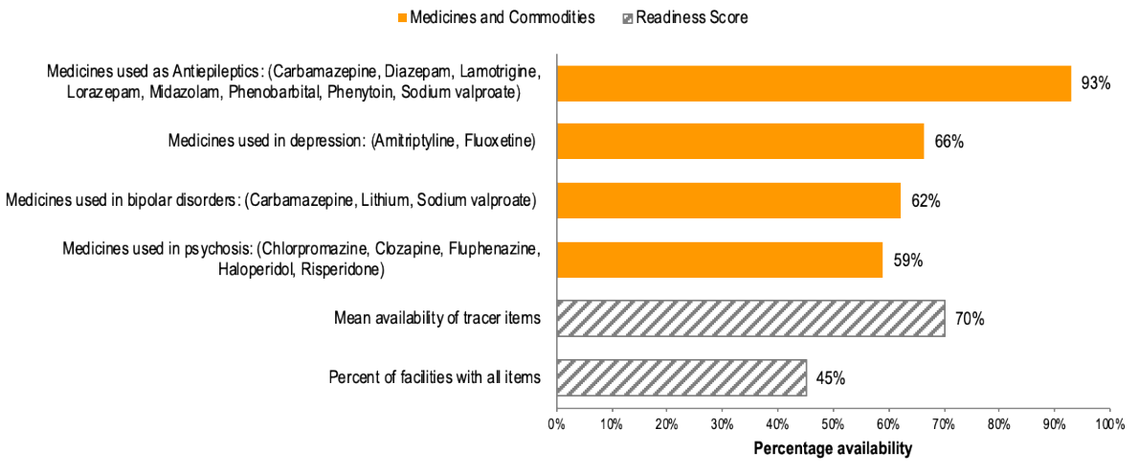


Service readiness

Readiness to offer mental health and neurological care services was assessed based on the availability of medicines and commodities necessary for management of mental and neurological conditions found in **Table 35. Figure 162** shows the percentage availability of these tracer items in facilities that offer mental and neurological care services (N=429).

- The tracer medicines for mental health services were readily available in facilities offering the services.
- The mean availability of items required to deliver mental health services was 70%.
- 45% of facilities offering mental health services had all the tracer items.
- The most widely available tracer item was medicines used as antiepileptics (93%), while the least available tracer item was medicines use for psychosis (59%).
- Medicines used in the treatment of depression and bipolar disorders were also available at 66% and 62% respectively.

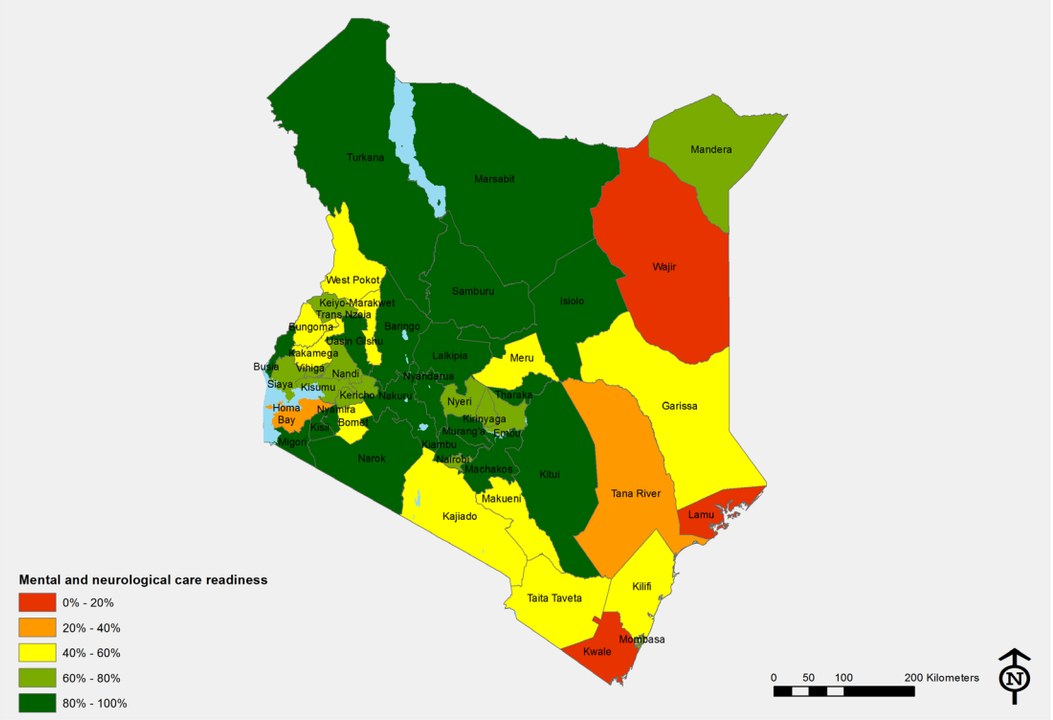
Figure 162: Proportion (%) of facilities that have tracer items for mental health and neurological care services among facilities that provide this service (N=429), Kenya 2018



Annex Table 79 shows availability of four tracer items by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location while **Figure 163** shows the variation in mental health and neurological care service readiness by county.

- The majority of hospitals (over 80%) reported having all the tracer items for providing mental health services.
- 34% of government facilities had all the tracer items compared to FBO/NGO where 67% of the facilities had all tracer items.
- Notably, all facilities that reported offering mental health and neurological services in Turkana County had all the tracer items.

Figure 163: Map of mental health and neurological care service readiness by county, Kenya 2018



5.3.9 Services for victims of violence and sexual abuse

Violence is a growing public health concern globally. Approximately 4% of Kenyans reported having experienced violence in the last year. Approximately 14% of women and 6% of men have ever experienced sexual violence while 8% of women and 2% of men experienced sexual violence in the preceding 12 months.[32]

The Ministry of Health has responded to the growing concern of rising violence by developing documents that guide implementation of prevention and control activities in the country. The National Adolescent Sexual and Reproductive Health policy defines comprehensive care packages to be offered in health facilities to adolescent victims of sexual violence. The national violence and injury prevention action plan prioritises both child maltreatment and youth violence and emphasises the need for these services to be streamlined at all levels of healthcare systems.

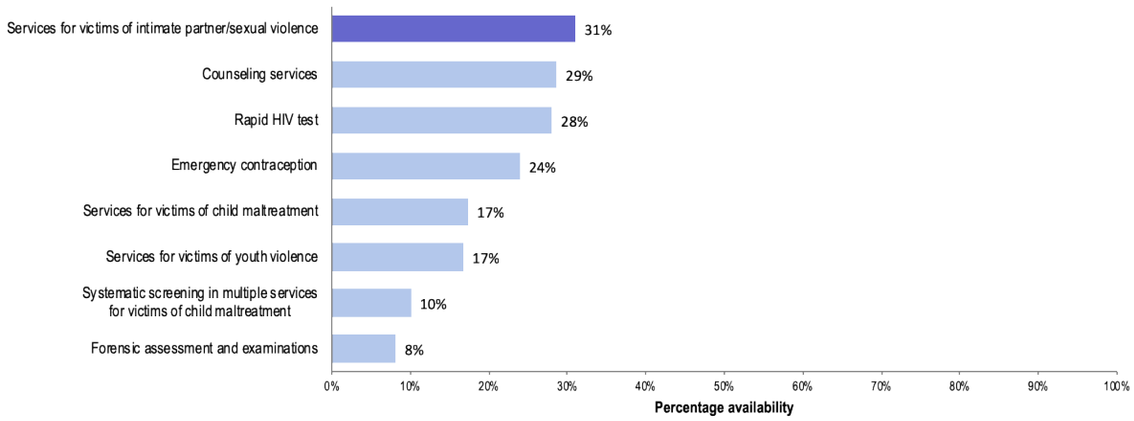
Service availability

- **Figure 164** shows the countrywide availability of services for victims of violence and sexual abuse.
- Facilities offering services for victims of violence and sexual abuse are generally low in the country.
- Nearly a third (31%) of the facilities offered services for victims of intimate partner or sexual violence.
- Services for both victims of child maltreatment and youth violence were offered by 17% of the facilities.

[32] KDHS 2014

- The least available service was forensic assessment and examination at 8%.
- Rapid HIV testing and emergency contraceptives for post-rape care was available in 28% and 24% of the health facilities, respectively.
- Counselling sessions were offered by 29% of the facilities.

Figure 164. Proportion (%) of facilities that offer services to victims of violence and sexual abuse (N=2927), Kenya 2018

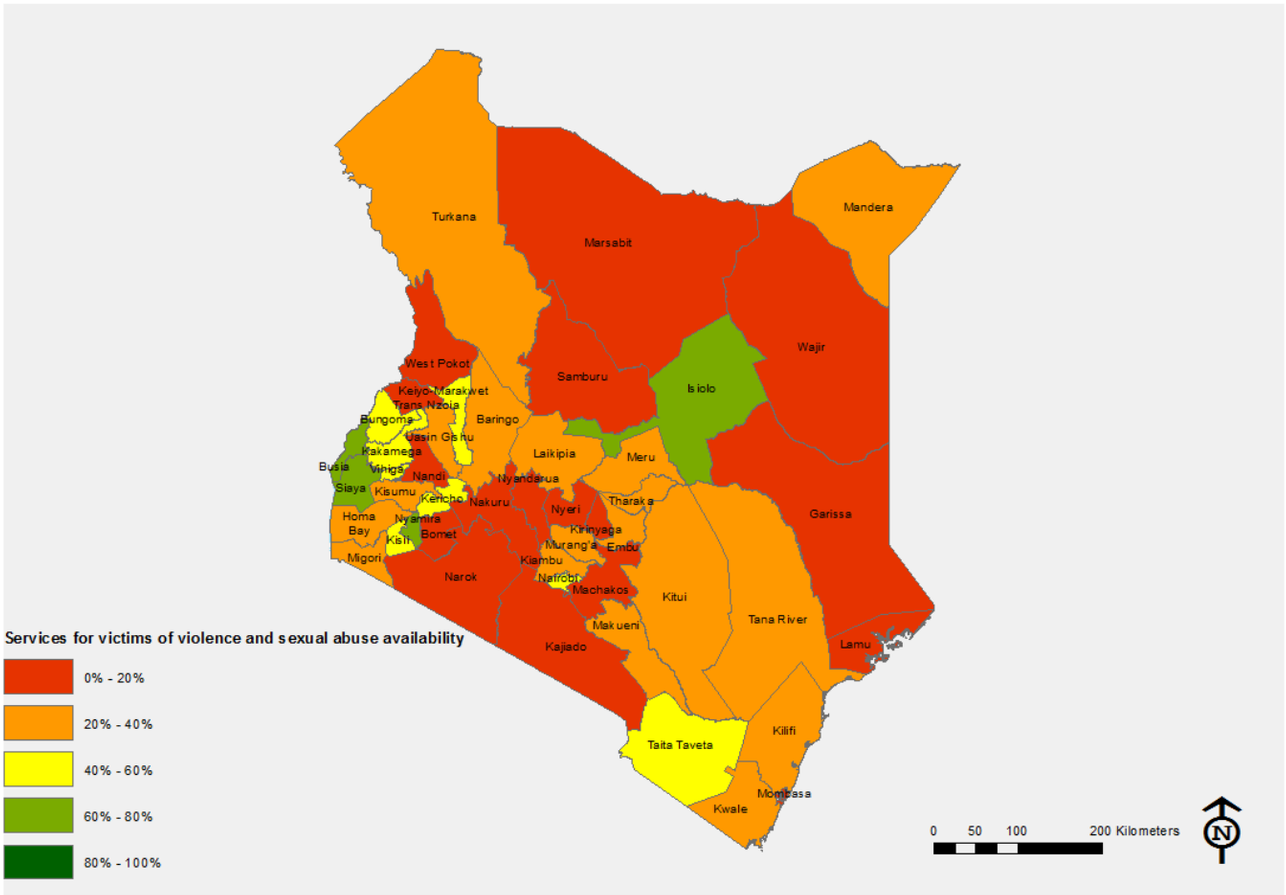


Annex Table 80 shows the percentage of facilities offering services to victims of violence and sexual abuse by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location while **Figure 165** shows the variation in service availability for victims of violence and sexual abuse by county.

- Nyamira County had the highest percentage of facilities (71%) offering services to victims of intimate partner/sexual violence and providing counseling services.
- Siaya County had the highest percentage of facilities (52%) offering services to victims of child maltreatment.
- Generally, all services to victims of physical violence and sexual abuse were more readily available in secondary/tertiary facilities as compared to other lower level facilities. Similarly, government facilities were more readily able to provide services to victims of violence as compared to private and NGO/FBO facilities
- Services for victims of violence and sexual violence were slightly more available in rural settings compared to urban settings, with 32% of rural facilities offering services to victims of intimate/sexual violence compared to 30% in urban facilities.
- The Ministry of Health has responded to the growing concern of rising violence by developing documents that guide implementation of prevention and control activities in the country. The National Adolescent Sexual and Reproductive Health policy defines comprehensive care packages to be offered in health facilities to adolescent victims of sexual violence. The national violence and injury prevention action plan prioritises both child maltreatment and youth violence and emphasises the need for these services to be streamlined at all levels of healthcare systems. The findings from this study are

an indication that implementation of these policy documents still faces challenges and both county and national government should prioritise integration of these services into health facilities. Services for victims of violence and sexual abuse in private health facilities need also to be increased.

Figure 165: Map of service availability for victims of violence and sexual abuse by county, Kenya 2018



5.3.10 Palliative care

Palliative care is an approach that improves the quality of life of patients and their families facing life-threatening illness through the prevention and relief of suffering by means of early identification and impeccable assessment and treatment of pain and other problems, be they physical, psychosocial or spiritual. It is an interdisciplinary team approach to care with a focus on comfort and quality of life and is particularly important for our health system due to the increasing prevalence of cancer and previously AIDS.

The tracer items required for palliative care service readiness are outlined in **Table 36.**

Table 36. Tracer items for palliative care services

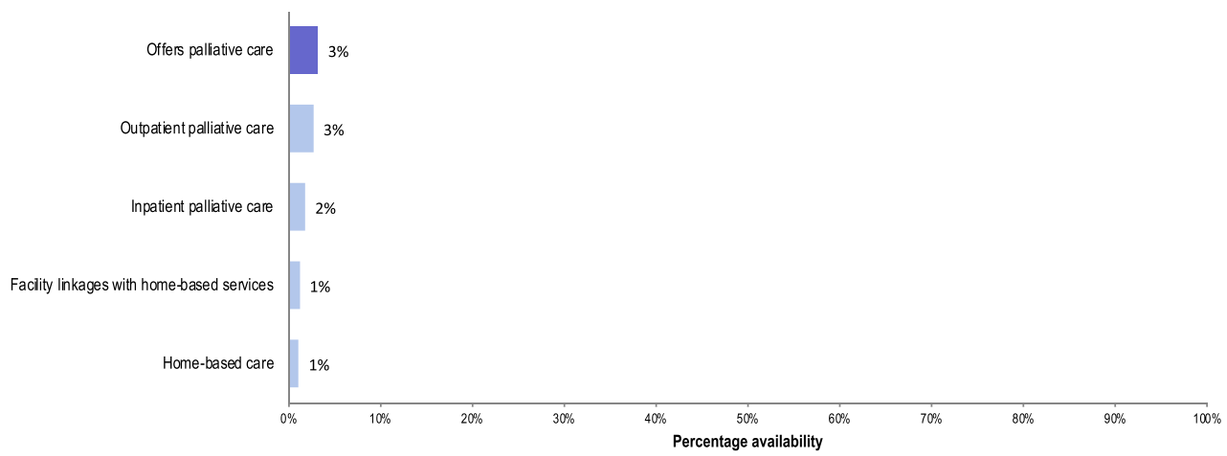
Domain	Tracer items
Medicines and commodities	• Buprenorphine or naloxone (opioid antagonist) • Intravenous for rehydration (normal saline or ringers lactate) with infusion set • Intravenous nutritional supplement • Food supplement to be provided orally (e.g., RUTF, F75, F100, or Micronutrient powder (MNP) • Methadone or Morphine (oral or injection) or meperidine or Nalbuphine • Acetaminophen or Ibuprofen tablets/capsules • Vitamin A • Iron or iron with folic acid

Service availability

Figure 166 shows the countrywide availability of palliative care services.

- The survey showed that availability of palliative care services in Kenya was low, with only 3% of health facilities offering the services. Nine counties, namely, Baringo, Isiolo, Kajiado, Kwale, Mandera, Lamu, Nakuru, Turkana, Wajir, reported not to offer palliative care services in their facilities.
- Only 1% of health facilities in Kenya offered home-based care, with 23 counties not offering the service. Similarly, only 1% of health facilities offered facility linkages with home-based services and 21 counties reported not offering the service.

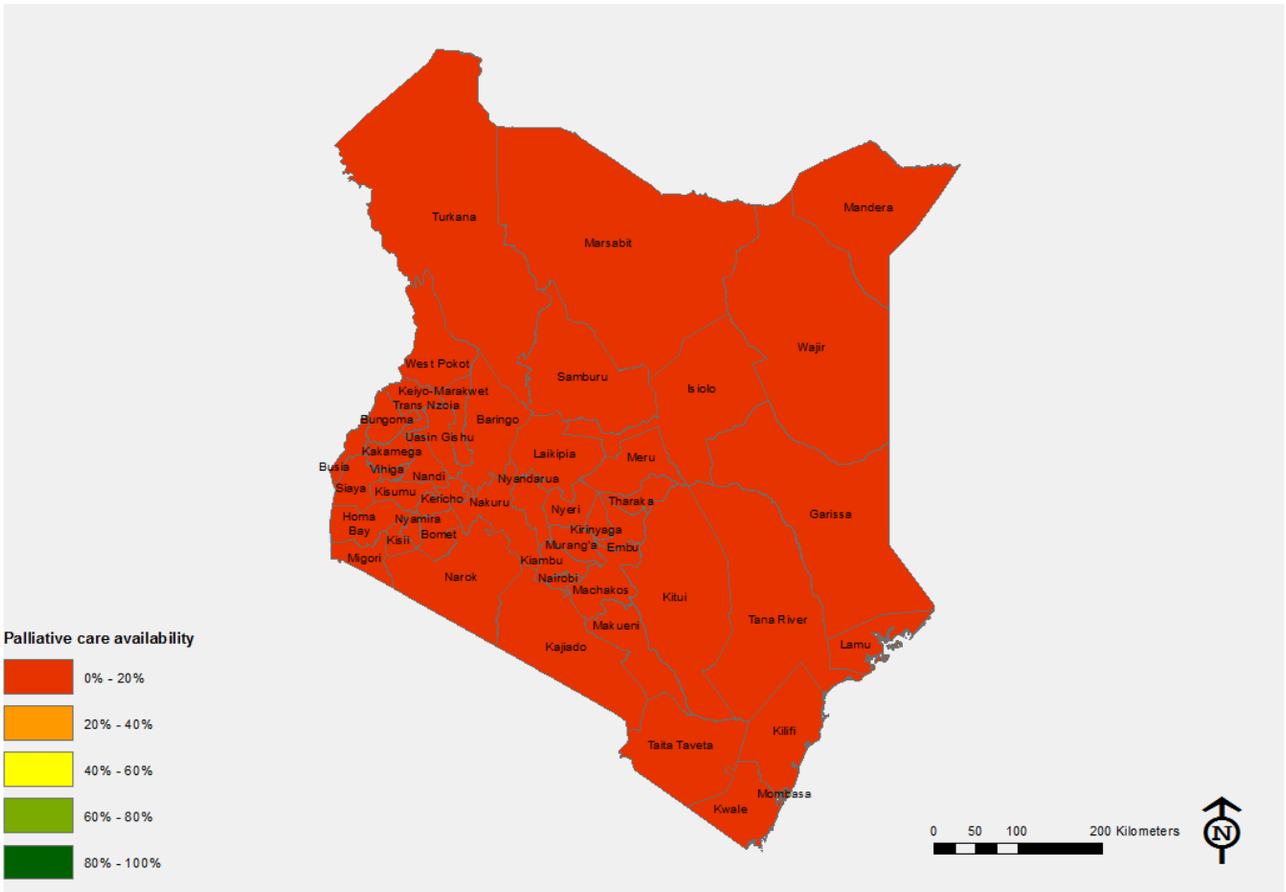
Figure 166. Proportion (%) of facilities that offer palliative care services (N=2927), Kenya 2018



Annex Table 81 shows the percentage of facilities offering palliative care services by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location, while **Figure 167** shows the variation in palliative care service availability by county.

- The service was mostly available in secondary/tertiary hospitals, with 85% of the health facilities offering the service.
- 23 counties reporting not offering home-based care services, while the highest percentage of facilities offering the service was reported in Kisumu at 5%.
- The county with the highest percentage of health facilities offer facility linkages with home-based services was Kisumu at 6%, followed by Uasin Gishu at 4%. A total of 21 counties reported not offering the service.
- In terms of management authority and residence, there were no variations in the percentage of facilities offering the services.

Figure 167: Map of palliative care service availability by county, Kenya 2018

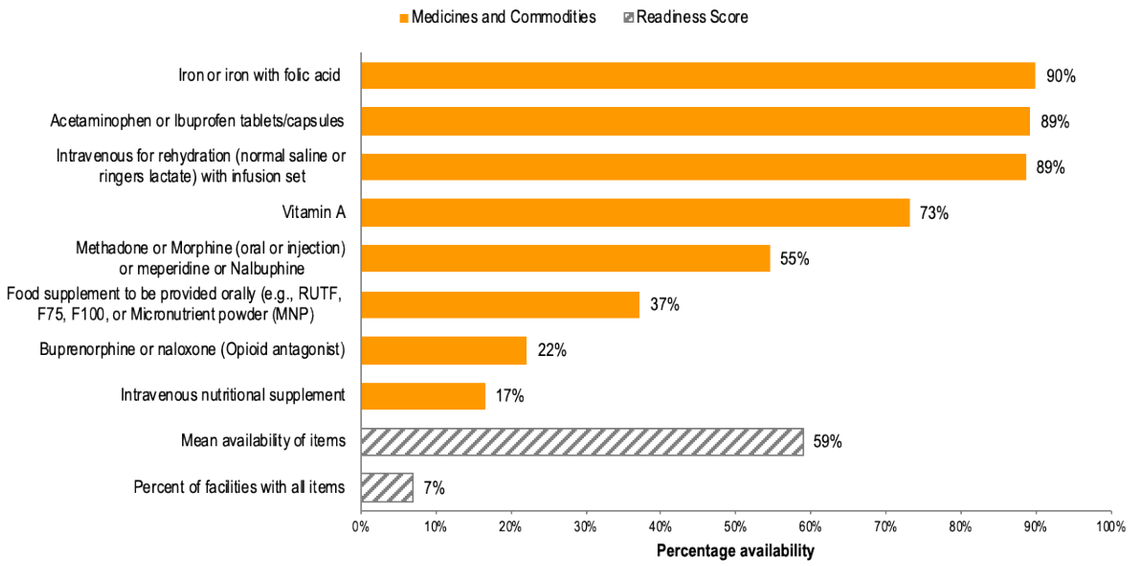


Service readiness

Readiness to offer palliative care services was assessed based on the availability of the eight tracer items found in **Table 36. Figure 168** shows the percentage availability of these tracer items in facilities that offer palliative care services (N=140).

- Nationally, the mean availability of tracer items for palliative care was 59%.
- Of the facilities that reported to offer palliative care services, only 7% had all the tracer items.
- The most available tracer item was iron or iron with folic acid (90%), while the least available was intravenous nutritional supplement (17%).
- Most secondary/tertiary hospitals had most of the tracer items available, with a mean availability of 90%, while dispensaries and medical clinics had the least tracer items, with a mean availability of 42%.
- In terms of management authority, NGOs/FBOs had facilities with most tracer items, with a mean availability of 65%, while the least was in private facilities (53%). There were no major variations in availability of tracer items by location of the facility.

Figure 168: Proportion (%) of facilities that have tracer items for palliative care services among facilities that provide this service (N=140), Kenya 2018

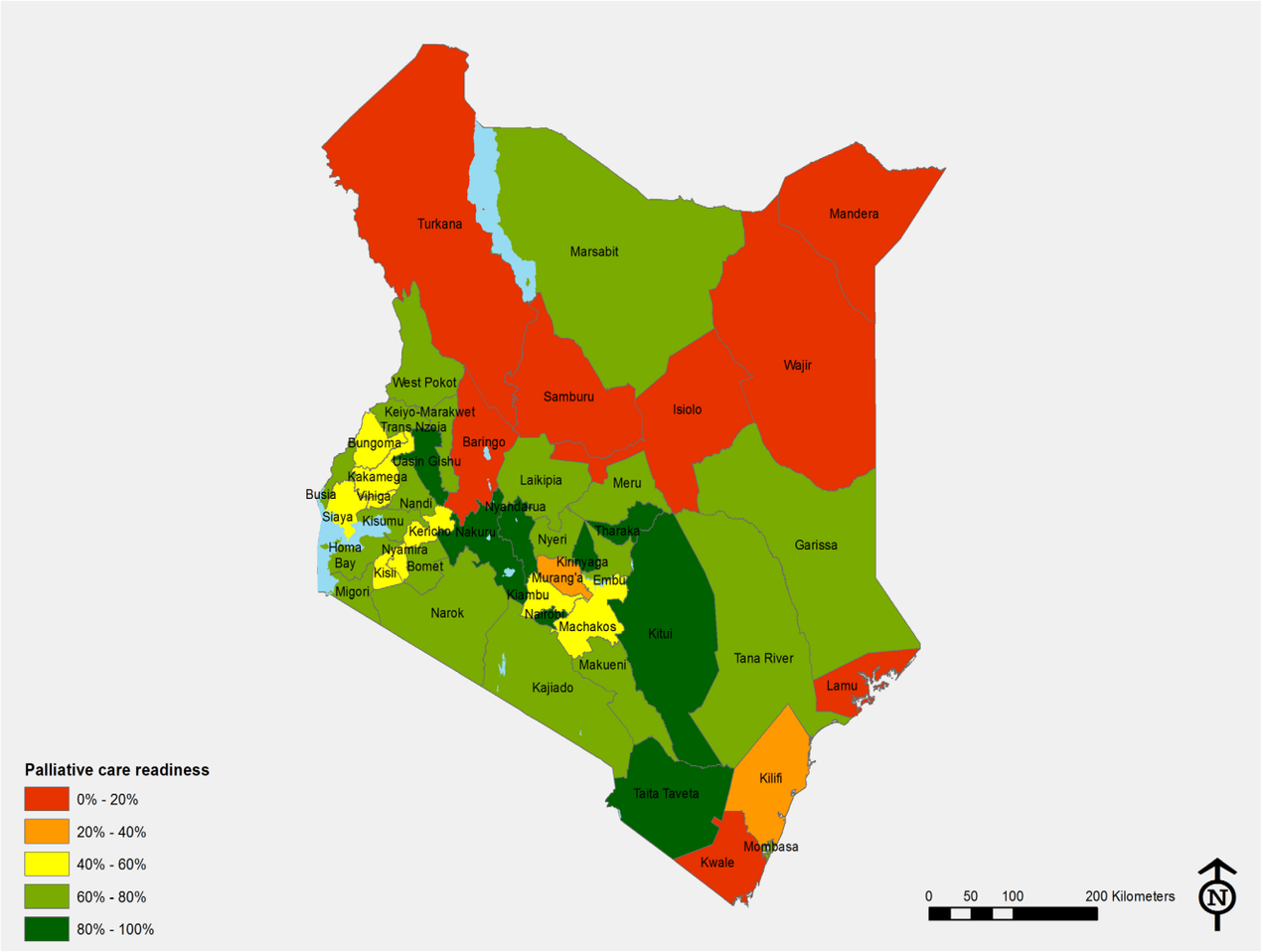


Annex Table 82 shows availability of palliative care tracer items by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location while **Figure 169** shows the variation in palliative care service readiness by county.

- The percentage of facilities with all tracer items varied by county, with Nakuru reporting 100% availability, while more than half of the counties (29) reported that none of their facilities had all tracer items.

- Most secondary/tertiary hospitals had most of the tracer items available, with a mean availability of 90%, while dispensaries and medical clinics had the least tracer items, with a mean availability of 42%.
- In terms of management authority, NGO/FBO facilities had most tracer items, with a mean availability of 65%, while private hospitals had the least tracer items, with a mean availability of 53%.
- There were no major variations in availability of tracer items by urban or rural location.

Figure 169: Map of palliative care readiness by county, Kenya 2018



5.3.11 Rehabilitation care

Rehabilitation care aims at improving the functioning of patients and lessening the impact of disease and disability on their everyday life. It involves interventions by multi-disciplinary teams, including occupational therapists and rehabilitation counsellors, to assist with equipment and modifications to the home, school or workplace to support independence and participation; orthotists/prosthetists to prescribe devices that promote mobility, limb function and independence; physiotherapists to assist with strength training and improving balance, mobility and limb function, occupational therapists to

provide training around self-care and undertaking activities of daily living, pain control and management, speech therapists to assess and treat people with speech and swallowing difficulties, and psychologists and social workers to encourage self-management skills and resilience and to provide support for people to manage the psychological effects of disabilities.

The tracer items required for rehabilitation care service readiness are outlined in **Table 37**.

Table 37. Tracer items for rehabilitation care services

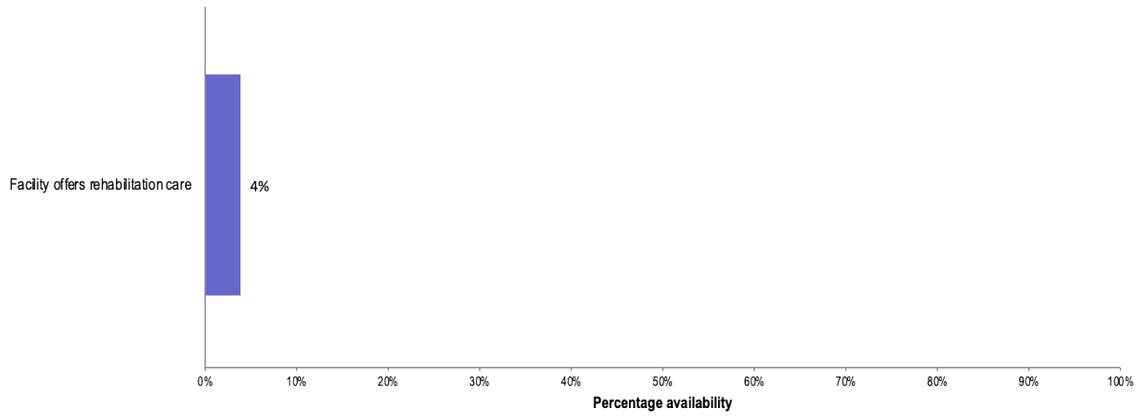
Domain	Tracer items
Equipment	• Dedicated therapy treatment space • Parallel bars • Height adjustable treatment bed/plinth • Upper limb exercise equipment (weights/pulleys/TheraBand) • Measuring tape/Goniometer • Walking frames/crutches/walking sticks • Compression bandages/tubigrip • Casting and splinting kit • Audiometric equipment and booth • Equipment for paediatric rehabilitation (mats/toys/walking frames/standing frames) • Patient education materials

Service availability

Figure 170 shows the countrywide availability of rehabilitation care services.

- Nationally, the percentage of facilities that offer rehabilitation care was 4%.

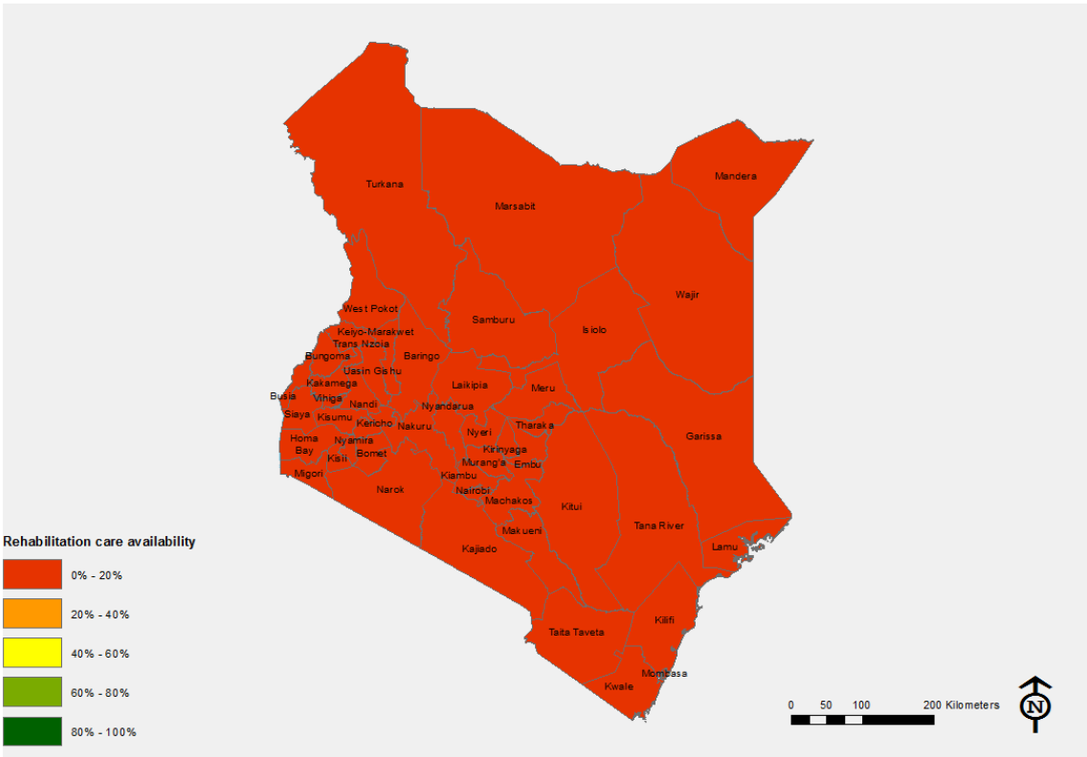
Figure 170. Proportion (%) of facilities that offer rehabilitation care services (N=2927), Kenya 2018



Annex Table 83 shows the percentage of facilities offering rehabilitation care services by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location, while **Figure 171** shows the variation in rehabilitation care service availability by county.

- Kiambu and Kisumu counties reported the highest percentage of facilities that offered rehabilitative care at 13% each. None of the facilities in Isiolo, Samburu, Turkana and Wajir offered the service.
- Secondary and tertiary hospitals were the major providers of the service at 90%, while the lowest was dispensaries at 1%.
- NGOs/FBO facilities had the highest availability of the service (8%), while government facilities had the lowest availability at 3%.
- Urban areas had the most facilities offering the service at 8%, while rural areas had 2% of health facilities offering the service.

Figure 171: Map of rehabilitation care service availability by county, Kenya 2018



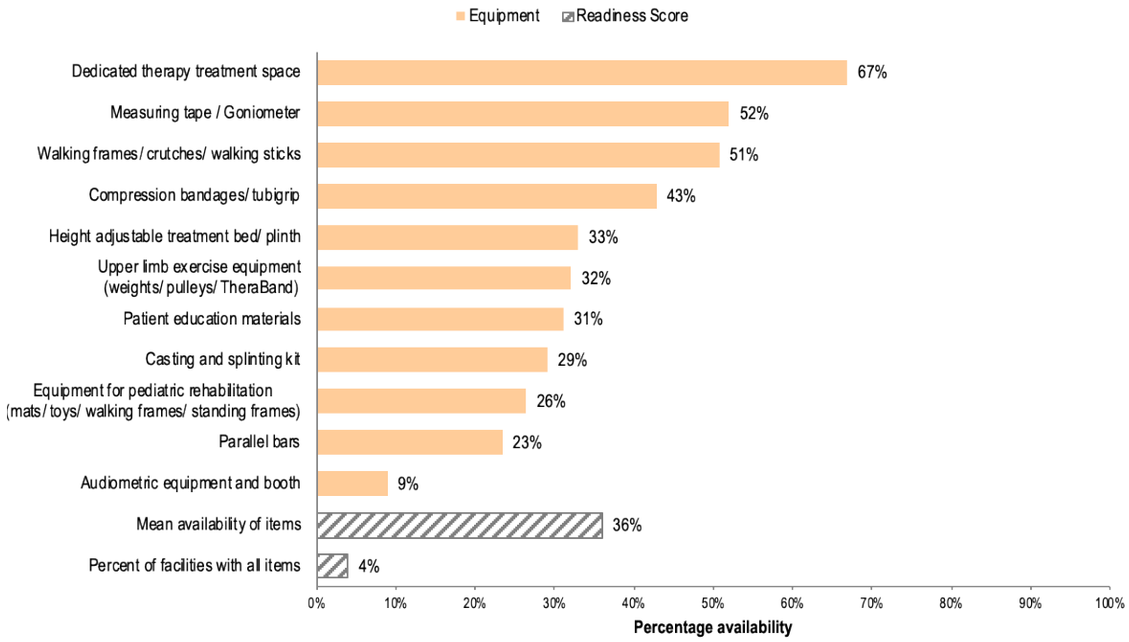
Service readiness

Readiness to offer rehabilitation care services was assessed based on the availability of the eleven tracer items found in **Table 37. Figure 172** shows the percentage availability of these tracer items in facilities that offer rehabilitation care services (N=181).

- The mean availability of tracer items for rehabilitative care services was 36%.
- Only 4% of facilities reported having all the tracer items.

- A dedicated therapy space for patients requiring rehabilitative care was most readily available, at 67%. Measuring tape and walking frames/crutches were also fairly available at 52% and 51%, respectively.
- Parallel bars, equipment for pediatric rehabilitation and casting/splinting kit were least readily available at 23%, 26% and 29%, respectively.

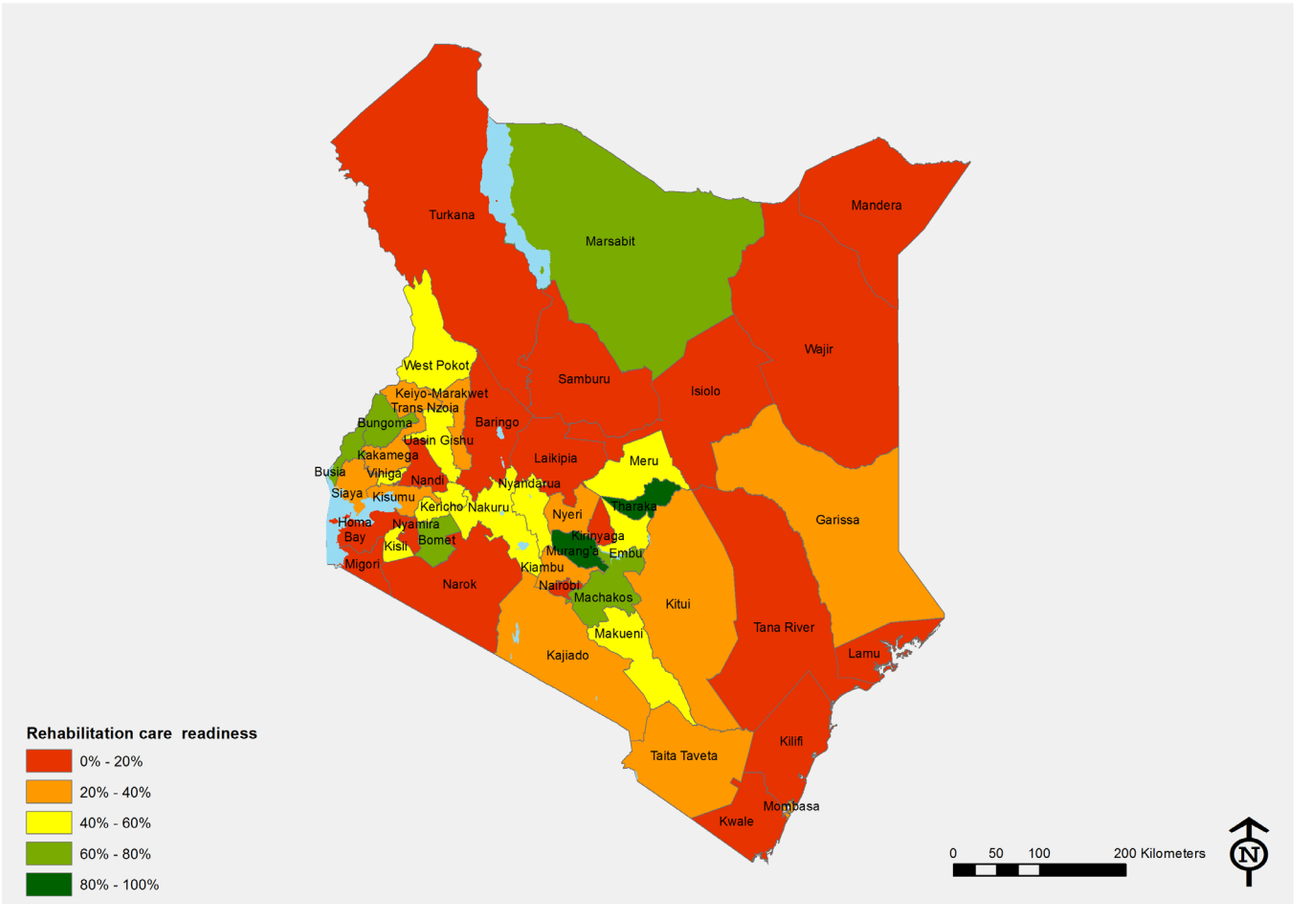
Figure 172: Proportion (%) of facilities that have tracer items for rehabilitation care services among facilities that provide this service (N=181), Kenya 2018



Annex Table 84 shows availability of rehabilitation care tracer items by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location, while **Figure 173** shows the variation in rehabilitation care service readiness by county.

- The mean availability of tracer items for rehabilitative care was highest in facilities in Tharaka Nithi at 100%, followed by Murang'a at 82%.
- None of the facilities in Homa Bay, Isiolo, Laikipia, Migori, Samburu and Tana River had tracer items for rehabilitative care services.

Figure 173: Map of rehabilitation care readiness by county, Kenya 2018



5.4 Surgical care

Improving efficacy, safety, and equity in the provision of surgical care is an increasingly recognised priority in low-income and middle-income countries. Basic surgical care for minor procedures can be performed at the primary care level, whereas more comprehensive surgical care requiring a well-equipped major operating theatre is generally performed only at the district hospital level or above. In this survey, assessments were done for basic and comprehensive surgical care.

5.4.1 Basic surgical services

Basic surgical care includes the following key services: incision and drainage, wound debridement, suturing, acute burn management, closed treatment of fracture, cricothyroidotomy, male circumcision, and chest tube insertion. Tracer items needed to provide basic surgical care services are outlined in **Table 38.**

Table 38. Tracer items needed to provide basic surgical care services

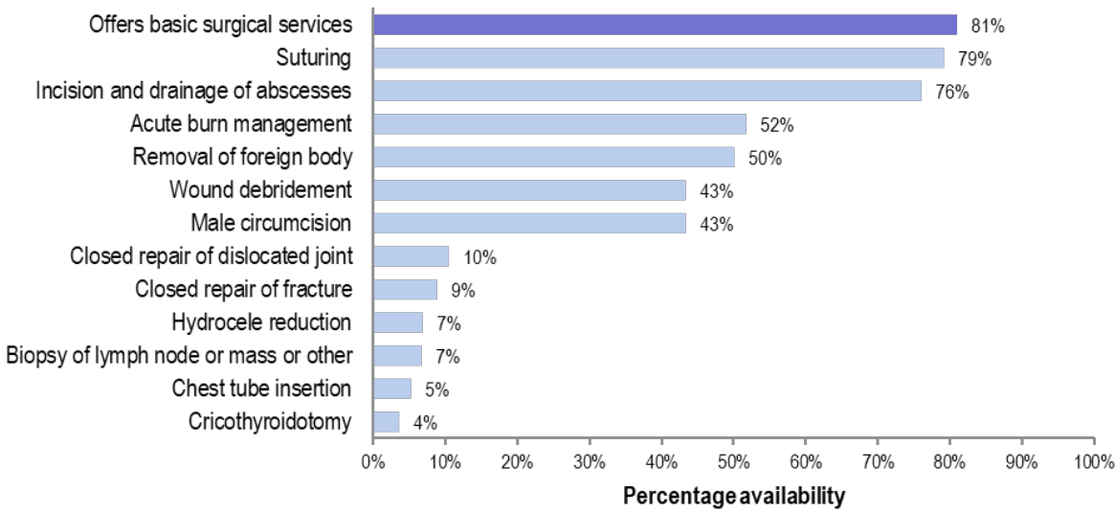
Domain	Tracer items
Equipment	• Needle holder • Scalpel handle with blade • Retractor • Surgical scissors • Nasogastric tubes • Tourniquet • Adult and paediatric resuscitators • Suction apparatus • Oxygen
Medicines and commodities	• Skin disinfectant • Sutures (both absorbable and non-absorbable) • Ketamine (injectable) • Lidocaine (1% or 2% injectable) • Splints for extremities • Materials for cast

Service availability

Figure 174 shows the countrywide availability of basic surgical services.

- More than three quarters (81%) of the facilities offer basic surgical services the major ones being suturing (79%), incision and drainage of abscesses (76%), acute burn management (52%) and removal of foreign body (50%).
- The least offered basic services were chest tube insertion and cricothyroidotomy at 5% and 4%, respectively.

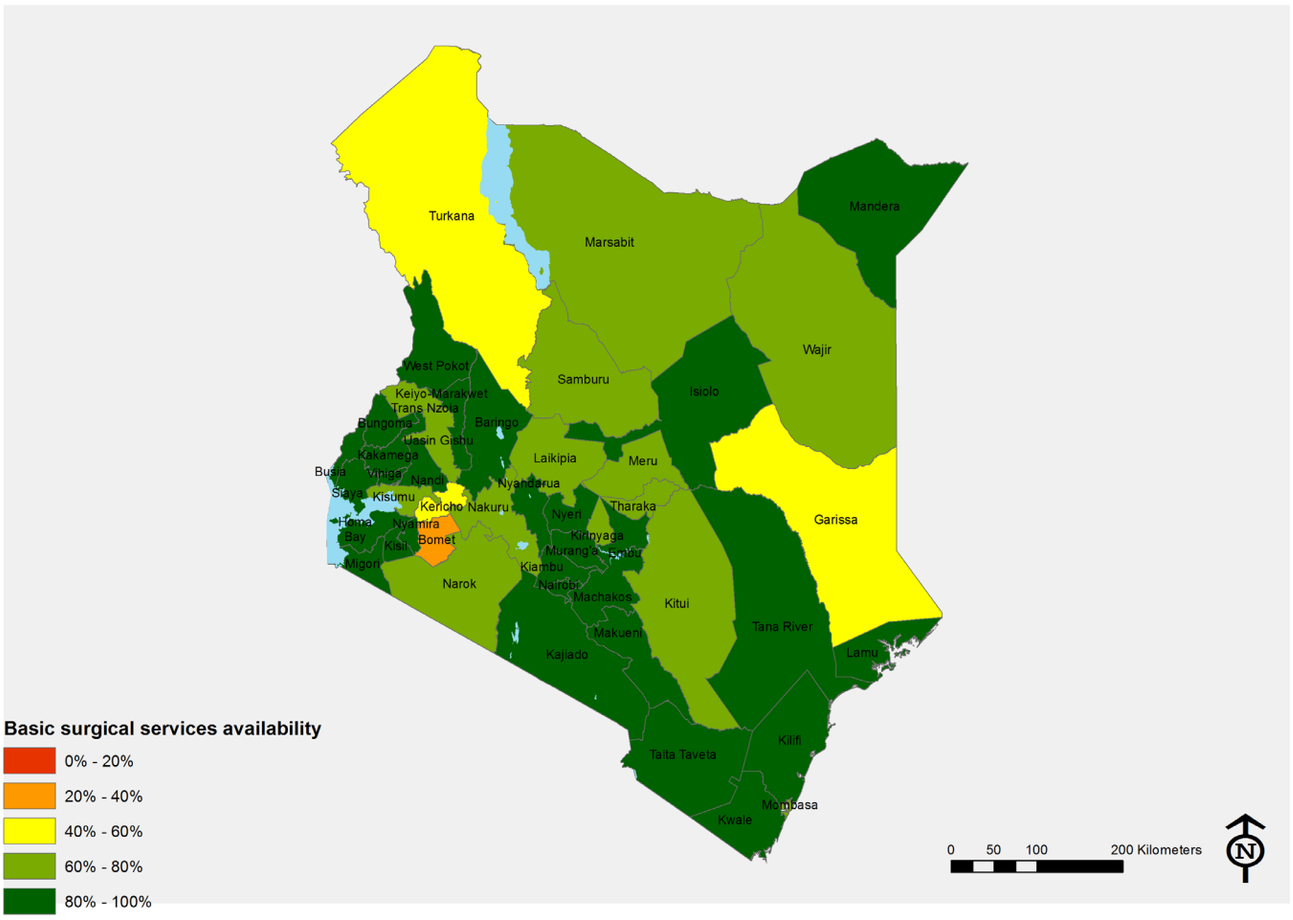
Figure 174. Proportion (%) of facilities that offer basic surgical services (N=2927), Kenya 2018



Annex Table 85 shows the percentage of facilities offering basic surgical services by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location, while **Figure 175** shows the variation in basic surgical service availability by county.

- All the facilities in Murang'a County offered basic surgical services, with four counties (Mandera, Nyamira, Taita Taveta and West Pokot) having more than 95% of their health facilities offering basic surgical services.
- Bomet County had the lowest ranking, with only 30% of facilities offering basic surgical services. The rest of the counties were above 50%.
- All the secondary and tertiary hospitals in the country offered basic surgical services.
- More than three-quarters of the other, non-hospital facilities offered basic surgical services.
- There was little variation in the availability of basic surgical services based on managing authority or urban/rural location.

Figure 175: Map of basic surgical services availability by county, Kenya 2018

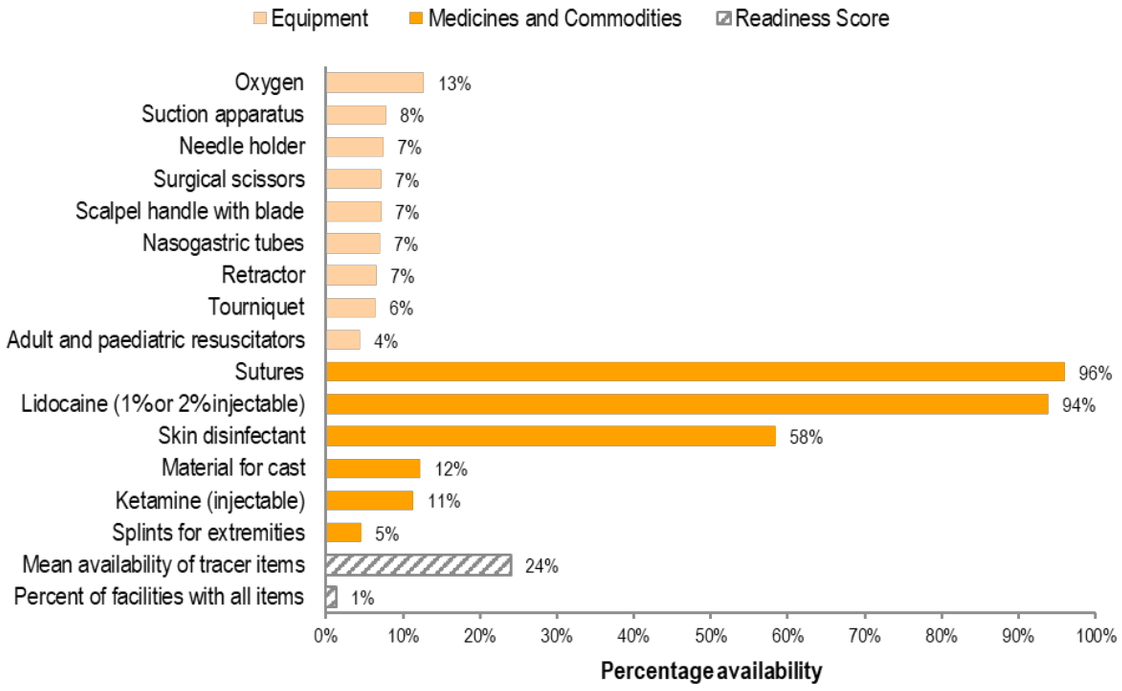


Service readiness

Readiness to provide basic surgical care services was assessed based on the availability of the fifteen tracer items found in **Table 38. Figure 176** shows the percentage availability of these tracer items in facilities that offer basic surgical services (N=2392).

- Only one percent (1%) of the facilities countrywide were equipped with all the fifteen tracer items that are necessary for a facility to offer basic surgical services.
- On average there was 24% availability of the fifteen tracer items in the facilities that provided basic surgical services country wide.

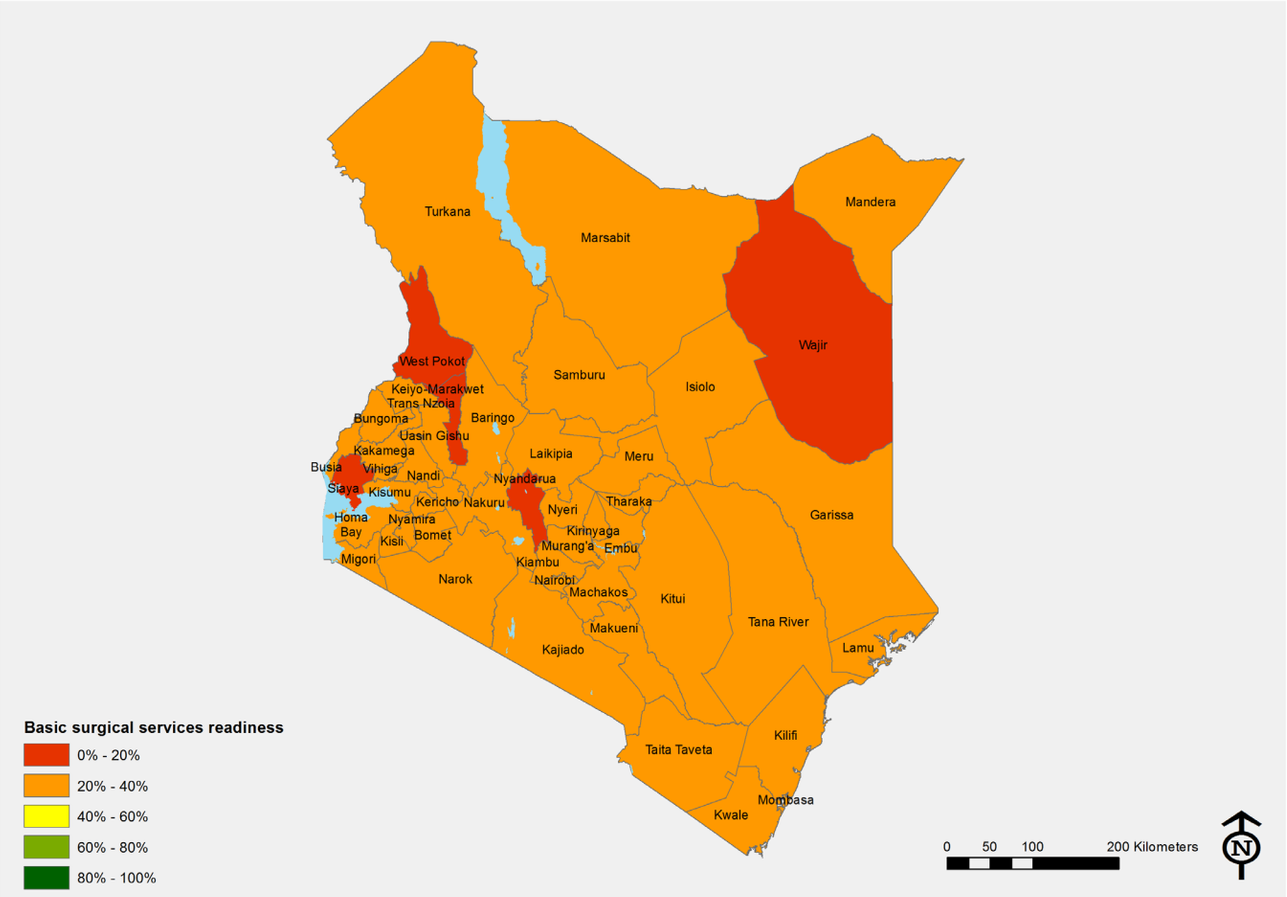
Figure 176. Proportion (%) of facilities that have tracer items for basic surgical services among facilities that provide this service (N=2392), Kenya 2018



Annex Table 86 shows availability of basic surgical tracer items by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location, while **Figure 177** shows the variation in basic surgical service readiness by county.

- In terms of county comparison, Bomet County had the highest mean availability of tracer items, at 35%, while the rest had percentages below 30%, the lowest among them being Wajir, at 18%. When looking at the percentages of facilities with all items, all counties had percentages below 10%, with Uasin Gishu County having the highest, at 8%.
- According to the facility type, secondary and tertiary hospitals had a mean availability of 91% and the percentage of facilities with all the items was 65%. The public primary hospitals had a mean availability of tracer items of 51%, while the percentage of facilities with all items was 6%. In private/NGO/FBO primary hospitals, the mean availability of tracer items was 75% and their percentage in terms of facilities with all the items was 20%. Health centres had a mean availability of 28%, while the percentage of facilities with all items was 1%. Dispensaries and medical clinics had the same mean availability of tracer items at 19%, and percentage of facilities with all the items at 0%.
- Regarding the managing authority, government-managed facilities had a mean availability of 22% and the percent of facilities with all tracer items was 1%. The NGO/FBO-managed facilities had a mean availability of 27%, while the percentage of facilities with all the items was 2%. Privately managed hospitals had a mean availability of tracer items of 25% and the percentage of facilities with all items was 2%.
- When comparing rural and urban facilities, urban-based facilities had a mean availability of 30%, while the percentage of facilities with all items was 3%. Rural-based facilities had a mean availability of tracer items of 21% while the percentage of facilities with all items was 0%.

Figure 177: Map of basic surgical services readiness by county, Kenya 2018



5.4.2 Comprehensive surgical services

Hospitals are able to provide a wider and more comprehensive range of surgical care services compared to smaller facilities. Provision of comprehensive surgical services requires investing in an enabling environment (provision of essential requirements) for health service providers involved in the delivery of emergency, surgical and anaesthetic care, which in turn strengthens health systems and primary care. Tracer items needed to provide comprehensive surgical care are outlined in **Table 39.**

Table 39. Tracer items needed to provide comprehensive surgical care

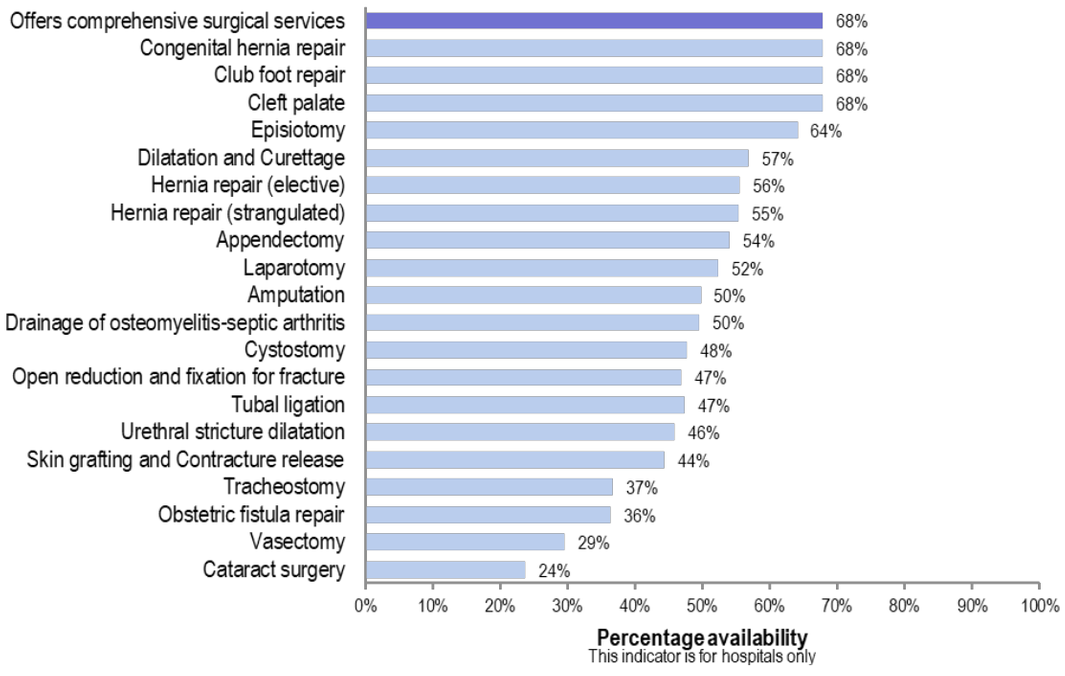
Domain	Tracer items
Trained staff and guidelines	• Surgeon on staff • Anaesthetist on staff
Equipment	• Oxygen • Anaesthesia equipment • Spinal needle • Suction apparatus
Medicines and commodities	• Thiopental (powder) • Suxamethonium bromide (powder) • Atropine (injectable) • Diazepam (injectable) • Halothane (inhalation) • Bupivacaine (injectable) • Lidocaine 5% (heavy spinal solution) • Epinephrine (injectable)

Service availability

Figure 178 shows the countrywide availability of comprehensive surgical services.

- Nationally, 68% of hospitals offered comprehensive surgical services.

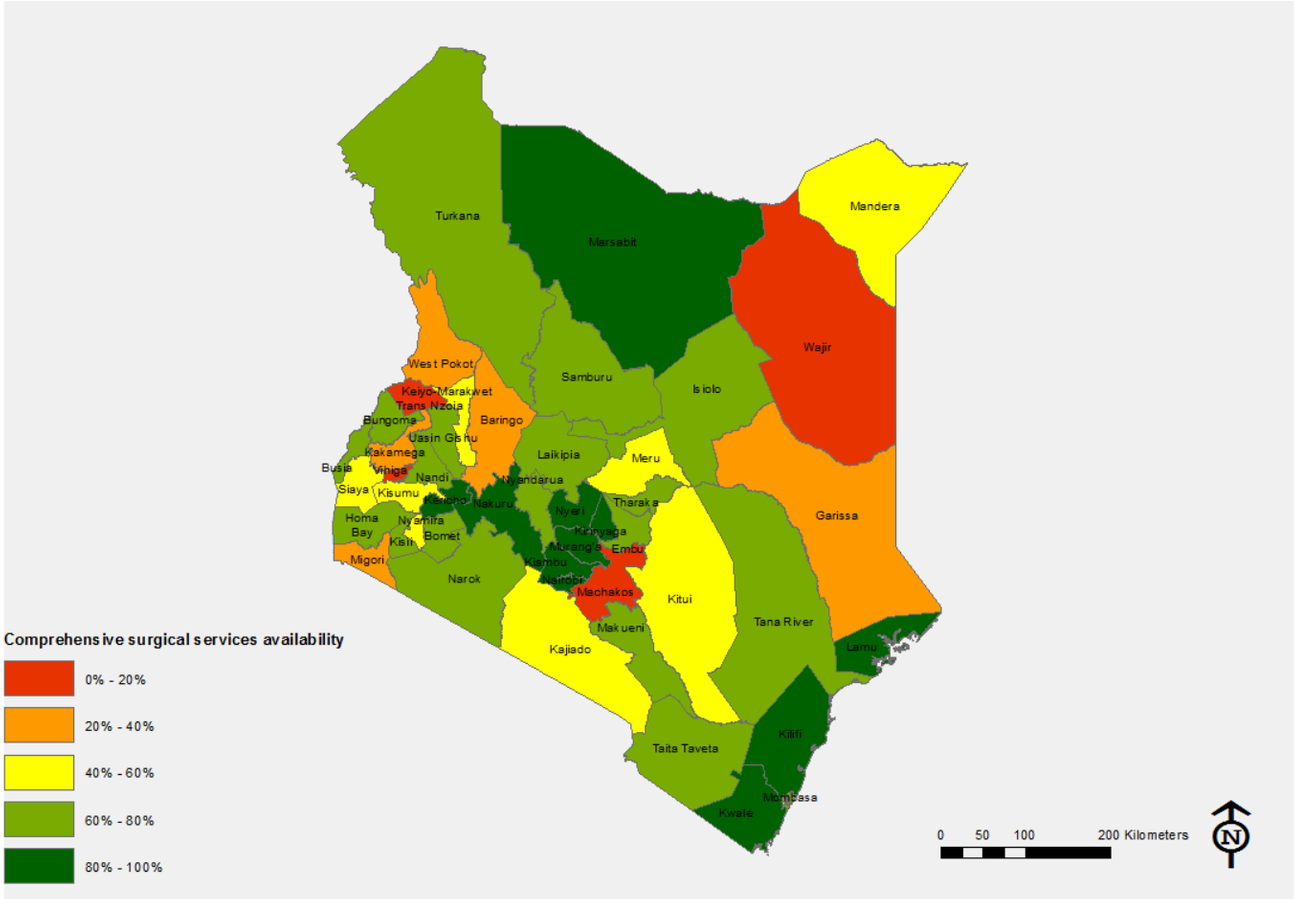
Figure 178. Proportion (%) of hospitals that offer comprehensive surgical services (N=411), Kenya 2018



Annex Table 87 shows the percentage of hospitals offering comprehensive surgical services by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location while **Figure 179** shows the variation in comprehensive surgical service availability by county.

- A third of the counties had more than 50% of their hospitals offering comprehensive surgical services. Only 9 counties had less than 50% of their hospitals offering comprehensive surgical services.
- In relation to the counties, Lamu and Kirinyaga counties had the highest percentages of hospitals offering comprehensive surgical at 100% each, whereas the lowest percentages of hospitals offering comprehensive surgical services were in the counties of Wajir (20%), Vihiga (17%), Machakos (13%) and Trans Nzoia (0%). The rest of the counties were above 20%.
- Almost all (95%) secondary & tertiary hospitals offered comprehensive surgical services compared to 46% of public primary facilities.
- 81% of facilities in urban areas offered the service compared to 51% of rural facilities
- In terms of managing authority, 49% of facilities managed by the government offered comprehensive surgical services, while 98% those managed by NGOs/FBOs offered these services. 78% of privately managed facilities offered the same services.

Figure 179: Map of comprehensive surgical service availability by county, Kenya 2018

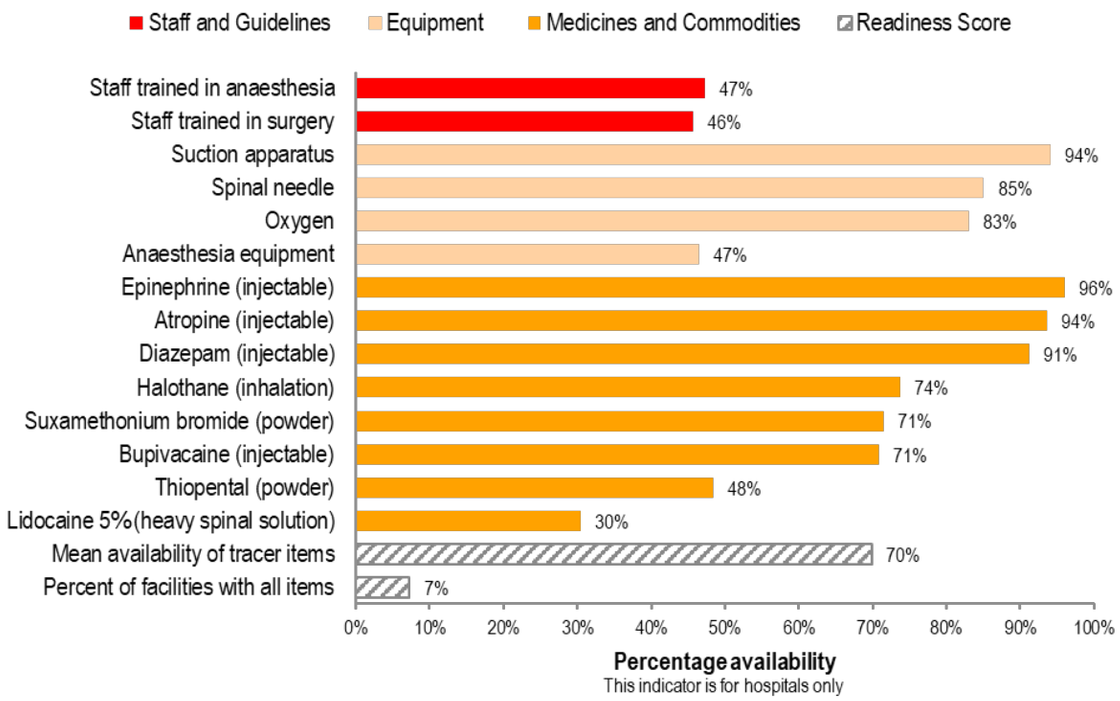


Service readiness

Readiness to provide comprehensive surgical care was assessed based on the presence of the 14 tracer items found in **Table 39. Figure 180** shows the percentage availability of these tracer items in hospitals that offer comprehensive surgical services (N=227).

- The mean availability of tracer items in the hospitals that offered comprehensive surgical services was 70%, while the percentage of hospitals with all the tracer items was 7%.
- In relation to staff guidelines, staff trained in anaesthesia scored 47% in terms of service readiness, while those trained in surgery scored 46%.
- With respect to equipment, suction apparatus had the highest percentage with 94%. However, only 47% of hospitals had anaesthesia equipment, yet this is a basic requirement for carrying out surgery.
- Regarding medicine and commodities comparison, epinephrine (injectable) had the highest percentage at 96% in terms of presence while lidocaine 5% (heavy spinal solution) had the lowest at 30%.

Figure 180. Proportion (%) of hospitals that have tracer items for comprehensive surgical care among facilities that provide this service (N=227), Kenya 2018



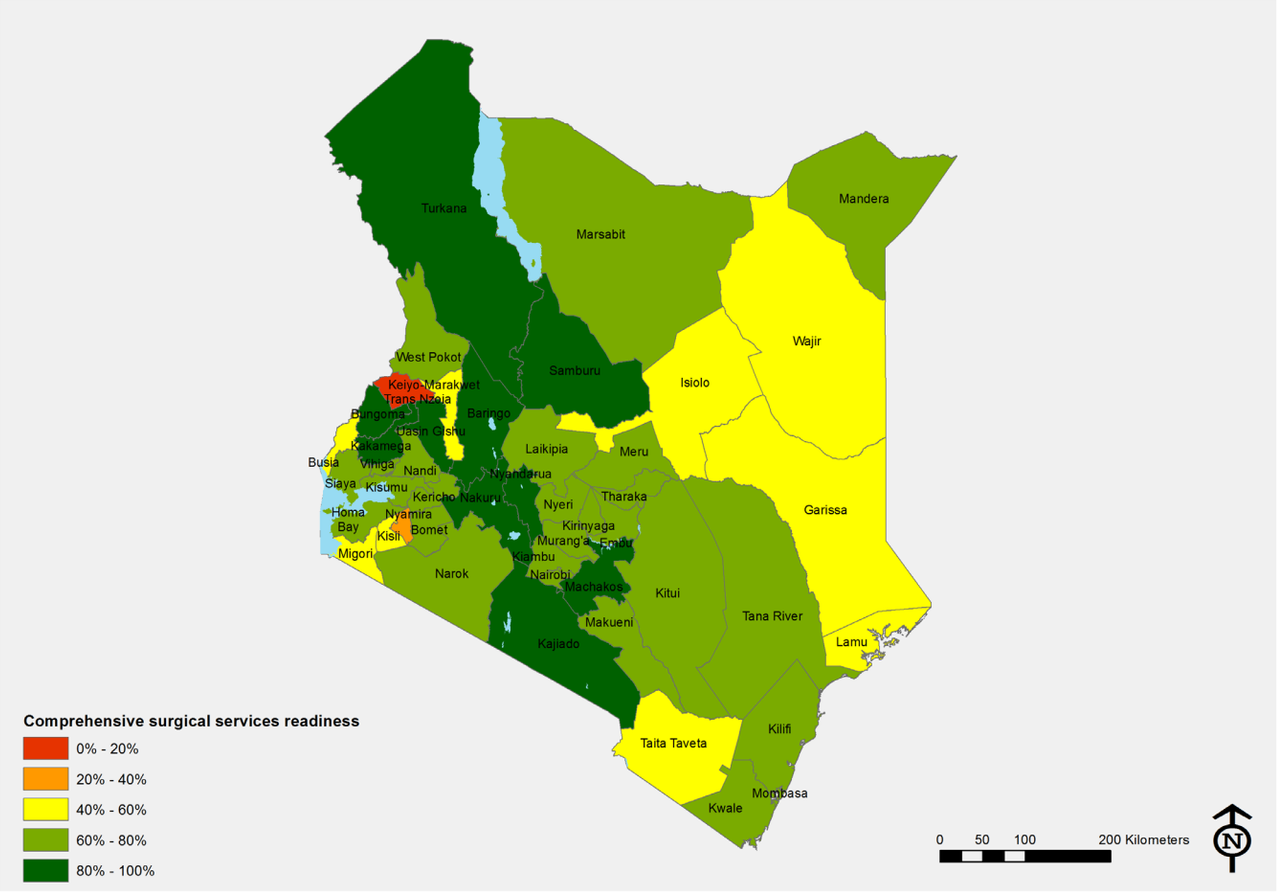
Annex Table 88 shows availability of comprehensive surgical care tracer items by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location while **Figure 181** shows the variation in comprehensive surgical service readiness by county.

- In terms of county comparison, Kajiado (90%), Nyandarua (100%) and Turkana (91%) were the counties with the highest availability of comprehensive surgical care tracer items in hospitals, whereas Migori (50%) and Busia (49%) were the counties with the lowest availability of

comprehensive surgical care tracer items. Kajiado (61%) and Nyandarua (100%) counties had the highest percentages of facilities with all tracer items.

- When comparing facility types, secondary and tertiary hospitals had a mean availability of tracer items of 90% while the percentage of facilities with all the items was 37%. Public primary hospitals had a mean availability of tracer items of 64% while the percentage of facilities with all the items was 4%. Private/NGO/FBO primary hospitals had a mean availability of tracer items of 71%, while the percentage of facilities with all the items was 7%.
- Government-managed facilities had a mean availability of tracer items of 67% while the percentage of facilities with all the items was 6%. NGO/FBO-managed facilities had a mean availability of tracer items of 74%, while their percentage of facilities with all the items was 3%. Privately-managed facilities had a mean availability of tracer items of 70%, while their percentage of facilities with all the items was 11%.
- In terms of urban and rural comparison, urban-based facilities had a mean availability of tracer items of 72%, while the percentage of facilities with all items was 9%. Their rural counterparts had a mean availability of tracer items of 66%, while their percentage of facilities with all the items was 4%.

Figure 181: Map of comprehensive surgical service readiness by county, Kenya 2018



5.4.3 Blood transfusion

Blood transfusion in Kenya is under the Kenya National Blood Transfusion Service (KNBTS), which was established in the year 2000 within the Ministry of Health. There are 27 blood donation centres in the country, including six regional blood transfusion centres (Nairobi, Embu, Nakuru, Eldoret, Kisumu and Mombasa) and 21 satellite stations. According to the Director of KNBTS, about 60% of the blood collected by the Kenya National Blood Transfusion Service is transfused to mothers and children. Every 10 minutes about approximately Kenyans need blood and are at risk of dying if it is not available.

The tracer items necessary for hospitals to provide blood transfusion are outlined in **Table 40.**

Table 40. Tracer items needed to provide blood transfusion

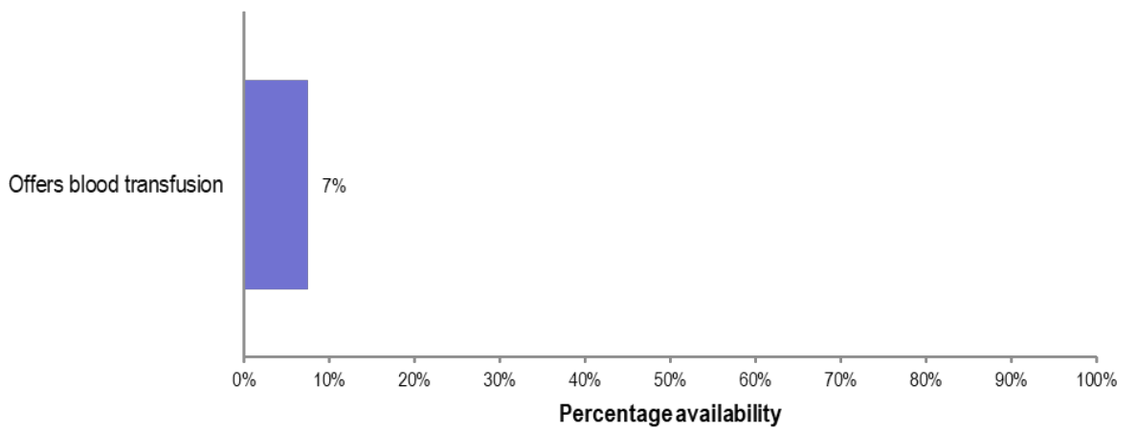
Domain	Tracer items
Equipment	• Refrigerator for blood storage
Diagnostics	• Blood typing • Cross-matching testing
Medicine and commodities	• Blood supply sufficiency (no shortage of blood in the past three months) • Blood supply safety (blood obtained only from national or county blood bank, or blood obtained from other sources but screened for HIV and other transmissible infections).

Service availability

Figure 182 shows the countrywide availability of blood transfusion services.

- Only 7% of health facilities in Kenya offered blood transfusion, which demonstrates a large gap in the availability of blood transfusion services.

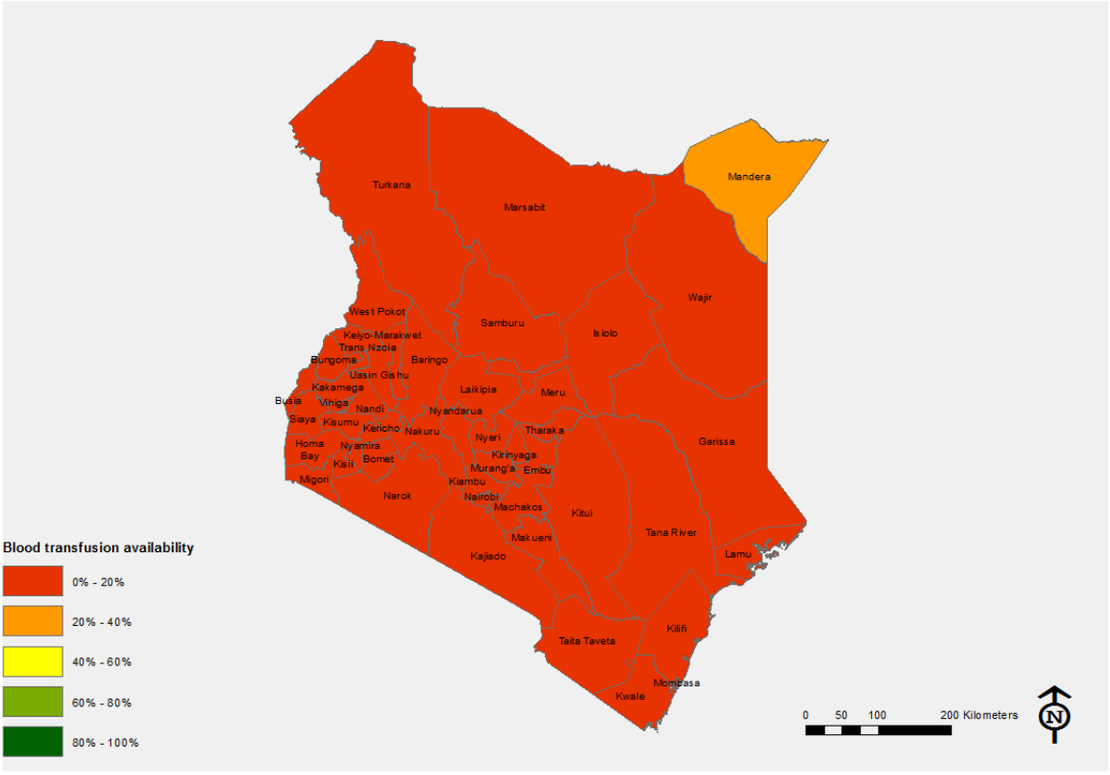
Figure 182. Proportion (%) of facilities that offer blood transfusion services by county (N=2927), Kenya 2018



Annex Table 89 shows the percentage of facilities offering blood transfusion services by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location, while **Figure 183** shows the variation in blood transfusion service availability by county.

- Mandera County was leading with the highest number of facilities offering the service at 25%, and only six other counties had 10% of their facilities offering the service. 21 counties had less than 5% of their facilities offering blood transfusion, with the least being West Pokot at 1%.
- Most of the secondary and tertiary health facilities offered blood transfusion services and more than half of all public primary hospitals offered blood transfusion services.
- More of the facilities offering blood transfusion services were found in urban areas..
- Blood transfusion service were most widely available at NGO/FBO facilities (13%), followed by private facilities (10%), and government facilities (4%).

Figure 183: Map of blood transfusion service availability by county, Kenya 2018

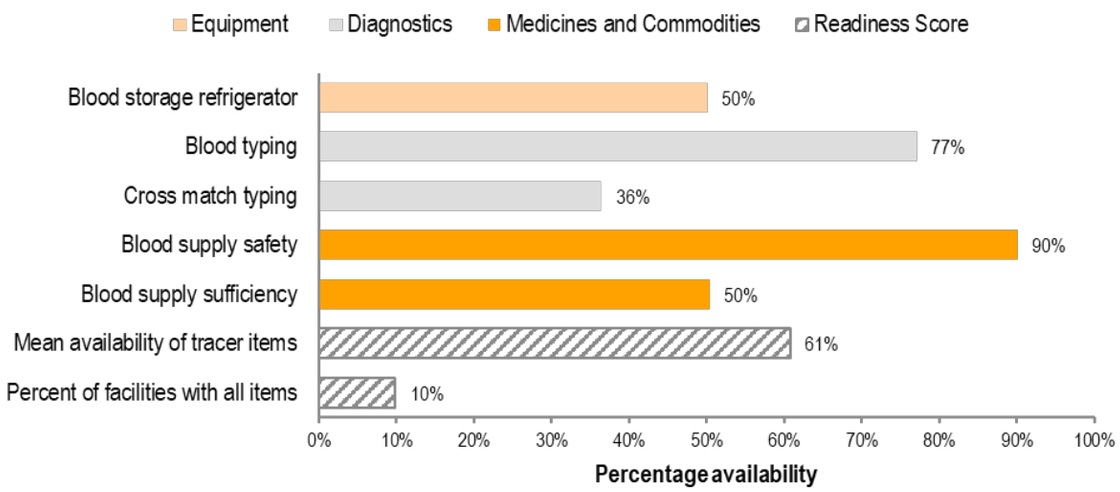


Service readiness

Readiness to provide blood transfusion services at hospitals was assessed based on the presence of the five tracer items found in **Table 40. Figure 184** shows the percentage availability of these tracer items in facilities that offer blood transfusion services (N=323).

- Some facilities were offering blood transfusion services albeit with minimum tracer items. In the whole country, only a meagre 10% of facilities that offered blood transfusion services had all tracer items for blood transfusion.
- Only half of the facilities had refrigerators to store blood and had sufficient blood supply in their storage.
- The mean availability of tracer items was above 50% in all the facilities.
- Three-quarters of facilities offering blood transfusion were able to do diagnostics by doing blood typing while a third of them were able to do blood cross-matching.
- Blood safety generally was very high as the majority of the facilities observed blood supply safety measures.

Figure 184. Proportion (%) of facilities that have tracer items for blood transfusion services among facilities that provide this service (N=323), Kenya 2018

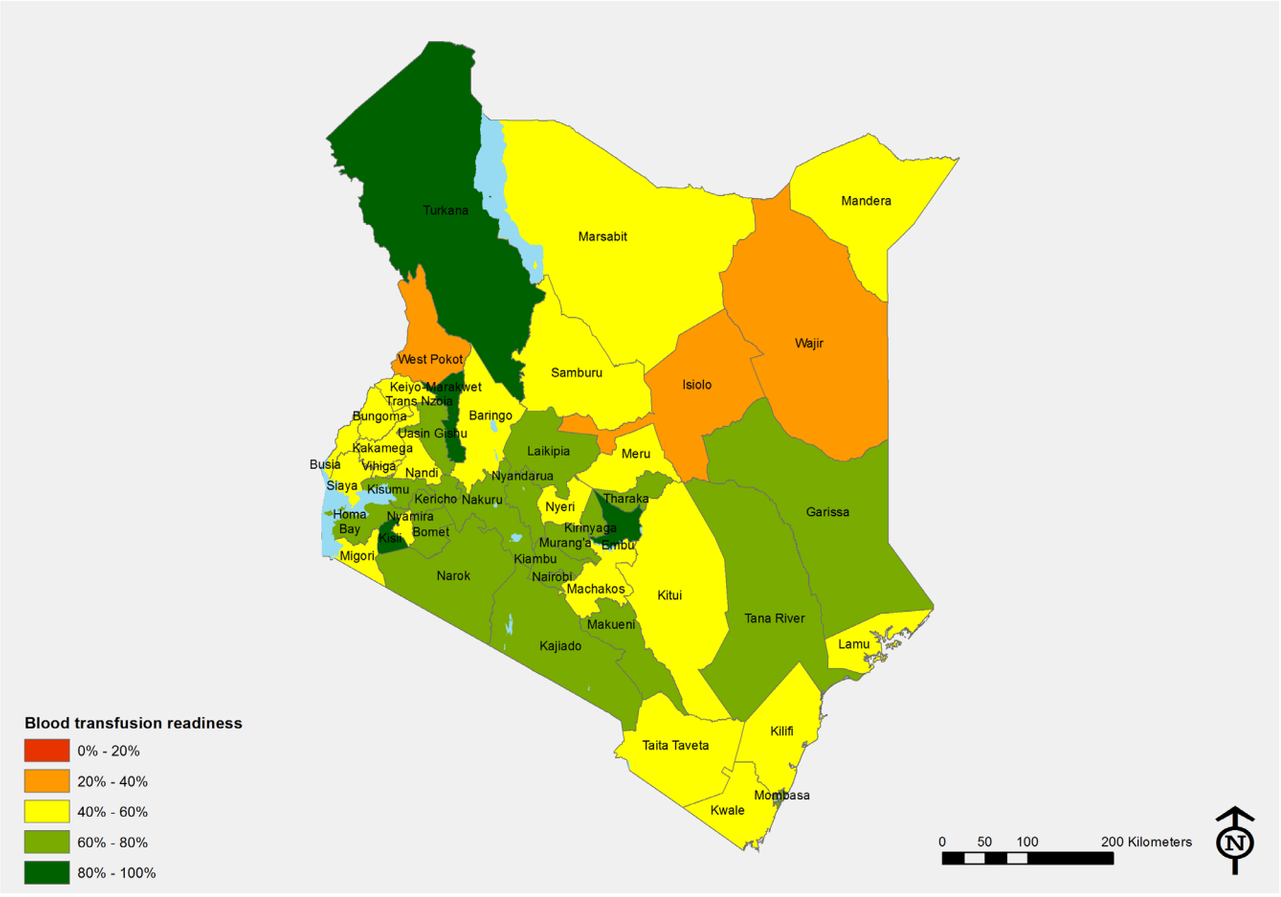


Annex Table 90 shows availability of blood transfusion tracer items by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location while **Figure 185** shows the variation in blood transfusion service readiness by county.

- Among those facilities that offered blood transfusion services, less than a third of the counties had 10% or above of their facilities with all the tracer items. Elgeyo Marakwet and Tharaka Nithi were the only counties with more than half of their facilities having all the tracer items for blood transfusion.
- A quarter of all the counties had a less than 50% mean availability of tracer items in their facilities.
- NGO/FBO facilities were more likely to have all the tracer items than government and private institutions, with NGO/FBO facilities at 20%, government facilities at 8% and private facilities at 7%. These facilities were evenly distributed in the urban and rural setups.
- There was no single dispensary which had all the blood transfusion tracer items, with a mean readiness index of 24%, with secondary and tertiary hospitals having higher availability of all tracer

items at 84%. Privately owned/NGO/FBO primary hospitals had a higher percentage (69%) than public primary hospital (65%).

Figure 185: Map of blood transfusion service readiness by county, Kenya 2018



5.4.4 General emergency care

Emergency medical care (EMC) is the necessary immediate healthcare that must be administered to prevent death or worsening of a medical situation. The Kenya Health Policy 2014-2030 states that a person shall not be denied emergency medical treatment within the country's system of devolved government.

It therefore requires that to adequately cover this aspect of health care, all health facilities have the appropriate resources according to the level of care, including trained human resources, infrastructure, equipment, and supplies readily available in the event of any emergency.

Considering that EMC is a horizontal intervention (i.e. a comprehensive primary care service), it is expected that some EMC services are available in all health facilities while other services are only

available on higher levels of care. Provision across the various levels of facilities should be planned and delivered in an organised manner to ensure a holistic delivery of services, which includes referrals where required.

The tracer items required for general emergency care service readiness are outlined in **Table 41**.

Table 41. Tracer items for general emergency services

Domain	Tracer items
Equipment	• Adult intubation set • Oropharyngeal airway (adult) • Oropharyngeal airway (paediatric) • Paediatric intubation set
Medicines and commodities	• Emergency cart/tray-easily transported with drugs • Adrenaline • Infusion set • Volume replacement IV • D5w IV for medication infusion • Glucose 50% • Atropine • Calcium gluconate • Sodium bicarbonate
Diagnostics	• Urine dipstick for glucose/protein/ketones • Urine pregnancy test • Blood glucose • Malaria RDT • HIV rapid test
Infection prevention	• Hand hygiene items (soap and running water or alcohol-based hand rub) • Disposable paper towels for drying hands • Signage promoting hand hygiene • Surface disinfectant (onsite) • Single use/standard disposable or auto-disable syringes • Clean or sterile latex (or equivalent) gloves • Appropriate storage bin for sharps waste (non-penetrable, with lid) • Appropriate storage bin for infectious waste (clearly marked, pedal opener, plastic liner, lid) • Appropriate storage bin for biological waste (clearly marked, pedal opener, plastic liner, lid) • Surgical/respiratory masks • N95 face masks • Protective gowns (sterile or non-sterile) • Aprons (impermeable) • Eye protection (goggles, face shields) • Gumboots or clogs • Hair cover
Infrastructure	• Isolation room for placing patients with suspect infectious diseases such as TB or haemorrhagic fever • Designated triage area • Designated resuscitation area • Designated telephone or radio for communicating with other facilities and/or prehospital providers • Usable toilet for patients/visitors of ER with hand washing materials within 500m

Service availability

Annex Table 91 shows the percentage of facilities offering general emergency services by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location, while **Figure 187** shows the variation in general emergency service availability by county.

- Despite the expectation that all health facilities, regardless of the level of care, offer some form of EMC, only 76% of the 2,927 facilities sampled responded that they did offer the services.
- 23 counties had more than 80% of facilities reporting that they offered EMC services, with Muranga scoring the highest, at 100%, while 1 county had less than 20% of facilities reporting the same.
- All (100%) of the secondary and tertiary facilities assessed reported offering EMC services, the least being dispensaries, at 76%, and medical clinics, at 68%.
- 78% of government facilities offered EMC services, while 74% of FBO/NGO facilities and 73% of private facilities offered these services.

Detailed analysis of EMC availability was done for all hospitals where the comprehensive services are expected to be delivered 24 hours a day.

Figure 186 shows the countrywide availability of general emergency services.

- The highest available service was 24-hour pharmacy services at 76%.
- The least available service was 24-hour surgical services that include a surgeon and anesthetist at 8%, though medical and nursing staff assigned to the emergency unit was at 36% while core non-rotating staff assigned to the emergency room (ER) for 24 hours was at 28%.
- 24-hour laboratory services were available in 67% of facilities, while radiology services for the same duration were in 44% of the facilities.
- 25% of facilities had a special emergency unit, while 20% of facilities had a dedicated emergency unit that operated 24 hours

Figure 186. Proportion (%) of hospitals that offer general emergency services (N=411), Kenya 2018

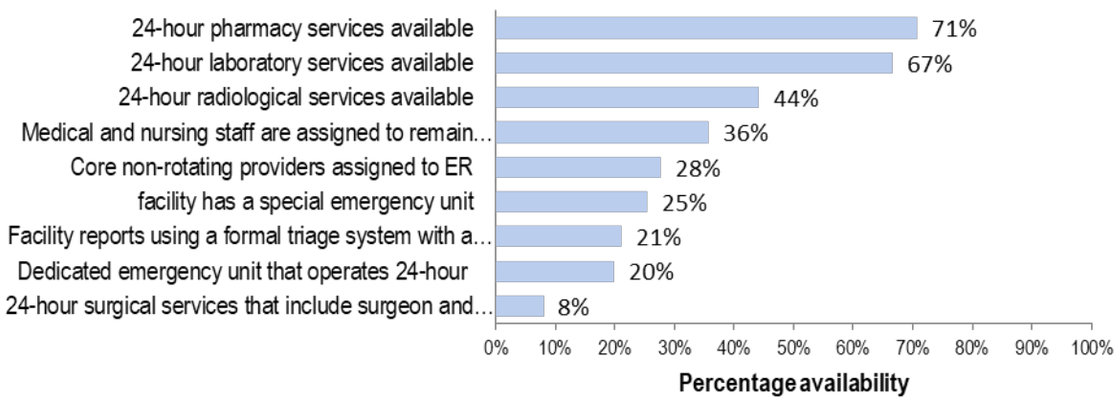
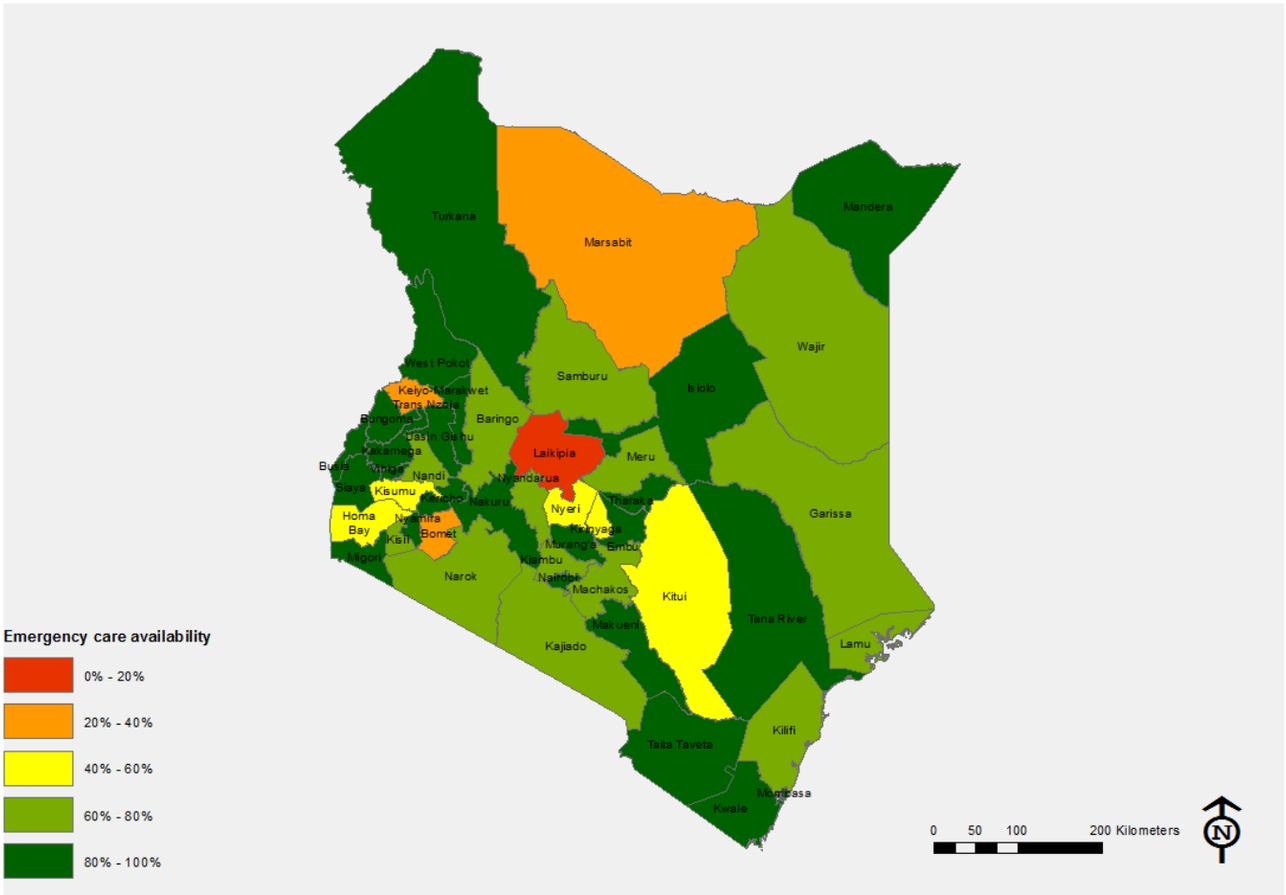


Figure 187: Map of general emergency service availability by county, Kenya 2018

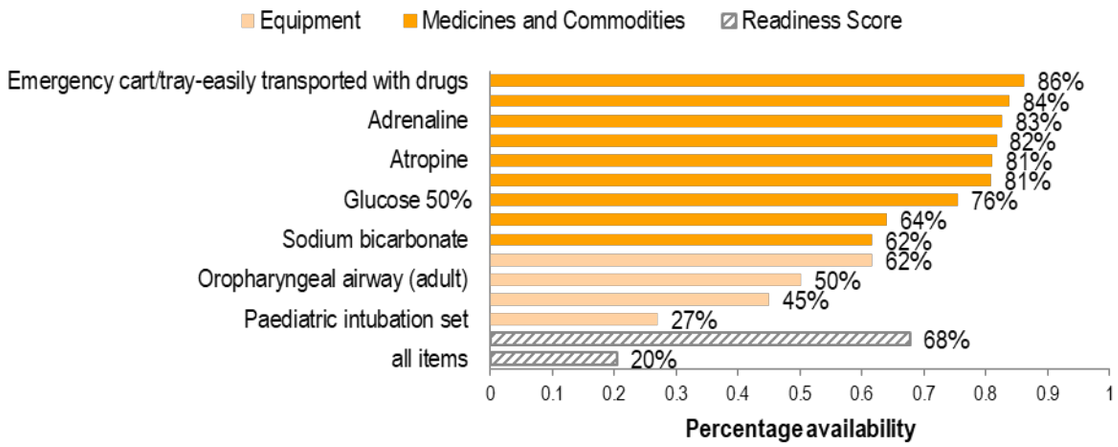


Service readiness

Readiness to offer general emergency services was assessed based on the availability of the 39 tracer items found in **Table 41. Figure 188 shows** the percentage availability of the equipment and medicines tracer items in facilities that offer general emergency services (N=387).

- 20% of facilities had all the items, while the mean availability was 68%.
- Adrenaline and atropine were the most available medicines at above 80%, while sodium bicarbonate was available in 62% of the facilities.
- Pediatric intubation set was the least available in 27% of the facilities while the adult oropharyngeal airway set was available in 50% of the facilities.

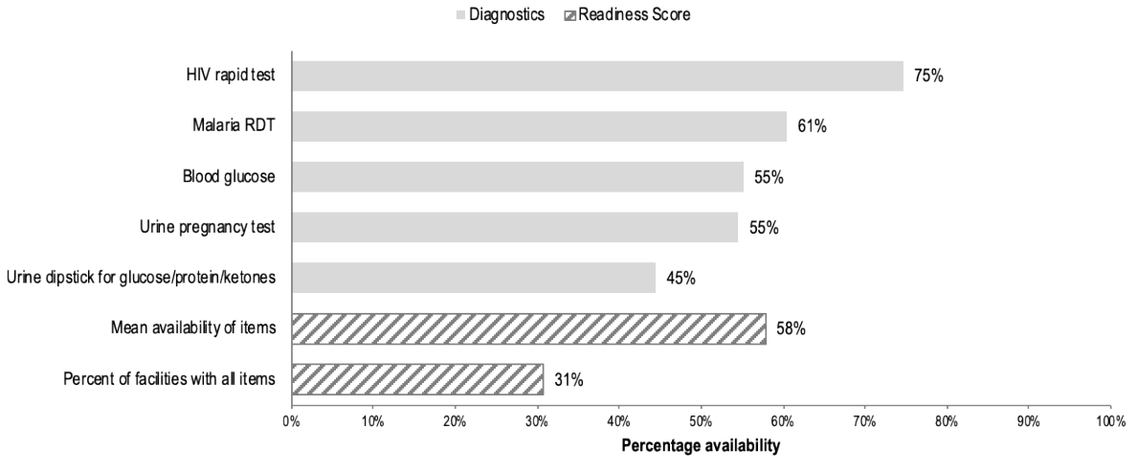
Figure 188: Proportion (%) of hospitals that have equipment and medicines for general emergency services among facilities that provide this service (N=387), Kenya 2018



Annex Table 92 shows availability of general emergency service equipment and medicine items by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location.

- Except from Kisumu, Laikipia, and Nairobi counties, the rest of the counties had less than 10% of hospitals having all the tracer items.
- Mean availability was above 50% in hospitals in only 3 counties, namely, Laikipia, Marsabit, and Mombasa, at 50%, 50% and 52% respectively.
- Only 1% of government hospitals had all items while 6% of private hospitals had all items and 4% of FBO/NGO hospitals had all items.
- 8% of urban hospitals had all the items while 1% of rural facilities had all the items.
- **Figure 189** shows the percentage availability of the diagnostics tracer items in facilities that offer general emergency services in all facilities that offer any EMC service (N=2236).
- Out of the facilities that reported that they offer EMC services, 31% had all the tracer items that were assessed, while the mean availability was at 58%
- HIV rapid test was the most available in 75% of facilities while urine dipstick was the least available in 45% of the facilities.

Figure 189: Proportion (%) of facilities that have diagnostics for general emergency services among facilities that provide this service (N=2236), Kenya 2018



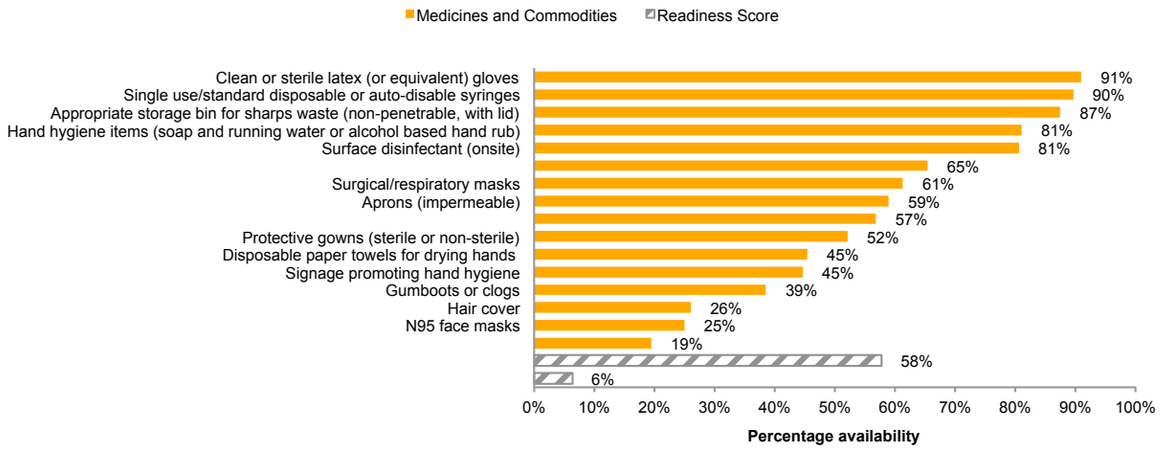
Annex Table 93 shows availability of general emergency service diagnostic items by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location.

- Counties with percentage of facilities with all items available ranged from 2% to 69%, with the mean availability ranging from 27% to 87% where 11 counties had a mean availability of less than 50%.
- 45% of secondary and tertiary hospitals had all the items while 17% of dispensaries had all the items.
- All items were available in 19% of government hospitals and 44% of private and FBO/NGO facilities.

Figure 190 shows the percentage availability of the infection prevention tracer items in facilities that offer general emergency services in a designated emergency area outside the outpatient department (OPD) (N=114).

- The mean availability of the items in the facilities was 58%, with the most available being clean or sterile gloves (91%) and the least available being the N95 face mask which is a respiratory protective device (19%).
- Only 6% of the assessed facilities had all the items.

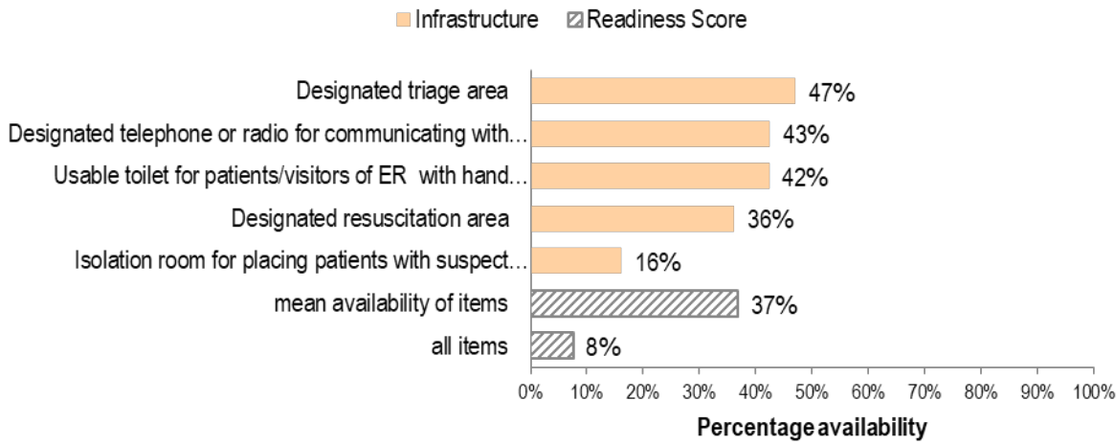
Figure 190: Proportion (%) of facilities that have infection prevention items for general emergency services among facilities that provide this service in designated emergency area (N=114), Kenya 2018



Annex Table 94 shows availability of general emergency service diagnostic items by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location.

- By facility type, 10% of secondary and tertiary hospitals had all the items while none of the public primary, dispensaries, and medical clinics had all the items.
- Mean availability by managing authority was at 2% in government hospitals, 4% in private hospitals, and 6% in NGO/FBO facilities.
- There was no urban/rural variation in the availability of the items.
- **Figure 191** shows the percentage availability of the infrastructure tracer items in hospitals that offer general emergency services (N=387).
- 8% of the hospitals had all assessed items available, with mean availability of 37%.
- 47% of the hospitals had a designated triage area, while only 16% had an isolation room for placing patients with suspected infectious diseases, such as tuberculosis and hemorrhagic fevers.
- 43% of the hospitals had a designated telephone or radio for communicating with other facilities and/or pre-hospital providers when referrals were required.

Figure 191: Proportion (%) of hospitals that have infrastructure for general emergency services among facilities that provide this service (N=387), Kenya 2018



Annex Table 95 shows availability of general emergency service infrastructure items by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location while

5.4.5 Emergency care: Quality support services

To offer quality services for emergency medical care, it is crucial that a facility has a set of equipment in the emergency area that can be used to immediately assess the patient, determine the condition at the time, and make a decision in the shortest time possible. This is with an aim of stabilising the patient and halting any further form of debilitation in preparation of the next steps, which may be either treatment or referral to another facility..

The tracer items required for emergency quality support service readiness are outlined in **Table 42**.

Table 42. Tracer items for quality support services

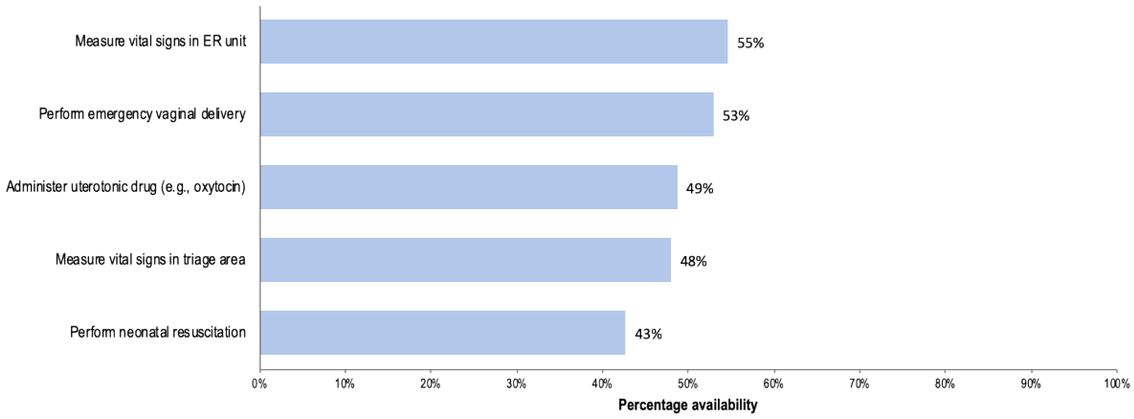
Domain	Tracer items
Equipment	• Blood pressure apparatus • Thermometer • Stethoscope

Service availability

Figure 192 shows the countrywide availability of emergency quality support services.

- About half of all facilities could measure vital signs in the ER unit/OPD, perform emergency delivery and administer uterotonic drug
- About 40% could perform neonatal resuscitation

Figure 192. Proportion (%) of facilities that offer emergency quality support services (N=2927), Kenya 2018



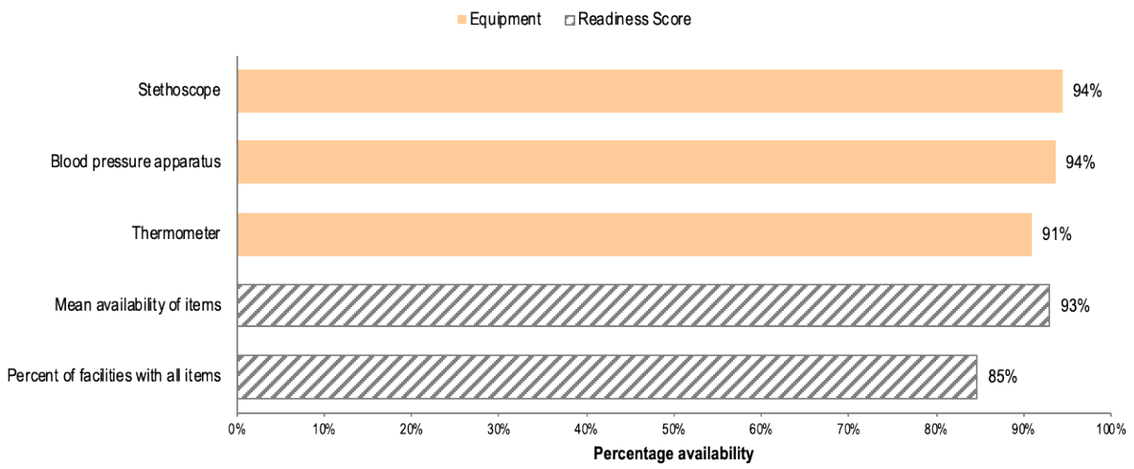
Annex Table 96 shows the percentage of facilities offering emergency quality support services by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location.

Service readiness

Readiness to offer emergency quality support services was assessed based on the availability of the three tracer items found in **Table 42. Figure 193** shows the percentage availability of these tracer items in facilities that offer emergency quality support services (N=2236).

- Nationally, the mean availability of tracer items for emergency quality support services was 93%, with 85% of facilities having all tracer items.

Figure 193: Proportion (%) of facilities that have tracer items for emergency quality support services among facilities that provide this service (N=2236), Kenya 2018



Annex Table 97 shows availability of emergency quality support tracer items by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location.

- The mean availability of emergency quality support tracer items varied from 100% to 77%. The counties with the highest mean availability were Lamu (100%), Murang'a (99%), Nyandarua, Nyeri and Kisumu (98%) while the lowest mean availability was in Nandi (81%) and Vihiga (77%).
- By facility type, facilities with the highest percentage of all items were private/NGO/FBO facilities, which were leading with 92%, followed by medical clinics with 90%,, health centres with 86%, secondary and tertiary facilities with 85%, dispensaries with 81% and public primary facilities with 79%.
- By managing authority, NGO/FBO facilities were leading with the highest percentage of facilities with all items (94%) followed by private facilities (90%) and finally government facilities (79%).

5.4.6 Emergency care: Airway interventions

Emergency airway intervention, which is indicated in cases where one anticipates airway decompensation, is crucial in EMC as it is the only first step in medical management that assures adequate oxygenation to the patient. It is therefore imperative that the appropriate skills and equipment required for this intervention are available in all health facilities.

It is crucial that the necessary steps to obtain a clear airway take place systematically and are all available so as to prevent a death due to airway blockage. Considering that creating an airway depends on the patient's condition, facilities should ensure that all items are located in the appropriate area as one method may not necessarily apply for another medical case.

The tracer items required for emergency airway intervention service readiness are outlined in **Table 43**.

Table 43. Tracer items for emergency airway intervention services

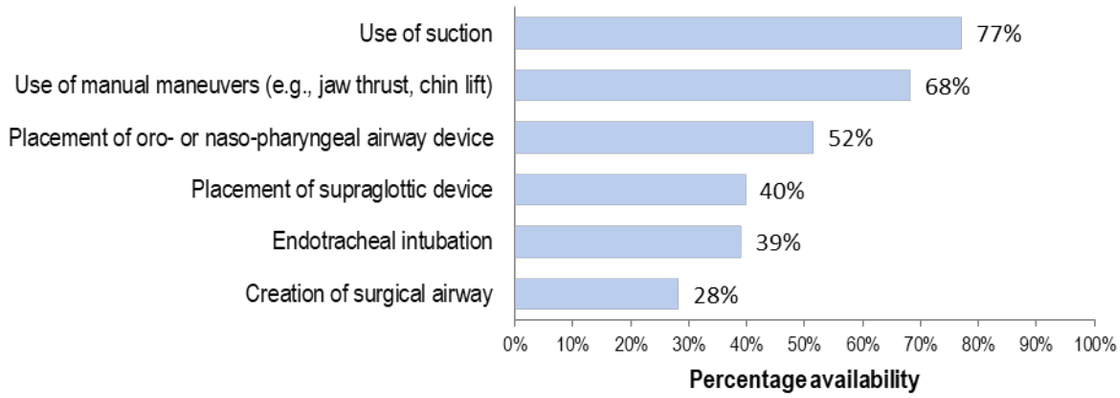
Domain	Tracer items
Equipment	• Suction apparatus, with suction catheter • Oropharyngeal airway (adult) • Oropharyngeal airway (paediatric) • Supraglottic device • Cricothyroidotomy or tracheostomy set

Service availability

Figure 194 shows the countrywide availability of emergency airway intervention services.

- 77% of hospitals reported ability to perform suction, while 68% used manual maneuvers as an intervention.
- Use of equipment, such as the naso-pharyngeal airway device, placement of a supraglottic device, and endotracheal intubation were relatively lower.
- Surgical techniques to create an airway was the least reported at 28%, in the assessed facilities.

Figure 194. Proportion (%) of hospitals that offer emergency airway intervention services (N=411), Kenya 2018



Annex Table 98 shows the percentage of facilities offering key emergency airway intervention services by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location.

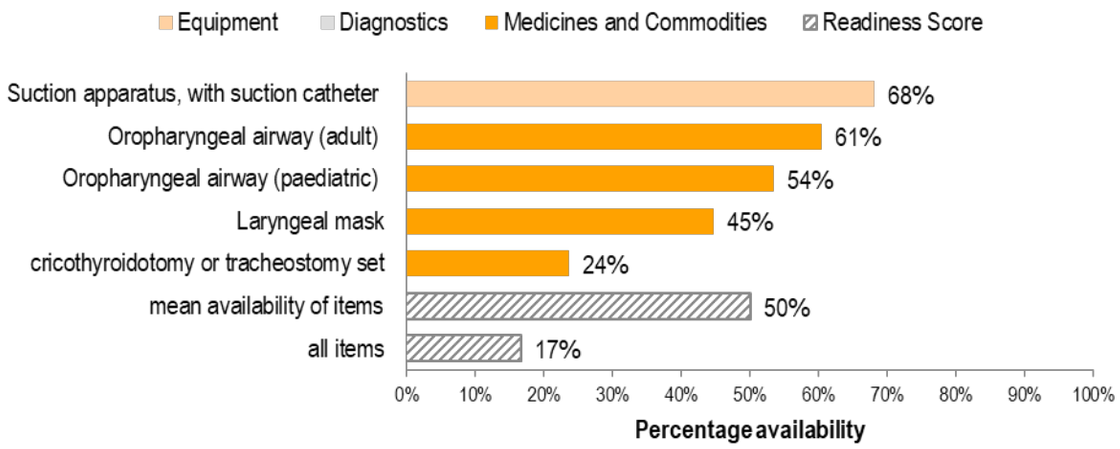
- Mean availability of items ranged from 13% to 87%, with 21 counties having a mean of above 50%
- 55% of secondary and tertiary facilities had all items, while 24% of private/FBO/NGO facilities and 6% of public primary facilities had all the items.
- By managing authority, 8% of government facilities had all the items. while 16% of NGO/FBO had all the items and 29% of private facilities had all the tracer items.
- There was significant urban/rural disparity with a mean of 60% and 37%, respectively

Service readiness

Readiness to offer emergency airway intervention services was assessed based on the availability of the five tracer items found in **Table 43. Figure 195** shows the percentage availability of these tracer items in hospitals that offer emergency airway intervention services (N=387).

- 17% of facilities had all the items, with mean availability at 50%.
- Suction apparatus with a suction catheter was the most available at 68%, while the least available was the cricothyridotomy or tracheostomy set at 24%.

Figure 195: Proportion (%) of hospitals that have tracer items for emergency airway intervention services among facilities that provide this service (N=387), Kenya 2018



Annex Table 99 shows availability of emergency airway intervention tracer items by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location.

- The mean availability ranged from 13% to 86%.
- 25% of secondary and tertiary facilities had all items while 10% of private/FBO/NGO hospitals had all the items. However, none of the public primary hospitals assessed had all the items.
- 14% of NGO/FBO hospitals had all the items while 8% of private and 1% of government facilities had all the items.

5.4.7 Emergency care: Breathing interventions

A breathing emergency that can be due to a number of conditions is any respiratory problem that can threaten a person's life. Patients may present symptoms that may range from not being able to take a breath or not being able to breathe at all. Interventions must be available at all levels of care as breathing problems are almost always an emergency.

The tracer items required for emergency breathing intervention service readiness are outlined in **Table 44**.

Table 44. Tracer items for emergency breathing intervention services

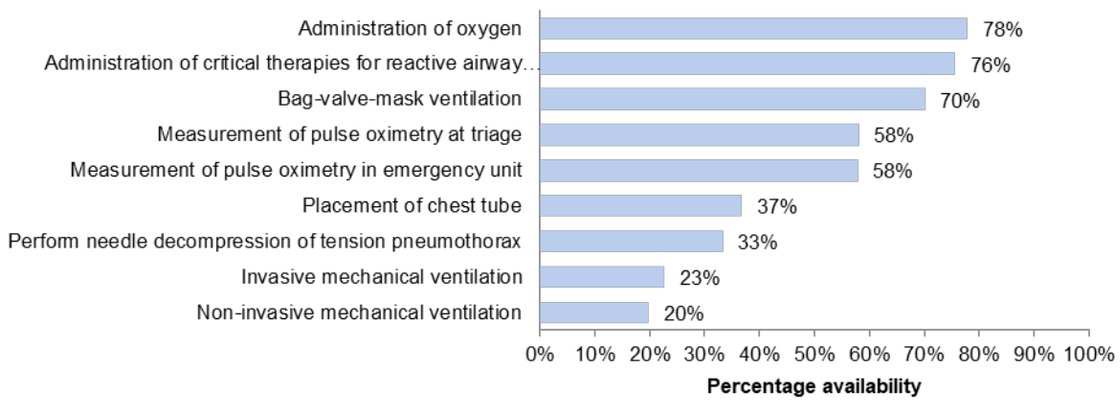
Domain	Tracer items
Equipment	• Pulse oximeter • Oxygen with tubing, flowmeter, and humidifier • Resuscitation bag and mask (adult) • Resuscitation bag and mask (paediatric) • Adult intubation (Endotracheal tubes, laryngoscope, Magill forceps, stylus) with connecting tubes • Paediatric intubation (Endotracheal tubes, laryngoscope, Magill forceps, stylus) with connecting tubes • Chest tubes with insertion set • CPAP equipment
Medicines and commodities	• Micronebulizer, beclomethasone, and salbutamol inhaler

Service availability

Figure 196 shows the countrywide availability of emergency breathing intervention services.

- The highest available intervention was administration of oxygen, followed by critical therapies for reactive airway disease, at 78% and 76%, respectively.
- The least available intervention was mechanical ventilation, at less than 25%, for both invasive and non-invasive interventions.
- Surgical methods, such as placement of chest tube, were relatively low, at less than 40%.

Figure 196. Proportion (%) of hospitals that offer emergency breathing intervention services (N=411), Kenya 2018



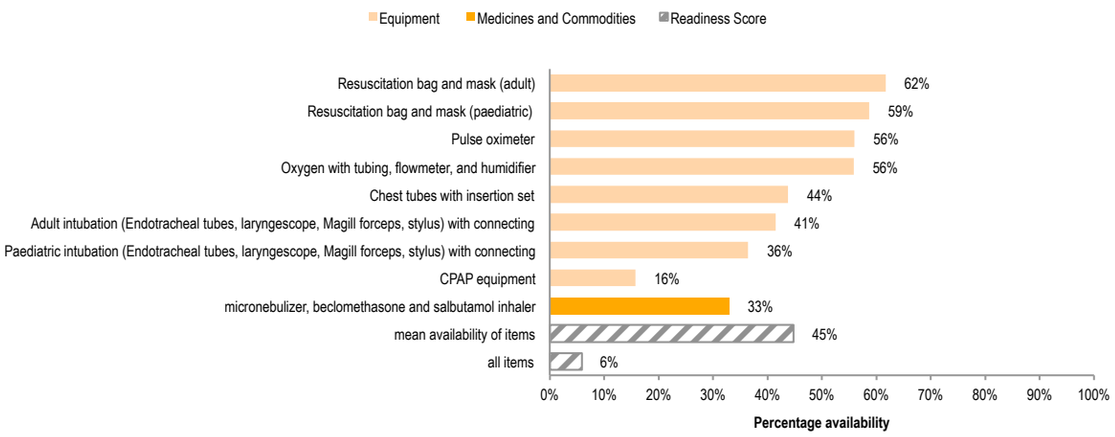
Annex Table 100 shows the percentage of hospitals offering key emergency breathing intervention services by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location.

Service readiness

Readiness to offer emergency breathing intervention services was assessed based on the availability of the 9 tracer items found in **Table 44. Figure 197** shows the percentage availability of these tracer items in hospitals that offer emergency breathing intervention services (N=2236).

- Mean availability of items was 45% in the hospitals, with resuscitation bag and mask being the highest available at 62%, and the least being paediatric intubation equipment at 36%.
- Only 6% of facilities had all the items.
- Medicines and commodities were available in 33% of the facilities.

Figure 197: Proportion (%) of hospitals that have tracer items for emergency breathing intervention services among facilities that provide this service (N=387), Kenya 2018



Annex Table 101 shows availability of emergency breathing intervention tracer items by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location.

- The mean availability ranged from 1% to 96%, with 5 counties having more than 50% of the hospitals with all items.
- 36% of private hospitals had all items, followed by 14% of FBO/NGO hospitals and 11% of government facilities.
- 26% of urban hospitals had all items while 13% of rural hospitals had the same.

5.4.8 Emergency care: Cardiac interventions

Emergency cardiac interventions are indicated in medical cases where one's heart is not functioning adequately to allow for blood circulation and therefore oxygenation. Interventions should be administered immediately so as to prevent further damage to other organs, which may lead to death.

The tracer items required for emergency cardiac intervention service readiness are outlined in **Table 45**.

Table 45. Tracer items for emergency cardiac intervention services

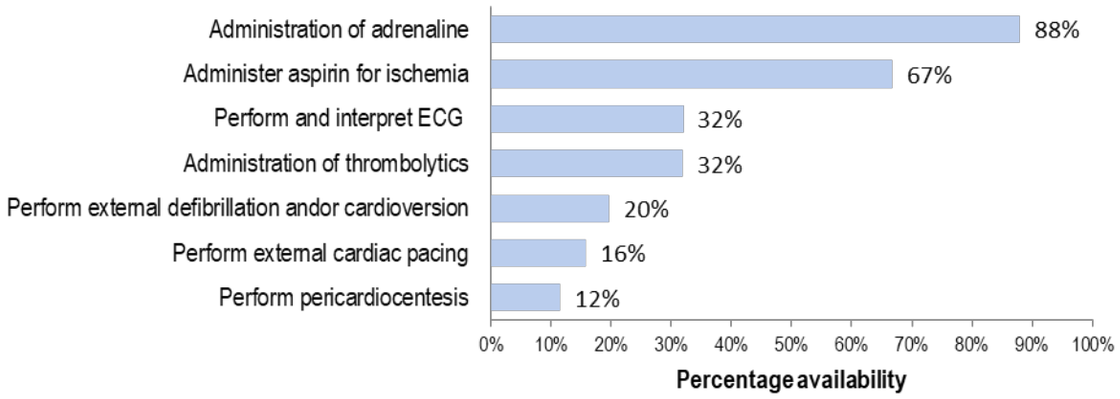
Domain	Tracer items
Equipment	• ECG and capacity for reading results in emergency service area • Defibrillator • External cardiac pacer
Medicines and commodities	• Aspirin • Streptokinase • Adrenaline

Service availability

Figure 198 shows the countrywide availability of emergency cardiac intervention services.

- Administration of medicines (i.e. adrenaline, aspirin, and thrombolytics) was the most offered, at 88%, 67%, and 32% respectively.
- Only 32% of the hospitals could perform and interpret an electrocardiogram.
- The least available intervention was ability to perform pericardiocentesis at 12%

Figure 198. Proportion (%) of hospitals that offer emergency cardiac intervention services (N=411), Kenya 2018

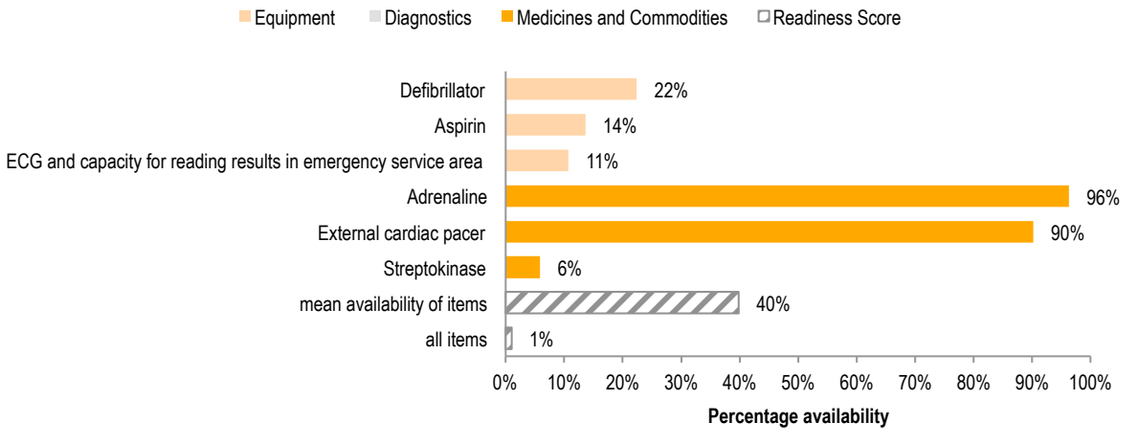


Annex Table 102 shows the percentage of facilities offering key emergency cardiac intervention services by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location.

Service readiness

Readiness to offer emergency cardiac intervention services was assessed based on the availability of the six tracer items found in **Table 46. Figure 199** shows the percentage availability of these tracer items in hospitals that offer emergency cardiac intervention services (N=387).

Figure 199: Proportion (%) of hospitals that have tracer items for emergency cardiac intervention services among facilities that provide this service (N=387), Kenya 2018



Annex Table 103 shows availability of emergency cardiac intervention tracer items by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location.

- The mean availability ranged from 19% to 61%. However, a majority of counties lacked facilities that had all the items.
- 15% of secondary and tertiary hospitals had all the items, while 1% of private/NGO/FBO hospitals had all the items, with none of the public primary hospitals having the same.
- None of the rural hospitals had all the items, while 2% of the urban hospitals had all the items.

5.4.9 Emergency care: Control of bleeding interventions

Bleeding may be triggered by injuries or certain medical conditions and if not treated can lead to shock. While the cause of the bleeding should be managed effectively, it is crucial that the first step one should take is to identify the source of the bleeding and to stop or slow it. It is therefore prudent that all levels of healthcare should be able to do this as a lifesaving measure.

The tracer items required for emergency control of bleeding service readiness are outlined in **Table 46.**

Table 46. Tracer items for emergency control of bleeding intervention services

Domain	Tracer items
Equipment	• Tourniquet

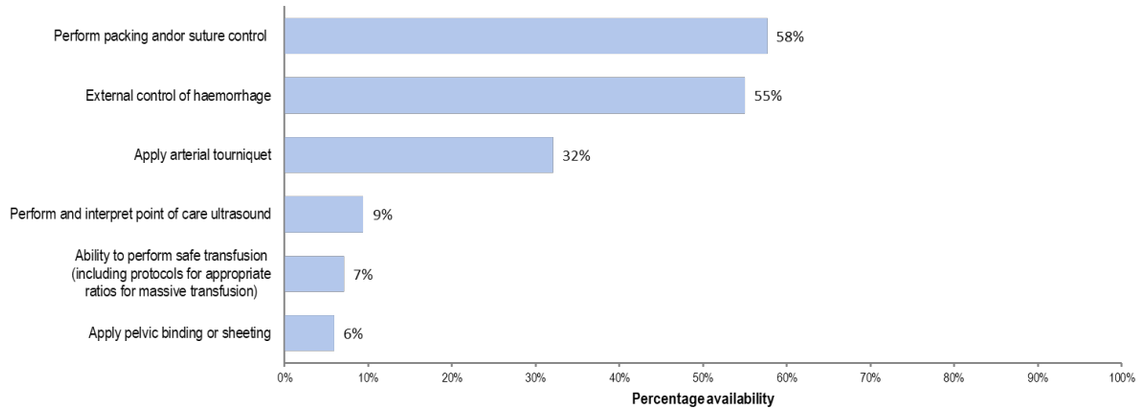
Service availability

Figure 200 shows the countrywide availability of emergency control of bleeding intervention services.

- Availability of the services was relatively low, with only 58% of all facilities sampled reporting that they can perform packing and/or suture as a control to bleeding, while 6% could apply pelvic binding or sheeting.

- Ability to perform safe transfusion, which included use of the protocols for appropriate ratios for massive transfusion, was available in only 7% of the facilities.

Figure 200. Proportion (%) of facilities that offer emergency control of bleeding intervention services (N=2927), Kenya 2018



Annex Table 104 shows the percentage of facilities offering key emergency control of bleeding intervention services by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location.

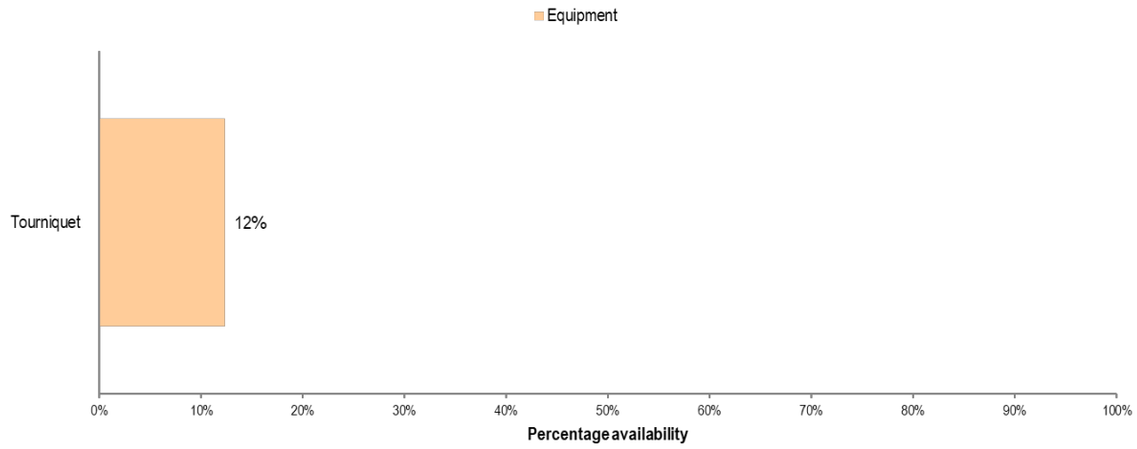
- All sampled secondary and tertiary hospitals could perform external control of haemorrhage, followed by private/FBO/NGO facilities at 93%.

Service readiness

Readiness to offer emergency control of bleeding intervention services was assessed based on the availability of the one tracer item found in **Table 46. Figure 201** shows the percentage availability of these tracer items in facilities that offer emergency control of bleeding intervention services (N=2236).

- Out of the sampled facilities that reported to offer emergency care services, only 12% reported that they could apply a tourniquet as an intervention to arrest bleeding.

Figure 201: Proportion (%) of facilities that have tracer items for emergency control of bleeding intervention services among facilities that provide this service (N=2236), Kenya 2018



Annex Table 105 shows availability of emergency control of bleeding intervention tracer items by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location.

- The percentage of facilities within the counties that could apply a tourniquet ranged from 0% to 55%, with only 6 counties having more than 25% of facilities with the ability to do the same.
- By managing authority, government, FBO/NGO, and private facilities were at 12%.

5.4.10 Emergency care: Volume resuscitation interventions

Volume depletion occurs when fluid is lost from the extracellular space at a rate exceeding the net intake. When this occurs, one requires fluid resuscitation to maintain tissue perfusion until the underlying cause can be corrected.

The tracer items required for emergency volume resuscitation intervention service readiness are outlined in **Table 47**.

Table 47. Tracer items for emergency volume resuscitation intervention services

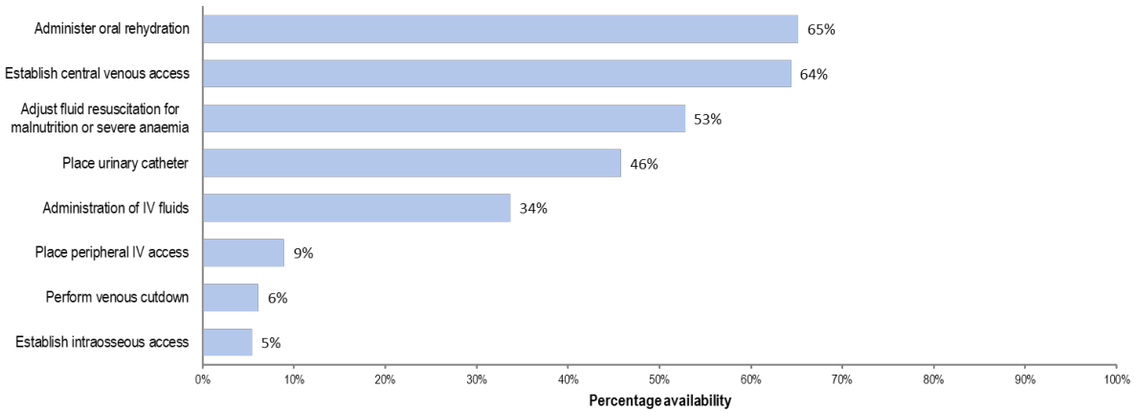
Domain	Tracer items
Medicines and commodities	• Oral rehydration salts • Intravenous for volume replacement (0.9% or RL), with infusion set • Urinary catheter • Device for intraosseous injection

Service availability

Figure 202 shows the countrywide availability of emergency volume resuscitation intervention services.

- Only 65% of all facilities reported that could administer oral rehydration.
- Establishing an intraosseus access, venous cut down, and placing a peripheral IV access were below 10%, while the other methods ranged from 34% to 64%.

Figure 202. Proportion (%) of facilities that offer emergency volume resuscitation intervention services (N=2927), Kenya 2018



Annex Table 106 shows the percentage of facilities offering key emergency volume resuscitation intervention services by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location.

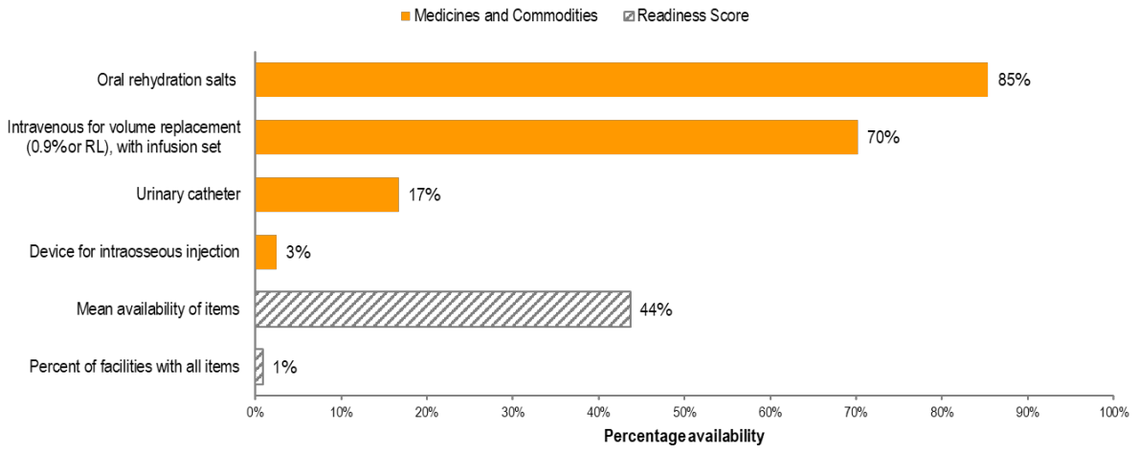
- More than 75% of secondary and tertiary hospitals could perform the interventions except perform a venous cut down and establish intraosseus access, which were both at 55%.
- Rural- urban discrepancy was significant in placing a peripheral IV access, venous cut down, and establishing intraosseus access.

Service readiness

Readiness to offer emergency volume resuscitation intervention services was assessed based on the availability of the four tracer items found in **Table 47. Figure 203** shows the percentage availability of these tracer items in facilities that offer emergency volume resuscitation intervention services (N=2236).

- Oral rehydration salts were the highest available at 85%, and the lowest available was the device for intraosseus injection at 3%.
- Only 17% of facilities had urinary catheters while 70% had fluid replacement fluids with an infusion set.
- Only 1% of facilities had all items available.

Figure 203: Proportion (%) of facilities that have tracer items for emergency volume resuscitation intervention services among facilities that provide this service (N=2236), Kenya 2018



Annex Table 107 shows availability of emergency volume resuscitation intervention tracer items by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location.

- The mean availability of items in the counties ranged from 32% to 60%. A majority of counties did not have facilities with all the items with the highest being 4%.
- By facility type, secondary and tertiary facilities had a mean availability of 70% while dispensaries and medical clinics had a mean availability of 40% and 41%, respectively
- None of the government facilities had all the items while 1% of the FBO/NGO facilities and 2% of the private facilities had all the items.

5.4.11 Emergency care: Injury-specific interventions

The tracer items required for emergency injury-specific intervention service readiness are outlined in **Table 48**.

Table 48. Tracer items for emergency injury-specific intervention services

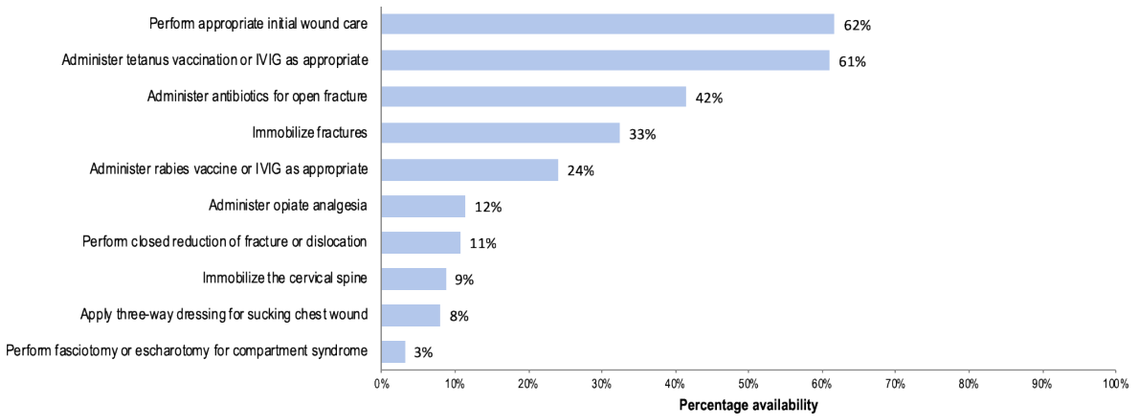
Domain	*Tracer items*
Equipment	• Splints, cast materials • Cervical collar
Medicines and commodities	• Tetanus vaccine • Morphine or other opiate for pain • Rabies vaccine

Service availability

Figure 204 shows the countrywide availability of emergency injury-specific intervention services across all facilities.

- The highest available service was performing appropriate initial wound care (62%), while the least available intervention was performing fasciotomy or escharotomy for compartment syndrome at 3%.

Figure 204. Proportion (%) of facilities that offer emergency injury-specific intervention services (N=2927), Kenya 2018



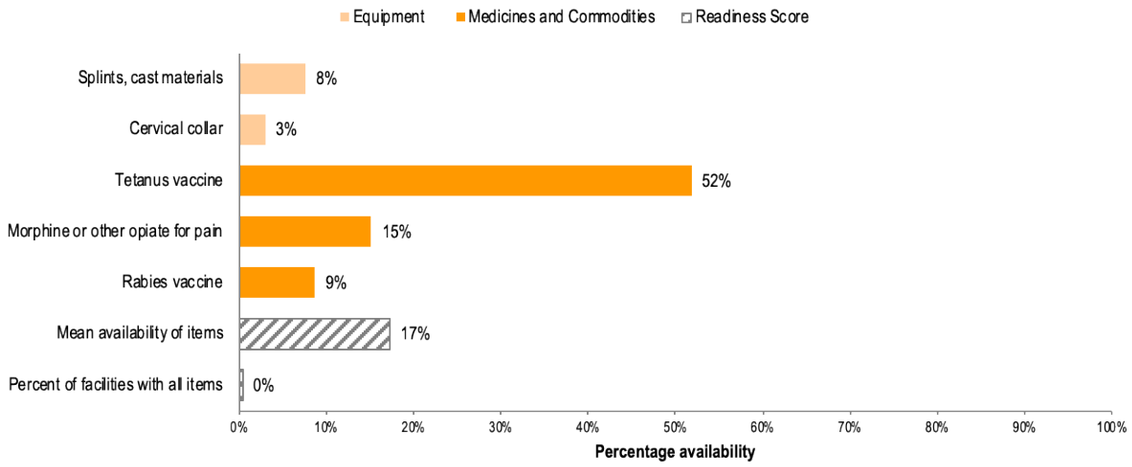
Annex Table 108 shows the percentage of facilities offering key emergency injury-specific interventions services by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location.

Service readiness

Readiness to offer emergency injury-specific intervention services was assessed based on the availability of the five tracer items found in **Table 48. Figure 205** shows the percentage availability of these tracer items in facilities that offer emergency injury-specific intervention services (N=2236).

- Availability of items was quite low, with the mean availability being 17%.
- The most available item was the tetanus vaccine at 52%, while the rabies vaccine was available in only 9% of facilities.
- The least available item was the cervical collar at only 3%..

Figure 205: Proportion (%) of facilities that have tracer items for emergency injury specific intervention services among facilities that provide this service (N=2236), Kenya 2018



Annex Table 109 shows availability of emergency injury-specific intervention tracer items by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location.

- The mean availability of items within the counties ranged from 14% to 35%.
- 10% of secondary and tertiary hospitals had all the items.
- Laikipia County had the highest mean availability of tracer items at 35%, while Mombasa and Elgeyo-Marakwet had the least at 11%. When looking at percentage of facilities that had all the tracer items, only 8 counties were reported to have a percentage of facilities (>0%) with all the tracer items being available, while the rest of the counties had none of their facilities stocked with all the tracer items.
- By facility type, secondary and tertiary hospitals had the highest mean availability of tracer items (66%) needed to offer emergency injury-specific interventions, with medical clinics having the lowest mean (9%). None of the health centres, dispensaries and medical clinics had all the tracer items for emergency injury-specific interventions.
- When it comes to managing authority, the mean availability of the tracer items ranged from NGO/FBO-managed facilities having the highest (22%), followed by government-managed facilities (20%) and privately-managed facilities having the least (13%). None of the government and private facilities had all the tracer items in stock.
- There was no significant difference in the mean availability of the tracer items between facilities in urban areas and those in rural areas. None of the facilities based in rural areas had all the tracer items in stock.

5.4.12 Emergency care: Sepsis interventions

Patients with sepsis, severe sepsis and/or septic shock are at increased risk of death and organ dysfunction. They therefore require urgent treatment to avert further damage and treat the causative factors.

The tracer items required for emergency sepsis intervention service readiness are outlined in **Table 49**.

Table 49. Tracer items for emergency sepsis intervention services

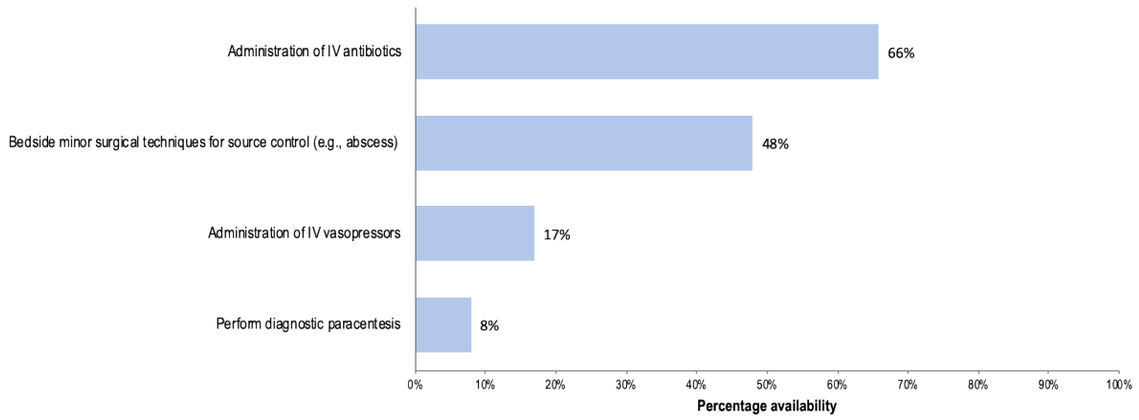
Domain	Tracer items
Medicines and commodities	• Vasopressor (dopamine) • Antibiotics for sepsis

Service availability

Figure 206 shows the countrywide availability of emergency sepsis intervention services.

- Nationally, most facilities administered intravenous antibiotics (66%) as an emergency sepsis intervention, while few facilities performed diagnostic paracentesis (8%).

Figure 206. Proportion (%) of facilities that offer emergency sepsis intervention services (N=2927), Kenya 2018



Annex Table 110 shows the percentage of facilities offering key emergency sepsis intervention services by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location.

- Seven counties had more than 90% of their facilities offering intravenous antibiotics as one of the emergency sepsis interventions, with Nyamira County having the highest number of facilities (97%). All secondary and tertiary hospitals offered antibiotics as an intervention whereas 60% of the medical clinics offered this type of intervention.
- Bedside minor surgical techniques, source control was also another intervention that was offered across the counties, with Isiolo having the highest number of facilities (94%) offering this service while Trans Nzoia had the least number of facilities (11%) offering it. This intervention was mostly offered in secondary and tertiary hospitals and private/NGO/FBO, primary hospitals (95% and

92%, respectively) whereas less than half of the dispensaries (41%) offered the service. Majority of facilities situated in urban areas (53%) mainly performed this intervention compared to those in the rural areas (46%).

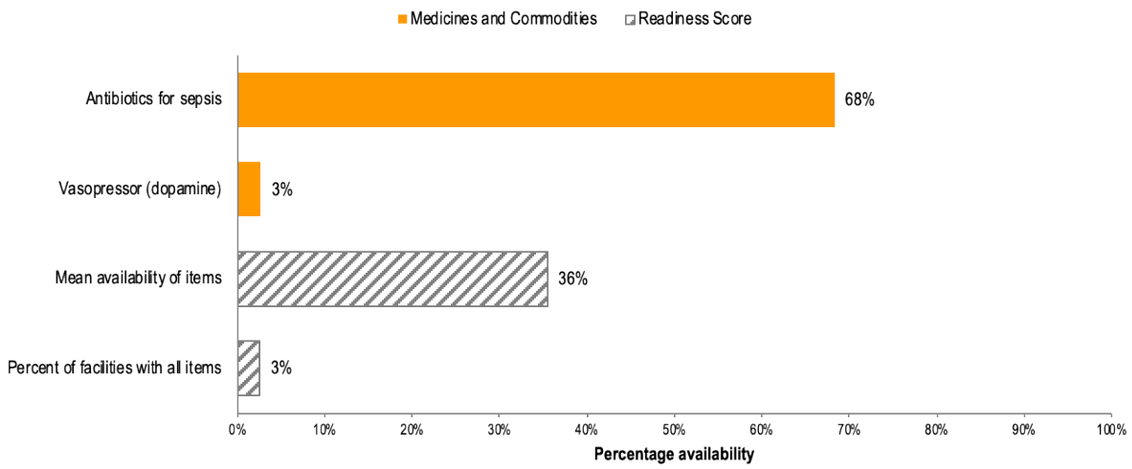
- None of the counties had half of their facilities performing diagnostic paracentesis as an emergency sepsis intervention. Isiolo County had the highest percentage of facilities (21%) that offered this intervention. By facility type, majority of the secondary and tertiary hospitals (85%) performed this service whereas 3% of the dispensaries performed it. Where managing authority is involved, diagnostic paracentesis as an emergency sepsis intervention was performed more in NGO/FBO facilities (11%) and private facilities (11%) and less in governmental facilities (5%). The availability of this intervention was more in facilities located in urban areas (15%) as compared to those located in the rural areas (5%).

Service readiness

Readiness to offer emergency sepsis intervention services was assessed based on the availability of the two tracer items found in **Table 49. Figure 207** shows the percentage availability of these tracer items in facilities that offer emergency sepsis intervention services (N=2236).

- Nationally, the mean availability of the tracer items for emergency sepsis interventions was at 36% whereas only 3% of the facilities had all the tracer items.
- Generally, administration of antibiotics for management of sepsis was the most available tracer item (68%).

Figure 207: Proportion (%) of facilities that have tracer items for emergency sepsis intervention services among facilities that provide this service (N=2236), Kenya 2018



Annex Table 111 shows availability of emergency sepsis intervention tracer items by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location.

- In terms of counties, Kisumu and Kwale County had the highest mean availability of the tracer items (48% each) needed for emergency sepsis intervention while Elgeyo Marakwet had the lowest (8%). Nakuru County had the highest number of facilities (13%) that had all items in stock whereas facilities in 14 counties did not have all the tracer items in stock.

- In terms of facility type comparison, secondary and tertiary hospitals had the highest mean availability of the tracer items at 83%, with dispensaries having the least at 28%. 65% of secondary and tertiary hospitals and 26% of private/NGO/FBO primary hospitals had all the tracer items in stock. None of the dispensaries had all of the tracer items for emergency sepsis services.
- By managing authority, the mean availability of tracer items was highest in private and NGOs/FBOs facilities, both at 43%, while government facilities had the least (28%). Only 1% of the government facilities had all the tracer items needed for emergency sepsis interventions.
- The tracer items for emergency sepsis intervention was mostly available in facilities in urban areas (44%) compared to those located in the rural areas (31%). 5% of urban-based facilities had all the tracer items in stock, while 1% of the facilities in rural areas had all these items in stock.

5.4.13 Emergency care: Seizure interventions

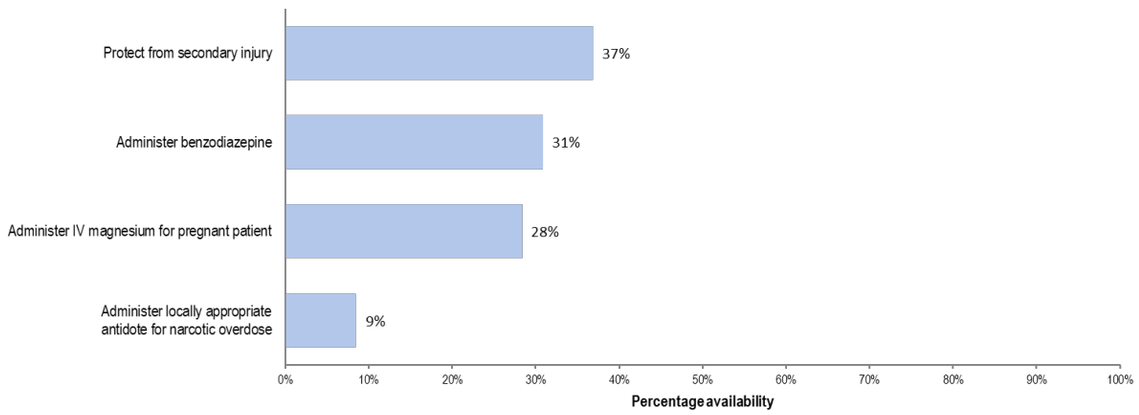
Seizures need emergency care if the patient has a history of seizures and cannot be treated for a brief seizure at home. Seizures should ideally be treated at any facility level as the patient should be prevented from choking or getting injured further as a first step.

Service availability

Figure 208 shows the countrywide availability of emergency cardiac intervention services.

- Availability of medicines used to manage seizures ranged from 9% to 31%, with the most available being benzodiazepine

Figure 208. Proportion (%) of facilities that offer emergency seizure intervention services (N=2927), Kenya 2018



Annex Table 112 shows the percentage of facilities offering key emergency cardiac intervention services by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location.

5.4.14 Emergency care: Unconscious patient interventions

An unconscious patient must be managed as a medical emergency so as to resuscitate, stabilise, and provide support. This should be performed as rapidly as possible to avoid any further damage to the patient as the diagnosis is being sought.

The tracer items required for emergency unconscious patient intervention service readiness are outlined in **Table 50**.

Table 50. Tracer items for emergency unconscious patient intervention services

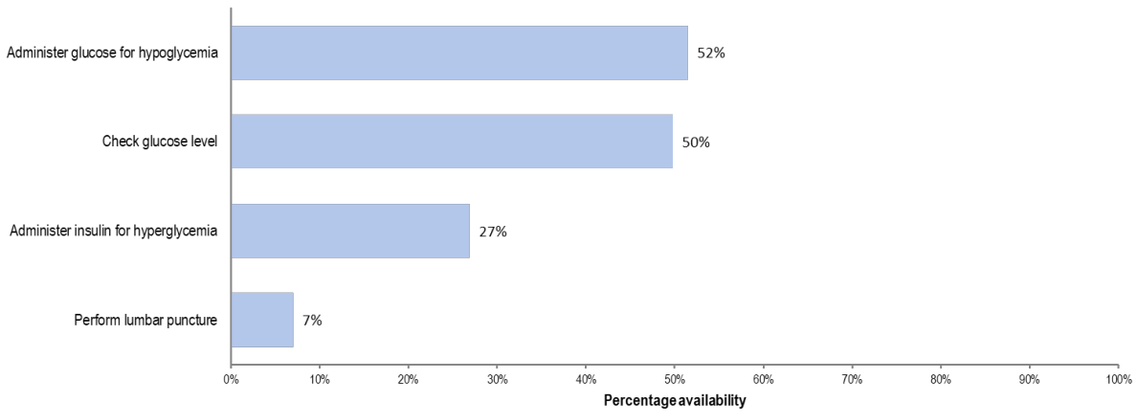
Domain	Tracer items
Equipment	• Lumbar puncture kit
Medicines and commodities	• Glucose 50% • Medications for agitation (diazepam injection) • Magnesium sulphate • Benzodiazepine • Insulin • Antidote for opiate overdose

Service availability

Figure 209 shows the countrywide availability of emergency unconscious patient intervention services.

- 50% of all the assessed facilities could check the blood glucose level, while 52% could administer glucose for hypoglycaemia.
- Only 7% of facilities could perform a lumbar puncture.

Figure 209. Proportion (%) of facilities that offer emergency unconscious patient intervention services (N=2927), Kenya 2018



Annex Table 113 shows the percentage of facilities offering key emergency unconscious patient intervention services by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location.

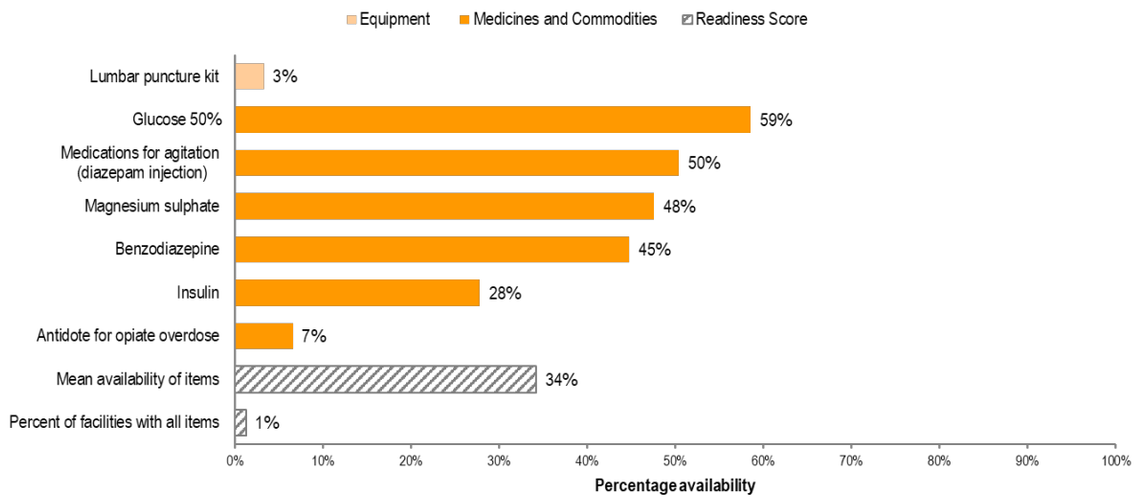
- The most available service in government facilities was the administering of glucose for hypoglycaemia, while the least available service was performing lumbar puncture.
- 11% of private hospitals and NGO/FBO facilities could perform lumbar puncture. The most available service was checking glucose levels.
- There was significant rural/urban disparity in all the services with services being more available in urban facilities.

Service readiness

Readiness to offer emergency unconscious patient intervention services was assessed based on the availability of the seven tracer items found in **Table 50**. **Figure 210** shows the percentage availability of these tracer items in facilities that offer emergency unconscious patient intervention services (N=2236).

- Mean availability of items was at 3%, with only 1% of facilities having all the items.
- The most available item was glucose while the least available was antidote for opiate overdose.

Figure 210: Proportion (%) of facilities that have tracer items for emergency unconscious patient intervention services among facilities that provide this service (N=2236), Kenya 2018



Annex Table 114 shows availability of emergency unconscious patient intervention tracer items by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location.

- The mean availability ranged from 14% to 32%.
- More than 90% of secondary and tertiary facilities had the items apart from lumbar puncture kit, which was available in 70% of the facilities.
- NGO/FBO facilities had the highest mean availability at 45%, while private and government were at 40% and 27%, respectively
- Items were more available in urban facilities

5.4.16 Voluntary medical male circumcision services

In 2007, the first Kenya AIDS Indicator Survey (KAIS 2007) found that the national prevalence of HIV in Kenya was 7.1% among persons aged 15 to 64 years. KAIS 2007 also found that 85.0% of men in Kenya had been circumcised, and that the national prevalence of HIV infection in circumcised men was 3.9% compared with 13.2% in uncircumcised men. The highest prevalence of HIV (14.9%) and the lowest prevalence of male circumcision (46.4%) were both in the Nyanza region[33]. The findings from KAIS 2007 and recommendations from the World Health Organization and the Joint United Nations Programme on HIV/AIDS encouraged the use of voluntary medical male circumcision (VMMC) as an effective HIV prevention intervention, which led to the National AIDS/STD Control Programme (NASCOP) beginning the implementation of a VMMC programme in November 2008.

In the National Strategy for VMMC 2008 – 2013, Kenya set a strategic target to increase the proportion of circumcised men nationally from 85% to 94% in 3 to 5 years by performing 860,000 VMMCs (80% of the estimated need) in men aged between 15 and 49 years by 201334. Programmatic data indicated that 560,000 VMMCs had been completed in Kenya by the end of December 2012, bringing the national VMMC programme achievement to within 65% of its strategic target; 80% of these VMMCs were performed in the Nyanza region (National Strategy for VMMC 2008 – 2013).

The current VMMC programme focuses on 12 counties with predominantly traditionally non-circumcising communities either in the whole county or in selected sub-counties (Siaya, Kisumu, Homa Bay, Migori, Nairobi, Busia, Turkana, Nakuru, Kericho, Mombasa, West Pokot and Marsabit). West Pokot and Marsabit were the recent additions in 2017 as part of NASCOP's VMMC scale-up plan to increase coverage. The VMMC programme's goal is to have 95% of men circumcised by 2019, with a focus on infants (0-60 days) and adolescents (10 to 14 years). The main indicators used to monitor the VMMC programme in Kenya are the number of males circumcised in VMMC and number of VMMC clients with known HIV status. One of the main limitations of this indicator is that it does not provide any age disaggregation.

Service availability

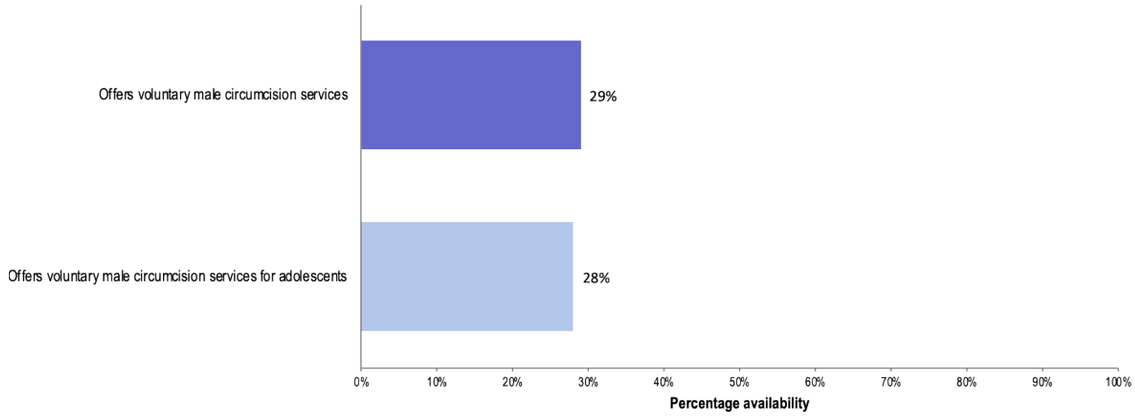
Figure 211 shows the countrywide availability of voluntary medical male circumcision (VMCC) services.

- Overall, the KHFA 2018 shows that 29% of health facilities provide VMMC services and 28% of these provide adolescent-friendly VMMC services, which was the tracer item considered by the survey in determining the availability of voluntary medical male circumcision as an effective HIV prevention intervention.

[33] KAIS 2017

[34] National Strategy for VMMC 2008 – 2013

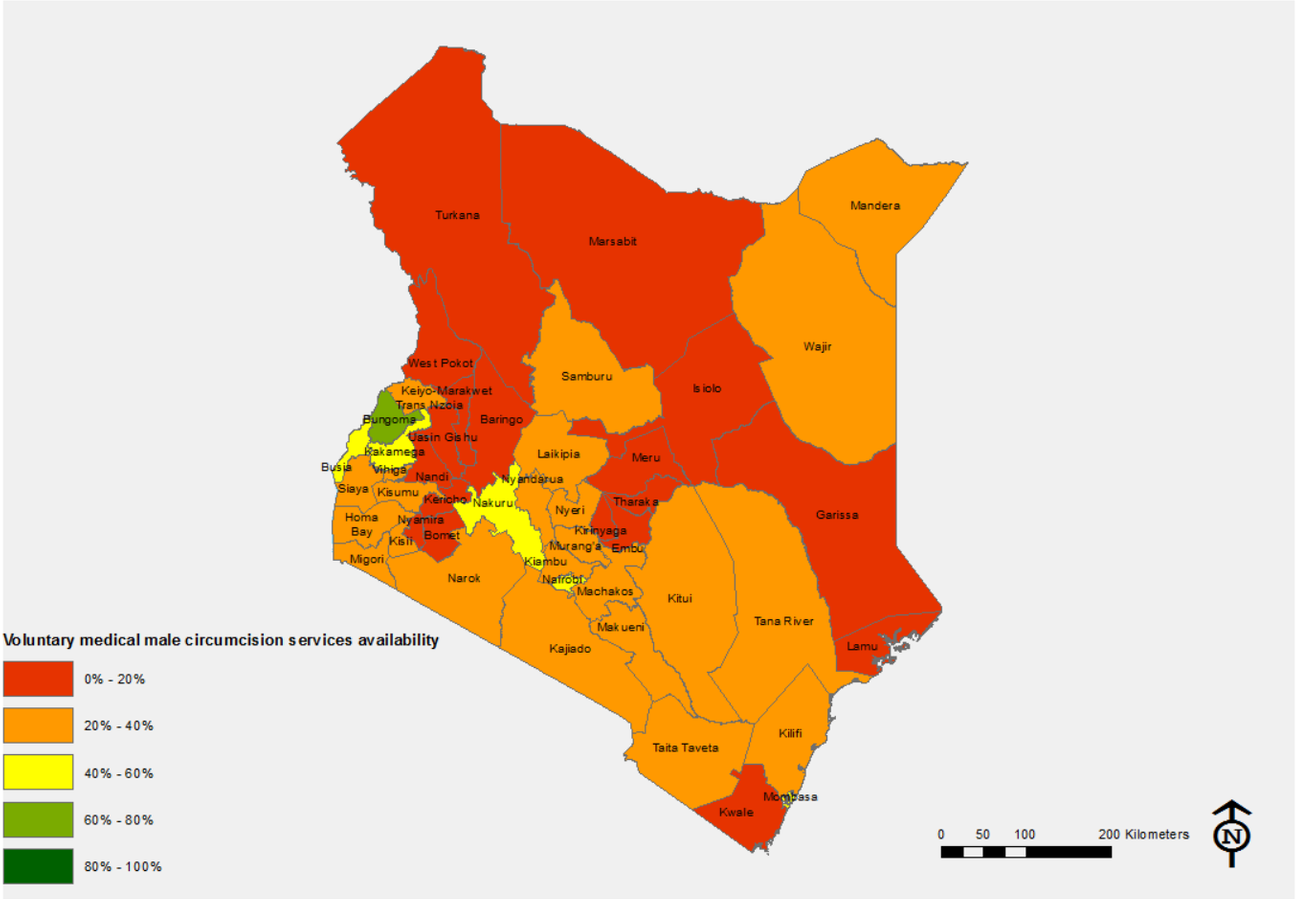
Figure 211. Proportion (%) of facilities that offer voluntary medical male circumcision services (N=2927), Kenya 2018



Annex Table 116 shows the percentage of facilities offering key VMCC services by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location while **Figure 212** shows the variation in VMCC service availability by county.

- With regards to percentage of facilities offering key VMMC services by county, facility type, ownership and geolocation (whether urban or rural), only Bungoma County registered a mean score of between 60 and 80%, with about 14 counties being in the red, having registered a mean score of less than 20%.

Figure 212: Map of voluntary medical male circumcision service availability by county, Kenya 2018



5.5 Medicines

5.5.1 Tracer medicines

Access to essential medicines is fundamental for the good performance of a healthcare delivery system. Problems in access are often related to inefficiencies in the pharmaceutical supply management system, such as inappropriate selection, poor distribution, deterioration, expiry, and irrational use. Where medicines are available, price may be a barrier and this is likely to vary across medicine categories, as well as facility type and ownership category.

In addition to essential medicines, the KHFA also captured tracer medicines availability across medicine use category. The tracer medicines assessed by category are outlined in

:

Table 51: List of tracer medicines assessed by category

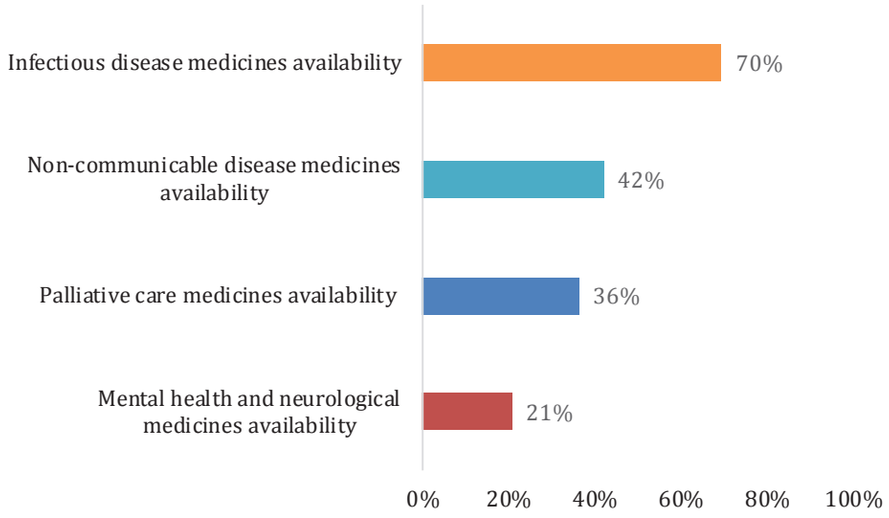
Category	Tracer medicines	
Infectious disease medicines	Me-/Albendazole cap/tab	Cotrimoxazole cap/tab
	Amoxicillin cap/tab	Ciprofloxacin cap/tab
	Ceftriaxone injection	Fluconazole cap/tab
	Metronidazole cap/tab	
Non-communicable disease medicines	Amlodipine tab/alternative	Glucose 50% injection
	Calcium channel blocker	Glyceryl trinitrate tab
	Aspirin cap/tab	Hydrochlorothiazide tab
	Beclomethasone inhaler	Ibuprofen tab
	Beta blocker e.g Atenolol	Insulin regular injection
	ACE inhibitors e.g Enalapril tab	Isorsobide dinitrate tab
	Epinephrine injectable	Metformin tab
	Furosemide tab/cap	Omeprazole cap
	Glibenclamide tab/cap	Paracetamol tab
	Gliclazide or Glipezide tab	Prednisolone tab
	Salbutamol inhaler	Spironolactone tab
	Simvastatin tab or other statin	
Mental health and neurological medicines	Amitriptylline tab	Fluoxetine tab
	Carbamazepine tab	Fluphenazine inj
	Chlropromazine inj	Haloperidol tab
	Diazepam tab	Levodopa + Carbidopa tab
	Diazepam inj	Lorazepam inj.
	Lithium tab	Phenytoin cap/tab
	Phenobarbital tab	Valproate Sodium tab
Palliative care medicines	Dexamethasone inj	Lorazepam tab
	Haloperidol inj	Metoclopromide inj
	Hyoscine butylbromide inj	Morphine inj/tab
	Ibuprofen tab	Paracetamol
	Loperamide tab/cap	Senna preparation

5.5.2 Medicine availability

Availability of the tracer medicines is presented in **Figure 213** below.

- On average, tracer medicines for infectious diseases had the highest availability (70%) and medicines for mental health and neurological disorders had the lowest availability (21%).
- Availability of drugs for non-communicable diseases was moderate to low (42%) with less than half of facilities having most of the assessed drugs.

Figure 213. Proportion (%) facilities that have tracer medicines available by category (N=2927), Kenya 2018

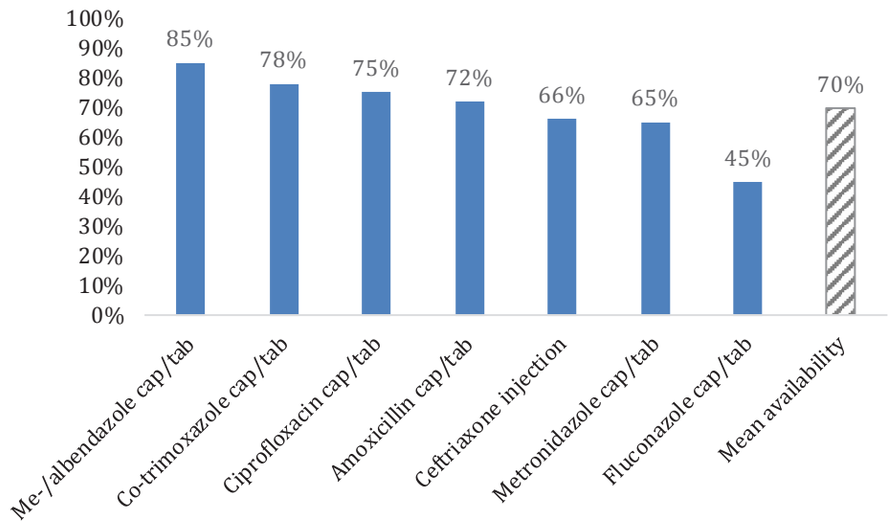


In addition, **Annex Table 117, Annex Table 118, Annex Table 119 and Annex Table 120** show the percentage of facilities with infectious disease medicines, non-communicable disease medicines, mental health and neurological medicines, and palliative care medicines availability by county, facility type, managing authority and urban vs. rural location.

Infectious disease medicines

Nationally, the highest available tracer item was de-wormers (mebendazole or albendazole) capsules/tablets, at an average of 85%, while fluconazole (antifungal) capsules/tablets was the least available tracer item, at an average of 45%.

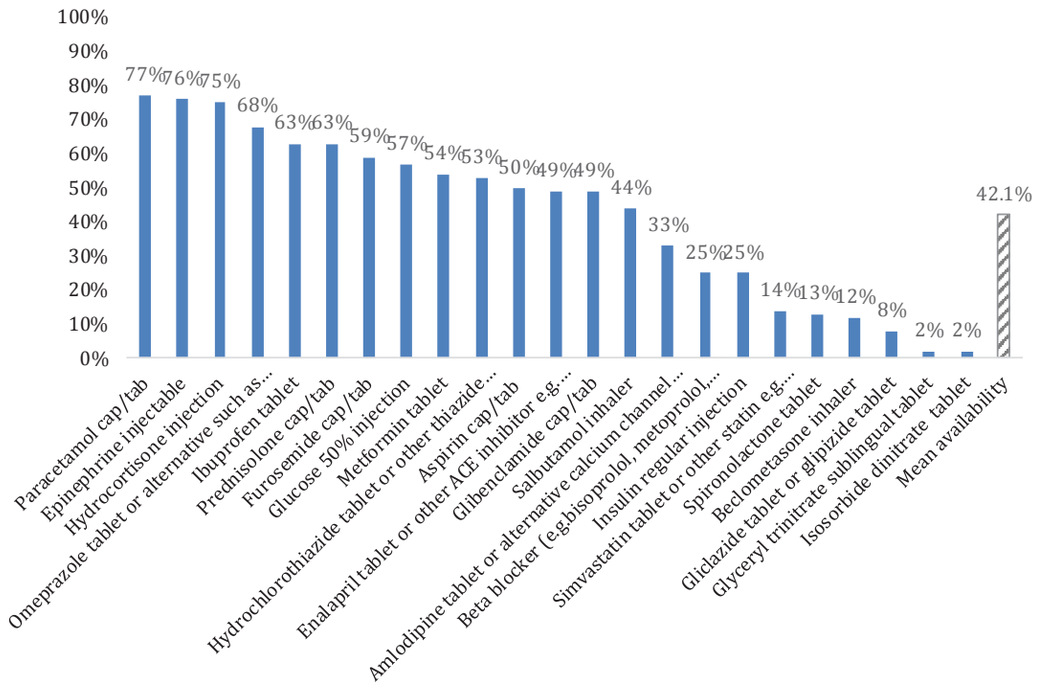
Figure 214: Availability of 7 medicines for infection diseases (N=2927), Kenya 2018



Non-communicable disease medicines

Nationally, paracetamol was the most available tracer medicine, at an average of 77%, while Isosorbide dinitrate and Glyceryl trinitrate sublingual tablet were the least available tracer medicines, at an average of 2% each.

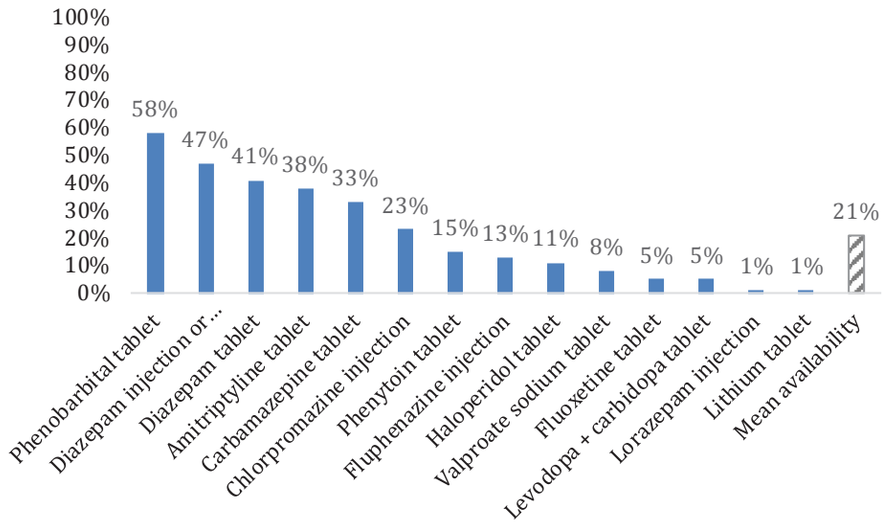
Figure 215: Availability of 23 medicines for non-communicable diseases (N=2927), Kenya 2018



Mental health and neurological medicines

Nationally, Phenobarbital tablets was the most available tracer medicine, at an average of 58%, while Lithium tablet and Lorazepam injection were the least available tracer medicines, at an average of 1% each.

Figure 216: Availability of 14 medicines for mental and neurological health. (N=2927), Kenya 2018



Palliative care medicines

Nationally, Paracetamol was the most available tracer item for palliative care, at an average of 77%, while Lorazepam tablets was the least available, at an average of 2%.

Nairobi had the highest number of facilities (31%) that had morphine granule, injectable or capsules/ tablets in stock whereas 11 counties had less than 5% of their facilities having the tracer medicine in stock.

Figure 217: Availability of 10 medicines for palliative care (N=2927), Kenya 2018

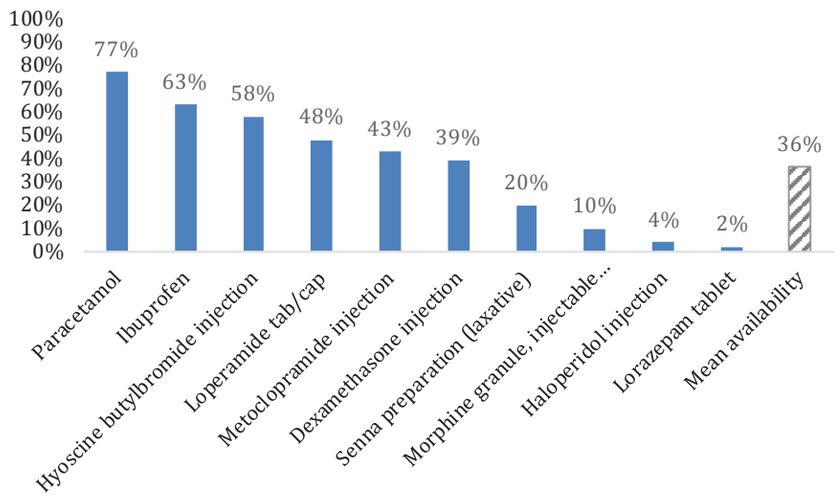
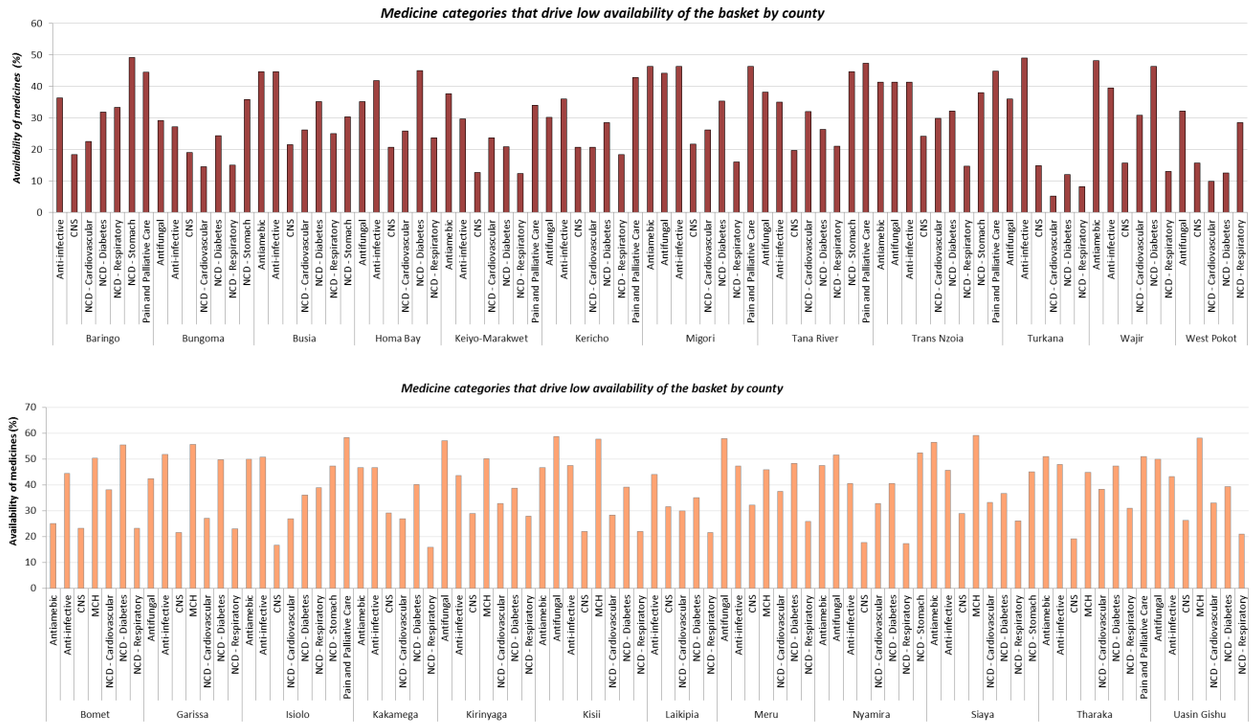


Figure 218 shows disparities among counties in the availability of medicine categories. Here the availability of medicine categories with lowest basket availability in the counties are shown ("red"- and "orange" - coloured regions):

Figure 218: Availability of medicine categories in counties with the lowest basket availability, Kenya 2018



The two graphs in **Figure 218** show those counties where the availability was the lowest (red-coloured) and that ranged from between 29% and 40% as well as counties where availability was low (orange-coloured) and that ranged from between 40% and 46% on average across the facilities. For these counties the drivers of low medicine availability were defined as medicine categories with the availability less than 50%.35

Oral rehydration salts and zinc sulphate tablets for childhood diaorrhoeal diseases management were almost universally available compared to 30% availability of carbamazepine, a first-generation medication for mental conditions. It is conspicuous that fluoxetine, the preferred mental health disorder medication, was only available in 5% of the facilities, this perhaps being an indication of the knowledge and skills of available health personnel available to prescribe the medicine [fluoxetine is usually prescribed by a psychiatrist who is likely to be available in level 5 and 6 facilities]. Generally speaking, the system is not ready for provision of mental health services.

Amoxicillin was the most commonly available antibiotic for infectious diseases while metformin (for diabetes) and hydrochlothiazide (for hypertension) were available in slightly over 50% of the facilities. The implication here is that the health system is still more responsive to infectious diseases and is yet to adapt to being responsive to the rising burden of non-communicable diseases.

35 These values are computed as the proportion of the "n" available medicines in the category over the total "N" of the medicines that are supposed to be available in this category.

Essential medicines

Access to essential medicines is fundamental to the good performance of the health care delivery system. Availability of medicines is commonly cited as the most important element of quality by health care consumers, and the absence of medicines is a key factor in the underuse of government health services. WHO defines essential medicines as the medicines that satisfy the priority health care needs of the population. Tracer medicines are used to examine access in terms of availability of essential medicines in addition to practices and trends over time in selection and procurement of these medicines.

Facilities were assessed on whether they had the following 25 essential medicines observed at the facility and with a valid expiration:

- amlodipine tablet or alternative,
- calcium channel blocker
- amoxicillin syrup/ suspension/ dispersible tablet
- amoxicillin tablet
- ampicillin injection
- aspirin cap/tab
- beclomethasone inhaler
- beta blocker
- carbamzepine tablet
- ceftriaxone injection
- enalapril tablet or alternative ACE inhibitor
- fluoxetine tablet
- gentamicin injection
- glibenclamide tablet
- haloperidol tablet
- insulin regular injection
- magnesium sulphate injectable
- metformin tablet
- omeprazole tablet or alternative
- oral rehydration solution
- oxytocin injection
- salbutamol inhaler
- simvastatin tablet or other statin

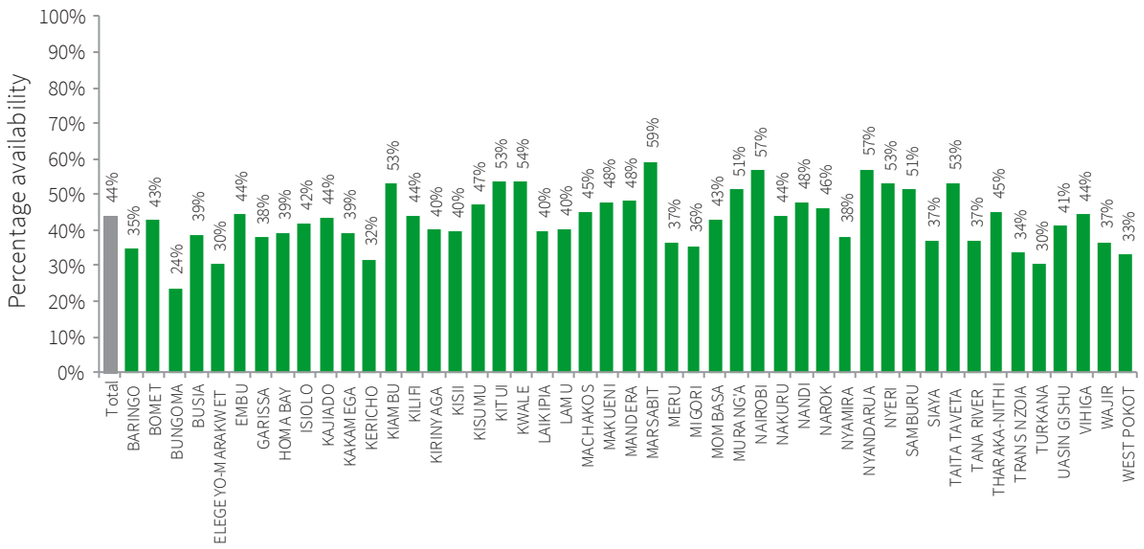
- thiazide
- zinc sulphate tablet or syrup

The general availability of essential medicines is analysed and described in chapter 4.5 of this report.

Figure 219 shows the mean availability of the 25 tracer medicines across the 47 counties. The tracer medicines were most available in Marsabit County, with an average availability of 59% whereas Bungoma County had the least availability of the tracer items, at an average of 24%, with significant disparities observed across counties.

It is interesting to note that only two facilities (Nairobi and Samburu) out of 2,927 facilities had all the tracer medicines while 207 (7%) of the facilities spread across 42 counties had none of the tracer drugs.

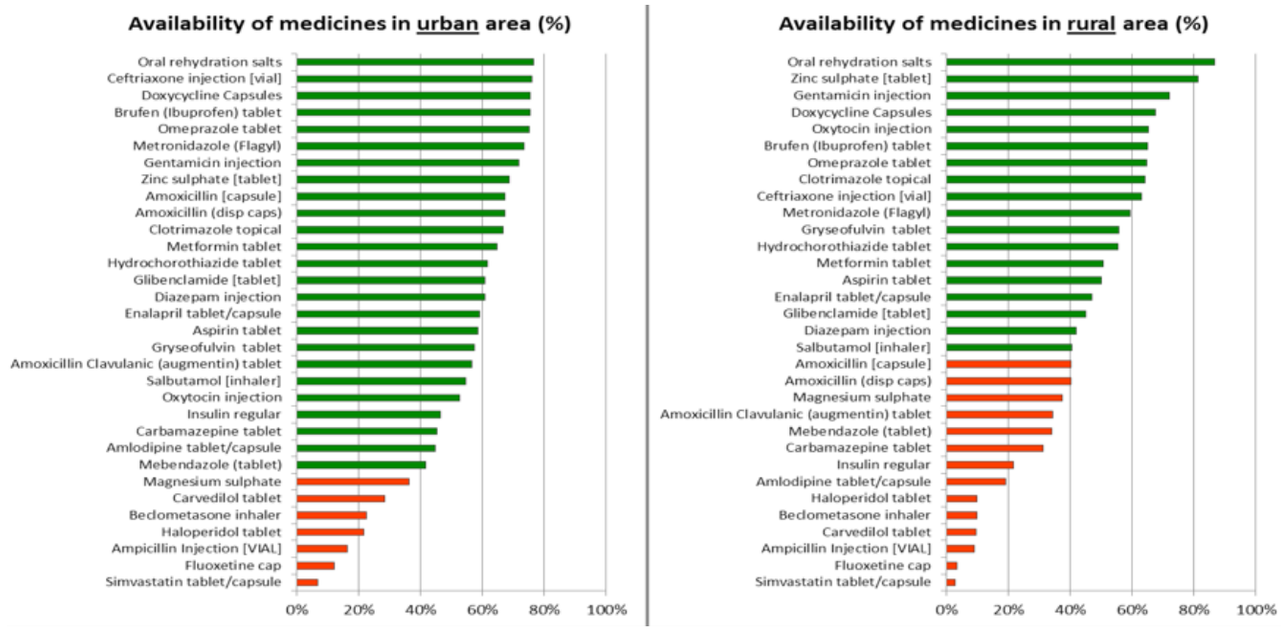
Figure 219: Mean availability of 25 essential medicines by county (N=2927), Kenya 2018



On average, across 38 counties, there was slightly higher mean availability in urban areas (53%) compared to rural areas (43%). However, eight counties (Kiambu, Kilifi, Laikipia, Lamu, Meru, Narok, Nyeri and Tharaka Nithi) had slightly higher mean availability in rural areas. In Lamu County, mean availability in urban areas was at 22% compared to 48% in rural areas. This could be a pointer to a rapidly developing county, thereby making it harder to clearly demarcate what would be considered as urban and what is rural.

Many more medicines were less available in rural areas compared to urban areas. In general, in rural areas, you were likely to find drugs mainly used for management of childhood illnesses like ORS, gentamicin and Zinc sulphate and less likely to get medication for mental health. On the other hand, ceftriaxone and mental health medicines were readily available in urban areas, in addition to ORS and Zinc sulphate. This is a reflection of the Kenyan health system whereby most dispensaries (level 2) and health centres (level 3) are usually in rural areas whereas the county and sub-county hospitals are mainly in urban areas. See **Figure 221**.

Figure 221: Average availability of tracer medicines in urban and rural areas, Kenya 2018



5.5.2 Medicine Pricing

5.5.2.1 Medicines Pricing Methodology

Data were collected for client prices and procurement prices. From the WHO list of 25 essential medicines, seven medications were added based on the Kenyan list of essential medicines to bring a total of 32 commodities for analysis. From the list of the 32 drug commodities for which price data was available, eight commodities were conveniently selected, amongst them an antibiotic, an antifungal cream, a tocolytic, an inhaler and an injectable antibiotic. There was, however, missing data of about 50% across all the commodities due to a combination of unavailability of medicines and/or the facility staff did not have information on prices on the day of the survey. Some of the data were collected per tablet while others were reported per pack size. In situations where the prices were deemed to be pack size-based, the unit price was obtained by dividing the price with the pack size. Any outliers for each commodity were discarded for the analysis. The remaining data (denominator) used for analysis for the eight medicines with respective procurement price and patience price is presented below in **Table 52**.

The analysis was based on the median procurement and selling prices (patient prices) for the eight selected commodities. The analysis was guided by the WHO methodology outlined in *Transforming Health Accelerating Attainment of Health Goals*[36].

5.5.2.2 Medicines Pricing Results

From the list of the 32 drug commodities assessed, price data was analysed for eight commodities that were conveniently selected, amongst them an antibiotic, an antifungal cream, a tocolytic, an inhaler and an injectable antibiotic.

[36] KHSSP (2013/2017). Transforming Health Accelerating Attainment of Health Goals Retrieved from https://www.who.int

In order to assess medicine affordability, we examined two measures:

- The ratio of selling price to the procurement price, which determined how much more a patient pays above the median procurement price.
- The medicine price ratio (MPR) which is calculated as the ratio between median unit prices and the median international reference price (IPR) for that same product. The MPR is a measure of affordability of essential medicines comparing to international standards.

Although client prices and procurement prices data were collected for all 32 commodities, about 50% missing data were recorded across all the commodities due to a combination of unavailability of medicines and the facility staff not having information on prices on the day of the survey. Some of the data were collected per tablet while others were reported per pack size. In situations where the prices were deemed to be pack size based, the unit price was obtained by dividing the price with the pack size. Any outliers for each commodity were discarded for the analysis. The remaining data (denominator) used for analysis for the eight medicines with respective procurement price and patience price is presented below in **Table 52** that presents the median prices of the eight commodities, the ratio of the selling price to the procurement price, and the ratio of procurement price to the international reference median price (IRP) across the five levels of care.

The analysis was based on the median procurement and selling prices (patient prices) for the eight selected commodities. The analysis was guided by the WHO methodology outlined in "Transforming Health Accelerating Attainment of Health Goals"[37].

Table 52: Median prices, the ratio of the selling price to the procurement price, and the ratio of procurement price to the international reference median price for eight commodities by facility type, Kenya 2018

	Median Procurement Price (KSh)	Median Selling Price (KSh)	Ratio of patient price to procurement price	Ratio of procurement price to international reference price
Secondary & Tertiary Hospitals (Level 5 and 6)				
Clotrimazole 1% cream	17.00	30.00	1.76	0.75
Oxytocin vial	12.00	18.00	1.50	0.72
Oral rehydration salt (ORS)	5.00	3.00	0.60	0.89
Ceftriaxone injection (1 gram)	35.00	50.00	1.43	0.82
Salbutamol inhaler 100mcg/dose)	150.00	200.00	1.33	1.29
Ibuprofen 400mg	0.50	1.50	3.00	0.38
Amoxicillin 250mg dispersible tab	3.45	3.00	0.87	1.97
Amoxicillin 500mg capsule	1.43	4.50	3.15	1.52
Primary health facilities (level 4)				
Clotrimazole 1% cream	17.00	50.00	2.94	0.75
Oxytocin vial	12.00	0.00	0.00	0.72
Oral rehydration salt (ORS)	4.65	0.00	0.00	0.83
Ceftriaxone injection (1 gram)	35.00	100.00	2.86	0.82
Salbutamol inhaler 100mcg/dose)	150.00	200.00	1.33	1.29
Ibuprofen 400mg	0.50	2.00	4.00	0.38
Amoxicillin 250mg dispersible tab	4.50	1.00	0.22	2.57
Amoxicillin 500mg capsule	1.40	2.00	1.43	1.49

[37] KHSSP (2013/2017). Transforming Health Accelerating Attainment of Health Goals Retrieved from https://www.who.int

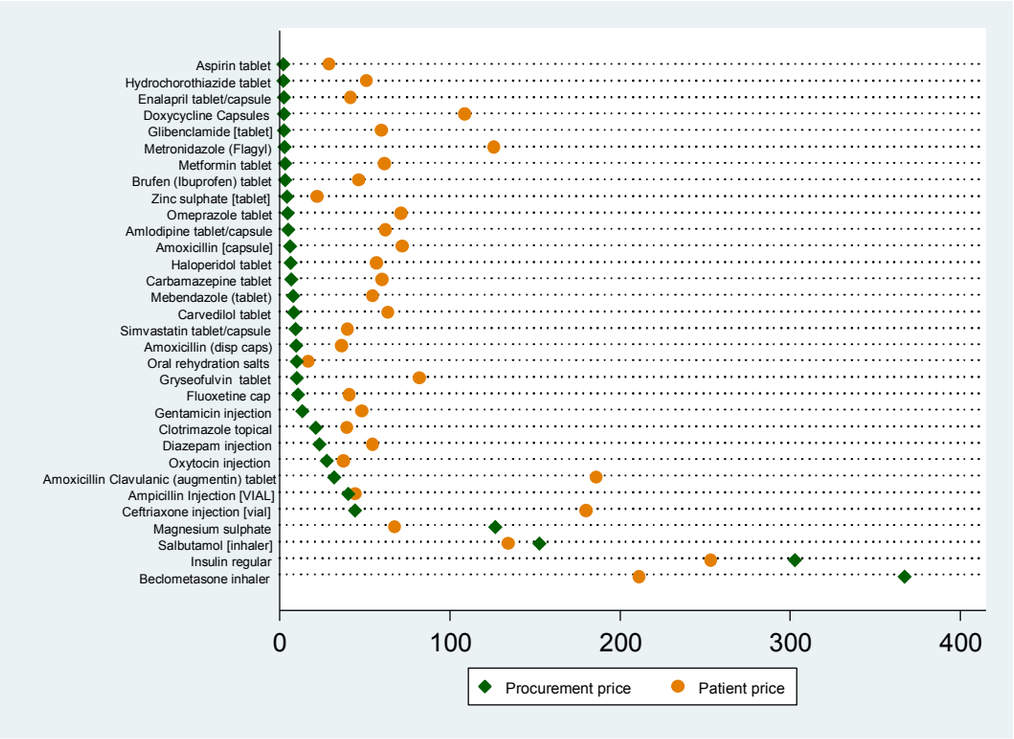
	Median Procurement Price (KSh)	Median Selling Price (KSh)	Ratio of patient price to procurement price	Ratio of procurement price to international reference price
Health Centres (level 3)				
Clotrimazole 1% cream	17.00	0.00	0.00	0.75
Oxytocin vial	12.00	0.00	0.00	0.72
Oral rehydration salt (ORS)	4.30	0.00	0.00	0.77
Ceftriaxone injection (1 gram)	35.00	0.00	0.00	0.82
Salbutamol inhaler 100mcg/dose)	150.00	0.00	0.00	1.29
Ibuprofen 400mg	0.50	0.00	0.00	0.38
Amoxicillin 250mg dispersible tab	1.85	0.00	0.00	1.06
Amoxicillin 500mg capsule	1.40	0.00	0.00	1.49
Dispensaries (Level 2)				
Clotrimazole 1% cream	17.00	0.00	0.00	1.11
Oxytocin vial	12.00	0.00	0.00	0.72
Oral Rehydration salt (ORS)	4.23	0.00	0.00	0.75
Ceftriaxone injection (1 gram)	35.00	0.00	0.00	0.82
Salbutamol inhaler 100mcg/dose)	150.00	0.00	0.00	1.29
Ibuprofen 400mg	0.50	0.00	0.00	0.38
Amoxicillin 250mg dispersible tab	1.40	0.00	0.00	0.80
Amoxicillin 500mg capsule	1.40	0.00	0.00	1.49
Medical Clinics				
Clotrimazole 1% cream	25.00	50.00	2.00	22.12
Oxytocin vial	20.00	25.00	1.25	1.20
Oral rehydration salt (ORS)	5.00	10.00	2.00	0.89
Ceftriaxone injection (1 gram)	40.00	150.00	3.75	0.94
Salbutamol inhaler 100mcg/dose)	200.00	300.00	1.50	1.72
Ibuprofen 400mg	0.59	2.25	3.81	0.45
Amoxicillin 250mg dispersible tab	2.50	5.00	2.00	1.43
Amoxicillin 500mg capsule	2.30	5.00	2.17	2.45

- For level 5 and 6 hospitals, the ratio for patient to procurement prices ranged from between 0.6 to 3.15. This means that for some of the commodities the clients were paying a lower price than the procurement price, while for other commodities like Amoxicillin 500mg capsule, clients were paying 3 times more. The ratio of procurement price to the international reference prices ranged from 1.97 to 0.38. This means that for Amoxicillin 250mg dispersible tab, hospitals were paying almost twice what other countries were paying. However, hospitals were procuring Oxytocin, Ceftriaxone 1g injection, Ibuprofen and oral rehydration salts (ORS) at a cheaper price than the IRP since the ratio was less than one.
- Across level 4 hospitals, the median selling price of ORS and Oxytocin vials was KShs 0 meaning the clients were not charged for these commodities in the public health level 4 facilities. The range of the patient price to procurement price ratio was 0.22 to 4.00, meaning that for Ibuprofen, clients were paying 4 times the procurement price and for Amoxicillin 250mg dispersible tablets clients were paying about 20% of the procurement price. The ratios for procurement prices compared to the international reference price (IRP) shows a similar picture to what is happening in level 5 and 6 hospitals, with a range of 2.57 to 0.38. This means that for Amoxicillin 250mg dispersible tablets is being purchased at 2.5 times the IRP while that of ibuprofen was procured at a third of the IRP.
- Across health centres and dispensaries, the patient median price was KShs 0 as expected, given that the government abolished user fees in government level 2 and 3 facilities. The procurement price ratio, however, had a similar profile with Amoxicillin 500mg capsule being purchased at around 1.5 times the IRP, while facilities were purchasing Oxytocin, Ceftriaxone 1g injection, Ibuprofen and oral rehydration salts at prices lower than the IRP.
- The results also show that clients who visited medical clinics paid a price that was higher than the procurement price, ranging from between 1.25 and 3.81. This means that for Ibuprofen 400mg, clients were paying a price that was almost four times more than the procurement price and for Oxytocin vials, they paid on average 25% more than the procurement price. In contrast, the range of procurement price to IRP was 0.45 to 2.45 such that the facilities were paying less than the IRP for Oxytocin, Ceftriaxone 1g injection, Ibuprofen and oral rehydration salts.

While there was a distinct variation in patient prices for all the selected commodities across the different facilities types, there was little variation in the procurement prices.

While it is generally expected that procurement price per unit should be lower than the patient price of the medicine, **Figure 222** below demonstrates the relation between the two prices (mean) across the facilities:

Figure 222: Prices of medicines (procurement vs. patient), Kenya 2018



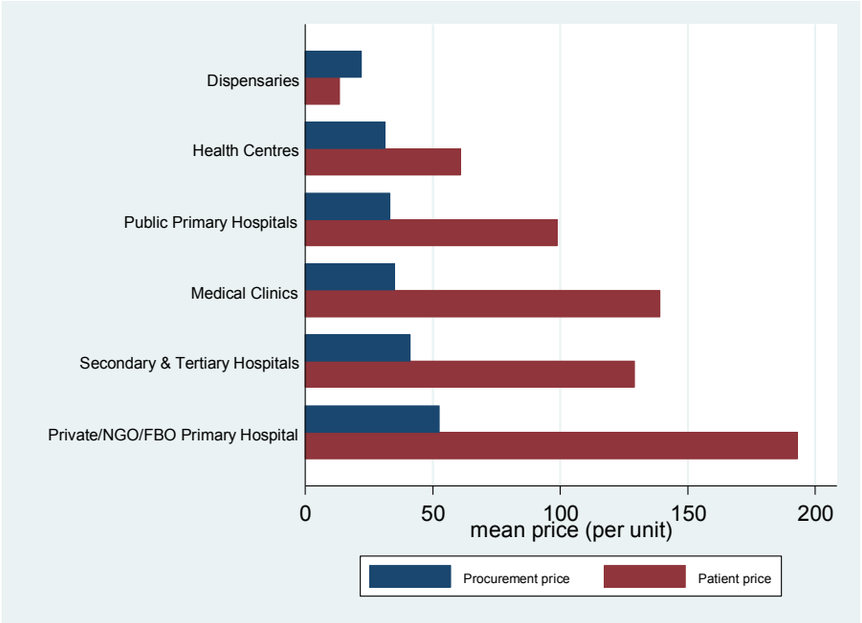
The mean procurement prices for four medicines, Beclomethasone inhaler, insulin, Salbutamol inhaler and magnesium sulphate, was greater than the price charged to the patient. This is a unique finding but not surprising as some of these commodities, (insulin and inhalers) have been highly subsidised in government facilities. Moreover, government facilities more often than not have a fixed selling price of some of the commodities regardless of the procurement price, this being part of subsidisation of "expensive" medications for chronic conditions. In general, the price per unit for these four medicines was fairly high.

These differences between the procurement and selling/patient prices provide some insights on the effectiveness of the procurement and supply systems in the country.

Figure 223 shows prices of medicines (procurement vs. patient) across types of facilities.

As expected, the procurement prices for dispensaries were higher than patient prices. This was due to subsidisation of medicine prices at this level of care. There was a wider variation in general for medicine prices in the private sector and medical clinics, this being an illustration of the free market that Kenya operates in without any medicine price controls. There seemed also to be some significant differences in the patient to procurement prices in level 6, 5 and 4 facilities, probably due to the wide range of medicines available in these facilities and secondly due to the bigger quantities purchased at the time by level 5/6 facilities, which tend to have economies of scale, hence bringing the prices down.

Figure 223: Prices of medicines (procurement vs. patient) across facility types, Kenya 2018



Based on the facility setting, there was a wide variation in patient prices for facilities within urban areas as compared to those in rural areas, as shown in **Figure 224** below. This is an indication of the concentration of larger facilities (level 5, 6 and 4) in urban settings, which have a larger variety of medicines available. A larger number of medical clinics and private entities in urban areas also drive prices up as these entities have no price control by the government. In rural areas, it is mainly the health centres and dispensaries where most services, including medicines, are offered at minimal prices to the patients.

Figure 224: Prices of medicines (procurement vs. patient) across sector, Kenya 2018

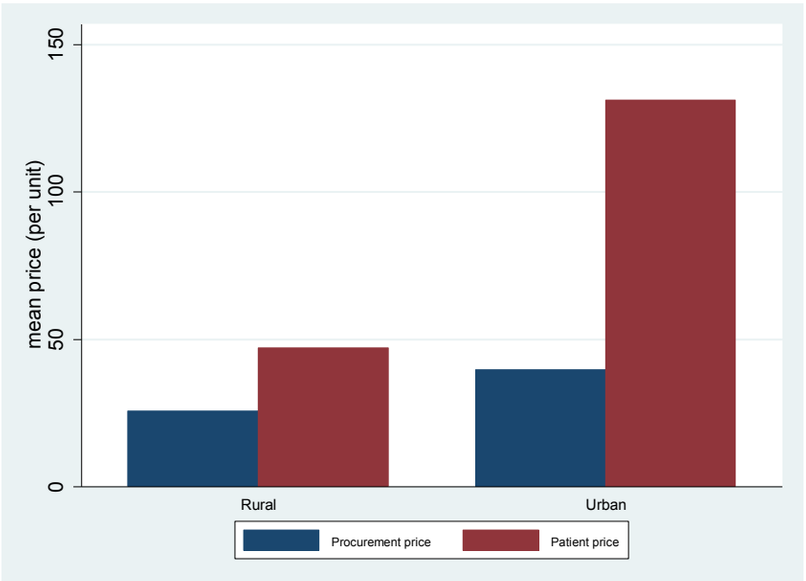


Table 53: Mean prices of medicines (mean across facilities and medicines)

Price (LCU/unit)	Mean	Std. Dev.	Min	Max
procurement	39.6	83.4	1.9	367.2
patient	76.8	56.5	16.7	253.4

Table 53 and Table 54 as well as **Figure 225 and Figure 226** compare mean procurement versus selling prices (per unit) of the medicines.

Procurement prices varied from between 1.9 and 367.2 (Local Currency Units (LCU)/unit) while patient prices varied between 16.7 and 253.4 (LCU/unit). Medicines with very high prices per unit are indicated in red (tables 3 (a) and b)). One of the assumptions is that potentially for inhalers and injections some confusion happened regarding pack size.

Table 54: Mean prices on medicines (mean across facilities)

medicine name	mean procurement price (per unit)
Amlodipine tablet/capsule	4.90
Amoxicillin (disp caps)	9.47
Amoxicillin Clavulanic (augmentin) tablet	31.84
Amoxicillin [capsule]	5.86
Ampicillin Injection [VIAL]	40.32
Aspirin tablet	1.88
Beclometasone inhaler	367.16
Brufen (Ibuprofen) tablet	3.15
Carbamazepine tablet	6.77
Carvedilol tablet	8.24
Ceftriaxone injection [vial]	44.07
Clotrimazole topical	21.22
Diazepam injection	23.29
Doxycycline Capsules	2.32
Enalapril tablet/capsule	2.32
Fluoxetine cap	10.81
Gentamicin injection	13.24
Glibenclamide [tablet]	2.35
Gryseofulvin tablet	10.09
Haloperidol tablet	6.22
Hydrochorothiazide tablet	1.94
Insulin regular	302.73
Magnesium sulphate	126.57
Mebendazole (tablet)	7.84
Metformin tablet	2.95
Metronidazole (Flagyl)	2.68
Omeprazole tablet	4.64
Oral rehydration salts	9.93
Oxytocin injection	27.69
Salbutamol [inhaler]	152.48

medicine name	mean patient price (per unit)
Amlodipine tablet/capsule	62.20
Amoxicillin (disp caps)	36.33
Amoxicillin Clavulanic (augmentin) tablet	185.90
Amoxicillin [capsule]	72.08
Ampicillin Injection [VIAL]	44.17
Aspirin tablet	29.10
Beclometasone inhaler	211.17
Brufen (Ibuprofen) tablet	46.46
Carbamazepine tablet	59.86
Carvedilol tablet	63.72
Ceftriaxone injection [vial]	180.02
Clotrimazole topical	39.63
Diazepam injection	54.67
Doxycycline Capsules	108.70
Enalapril tablet/capsule	41.64
Fluoxetine cap	40.90
Gentamicin injection	48.24
Glibenclamide [tablet]	59.83
Gryseofulvin tablet	81.88
Haloperidol tablet	56.64
Hydrochorothiazide tablet	50.88
Insulin regular	253.42
Magnesium sulphate	67.51
Mebendazole (tablet)	54.59
Metformin tablet	61.53
Metronidazole (Flagyl)	125.93
Omeprazole tablet	71.14
Oral rehydration salts	16.66
Oxytocin injection	37.29
Salbutamol [inhaler]	134.15
Simvastatin tablet/capsule	39.72
Zinc sulphate [tablet]	21.70

Figure 225: Prices of medicines (procurement vs. patient) across categories of medicines, Kenya 2018

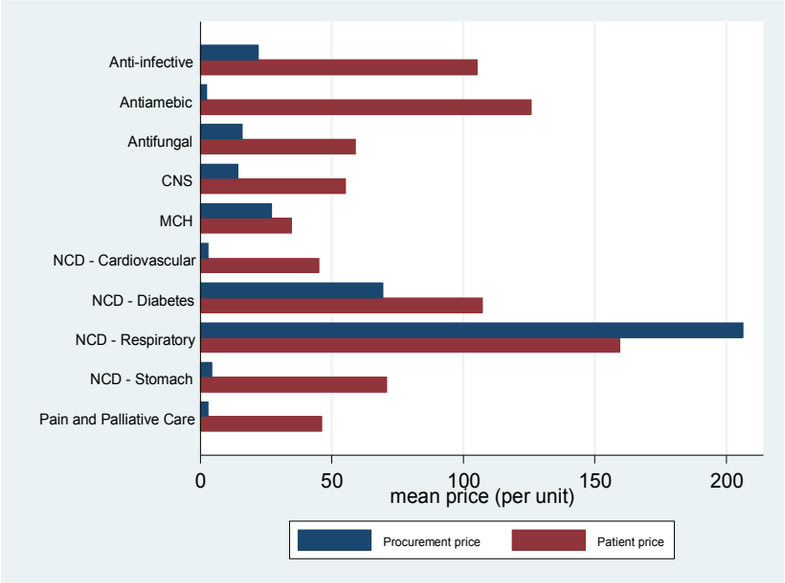
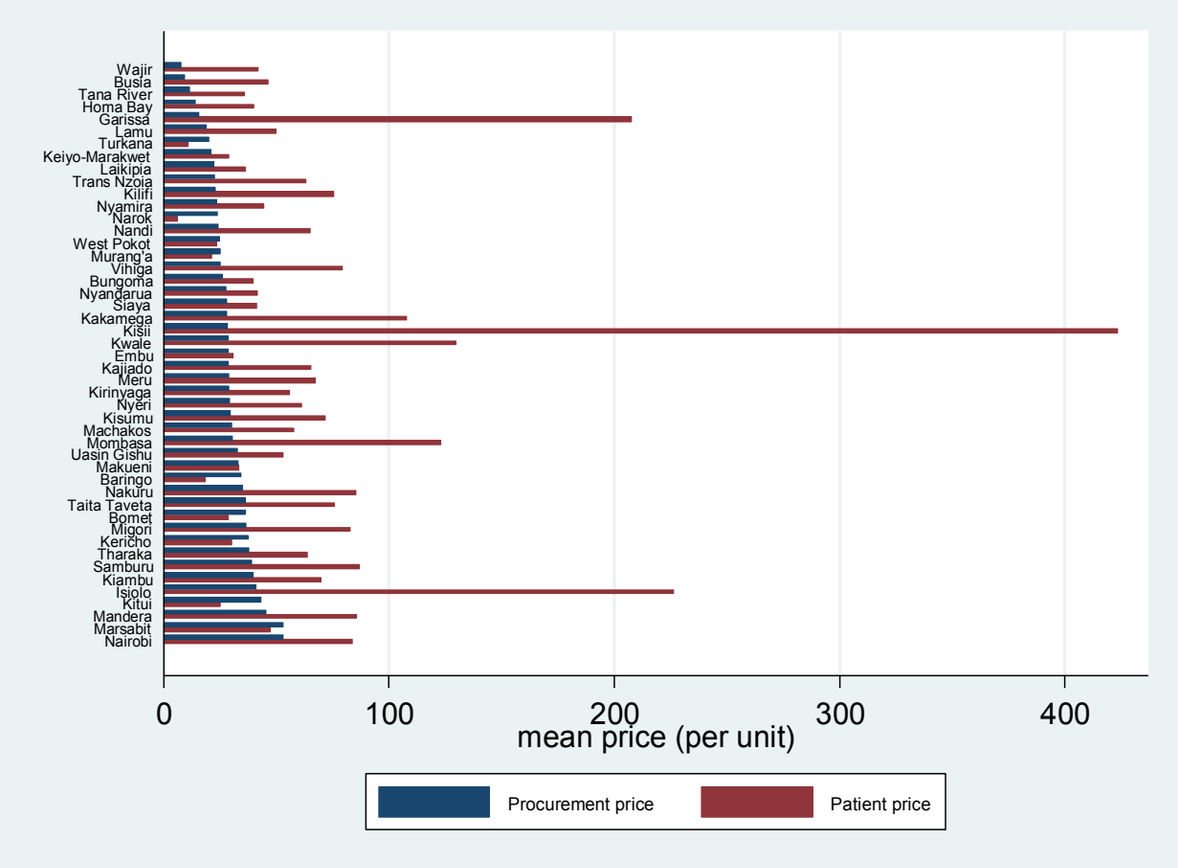


Figure 225 shows prices across categories of medicines. Drugs for respiratory disease were generally the most expensive to the patient while MCH drugs were the lowest. However, one should keep in mind that these were represented by inhalers, which would cost more per unit compared to tablets or syrups, for example, while child and maternity services are free in Kenya. It is worth noting that the patient prices were well below the procurement prices, indicating the likelihood of government subsidisation as explained earlier.. The largest differences between the two prices was associated with drugs for pain and palliative care, NCDs, stomach illnesses and antiemetics. For diabetes, in as much insulin is highly subsidised, the overall picture indicates that selling prices were higher than procurement prices, possibly due to the fact that management of diabetes in Kenya is still largely based on oral antidiabetics like metformin.

Looking at the overall average selling price, patients in Garissa, Kisii and Isiolo counties paid much more for medicine, with average selling prices in Kisii being up to 4 times the prices in most other counties. This is significant, especially for Isiolo County, which is mainly a rural county and was a current Universal Health Coverage Phase One county with the expectation that medicines would be highly subsidised. This therefore could also be a pointer of data quality problems where a pack/dose price was collected as the unit price. Despite the major data clean-up done, some of these quality issues were still persistent. See **Figure 226** below.

Figure 226: Prices of medicines (procurement vs. patient) across counties, Kenya 2018



5.6 Advanced diagnostic services and diagnostic equipment

5.6.1 Advanced diagnostic services

Advanced diagnostic services involve procedures that are used to determine the cause of an illness or disorder. They provide healthcare practitioners with information about the presence, severity, and cause of diseases in patients. Subsequently, healthcare providers deliver the appropriate treatment to their patients, reducing the patient mortality and morbidity levels. Advanced diagnostic services include laboratory tests that are generally performed at hospitals. The following type of advanced diagnostic tests are assessed through the KHFA:

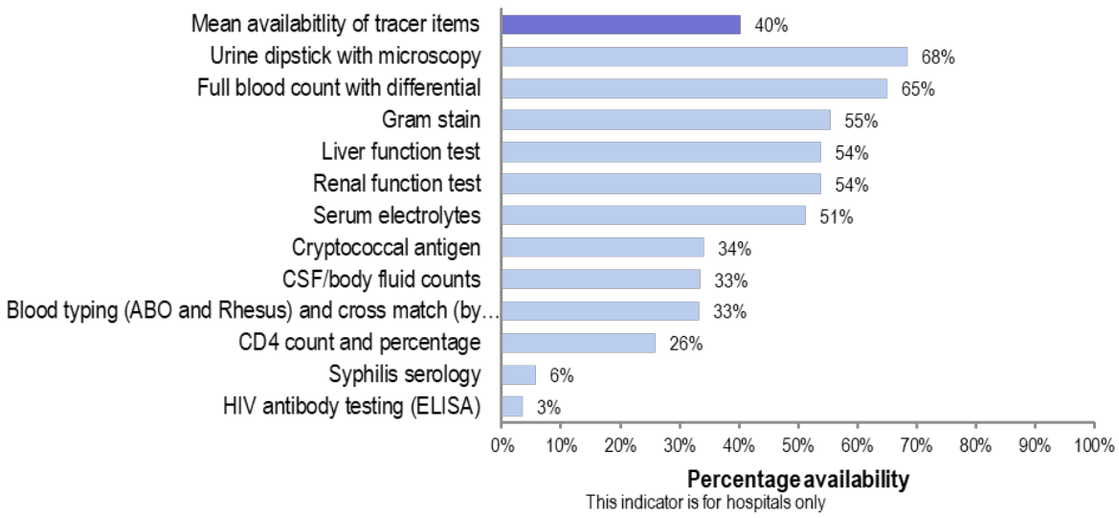
- Serum electrolytes
- Full blood count with differential
- Blood typing (ABO and Rhesus) and cross match (by anti-globulin or equivalent)
- Liver function test (ALT or other)
- Renal function test (serum creatinine testing or other)
- CD4 count and percentage

- HIV antibody testing (ELISA)
- Syphilis serology
- Cryptococcal antigen
- Gram stain
- Urine microscopy testing
- CSF/body fluid counts

Figure 227 shows the percentage of hospitals offering advanced diagnostic services.

- The national mean availability of advanced diagnostic tests was 40%, which is generally low performance.
- Urine dipstick with microscopy is the most available diagnostic service at 68%, followed by full blood count with differential at 65%.
- Syphilis serology and HIV antibody testing (ELISA) diagnostic services were below 10%.

Figure 227. Proportion (%) of hospitals that offer advanced diagnostic services (N=411), Kenya 2018



Annex Table 122 shows the percentage of hospitals offering advanced diagnostic services by county, facility type, managing authority and urban vs. rural location.

- Counties with the highest availability of advanced diagnostic services were Bomet (72%), Nakuru (63%) and Nyeri (59%) while those with the least availability were Nandi (12%), Wajir (14%) and Migori (16%).
- The performance of counties in the availability of urine dipstick was generally high. Ten counties reported the highest availability (100%), while two counties had the lowest availability (below 30%). 38 counties reported no HIV antibody testing (ELISA) availability, with Nyandarua leading at 50%.
- Secondary and tertiary hospitals had the highest availability of advanced diagnostic tests (72%) followed by private/NGO/FBO hospitals (48%) and public primary hospitals (29%).

- NGO/FBO facilities had the highest mean availability of the tracer items (59%), followed by private facilities (43%) and government facilities (31%).
- There was not much difference between rural and urban facilities.

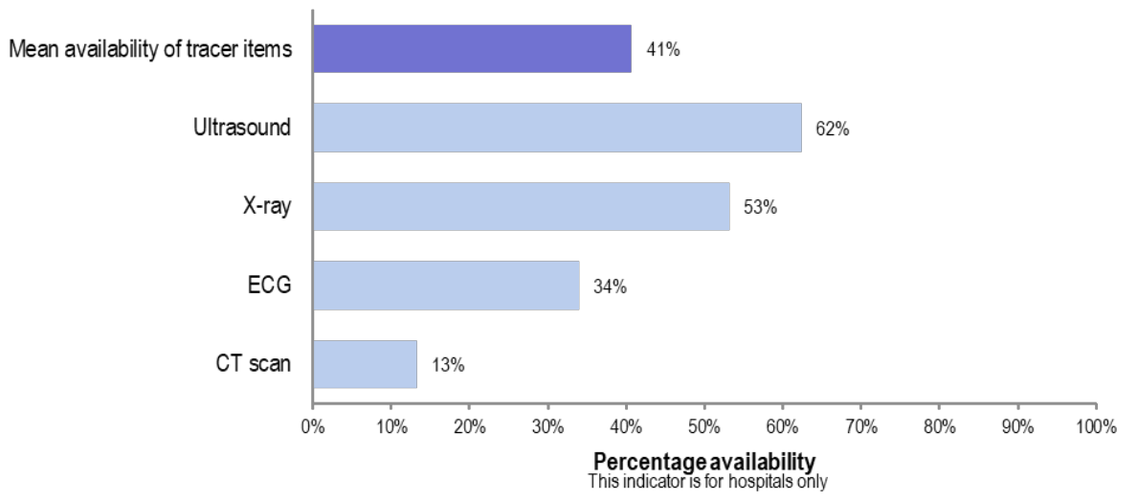
5.6.2 High-level diagnostic equipment

High-level diagnostic equipment service availability at hospitals was assessed based on the presence of the four types of diagnostic equipment (X-ray, ECG, Ultrasound, and CT scan).

Figure 228 shows the percentage of hospitals that have high-level diagnostic equipment available.

- The mean availability of high-level diagnostic equipment nationally was 41%.
- Ultrasound was the most available diagnostic equipment, at 62%, and the least available diagnostic equipment was CT scan, at 13%.

Figure 228. Proportion (%) of hospitals that have high-level diagnostic equipment available (N=411), Kenya 2018



Annex Table 122 shows the percentage of hospitals that have high-level diagnostic equipment available by county, facility type, managing authority and urban vs. rural location.

- The mean availability of high-level diagnostic equipment across the 47 counties was highest in Uasin Gishu (81%), Nyeri (77%) and Nyandarua (75%), while the lowest was in Wajir (8%), Migori (10%) and Trans Nzoia (11%).
- Ultrasound equipment availability among counties ranged from between 40% and 100% led by Nyandarua (100%) followed by Uasin Gishu (94%), Nyeri (92%) and Kiambu (90%). The lowest availability was reported in Wajir and Trans Nzoia (10% and 14%, respectively).
- About half of the counties (27) reported to have no CT scan equipment available in their hospital facilities. The highest reported availability was in Nyeri, Uasin Gishu and Nyandarua (58%, 56%, and 50%, respectively).
- Secondary and tertiary hospitals had an average of 85% of the tracer items followed by private/

NGO/FBO primary hospitals, 56%, and public primary hospitals with the lowest, at 19%. Secondary and tertiary hospitals had 100% availability of X-ray equipment as compared to private primary and public primary hospitals which reported 56% and 19% availability, respectively.

- The mean availability of the tracer items in NGO/FBO and private facilities was 61% and 54%, respectively, while government-managed facilities had the lowest at 23%.
- Urban-based facilities reported to have the highest mean availability of tracer items at 53%, while rural facilities had the lowest at 25%.

6. QUALITY AND SAFETY

Improving the quality of healthcare is a key priority for Kenya. Vision 2030, Kenya's economic blueprint, aims to have an equitable and affordable healthcare with the highest possible quality by the year 2030, which will be achieved through supporting the provision of equitable, affordable and quality health and related services at the highest attainable standard to all Kenyans.

The World Health Organization define quality of care as "the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and which are consistent with current professional knowledge. To achieve quality of care, services must be safe, effective, timely, efficient, equitable and people centred". This implies that quality of care is ultimately aimed at health improvements rather than simply increasing service inputs or refining system processes, and should reflect the desires of key stakeholders, including service users and communities. This definition of quality of care spans both curative and preventive care, and facility and community-based care for individuals and populations. This scope is particularly important since Kenya is facing an increasing burden of non-communicable diseases and the health systems must provide services, including risk reduction, screening, disease management, rehabilitation and palliative care, across the life course.

This survey focused on general standards of quality of care based on select quality of care (QoC) indicators for monitoring the Kenya Quality Model for Health (KQMH) that is categorised into three critical domains – support for quality of care, monitoring quality of care and facility adherence to standards – as highlighted in **Table 51**.. The survey did not assess other aspects of quality, such as clinical quality in specific service delivery areas, patient perceptions on quality of care, and the responsiveness of the health system to patient expectations. **Table 55** shows the indicators used in the survey to measure quality of care.

Table 55 shows the indicators used in the survey to measure quality of care.

Table 55: Quality of care indicators assessed in the KHFA 2018

Quality of care indicators used
A Support for Quality of Care
• Facility has Quality Improvement (QI) Committee
• Facility has a budget line for QI activities
• Facility has a continuous professional development (CPD) system to assure that health worker knowledge and skills meet minimum acceptable standards
• Facility has a functioning system for adverse event reporting and learning for patient safety
• Facility implements a systematic process for monitoring infection control
B Monitoring Quality of Care
• Facility has system for routinely verifying health professionals' licenses and registration status
• Facility has routine process for performance review based on data on facility services, outcomes, or patient feedback
• Facility is involved in a supportive supervision system to assure that health worker skills meet minimum acceptable standards
• Facility has a routine system for including meaningful community representation on facility management
• Facility has a system in place to routinely measure patient experience of care and feed the results back to facility management teams
• Facility routinely performs inpatient mortality reviews (for those with inpatient services)
• Facility conducts monitoring of the use of medicines

C Facility Adherence to Standards

- Facility participates in external accreditation licensing
- Facility sharps disposal site has no visible waste
- Commodity storage conditions in main pharmacy meet basic guideline requirements
- Facility vaccine storage conditions meet basic temperature monitoring requirements
- Facility has performed an outbreak preparedness practice drill in the past 12 months
- Facility has guidelines on identifying and managing drug-use problems
- Facility laboratory participates in implementing quality assurance (QA) mechanisms

6.1 Systems for quality of care

6.1.1 Quality improvement team

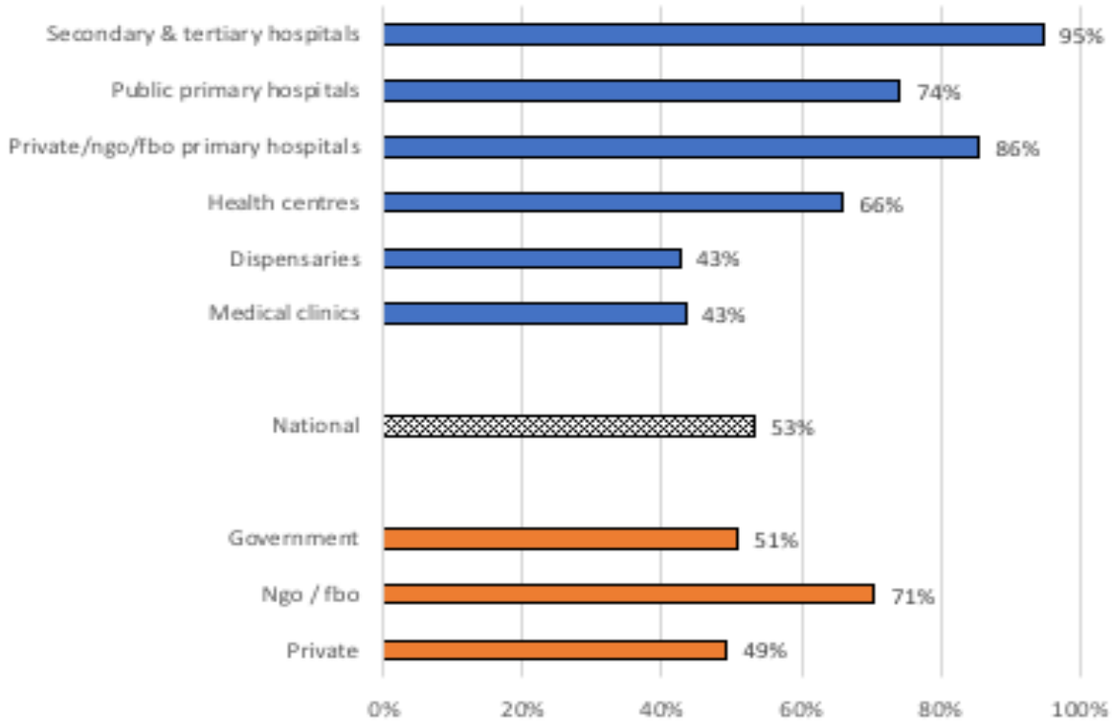
As outlined in the National KQMH Implementation Guidelines (2014), the quality improvement (QI) team's main role is to coordinate planning and implementation of quality team activities. The committee aims at improving the speed of decision-making and enhance commitment for quality improvement in the health facility[38].

Figure 229 shows the availability of quality assurance (QA) committees nationally as well as by facility type and managing authority. In addition, **Annex Table 124** shows availability of QA committees by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location. Among health facilities that reported conducting routine quality assurance and improvement activities:

- 53% of facilities countrywide have QI teams, with Migori and Nairobi counties having the highest proportion of facilities with such teams (88% and 87%, respectively), while facilities in Trans Nzoia and Marsabit counties had the fewest number of QI teams (both at 16%).
- Higher-level facilities had more QI teams compared to lower-level facilities. 95% of all the secondary and tertiary hospitals had QI teams compared to 43% of dispensaries and medical clinics.
- NGO/FBO facilities had more QI team (71%) compared to government facilities (51%) and private facilities (49%).
- Generally, there were more QI teams in urban (63%) compared to rural (46%) facilities.

[38] Ministry of Health. (2014). Kenya Quality Model for Health. Nairobi: Ministry of Health

Figure 229. Availability of quality improvement teams/committees by facility type and by managing authority, among facilities that conducted routine quality improvement activities (N=1105), Kenya 2018



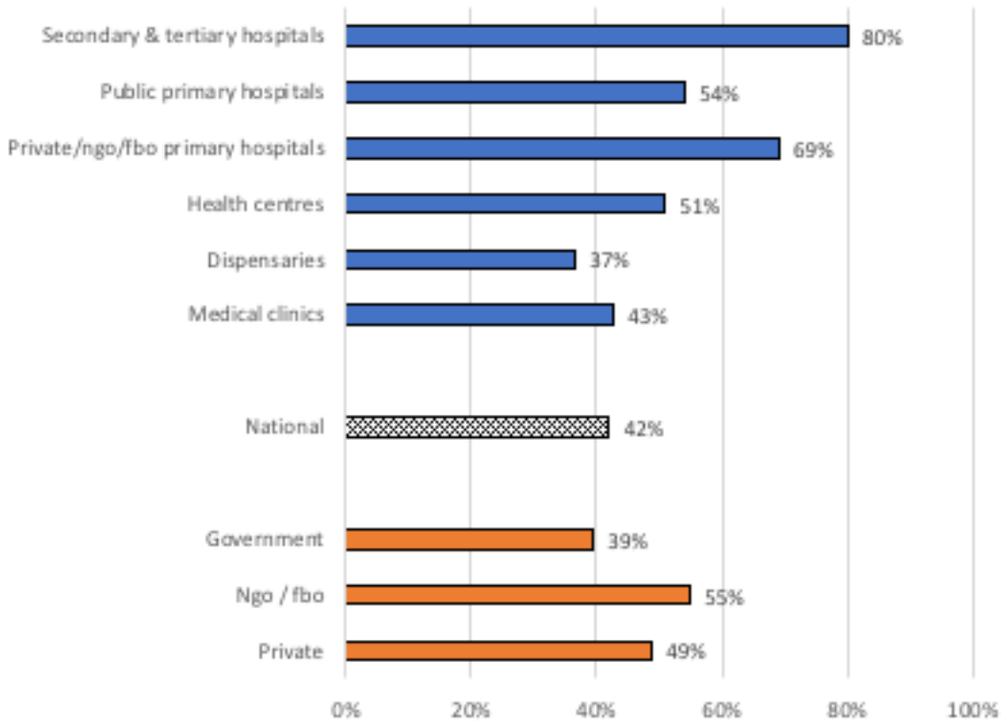
6.1.2 Budget for QI activities

As part of the testing of the functionalities of the QI committees, the survey assessed the extent to which the quality improvement focused activities as delineated in the KQMH framework had budgeted for across the different MoH structures, both nationally and at the county level.

Figure 230 shows the availability of a dedicated budget line for QI activities nationally as well as by facility type and managing authority. In addition, **Annex Table 124** shows availability of budgets for QI activities by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location.

- Nationally, a dedicated budget line for QI activities was available at 42% of facilities.
- By facility type, availability of a dedicated budget line for QI activities varied greatly, with 80% at secondary and tertiary hospitals versus 37% at dispensaries.
- By managing authority, NGO/FBO facilities were the most likely to have a dedicated budget line for QI activities (55%) while government facilities were the least likely (39%).

Figure 230: Availability of a dedicated budget line for QI activities by facility type and by managing authority among facilities that provided budget/funding information (N=1278), Kenya 2018



6.1.3 Health workers' continuous professional development (CPD) system

In the context of quality of care and safety of health services, the KHFA survey defined continuing professional development (CPD) as training that leads to broadening of knowledge and skills and enhancement of personal qualities related to continuous improvement in the performance of professional duties[39].

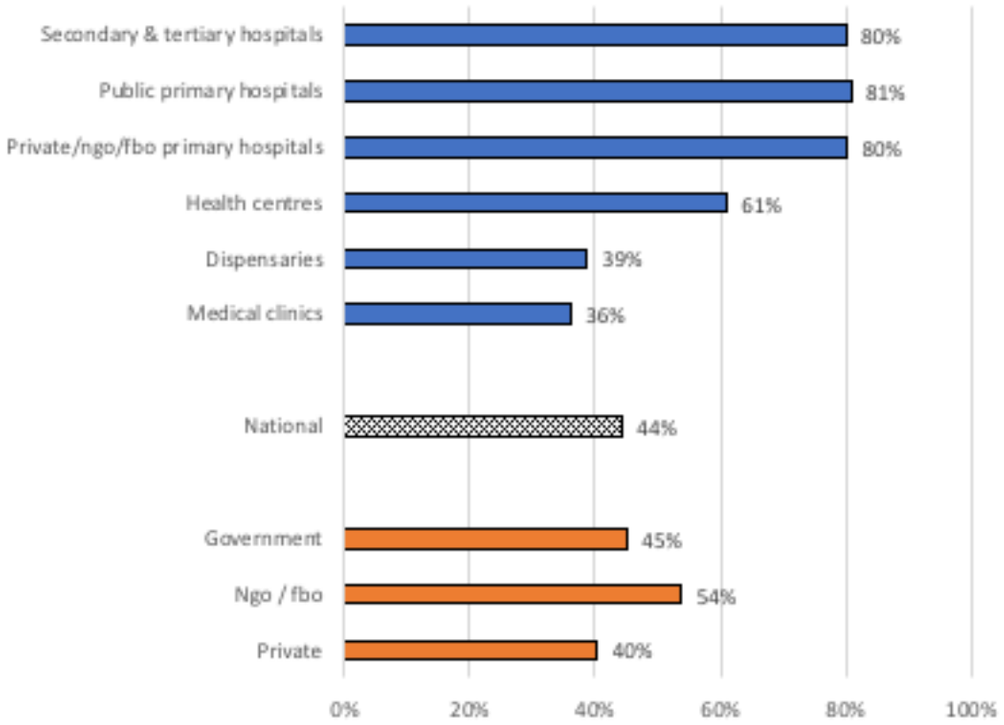
Figure 231 shows the availability of CPD systems nationally as well as by facility type and by managing authority. In addition, **Annex Table 123** shows availability of CPD systems by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location.

- Countrywide, 44% of facilities had a system in place for regular (at least quarterly) continuous medical education to ensure professional development of medical officers, nurses and clinical officers.
- Four counties (Busia, Homa Bay, Nandi and Kisumu) had the highest availability of CPD systems, with 76%, 72%, 71% and 70% of their facilities, respectively, having a system in place for regular continuous medical education respectively.
- However, several counties had very low availability of CPD systems with Baringo, Garissa and Tana River being the lowest at 9%, 9%, and 7% of their facilities, respectively, having a system in place for regular continuous medical education respectively.

[39] The Kenya Medical Practitioners and Dentists Board. (2014). *Continuing Professional Development Guidelines*. Nairobi: The Kenya Medical Practitioners and Dentists Board.

- Half of NGO/FBO facilities (54%) had a system in place for regular continuous medical education while 45% of government facilities and 40% of private facilities had such a system.
- 49% of urban facilities and 42% of rural facilities had a system in place for regular continuous medical education.

Figure 231: Availability of continuous professional development systems by facility type and by managing authority (N=2927), Kenya 2018



6.1.4 Adverse event reporting system

The Institute of Medicine (US) Committee on Data Standards for Patient Safety's definition of an adverse event (an event that results in unintended harm to the patient by an act of commission or omission rather than by the underlying disease or condition of the patient)[40] was adopted with regards to benchmarking the assessment of the quality of care and safety of healthcare services.

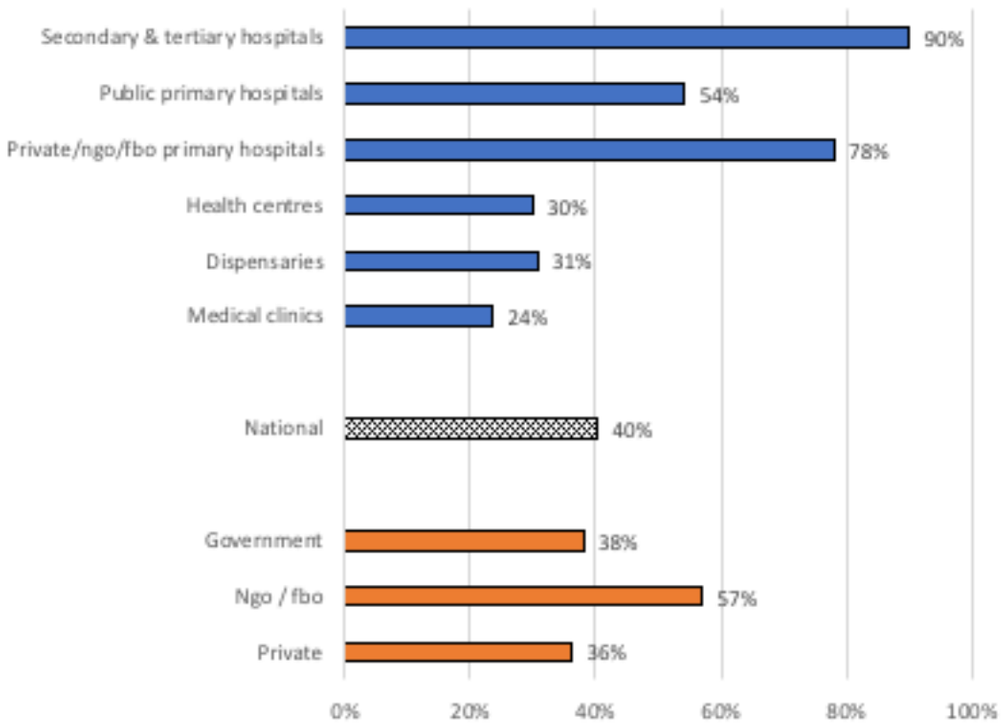
Figure 232 shows the availability of functional adverse reporting systems in facilities with inpatient services nationally as well as by facility type and by managing authority. In addition, **Annex Table 124** shows availability of functional adverse reporting systems in facilities with inpatient services by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location.

- Overall, 40% of health facilities with inpatient services countrywide had a system for identifying and monitoring adverse events, such as patient falls and hospital acquired infections.

[40] Institute of Medicine (US) Committee on Data Standards for Patient Safety; Aspden P, Corrigan JM, Wolcott J, et al., editors. Patient Safety: Achieving a New Standard for Care. Washington (DC): National Academies Press (US); 2004. 6, Adverse Event Analysis. Available from: https://www.ncbi.nlm.nih.gov/books/NBK216102/

- With regards to cross-county comparisons, Samburu, Nyandarua, Nyamira, Nairobi and Busia counties showed the highest availability of functional adverse reporting systems, at 82%, 75%, 75%, 73%, and 71%, respectively.
- The counties with the lowest availability of functioning systems for adverse event reporting and patient safety monitoring were Garissa, West Pokot, and Marsabit counties, at 10%, 7%, and 0%, respectively. This score should be taken with caution as most facilities may have responded based on the national pharmacovigilance system which mainly focuses on reporting adverse drug events and poor-quality medicines, as opposed to a system that looked at the bigger picture, which includes falls and hospital acquired infections.
- A review of performance by health service delivery level shows that the majority of secondary and tertiary hospitals (90%) had a system for identifying and monitoring adverse events while only 3% of dispensaries had such a system.
- Moreover, only about half of NGO/FBO facilities (57%) had a system for identifying and monitoring adverse events, while 38% of government facilities and 36% of private facilities had established such a system.
- 46% of urban facilities had a system for adverse event monitoring compared to 35% of rural facilities.

Figure 232: Availability of functional adverse reporting systems in facilities with inpatient services by facility type and by managing authority (N=811), Kenya 2018



6.1.5 Infection control monitoring system

The survey adapted the KQMH Framework definition of infection prevention, which is in tandem with both the Kenya Medical Practitioners and Dentist Board Continuing Professional Development Guidelines and the WHO operationalised definition of infection prevention and control as an approach and practical solution designed to prevent harm caused by infection to patients and health workers[41] [42] [43]. The quality of care module of the KHFA has standardised a number of select core indicators for assessing the maturity of the systems with regards to establishment of infection prevention and control mechanisms for strengthened service delivery and these are what guided the synthesis of this report.

Figure 233 shows the availability of infection control monitoring systems nationally as well as by facility type and by managing authority. In addition, **Annex Table 124** shows availability of infection control monitoring systems by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location.

- Only one third (30%) of facilities countrywide had established infection control monitoring systems that met the thresholds defined in the KQMH framework and implementation guidelines.
- Availability of infection control monitoring systems was variable across counties, with Busia and Nayamira counties scoring the highest at 74% and 71%, respectively, while only 4% of facilities in Kirinyaga County had a systematic process of monitoring adherence to infection prevention and control (IPC) guidelines.
- A further analysis of the report shows the tendency of health facilities to monitor adherence to IPC guidelines increased with the level of health facility. Only 23% of dispensaries, 28% of medical clinics, and 37% of health centres monitored adherence compared to 61% of primary hospitals and 80% of secondary and tertiary hospitals.
- Monitoring adherence to IPC guidelines did not appear to vary based on facility ownership, with a range from 28% among government facilities to 33% among NGO/FBO facilities.
- More facilities in urban settings (36%) than those in rural settings (27%) had a systematic process for monitoring adherence to IPC guidelines.

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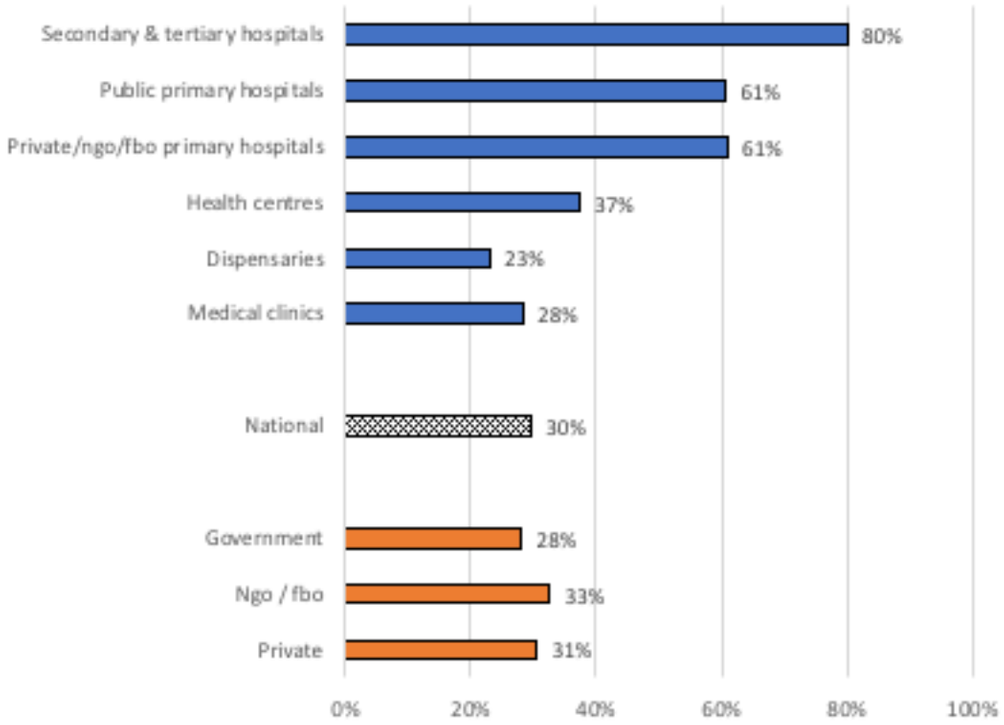
[41] Ministry of Health. (2014). *Kenya Quality Model for Health*. Nairobi: Ministry of Health.
Pharmacy and Poisons Board of Kenya. (2019, April 30). *Pharmacovigilance*. Retrieved from Pharmacy and Poisons Board: https://pharmacyboardkenya.org/pharmacovigilance

[42] The Kenya Medical Practitioners and Dentists Board. (2014). *Continuing Professional Development Guidelines*. Nairobi: The Kenya Medical Practitioners and Dentists Board.

[43] World Health Organization. (2019, May 1). *Infection prevention and control*. Retrieved from World Health Organization: https://www.who.int/infection-prevention/about/ipc/en/

Figure 233: Availability of infection control monitoring systems by facility type and by managing authority (N=2927), Kenya 2018



6.2 Monitoring of quality of care at the facility level

6.2.1 System for verification of health worker licences

Human resources for health (HRH) is a critical domain in strengthening the establishment of a robust healthcare system with quality, integrated, and expanded health services package as guided by KEPHs. The health system relies on the health workforce to deliver good quality health services. However, it's not just the count and distribution of health workers that matters. Only when the health workers possess the required competencies, are motivated, and are empowered can theoretical service coverage translate into effective service coverage 44.

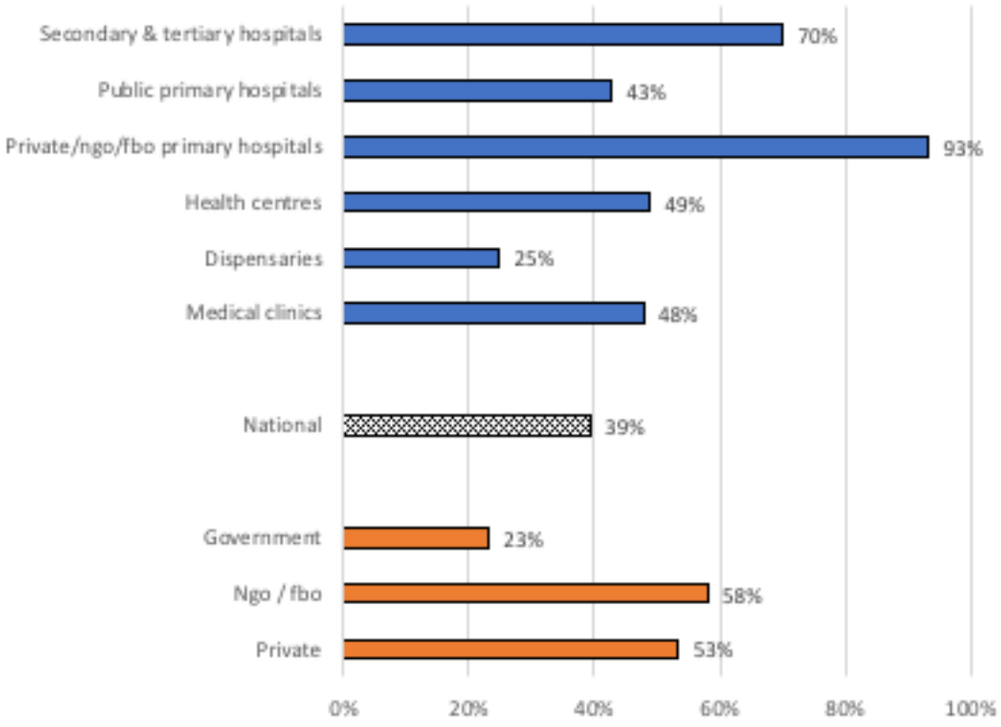
In order to enforce minimum standards for professional competence in Kenya, health workers are required to be registered, enrolled, or licenced with their professional regulatory agencies. This section describes the proportion of facilities that reported a system for routinely verifying the licence and other relevant registration status of their employed health workers. Such verification would entail, for example, annual updating of employee records with copies of professional licences, existence of records of payment of registration fees and other such processes.

Figure 234 shows the availability systems for verification of health worker licence nationally as well as by facility type and by managing authority. In addition, **Annex Table 124** shows availability of systems for verification of health worker licence by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location.

[44] World Health Organization (WHO) 2016

- Overall, slightly over a third (39%) of health facilities in Kenya reported that they routinely verify their health professionals' licences and registration status. This finding is consistent with that of the Patient Safety Standards Assessment report (2013)45 which found that between 61% and 66% of facilities did not routinely review health worker credentials. This might be attributed to the fact that there is no clear legislation that guides employers on health worker on-boarding requirements, although the joint health inspection checklist has now explicitly stipulated this requirement46.
- Moreover, only 23% of public facilities had a system in place for verification of health workers' licences. This difference may be because public health professionals' employment records are mostly held at the county administrative offices and thus survey respondents may not have viewed these files' contents.
- Professional licencing and registration is higher (56%) in urban areas compared to rural areas (31%). This difference is likely driven by the urban-rich distribution of private and NGO/FBO facilities compared to public facilities.

Figure 234: Availability of systems for verification of health worker licences by facility type and by managing authority (N=2927), Kenya 2018



[45] MoH, WHO, IFC, PharmAccess (2013) An assessment of Patient Safety Standards in Kenya: Summary report of patient safety survey. https://uasingishureproductivehealth.files.wordpress.com/2015/08/kenya-patient-safety-survey-report-2014.pdf

[46] Joint Health Inspection checklist 2016, Section D2. https://uasingishureproductivehealth.files.wordpress.com/2015/08/joint-health-inspection-checklist_complete_final-feb2015.pdf

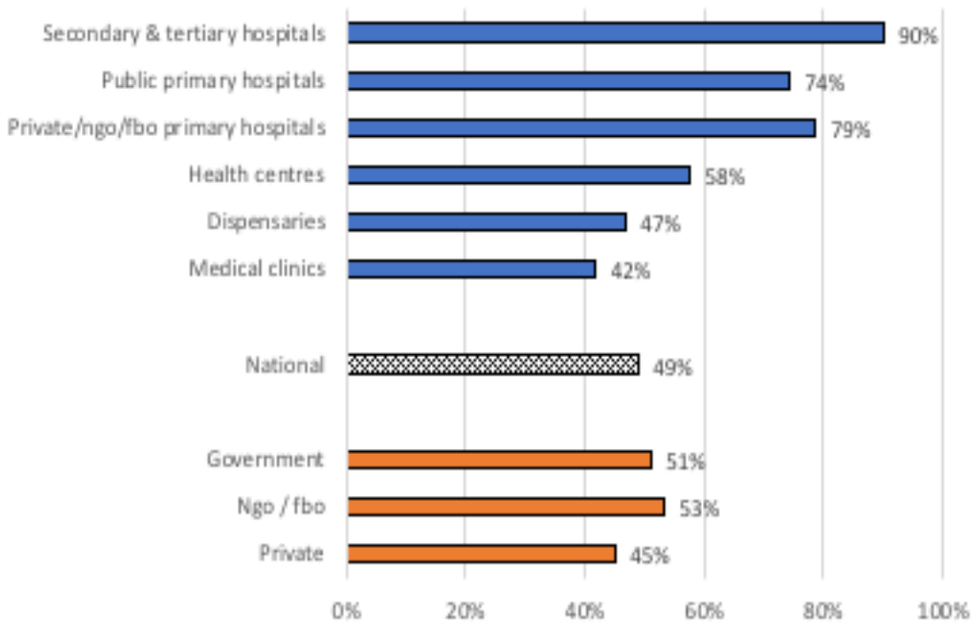
6.2.2 Process for performance review based on data on facility services, outcomes, or patient feedback

The survey assessed whether there was a system in place to aid and guide the routine facility performance reviews that were informed by the data on facility services, outcomes or patient feedback.

Figure 235 shows the availability of systems for performance review based on data nationally as well as by facility type and by managing authority. In addition, **Annex Table 124** shows availability of systems for performance review based on data by county, facility type, by managing authority (governmental vs. non-governmental), and by urban vs. rural location.

- Almost half (49%) of health facilities in Kenya routinely reviewed their performance based on facility data or patient feedback.
- There was variability in the availability of systems for performance review based on data by county, with the availability ranging from 16% in Elgeyo Marakwet County to 88% in Marsabit County.
- The majority of facilities that had a system in place for performance review were hospitals. Health centres and dispensaries had lower availability of these systems. This may be because data on facility performance has mostly been aggregated at the sub-county level and therefore data reviews have been conducted at that level historically. The recent introduction of facility score cards may improve this score among lower-level facilities.
- There was little difference in the availability of systems for performance review based on data across urban and rural facilities, at 54% and 47%, respectively.

Figure 235: Availability of systems for performance review based on data by facility type and by managing authority (N=2927), Kenya 2018



6.2.3 Supportive supervision system for health workers

Supportive supervision is a process that promotes quality at all levels of the health system by strengthening relationships within the system, focusing on the identification and resolution of problems, and helping to optimise the allocation of resources, promoting high standards, teamwork, and better two-way communication with health workers[47]. It is carried out in a respectful and non-authoritarian way with a focus on using supervisory visits as an opportunity to improve knowledge and skills of health staff[48].

One of the indicators of a functional supportive supervision system at the county sub-county level is the timeliness and regularity of such supportive supervision missions/visits by the respective MOPH structures (national) and county departments of health services. The Ministry of Health Health Sector Indicator Manual defines the recommended period of supervision as every three months. The survey therefore sought to find out the timing of the most recent last external supportive supervision visit in each facility. The results below present the proportion of facilities that had received a supportive supervision visit within the past three months of the study date.

Figure 236 shows the availability of supportive supervision visit within the past three months nationally as well as by facility type and managing authority. In addition, **Annex Table 124** shows availability supportive supervision visit within the past three months by county, facility type, by managing authority (governmental vs. non-governmental), and by urban vs. rural location.

- Nationally, most (71%) of health facilities reported that they had received at least one supportive supervision visit three months prior to the survey.
- However, there was variability in the availability of supportive supervision visits within the past three months, ranging from 46% in Kiambu to 93% in Lamu.
- While the majority of public facilities (85%) had received supportive supervision in the three months prior to the survey, this was not the case for private facilities, of which only 53% had received supportive supervision.. Further enquiry needs to be done to identify why private sector facilities are not benefiting from these supervision visits.

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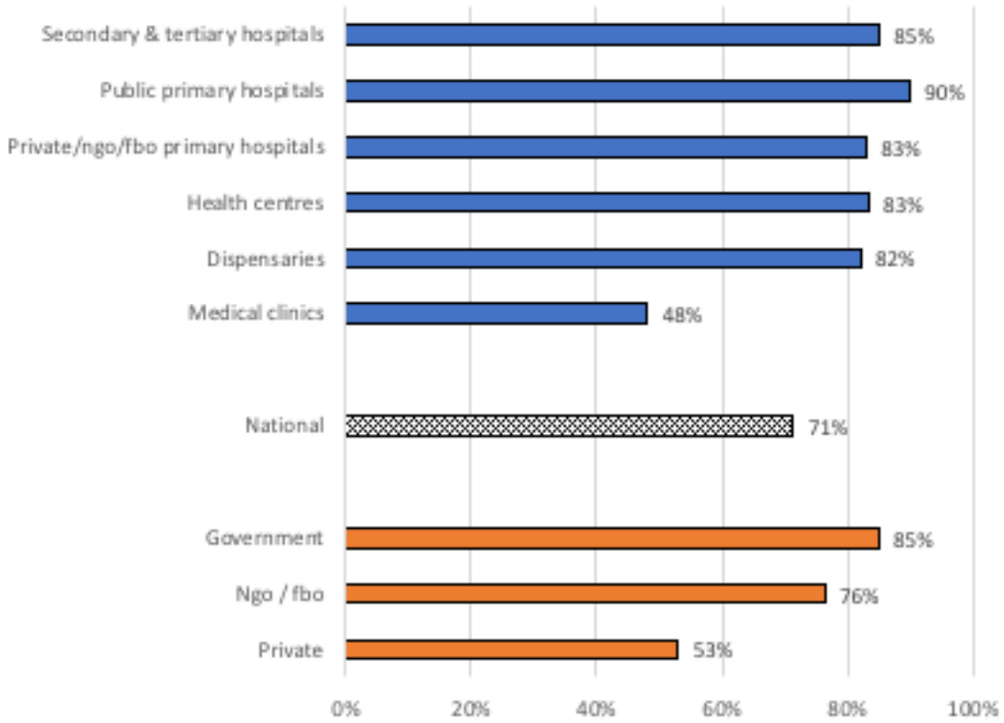
[47] Marquez, L. and L. Kean, Making Supervision Supportive and Sustainable: New Approaches to Old Problems, Maximizing Access and Quality Initiative, MAQ Paper No. 4, USAID, Washington, DC, 2002. Available online at www.maqweb.org/maqdoc/MAQno4final.pdf

[48] Training for Mid-level Managers: Module 4 Supportive supervision. https://www.who.int/immunization/documents/MLM_module4.pdf

Figure 236: Availability of supportive supervision visit three months prior to the survey by facility type and by managing authority (N=2927), Kenya 2018



6.2.4 System for including community representation on management committees

Health facility management committees (HFMCs) are considered one mechanism for instituting health system changes to improve the quality of services. HFMCs effect health system changes by encouraging direct engagement of communities in health facility activities and promoting community accountability[49]. The survey assessed if facilities had established a core management team that provided oversight of the day-to-day functioning of the facility, and whether they had a means for meaningful community representation/participation.

Figure 237 shows availability of systems for including community representation on management committees nationally as well as by facility type and managing authority. In addition, **Annex Table 124** shows availability of systems for including community representation on management committees by county, by facility type, by managing authority (governmental vs. non-governmental), and by urban vs. rural location.

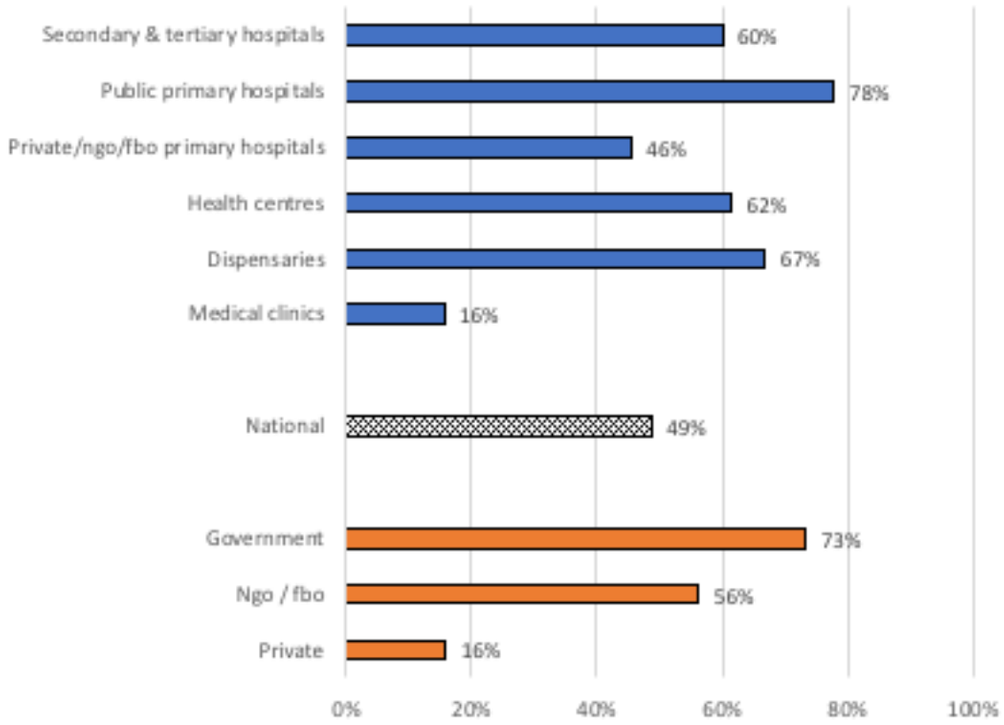
- Just about half (49%) of health facilities in the country reported a system of community representation on management committees.
- The county with the largest proportion of facilities reporting meaningful representation systems was Elgeyo Marakwet, at 96%, while Kiambu had only 20% of such systems. There were very wide

[49] Molyneux S et al (2012) Community accountability at peripheral health facilities: a review of the empirical literature and development of a conceptual framework. Health Policy and Planning 27(7):541-54 https://www.ncbi.nlm.nih.gov/pubmed/22279082/

intercounty variations between the highest and the lowest scores, which may be explained by many facilities not having functional boards or committees across the counties.

- A majority (73%) of government facilities and most (56%) NGO/FBO facilities had a routine system for community representation compared to only 16% of private facilities.
- Similarly, a majority (78%) of public primary hospitals had a routine system for including meaningful community representation on facility management teams or committees compared to only 32% of medical clinics. This is due to a requirement for public facilities to include a community representative in their boards or committees while private facilities and medical clinics are not mandated to do so.

Figure 237: Availability of systems for including community representation on management committees by facility type and managing authority (N=2927), Kenya 2018



6.2.5 Systems for measuring patient experience of care

Patient experience is one of the fundamental determinants of healthcare quality. Studies have demonstrated a positive association between a positive experience of care and health outcomes. Opening up dialogue between patients and providers by giving patients a "voice" has proved to be key to improving quality of clinical experience. Eliciting feedback from patients and engaging them in their care provides an opportunity to highlight and address aspects of the care experience that need improvement, and to monitor performance with regard to meeting patient experience goals in the delivery of care.[50]

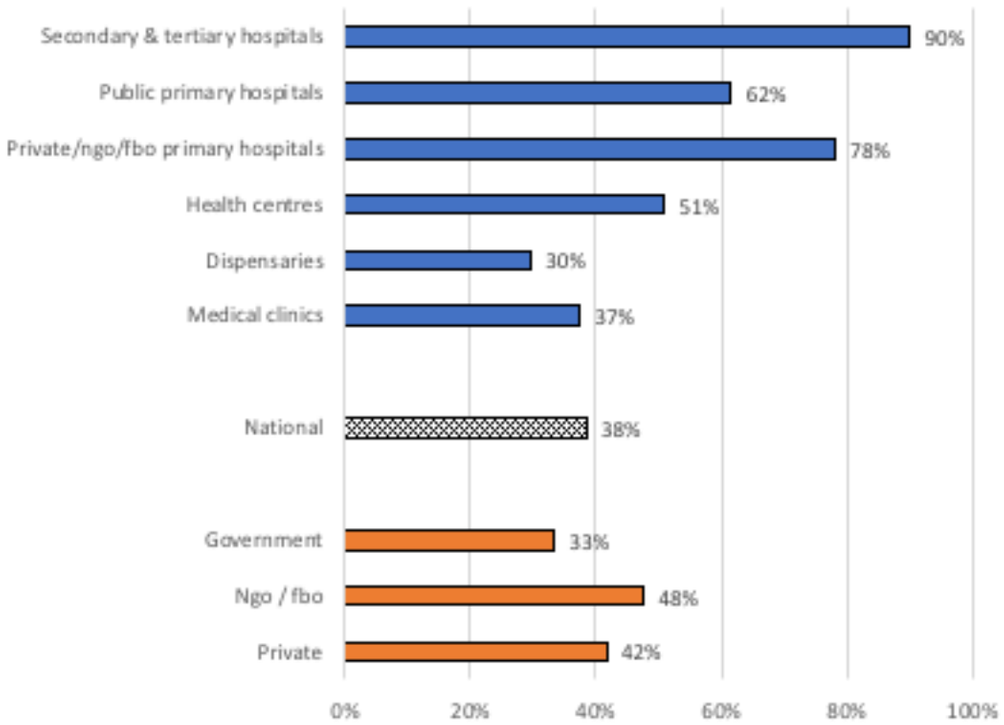
[50] https://pxjournal.org/cgi/viewcontent.cgi?article=1003&context=journal

While the survey did not directly measure patient experiences, it assessed the availability of systems for determining/obtaining patients' opinions and feedback on the health facility and health services received. The survey further assessed (by observing relevant documentation) whether the opinions obtained were routinely reviewed, as an indicator of the existence of a system for measurement of patient experiences upon interaction with the healthcare system.

Figure 238 shows the availability of systems for measuring patient experience of care nationally as well as by facility type and managing authority. In addition, **Annex Table 124** shows availability of systems for measuring patient experience of care by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location.

- Only 38% of facilities had systems in place for measuring patient experiences. All facilities are required to have a service charter – a public document that sets out basic information on the services provided the standards of service that users can expect from an organisation, and how to make complaints or suggestions for improvement. The data shows that there is need for facility managers to ensure that systems are in place to capture and utilise such patient feedback.
- Samburu County reported the highest proportion (72%) of facilities with systems in place for measuring patient experiences, while Lamu County had the least (9%).
- A higher proportion of hospitals had systems in place compared to health centres, dispensaries and medical clinics.

Figure 238: Availability of systems for measuring patient experience of care by facility type and by managing authority (N=2927), Kenya 2018



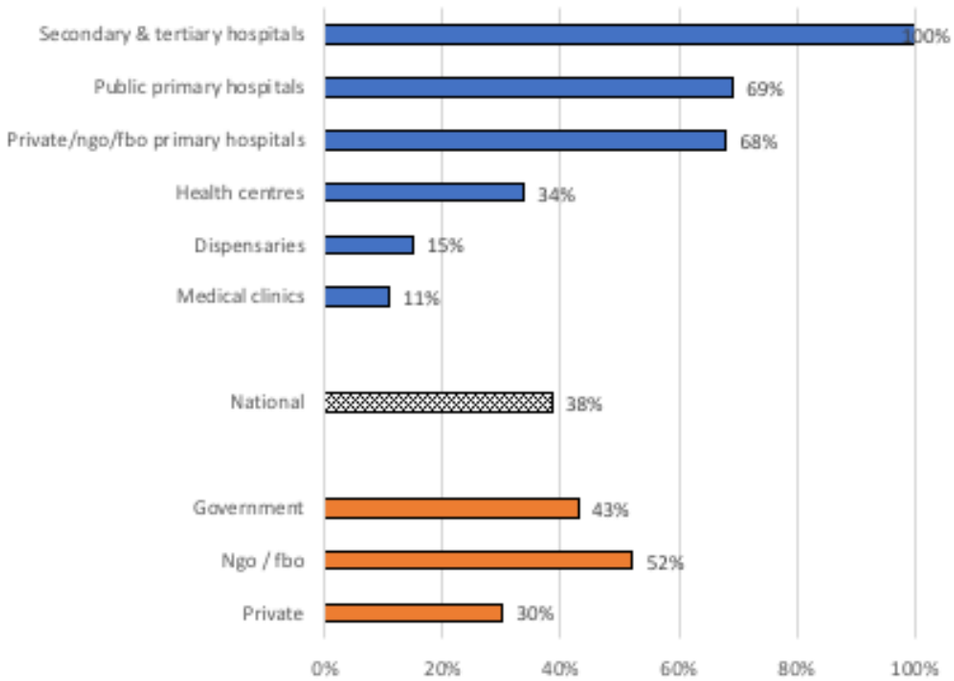
6.2.6 Inpatient mortality reviews

Hospital mortality rate is a common measure of healthcare quality. While there have been numerous discussions on the pros and cons of inpatient mortality as a measure of healthcare quality,[51] it is generally agreed that mortality rate analysis or even selected cases for a detailed mortality review "…can be important tools to identify system failings"[52]. The mortality review process is therefore necessary for understanding the root causes of quality-of-care problems from a holistic perspective. This survey assessed the regularity and frequency of mortality and morbidity reviews in inpatient medical, paediatric and surgical wards.

Figure 239 shows the availability of inpatient mortality reviews among facilities with inpatient services nationally as well as by facility type and by managing authority. In addition, **Annex Table 124** shows availability of inpatient mortality reviews among facilities with inpatient services by county, by facility type, by managing authority (governmental vs. non-governmental), and by urban vs. rural location.

- Nationally, 38% of facilities with inpatient services conducted inpatient mortality reviews.
- While all referral hospitals (secondary and tertiary hospitals) reported that they conducted mortality reviews, the proportion among primary hospitals and health centres with inpatient capabilities was much lower, at 69% and 34%, respectively.
- There was a marked disparity by managing authority, with only 30% of private sector facilities reporting availability of mortality and morbidity reviews compared to government (43%) and NGO/FBO facilities (52%).

Figure 239: Availability of inpatient mortality reviews among facilities with inpatient services by facility type and by managing authority (N=811), Kenya 2018



[51] Dubois 1987 http://www.nejm.org/doi/abs/10.1056/NEJM198712243172626

[52] English 2018 https://bmcmedicine.biomedcentral.com/articles/10.1186/s12916-018-1024-8

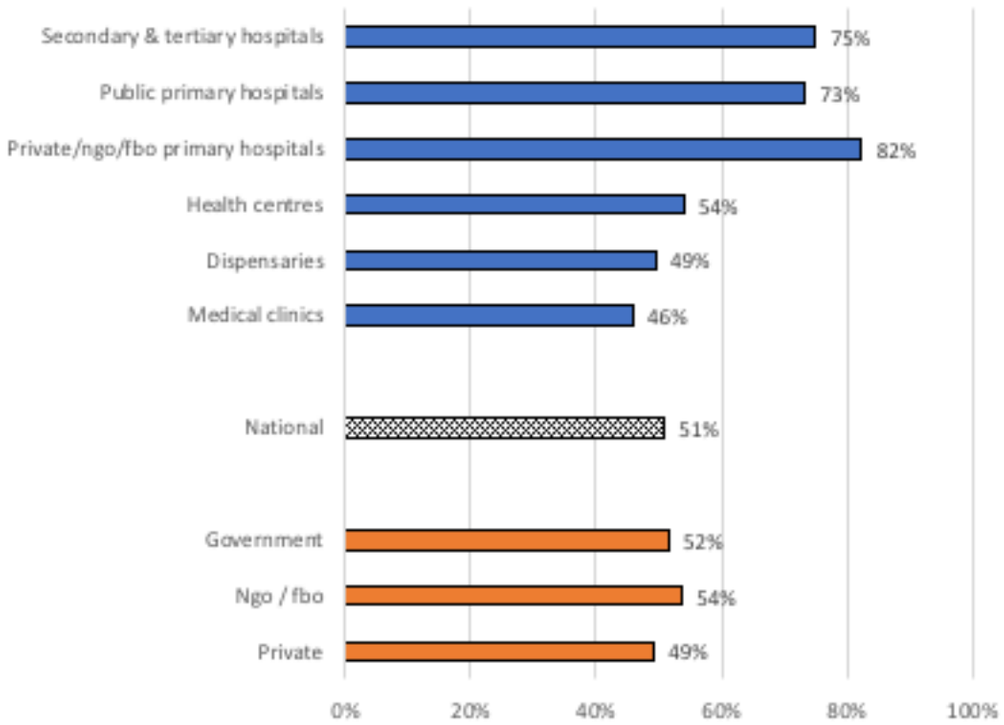
6.2.7 Systematic monitoring on the use of medicines

Access to essential medicines is a core component of the right to health, and a requisite to the attainment of national health goals. The Kenya Essential Medicines List (KEML) defines the priority focus for investment in medicines by the public health sector towards ensuring the provision of equitable healthcare to the population in line with defined sector policies, strategies, norms and standards. The KEML should be used as a basis for ensuring an effective system of regulation of all activities involving medicines (including import, export, local production, registration, levels of distribution/use, quality monitoring, post-market surveillance [pharmacovigilance], prescribing and dispensing). It should also guide medicines regulatory decision-making aimed at enhancing access to essential medicines.

Figure 240 shows the availability of systematic monitoring on the use of medicines nationally as well as by facility type and by managing authority. In addition, **Annex Table 124** shows availability of systematic monitoring in the use of medicines by county, by facility type, y managing authority (governmental vs. non-governmental), and by urban vs. rural location.

- Nationally, 51% of facilities had systematic monitoring on the use of medicines.
- There was little variation in the availability of systematic monitoring on the use of medicines by managing authority (i.e. governmental vs. non-governmental).
- Hospitals demonstrated higher availability of systematically monitoring the use of medicines as compared to primary care facilities, This may be in response to the volume of services they provide which demand more robust quality monitoring structures and processes.

Figure 240: Availability of systematic monitoring on the use of medicines by facility type and by managing authority (N=2927), Kenya 2018



6.3 Facility adherence to standards

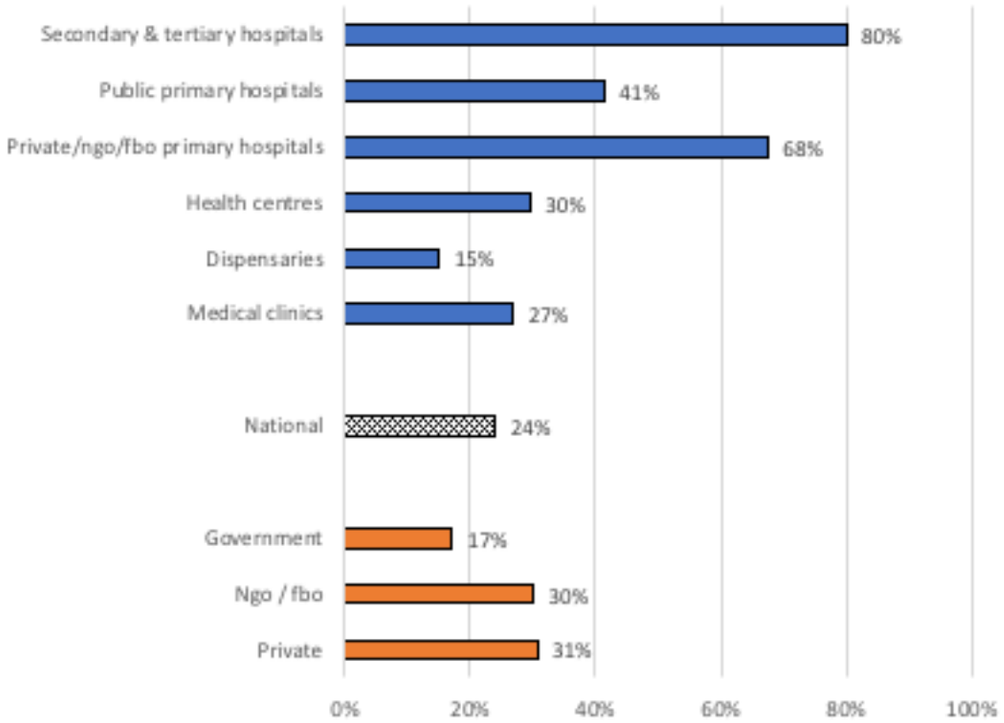
6.3.1 Facility participates in external accreditation licencing

Accreditation is usually a voluntary process in which an accrediting body, usually non-governmental, assesses and certifies that an institution meets the quality standards adopted by the accreditation body. Facilities that receive a satisfactory score are accredited, usually for a period of two to three years. Accreditation programmes typically adopt standards that are considered optimal yet achievable to encourage continual quality improvement. Kenya has developed the Kenya Quality Model and its expansion into a National Policy on Quality Assurance, including clinical care, management support, and leadership and to make it adaptable for the different Kenya Essential Packages for Health (KEPH) Levels 2, 3, 4 5 and 6.

Figure 241 shows the availability of participation in external accreditation nationally as well as by facility type and by managing authority. In addition, **Annex Table 125** shows availability of participation in external accreditation by county, facility type, by managing authority (governmental vs. non-governmental), and by urban vs. rural location.

- Nationally, only 24% of facilities reported participation in an external accreditation process.
- Government-owned facilities were less likely to have participated in an external accreditation process (17%) compared to NGOs/FBOs (30%) facilities and private facilities (31%).
- Secondary and tertiary hospitals and private/NGO/FBO primary hospitals were the most likely to participate in an external accreditation process (80% and 68 %, respectively) while government primary hospitals were the least likely to participate in such a process (41%). Considering that most primary hospitals technically handle the highest volume of illnesses (i.e. promotive and preventive health services), the survey findings present a call to action if the Ministry of Health aims to accelerate realisation of the achievement of the UHC agenda for health.

Figure 241: Availability of participation in external accreditation by facility type and by managing authority (N=2927), Kenya 2018



6.3.2 Proper disposal of sharps waste

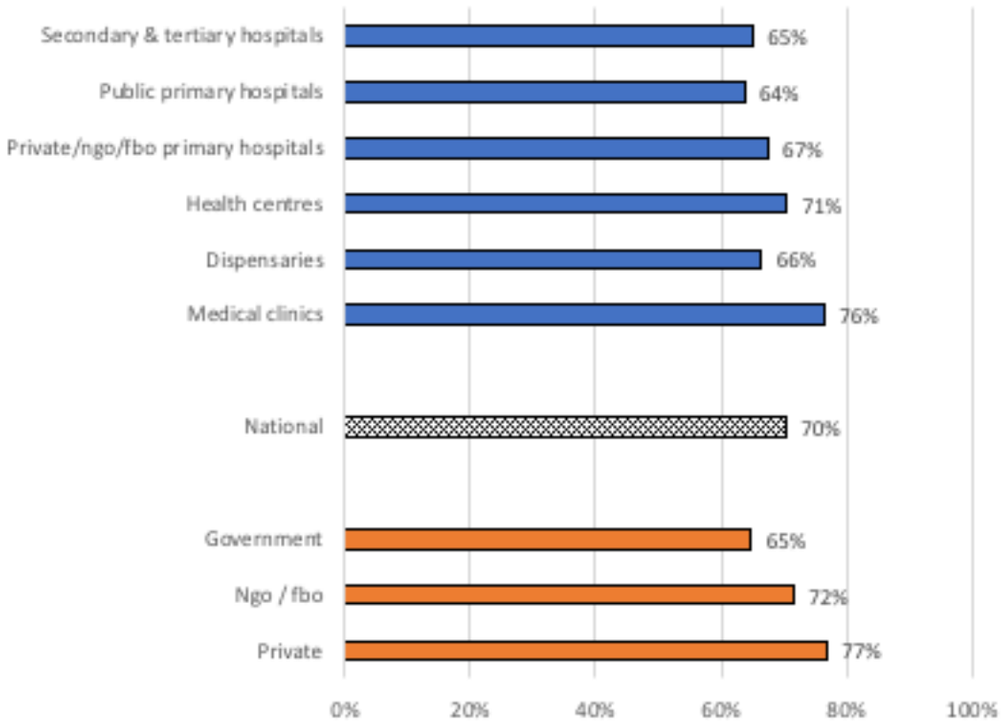
Management of wastes arising from health care is a requirement necessary for the country to attain environmental sustainability as envisioned in the Kenya's Environment Policy. The plan is therefore a derivate of the healthcare waste management policy and guidelines as well as the infection prevention policy. The emergence and re-emergence of diseases, such as HIV/AIDS, multi-drug resistant TB, hepatitis B and hepatitis C, with high per capita consumption of medical commodities and subsequent generation of hazardous waste has made the MoH develop the Health Care Waste Management Strategic Plan 2015- 2020. The plan provides guidance on ways to plan, budget, and implement appropriate priorities in order to realise sound and professional management of healthcare waste. In addition, large volumes of potentially hazardous waste can pollute the environment and consequently be injurious to health[53].

Figure 242 shows the availability of proper disposal of sharps waste nationally as well as by facility type and by managing authority. In addition, **Annex Table 125** shows availability of proper disposal of sharps waste by county, by facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location.

- Nationally, 70% of health facilities have proper disposal of sharps waste available.
- There was little variation in the availability of proper disposal of sharps waste by facility type (64% to 76%) and by managing authority (65% to 77%).

[53] Health care waste management strategic plan 2015- 2020

Figure 242: Availability of proper disposal of sharps waste by facility type and by managing authority (N=2742), Kenya 2018



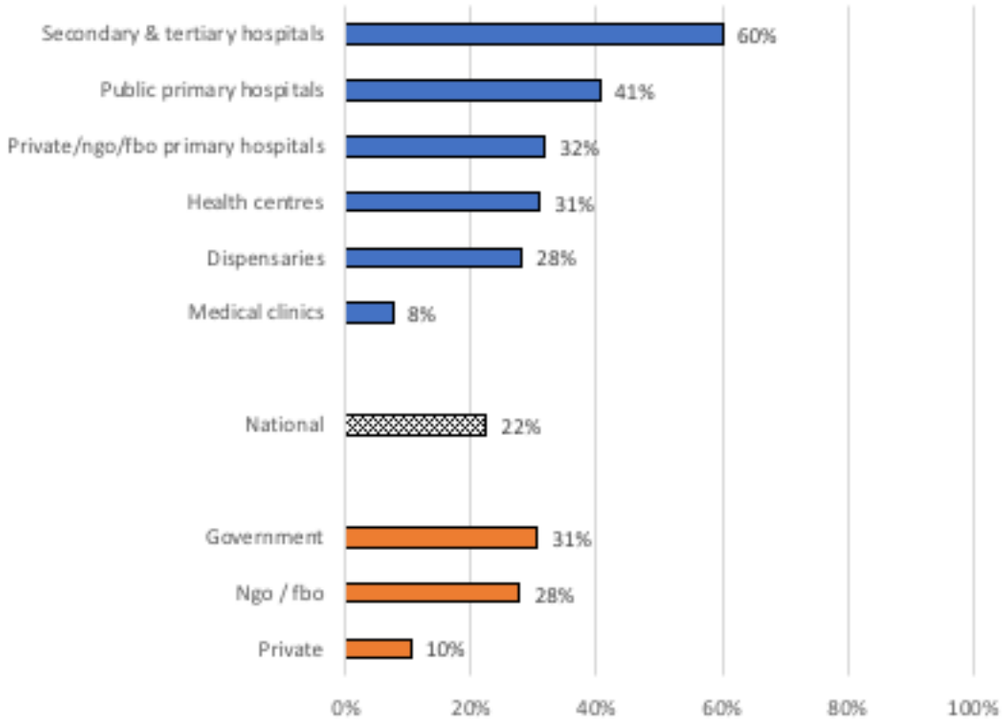
6.3.3 Pharmaceutical commodity storage conditions

Integrity of medical commodities requires more than just a roof over an open space in a four-wall enclosure. The specialised nature of drugs and medical commodities calls for state-of-the-art racking schemes that facilitate ease of storage and stock retrieval procedures. Storage conditions for drugs and medicines vary from product to product in terms of lighting, temperatures and humidity. Warehousing activities should be conducted to ensure the highest health and safety standards of pharmaceuticals.

Figure 243 shows the availability of adequate pharmaceutical commodity storage conditions nationally as well as by facility type and managing authority. In addition, **Annex Table 125** shows availability of adequate pharmaceutical commodity storage conditions by county, by facility type, by managing authority (governmental vs. non-governmental), and by urban vs. rural location.

- Nationally, only 22% of health facilities have adequate pharmaceutical commodity storage conditions.
- By facility type, only secondary and tertiary hospitals scored above 50% for availability of adequate pharmaceutical commodity storage conditions, which presents a grim picture about pharmaceutical commodity storage conditions across all facility types.
- By managing authority, government and NGO/FBO facilities had higher availability of adequate pharmaceutical commodity storage conditions than private facilities, although all types of facilities scored under 35% for this indicator.

Figure 243: Availability of adequate pharmaceutical commodity storage conditions by facility type and by managing authority (N=2767), Kenya 2018



6.3.4 Vaccine storage conditions

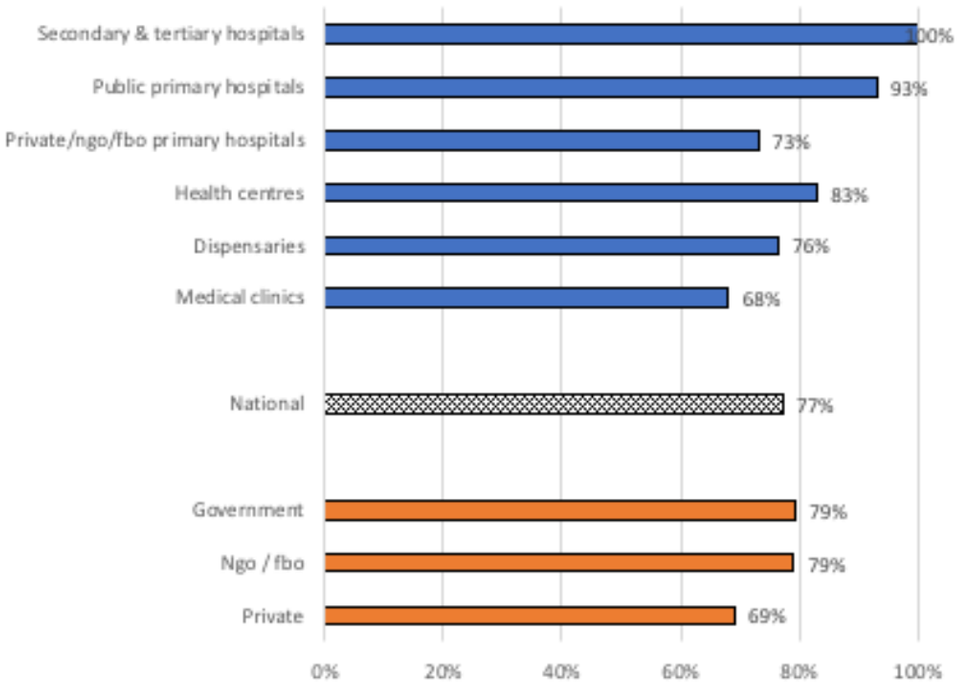
All vaccines for human use must be stored in specialised medical refrigerators as prescribed by the World Health Organization. The storage of vaccines is done through appropriate cold chain, which is a systematic process of maintaining the vaccine in a potent state from the time it is manufactured and as it passes through various suppliers and stores to reach its final recipient, that is, the mother and child. Vaccines are very delicate and easily lose their potency when exposed to high temperature, sunlight, or freezing conditions. A failure in the cold chain system will make the vaccines useless because vaccine that has lost its potency can no longer protect people from diseases.

Figure 244 shows the availability of adequate vaccine storage conditions nationally as well as by facility type and by managing authority. In addition, **Annex Table 125** shows availability of adequate vaccine storage conditions by county, by facility type, by managing authority (governmental vs. non-governmental), and by urban vs. rural location.

- Nationally, 77% of facilities had adequate vaccine storage condition.
- Availability of adequate vaccine storage conditions was 100% for secondary and tertiary hospitals and quite high across facility types.
- There was little variation in the availability of adequate vaccine storage conditions by managing authority (69% to 79%).

- This shows evidence of significant investments by both government and partners in ensuring availability of adequate vaccine storage conditions across the service delivery levels and across the managing authorities

Figure 244: Availability of adequate vaccine storage conditions by facility type and by managing authority (N=2118), Kenya 2018



6.3.5 Outbreak preparedness plans

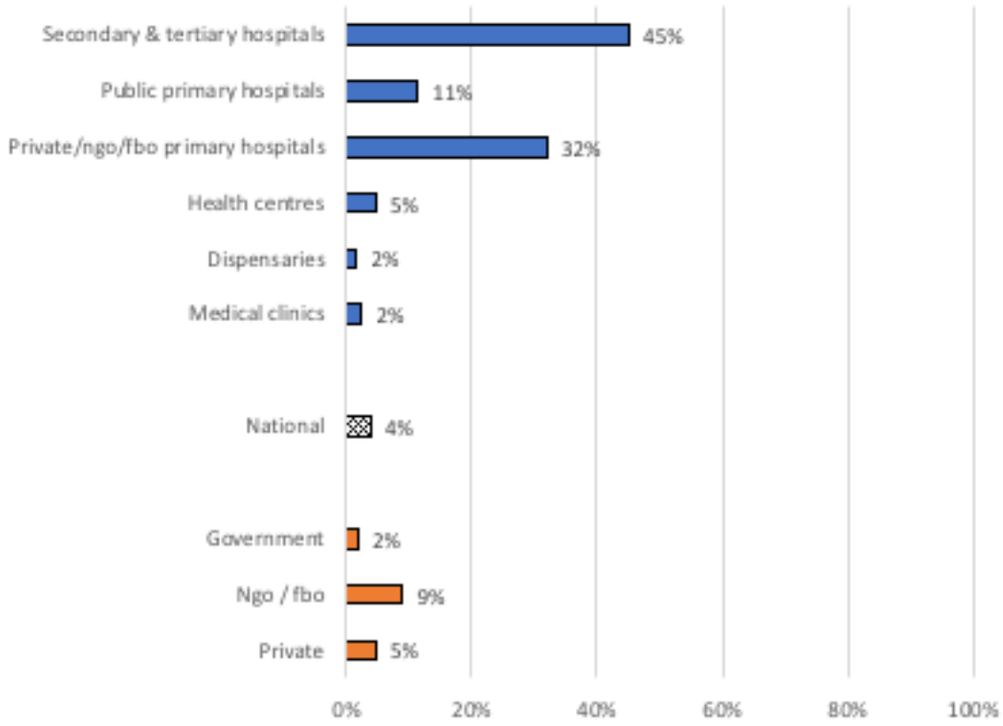
The Government of Kenya is supported by the Center for Disease Control (CDC) in the implementation of the Integrated Disease Surveillance and Response System (IDSR) and in compliance with international health regulations (IHRs). The core elements of the IHR are strong surveillance, laboratory, workforce, and strategic information systems. The support is also on global preparedness through health systems strengthening and active participation in public health responses to disease outbreaks, natural disasters, and other emergencies. There are onsite technical support and training for data collection and analysis, providing the basis for effective response to health threats and public health emergencies.

Figure 245 shows the availability of outbreak preparedness plans nationally as well as by facility type and by managing authority. In addition, **Annex Table 125** shows availability of outbreak preparedness plans by county, by facility type, by managing authority (governmental vs. non-governmental), and by urban vs. rural location.

- Nationally, only 4% of facilities had outbreak preparedness plans.
- By facility type, outbreak preparedness plans were more available at secondary and tertiary hospitals (45%) and private/NGO/FBO hospitals (32%) as compared to public primary hospitals (11%) and primary care facilities (less than 10%).

- By managing authority, there was little variation in the availability of outbreak preparedness plans, with all reporting less than 10% availability.
- The survey findings on outbreak preparedness plans nationally as well as by facility type and by managing authority show overall dismal performance.

Figure 245: Availability of outbreak preparedness plans by facility type and by managing authority (N=2927), Kenya 2018



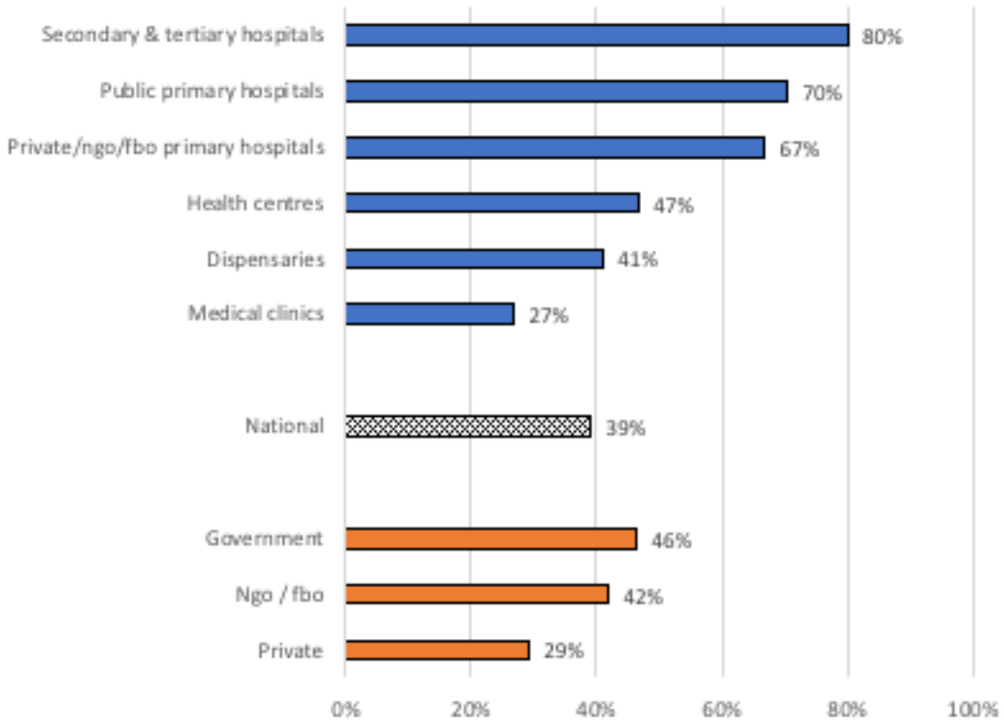
6.3.6 Guidelines on identifying and managing drug use problems

Inappropriate medicine use results in poor patient outcomes and wastes significant amounts of money and other resources. The impact on the healthcare system of inappropriate medicine use is dramatic and can lead to: i) reduction in the quality of pharmaceutical therapy leading to increased morbidity and mortality; ii) increased cost as a result of using the wrong medicine, dose, route, or amount, and because of treatment failures; iii) increased risk of unwanted effects, such as adverse drug reactions (ADRs) and the emergence of antimicrobial resistance. In addition, in some cases, it can result in drug abuse, which is the chronic use of a drug for a reason other than for which it was intended, posing a threat to one's health and safety.

Figure 246 shows the availability of guidelines on identifying and managing drug use problems nationally as well as by facility type and by managing authority. In addition, **Annex Table 125** shows availability of guidelines on identifying and managing drug use problems by county, by facility type, by managing authority (governmental vs. non-governmental), and by urban vs. rural location.

- Nationally, 39% of facilities have guidelines on identifying and managing drug use problems.
- There was significant variation by facility type. Most (80%) of the secondary and tertiary hospitals, public primary hospitals (70%), and private/NGO/FBO hospitals had scored above 65% while health centres, dispensaries, and medical clinics all scored below 50%.
- By managing authority, government facilities were the most likely to have guidelines on identifying and managing drug use problems (46%) followed by NGO/FBO facilities (42%) and private facilities (29%).

Figure 246: Availability of guidelines on identifying and managing drug use problems by facility type and by managing authority (N=2927), Kenya 2018



6.3.7 Laboratory participation in implementing quality assurance mechanisms

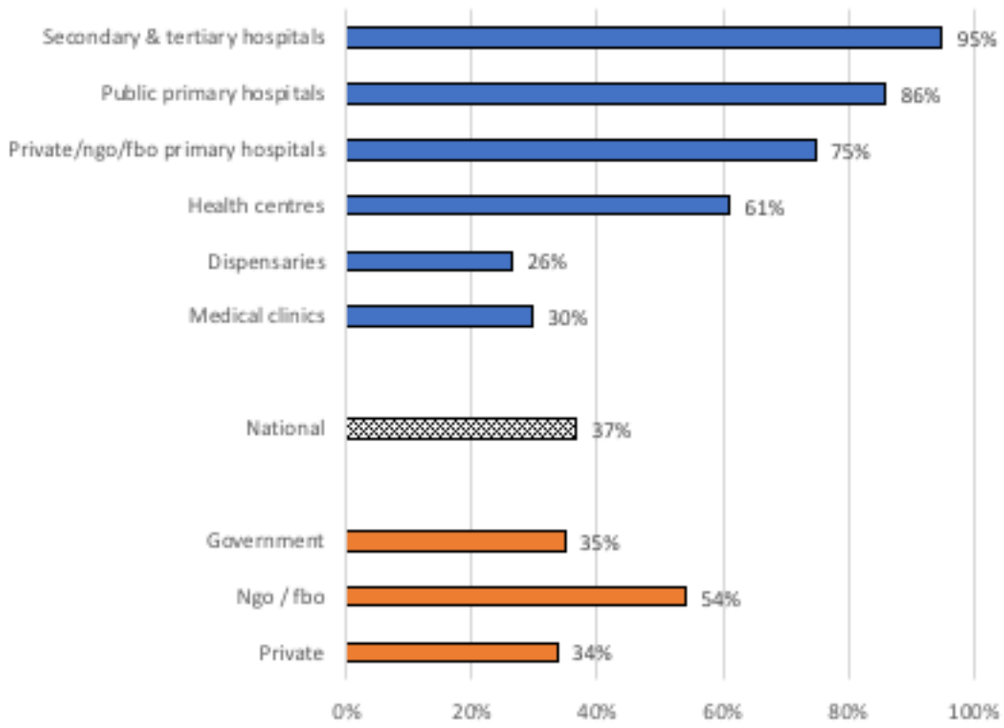
External quality control/assurance (also called proficiency testing or PT) evaluates a laboratory's testing results by comparing them to those of similar laboratories. External quality assurance (EQA) schemes allow a laboratory to gather valuable data that can be used in a variety of ways, including: i) enabling a comparison of performance between laboratories; ii) enabling a comparison of performance between testing sites; iii) providing an early warning for systematic errors; iv) indicating areas for improvement; v) providing evidence of quality; vi) identifying training areas; vii) detecting equipment faults, identifying reagent problems and reviewing staff training; and viii) comparing performance to different analytical methods.

Figure 247 shows the availability of laboratory participation in implementing quality assurance mechanisms nationally as well as by facility type and by managing authority. In addition, **Annex Table 125** shows availability of laboratory participation in implementing quality assurance mechanisms by

county, by facility type, by managing authority (governmental vs. non-governmental), and by urban vs. rural location.

- Availability of laboratory participation in implementing quality assurance mechanisms at health centres, private/NGO/ FBO, public primary hospitals, and secondary and tertiary hospitals was above 60% (i.e. 61%, 75%, 86% and 95%, respectively), while at dispensaries and medical clinics, availability of laboratory participation in implementing quality assurance mechanisms was below 30% (26% and 30%, respectively).
- Dispensaries and medical clinics scored lowly and this was expected given that most of the lower facilities by design are not required to have laboratory systems established.
- By managing authority, NGO/FBO-managed facilities performed relatively better than the government-managed and private facilities.

Figure 247: Availability of availability of laboratory participation in implementing quality assurance mechanisms by facility type and by managing authority (N=2927), Kenya 2018



7. MANAGEMENT SUPPORT SYSTEMS

Management of health facilities is central to the outcomes of care. The central role of management in an organisation is to balance investments with quality of care as demonstrated by patient outcomes. Some of the key elements of managing a facility include planning and budgeting, organisation of services, management performance and monitoring and evaluation. Health facilities that are well managed are likely to have better outcomes and positive patient experiences. The Kenya Health Sector Strategic Plan 2018-2023 outlines some of the key roles of a good health system as being able to raise adequate resources for health service delivery, to enhance the efficiencies of management of health resources, and to provide financial protection to the poor against catastrophic situations.

This chapter examines the capacity of management systems in health facilities with a focus on functionality, efficiency, and accountability of these systems.

7.1 Management systems to support facility functionality, efficiency, and accountability

The Kenya Quality Model for Health (KQMH) provides that every facility should have a management committee. Health facility management committees (HFMCs) are considered one mechanism for leveraging health system change by encouraging direct engagement of communities in health facility activities as part of wider reorganisation of the health system based on principles of decentralisation, community participation and inter-sectoral collaboration. The establishment of structures closer to service users, and inclusion of community representatives in these structures is aimed at ensuring that local problems are more easily seen or voiced, and responded to. These ultimately improve the quality and utilisation of services provided by public primary care facilities.

This section contains information on management systems to support functionality, efficiency and accountability. The key indicators for a strong management system include:

- Facility has a core management team responsible for oversight of the day-to-day functioning of the facility
- Facility has a core management team structured as per norms and standards
- Facility has a routine system for including community representation for some aspects of the management teamwork
- Facility has conducted a committee/board meeting in the past one month
- Facility has written notes/minutes from the most recent management committee meeting
- Facility has formal systems for linking with community health workers
- Facility has a functional community unit

Overall, 30% of facilities had management systems to support facility functionality; Turkana had the highest (67%) compared to 20% in Laikipia.

Figure 248 shows the availability of management systems to support facility functionality, efficiency, and accountability nationally, while **Figure 249** shows the availability of core management teams by county. In addition, **Annex Table 126** shows the availability of management systems to support facility functionality, efficiency, and accountability by county, facility type, by managing authority (governmental vs. non-governmental), and by urban vs. rural location.

- Only two-thirds (67%) of facilities reported having a core management team responsible for oversight of the day-to-day functioning of the facility, while slightly more than half the facilities (52%) reported having core management team structured as per norms and standards.
- Furthermore, 37% of facilities reported having a routine system for including community representation for some aspects of the management teamwork. Additionally, 28% of the facilities had conducted a meeting in the quarter preceding the survey. Only 21% of the facilities had a functional community unit.
- Regarding the facility type, all secondary and tertiary hospitals reported having core management teams. However, this was not the case for other facility levels, with, for instance, 45% of medical clinics and 75% of dispensaries reporting having core management teams. As expected, there was marked difference with reference to the managing authority where 79% of government facilities and 50% of private facilities reported having core management committees/teams.
- These findings are consistent with decentralisation of health services in Kenya. Given the important role of HFMCs, it is essential for national implementation that the committees are in place at all levels of service delivery, as well as at both public and private institutions, and that they have the training and role awareness that is key to their ability to manage workplans and budgets effectively. Further, mechanisms to strengthen community involvement should be deliberate enough to include local politicians as well in order to enhance the democratic status of the committees while maintaining independence and ensuring appropriate freedom of action in the HFMCs. It is therefore vital that the tripartite relationship between the Ministry of Health, the County Department of Health and the health facility management committee is clarified.

Figure 248: Proportion (%) of facilities with management systems to support facility functionality, efficiency, and accountability (N=2927), Kenya 2018

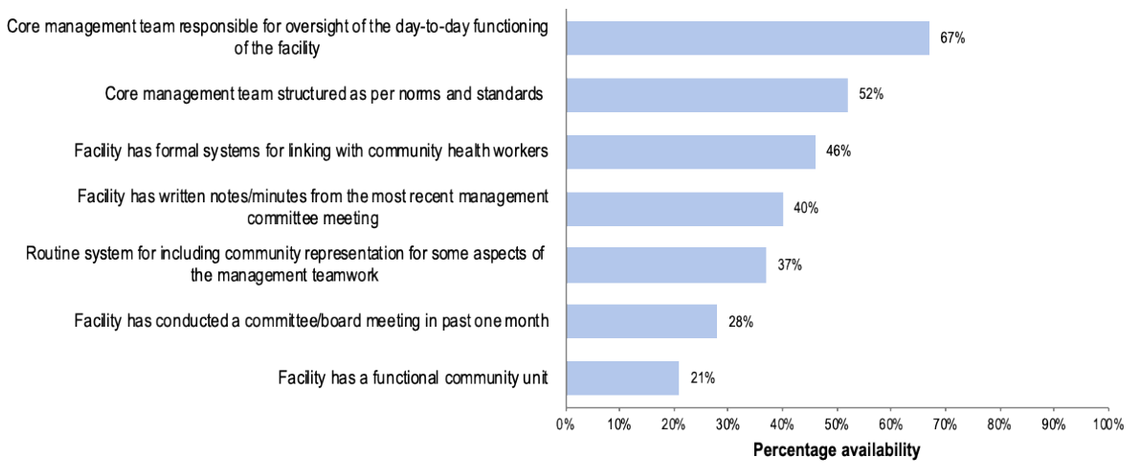
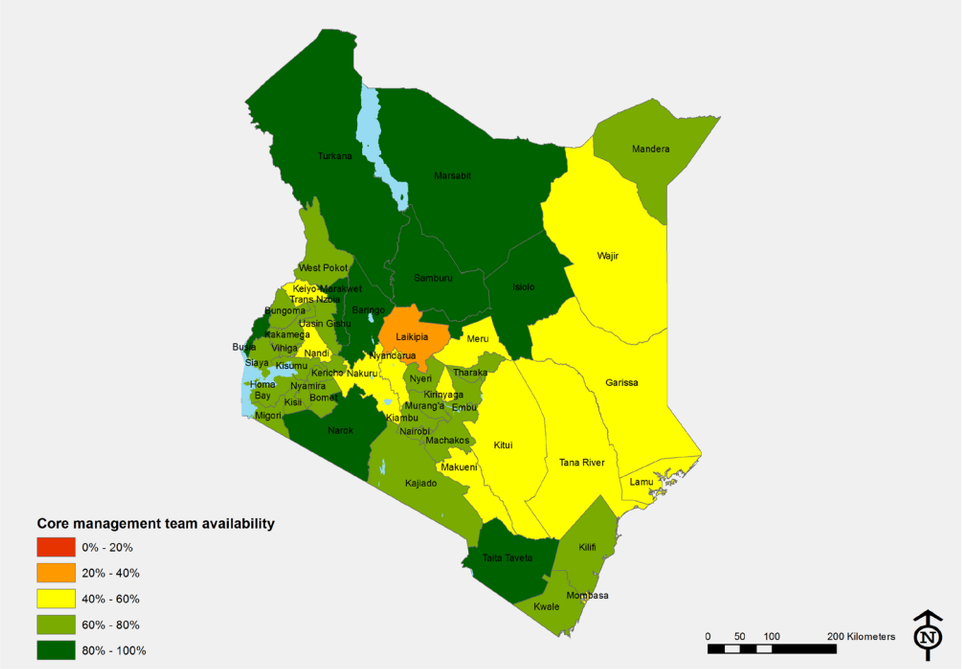


Figure 249: Map of availability of core management teams by county, Kenya 2018



7.2 Implementation of systems to improve accountability

Client feedback systems collect opinions regarding their experience in the facilities that are useful in building responsive health systems. In the Kenyan context, service charters available in all health facilities provide for customer feedback systems that should be reviewed by facility managers and information used to improve patient experience. Generally, increased patient satisfaction can lead to better health outcomes since satisfied clients are more likely to comply with treatment and advice and to return for additional care as necessary. They are also more willing to pay for services thereby increasing revenue for healthcare, an important element of health sector reform. Ultimately, no patient feedback system will succeed without a dedication to providing high quality healthcare that truly places patients at the centre of service delivery systems.

This section contains information on implementation of systems to improve accountability. The key indicators include:

- System for determining patient opinions
- Routine procedure for reviewing or reporting on patient opinions
- Information from patient surveys, such as client satisfaction survey discussed

Overall, systems to improve accountability were available at about a third of the facilities (34%). In Samburu County, 61% of facilities reported having accountability systems compared to 10% in Garissa County.

Figure 250 shows the availability of systems to improve accountability nationally, while **Figure 251** shows the availability of systems for determining client opinions by county. In addition, **Annex Table 127** shows availability of systems to improve accountability by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location.

- Slightly above half (53%) of facilities reported having a system for determining clients' opinions. Despite the requirement for management teams to routinely review patients' feedback, only 18% of facilities reported reviewing or reporting patients' opinions routinely. Almost two thirds (62%) of counties had feedback systems, with Taita Taveta and Nyamira counties scoring a high of 85% and 80%, respectively. Higher-level facilities reported to have more patient feedback systems as compared to the lower level facilities.
- Overall, more urban facilities had systems for patient feedback compared to rural based facilities.
- Based on the analysis of the patient feedback system, it is prudent for all health facilities and hospitals across the country to improve data collection, to integrate findings, and to optimise the use of patient satisfaction data for quality improvement. Health managers and quality teams should ensure that the patient feedback system is utilised routinely and repeatedly and that data is processed quickly, which ultimately ensures rapid responses to issues/challenges that may impede delivery of essential and quality health services to patients.

Figure 250: Proportion (%) of facilities with systems to improve accountability (N=2927), Kenya 2018

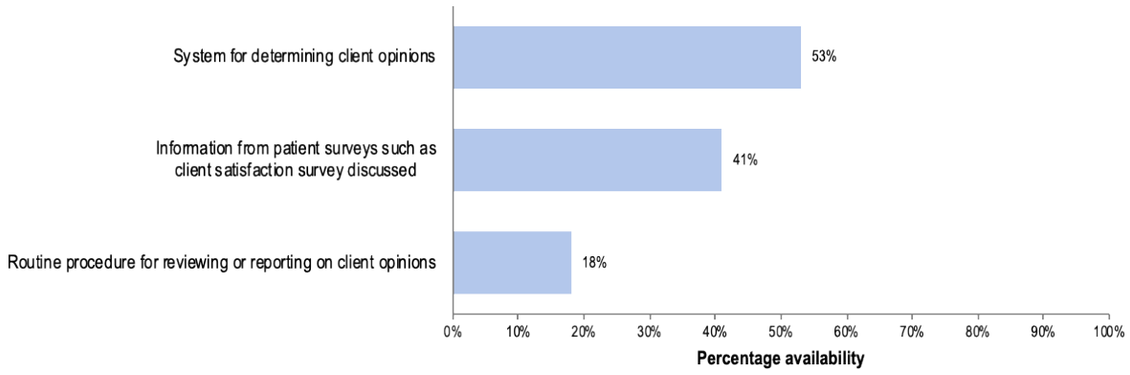
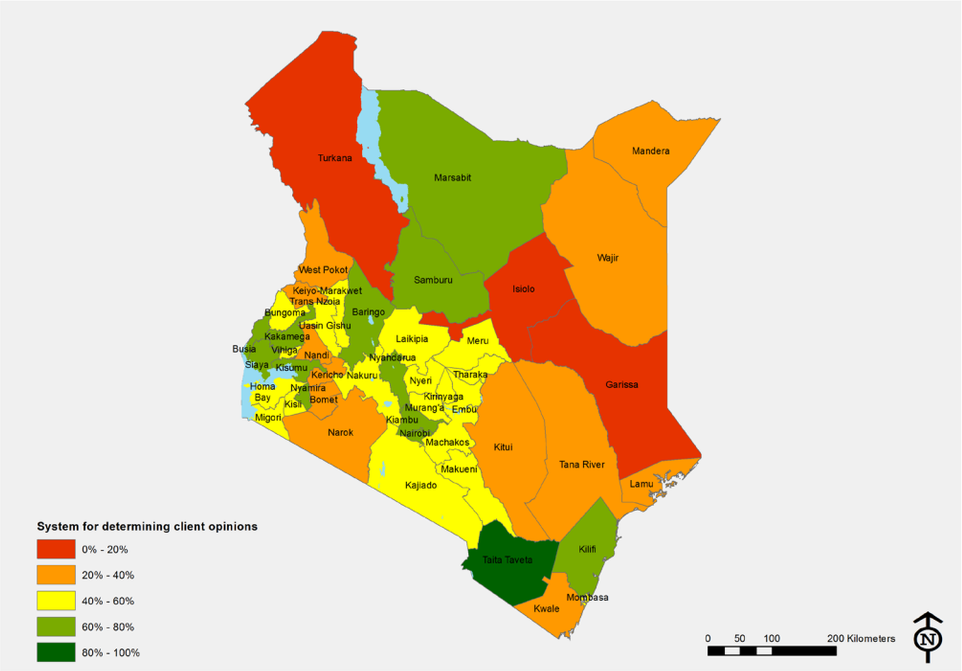


Figure 251: Map of availability of systems for determining patients' opinions by county, Kenya 2018



7.3 Facility-level external supervision for management

Supportive supervision is a process that promotes quality at all levels of the health system by strengthening relationships within the system, focusing on the identification and resolution of problems, and helping to optimise the allocation of resources, promoting high standards, teamwork, and better two-way communication. The cornerstone of supportive supervision is working with health staff to establish goals, monitor performance, identify and correct problems, and proactively improve the quality of service. Together, the supervisor and health workers identify and address weaknesses on the spot, thus preventing poor practices from becoming routine. These visits are also an opportunity to recognise and encourage good practices and to help health workers to maintain their high level of performance.

- Generally, the majority (94%) of facilities reported receiving external supervision, such as from the sub-county, county or national levels.
- Overall, county performance regarding external supervisory visits was good, with 71% of the facilities reporting that they received such visits over the past 3 months.
- There were, however, gaps in documentation, with only 59% of facilities reporting having documentation of the supervisory visits received within the last three months.

Figure 252 shows the availability of facility-level external supervision nationally while **Figure 253** shows the availability of facility-level external supervision by county. In addition, **Annex Table 128** shows the availability of facility-level external supervision by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location.

- In Lamu, 94% of facilities received external supervision within the past 3 months compared to slightly below half (48%) in Garissa.
- All levels of care in both urban and rural settings also reported good performance. This is consistent with expectations where following devolution, counties prioritised supportive supervision to lower-level facilities to improve service delivery and the national level providing technical support to the counties.

Figure 252: Proportion (%) of facilities with facility-level external supervision (N=2927), Kenya 2018

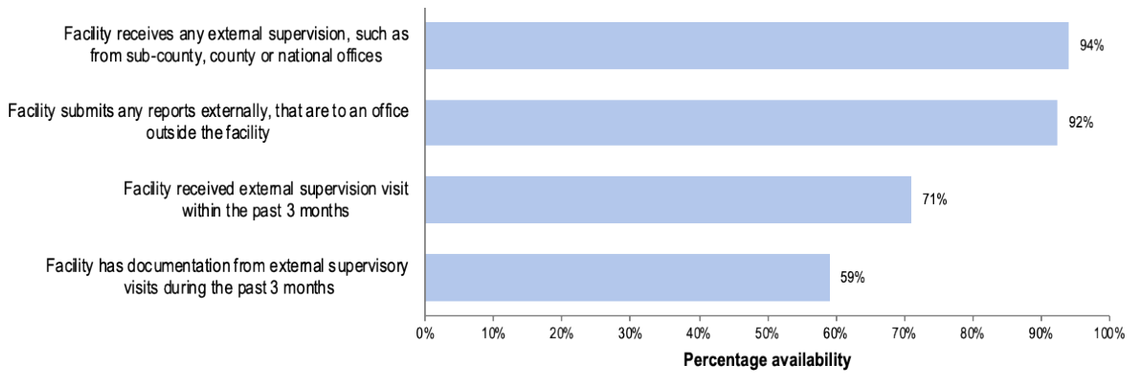
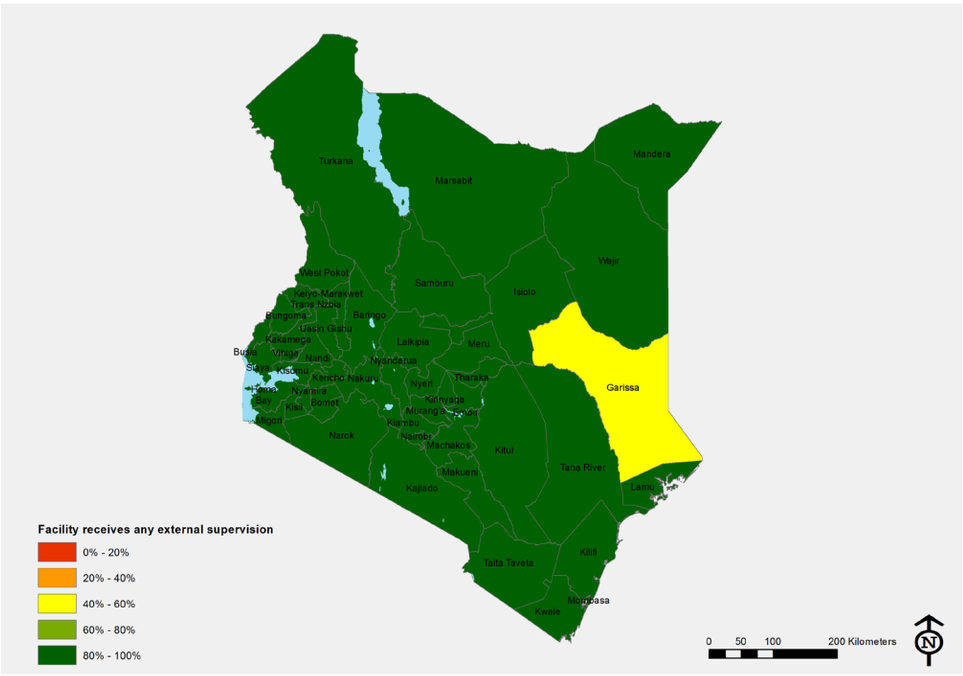


Figure 253: Map of availability of facility-level external supervision by county, Kenya 2018



7.4 Drug management systems

Availability of medicines is one of the most important elements of quality of care as seen by health consumers; availability of medicines/medical supplies is a key factor in assessing both access and quality of health services.

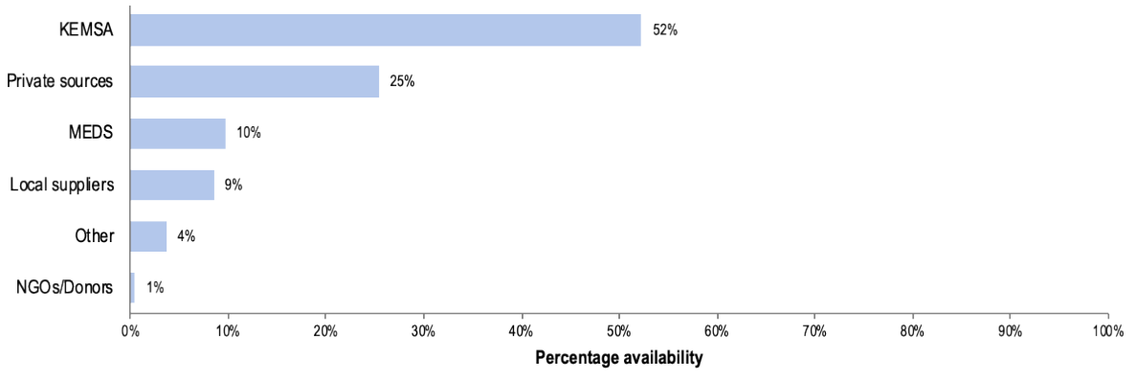
7.4.1 Main source of pharmaceutical commodity supplies

Effective drug management systems result in a strong health care system that increases access to essential supplies from selection of essential medical supplies, quantification and forecasting, procurement, storage and distribution. An efficient management drug management system can facilitate the management of inventories, making informed decisions, planning and controlling flow of stock and reports.

Figure 254 shows the percentage of facilities utilising various sources as the main source of pharmaceutical commodity supplies among facilities that stock pharmaceutical commodities nationally. In addition, **Annex Table 129** shows the percentage of facilities utilising various sources as the main source of pharmaceutical commodity supplies among facilities that stock pharmaceutical commodities by county, by facility type, by managing authority (governmental vs. non-governmental), and by urban vs. rural location.

- Over half (52%) of facilities reported the Kenya Medical Supplies Authority (KEMSA) as their main source of routine pharmaceutical commodity supplies. Secondary and tertiary hospitals, as well as public primary hospitals, reported KEMSA to be the main source, at 58% and 89% per cent, respectively.
- Private/NGO/FBO primary hospitals and medical clinics reported sourcing supplies from private sources, at 38% and 60%, respectively. Notably, urban facilities relied more on private sources (46%) while rural areas heavily depended on KEMSA (67%) for medical supplies.
- These findings are consistent with the fact that KEMSA is a state corporation under the Government of Kenya established under the KEMSA Act 2013 and whose transformation over the years through recapitalisation and reconfiguration of its business model to serve the 47 counties has enabled the agency to strengthen its supply chain management, thus ensuring adequacy and uninterrupted supply of commodities/medical supplies to public and private health facilities and hospitals across the country, and thereby making it the main source of pharmaceutical commodity supplies. The role of private players in this competitive open market, however, cannot be underestimated in the filling up of critical gaps in the health system, especially if accessibility and affordability should be achieved as the country repositions itself towards achieving UHC.

Figure 254: Proportion (%) of facilities utilising various sources as the main source of pharmaceutical commodity supplies among facilities that stock pharmaceutical commodities (N=2618*), Kenya 2018



*** The total number of facilities that stock pharmaceutical data is 2732; the denominator here is 2618 due to missing data for 114 facilities**

7.4.2 Pharmaceutical commodity reporting systems

Commodities are crucial inputs for service delivery in a health facility and indeed the availability of drugs and other medical supplies determines the ultimate outcome of treatment for most patients and is a key factor in patient satisfaction. Management of commodity supply therefore forms a vital part of a health system. A well-managed commodity supply system ensures equity as all patients are able to access drugs and other interventional products leading to better outcomes.

Hospitals are expected to have well maintained and updated registers for antibiotics and insulin, among other commodities. This is achieved through documentation of processes, from receipt to use including updated bin cards, and delivery notes for supplies as well as automation of commodity management systems.

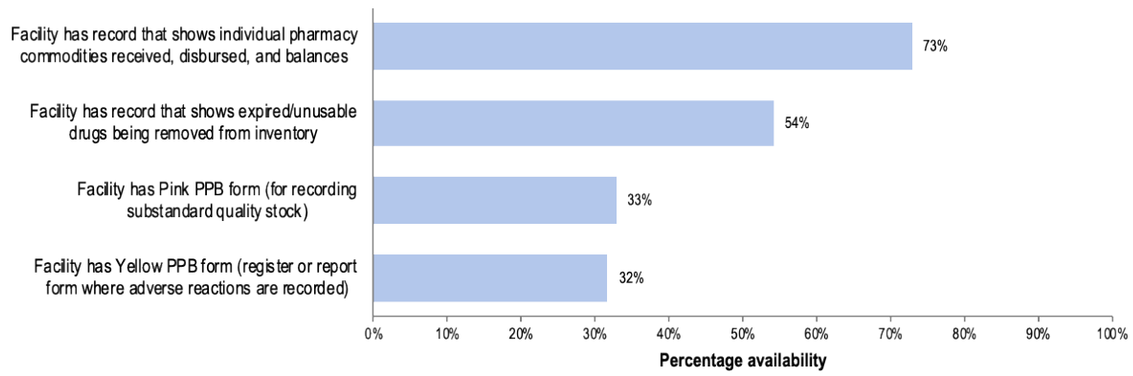
This section contains information on pharmaceutical commodity reporting systems. The key indicators include:

- Facility has record that shows individual pharmacy commodities received, disbursed, and balances
- Facility has records that shows expired/unusable drugs being removed from inventory
- Facility has Yellow PPB form (register or report form where adverse reactions are recorded)
- Facility has Pink PPB form (for recording substandard quality stock)

Figure 255 shows the availability of pharmaceutical commodity reporting system indicators among facilities that stock pharmaceutical commodities nationally while **Figure 256** shows the availability of records of pharmacy commodities by county. In addition, **Annex Table 130** shows the availability of pharmaceutical commodity reporting system indicators among facilities that stock pharmaceutical commodities by county, by facility type, by managing authority (governmental vs. non-governmental), and by urban vs. rural location.

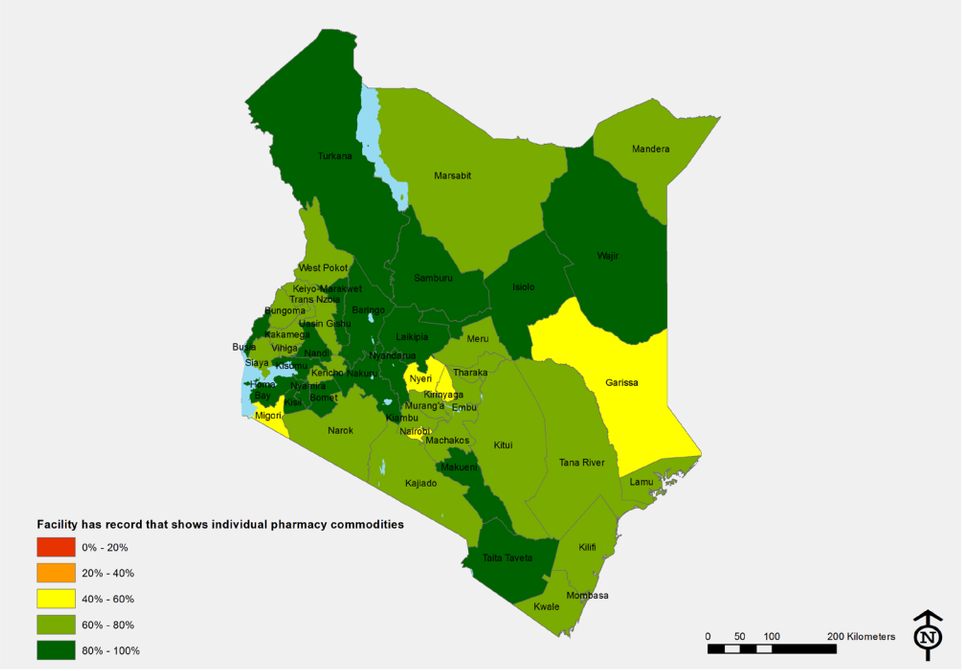
- Nationally, the majority of health facilities (73%) had records showing pharmacy commodities received, disbursed, and the balances.
- Only 23% of facilities had all 4 reporting systems in place. 95% of secondary and tertiary hospitals had all 4 systems in place, while only 8% of medical clinics did.
- Availability of Pharmacy and Poisons Board's forms to register or report adverse reactions and substandard quality stock was recorded in 33% of the facilities which is just about a third of all facilities.
- Only about a half of facilities (54%) had evidence to show that they regularly removed expired or unusable drugs.
- Almost three quarters (70%) of the counties reported having records showing pharmacy commodities received, disbursed, and the balances. Baringo (98%), Kisumu (98%) and Isiolo (100%, were the best performing counties while Garissa, Nyeri, Migori and Nairobi were performing below standards.
- All secondary and tertiary health facilities reported a good performance across all variables.
- Pharmacy reporting systems were performing slightly below expected standards as all pharmacies are expected to have systems to manage drugs in terms of expiries and adverse events reporting.

Figure 255: Proportion (%) of facilities with pharmaceutical commodity reporting system indicators among facilities that stock pharmaceutical commodities (N=2505*), Kenya 2018



*** The total number of facilities that stock pharmaceutical data is 2732; the denominator here is 2505 due to missing data for 227 facilities**

Figure 256: Map of availability of records of pharmacy commodities by county, Kenya 2018



7.5 Infection prevention and control monitoring system

To prevent, identify, monitor and control the spread of infections in health facilities, comprehensive infection prevention and control (IPC) practices are required. The national infection prevention and control guidelines for healthcare services in Kenya recommend that IPC practices should be adhered to in all health care facilities. Non-adherence to IPC guidelines contributes to morbidity and mortality, prolonged hospital stays, increased resistance to antimicrobials and putting financial burden on the health system. This section contains information on infection prevention and control monitoring systems. The key indicators include:

- Facility has IPC guidelines
- Facility has technical IPC committee
- Facility has multidisciplinary meetings where IPC results are reported/reviewed
- Facility has specifically assigned staff to IPC monitoring activities
- Any persons at the facility responsible for IPC have been trained in a certified infection prevention and control course
- Facility has guidelines or protocols for cleaning the facility, including the floors, counters, and beds
- Overall, a quarter of all facilities had an IPC monitoring system with Busia having the highest average, at 53%, while Nandi had the least, at 3.6%.

Figure 257 shows the availability of infection prevention and control monitoring indicators nationally while **Figure 258** shows the availability of records of IPC technical committees by county. In addition, **Annex Table 131** shows the availability of infection prevention and control monitoring indicators by county, by facility type, by managing authority (governmental vs. non-governmental), and by urban vs. rural location.

- Performance on infection prevention was generally poor, with less than half of facilities having the assessed IPC tracer items.
- Nationally, multidisciplinary meetings was the most implemented (42% of facilities) while 38% of health facilities had IPC guidelines.
- In 15% of facilities, the least available were guidelines for cleaning facilities and personnel trained in an IPC course.
- Busia had the highest number of health facilities with IPC guidelines, at 71% , while Mandera was lowest, at 4%. Two-thirds (66%) of the counties reported a rate below 50%.
- Secondary and tertiary facilities reported an 85% availability of IPC guidelines while dispensaries and medical clinics reported 39% and 31%, respectively.

Figure 257: Proportion (%) of facilities with infection prevention and control monitoring indicators (N=2927), Kenya 2018

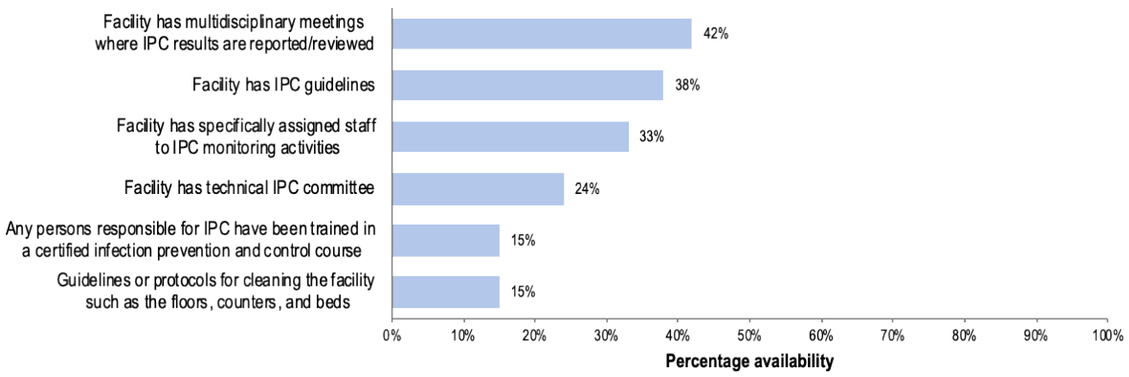
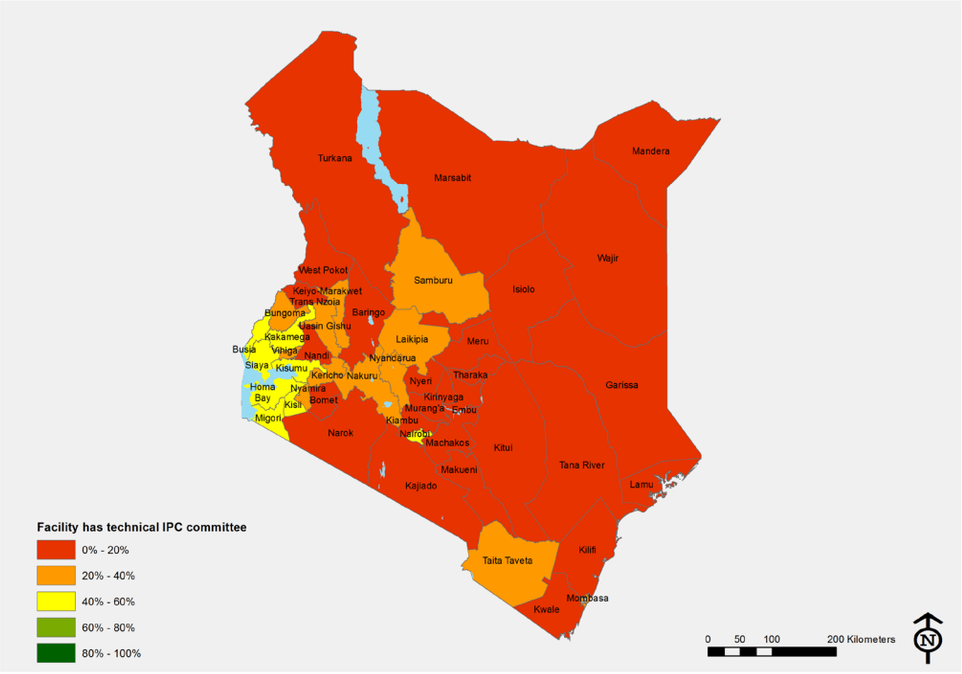


Figure 258: Map of availability of records of infection prevention and control technical committees by county, Kenya 2018



7.6 Systems for maintenance and repair

Preventive maintenance is a schedule of planned actions that ensures optimal working conditions and reduces interruption of service provision due to breakdowns. It also conserves the lifespan of the equipment.

This section contains information on systems for maintenance and repair of infrastructure. The key indicators include:

Facility that carried out preventive and corrective maintenance for:	Facility follows routine preventive maintenance for:
• Any systems	• vehicles
• electric systems	• generator
• water systems	• solar system
• sanitation and sewage systems	• water pump
• ventilation systems	• incinerator
• medical systems	• autoclave
• communication systems	• Dry heat sterilization equipment
• firefighting systems	
• air conditioning systems	
• internet	
• ICT systems	

Figure 260 shows the availability of a system for maintenance and repair of infrastructure nationally while **Figure 261** shows the availability of preventative and corrective maintenance for infrastructure by county. In addition, **Annex Table 132** shows the availability of systems for maintenance and repair of infrastructure by county, by facility type, by managing authority (governmental vs. non-governmental), and by urban vs. rural location.

- Implementation of maintenance and repair of infrastructure was poor in most facilities where there was neither implementing preventive and corrective maintenance nor routine preventive maintenance.
- 43% of health facilities reported undertaking preventive and corrective maintenance for any systems, with Nairobi county having the highest average at 83%, while Turkana recorded only 9% of facilities. Only 10% of facilities had systems for corrective maintenance of medical equipment.

Figure 260: Proportion (%) of facilities with a system for maintenance and repair of infrastructure indicators (N=2927), Kenya 2018

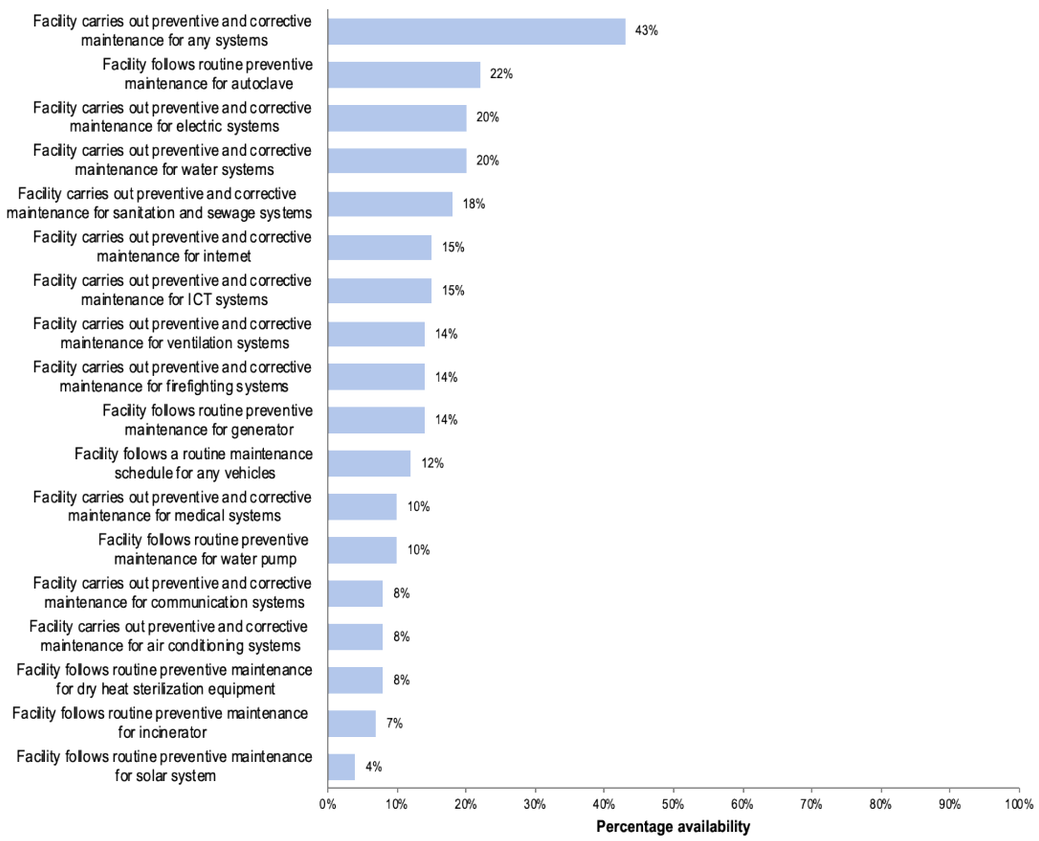
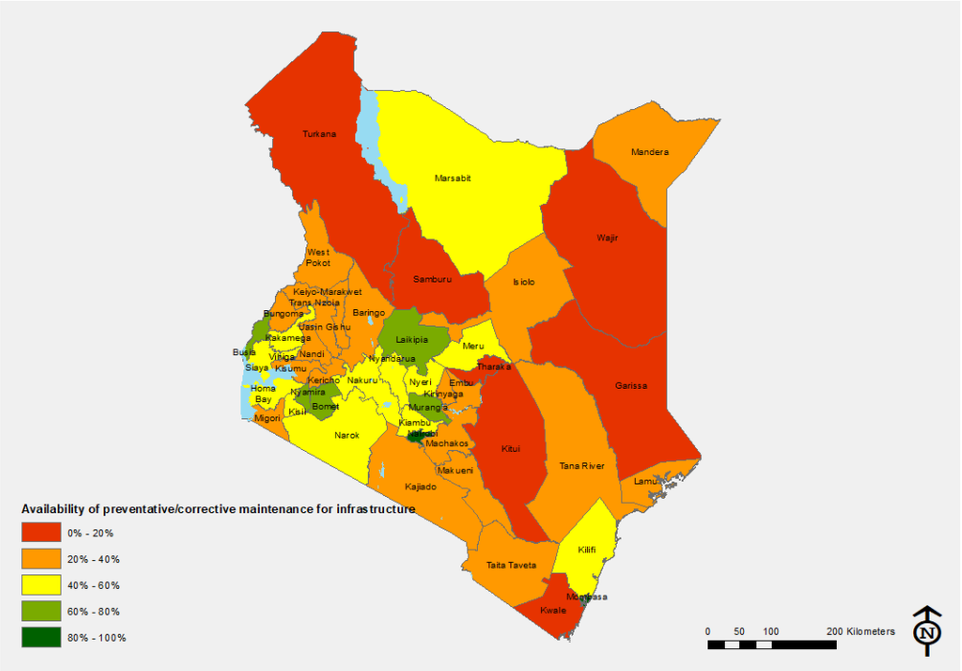


Figure 261: Map of availability of preventative and corrective maintenance for infrastructure by county, Kenya 2018



This section contains information on systems for maintenance and repair of equipment. The key indicators include:

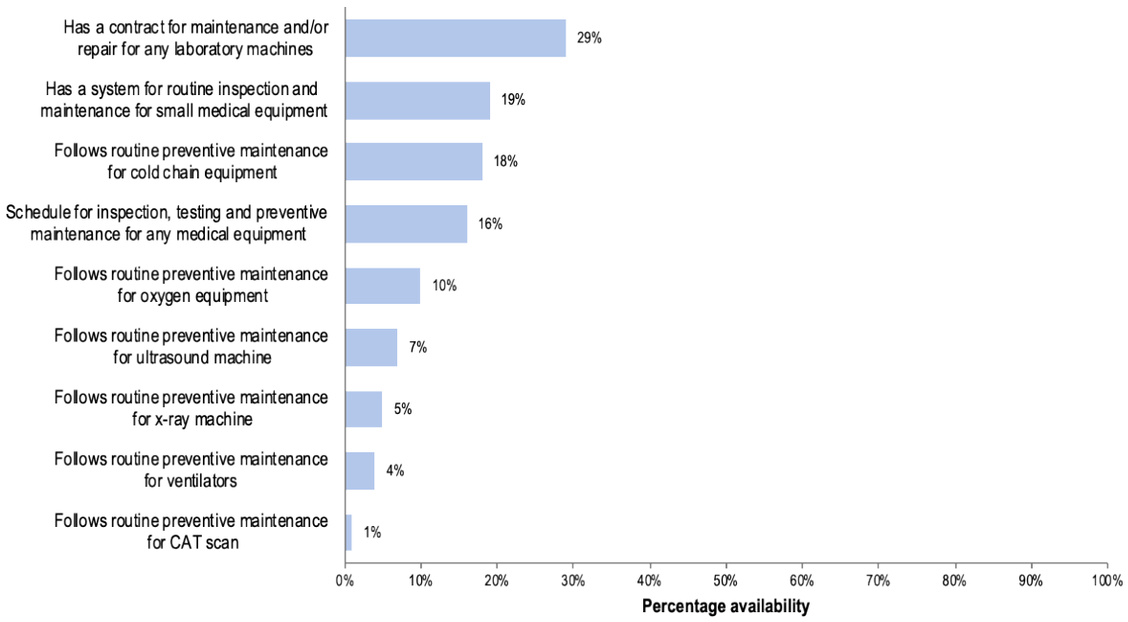
- Facility has a schedule for inspection, testing and preventive maintenance for any medical equipment
- Facility follows routine preventive maintenance for oxygen equipment
- Facility follows routine preventive maintenance for X-ray machine
- Facility follows routine preventive maintenance for CAT scan
- Facility follows routine preventive maintenance for ultrasound machine
- Facility follows routine preventive maintenance for ventilators
- Facility follows routine preventive maintenance for cold chain equipment
- Facility has a system for routine inspection and maintenance for small medical equipment
- Facility has a contract for maintenance and/or repair for any laboratory machines

Figure 262 shows the availability of systems for maintenance and repair of equipment nationally. In addition, **Annex Table 133** shows the availability of systems for maintenance and repair of equipment

by county, by facility type, by managing authority (governmental vs. non-governmental), and by urban vs. rural location. Note that the analysis included all facilities regardless of whether the facility possessed the equipment in question.

- Only 16% of health facilities reported having a schedule for inspection, testing and preventive maintenance for any medical equipment.
- Mombasa and Nairobi counties reported 48% a 40%, respectively, for facilities with schedule for inspection, testing and preventive maintenance for any medical equipment.
- Secondary and tertiary hospitals, as well as private/NGO/FBO primary hospitals had the highest scores for schedule for inspection, testing and preventive maintenance for any medical equipment, at 70% and 61%, respectively.

Figure 262: Proportion (%) of facilities with a system for maintenance and repair of equipment indicators (N=2927), Kenya 2018



Overall, the availability of systems for maintenance and repair of infrastructure is poor. All health managers should ensure all equipment and infrastructure have planned preventive maintenance and funds availed if need be. Equally, equipment users have a vital role to play in planned preventive maintenance as they will undertake some regular tasks themselves. These activities ensure that the performance and functioning of equipment is checked and corrected, and also that the daily cleaning tasks are undertaken as scheduled.

7.7 Facility use of information for management

7.7.1 Systems for ensuring quality of routine data

Well-functioning health information systems are vital for informing decision making at patient care and policy levels. A health management information system (HMIS) collects information that is used to

support planning, management and decision making in the health system. There is increased focus on encouraging use of health data at points of generation to inform decisions at local levels, in addition to reporting these data upwards to inform planning and policy decisions.

This section contains information on systems for ensuring quality of routine data with the following key indicators:

- Facility has routine and systematic process for checking the quality of data compiled for reports
- Facility has data improvement team
- Facility has data quality improvement plans
- Facility has a written policy/guideline for data quality checking
- Facility has a full time, dedicated person with responsibility for recording or collating health service data

Figure 263 shows the availability of systems for ensuring quality of routine data nationally while **Figure 264** shows the availability of systems for checking quality of reported data by county. In addition, **Annex Table 134** shows availability of systems for ensuring quality of routine data by county, by facility type, by managing authority (governmental vs. non-governmental), and by urban vs. rural location.

- About half (47%) of the facilities reported to have a routine and systematic process for checking the quality of data compiled for reports.
- Busia had the highest percentage of facilities with a routine and systematic process for checking the quality of data compiled for reports (83%) and Lamu scoring the lowest (7%). Other poor performing counties were Mandera (10%), Nandi (16%), Turkana (17%), Elgeyo-Marakwet (20%) and Trans Nzoia (20%).
- Only 10% of facilities had written policy guidelines for data quality checking, while about a quarter of facilities had data improvement plans and teams (26% and 23%, respectively).

Figure 263: Proportion (%) of facilities with systems for ensuring quality of routine data (N=2927), Kenya 2018

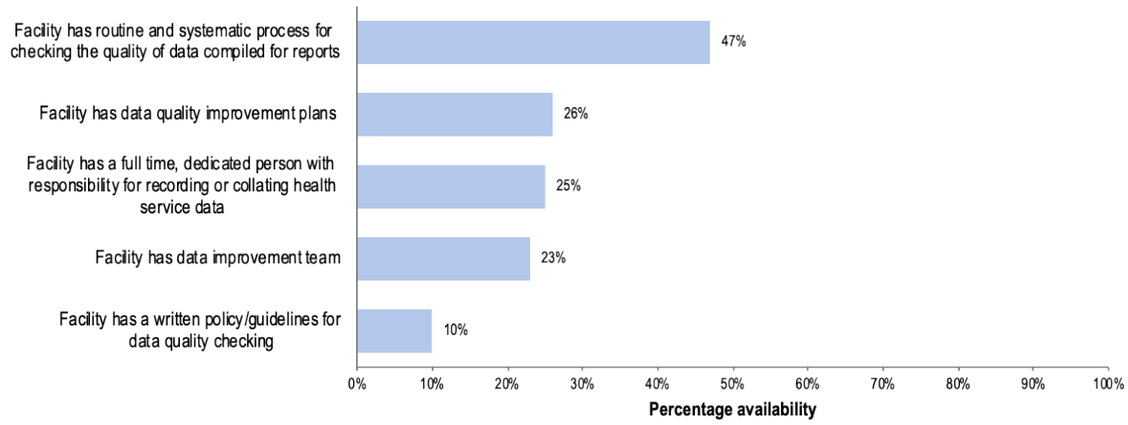
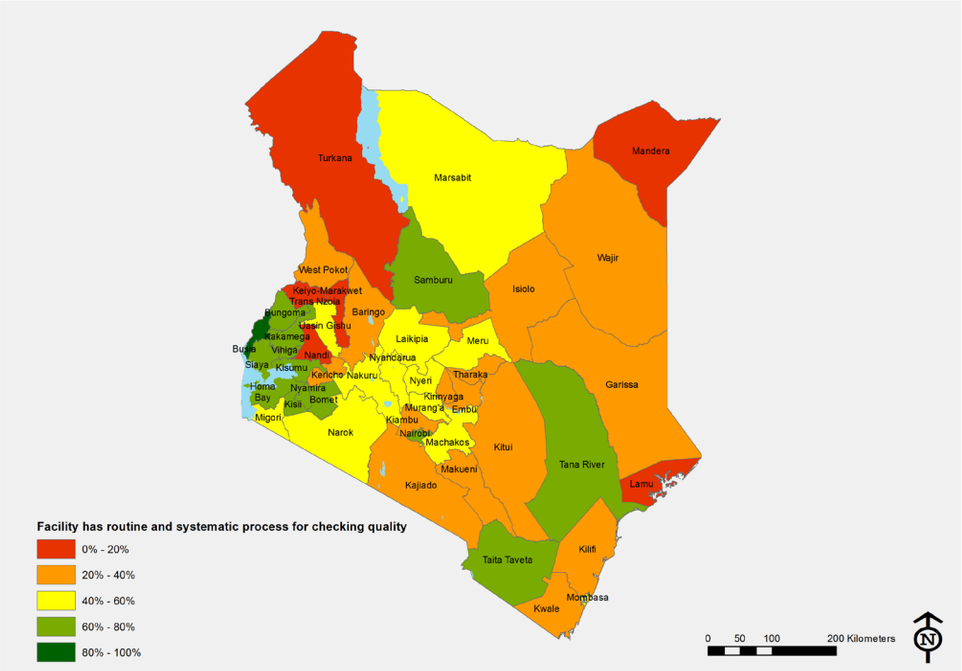


Figure 264: Map of availability of systems for checking quality of reported data by county, Kenya 2018



7.7.2 Evidence of use of service information and data for planning and management

Health information and monitoring systems provide necessary data to health systems to monitor the utilisation and quality of health services and make evidence-based decisions. Thus, the performance of such a system should be measured not only on the basis of the quality of the data produced, but also on evidence of the continued use of these data for improving health systems operations and health status.

This section contains information on evidence of use of service information and data for planning and management. The key indicators include:

- Facility has a routine process for performance review based on data on facility services, outcomes, or patient feedback
- Evidence for use of HMIS reports (e.g., numbers of patients, numbers by diagnoses)
- Evidence for use of special reports, such as quality indicators
- Evidence for use of mortality data
- Evidence for use of morbidity data

- Evidence for use of patient surveys, such as client satisfaction surveys
- Evidence for use of staff surveys, such as employee satisfaction surveys
- Evidence for use of workload data
- Facility has any tables or reports that present immunization data
- Facility has any tables or reports that present data other than for immunization
- Facility has any graphic/chart presentation of immunization data
- Facility has any graphic/chart presentation of data other than for immunization
- Facility has HMT minutes

Figure 265 shows the availability of evidence of use of service information and data for planning and management nationally while **Figure 266** shows the availability of routine processes for performance reviews by county. In addition, **Annex Table 135** shows the availability of evidence of use of service information and data for planning and management by county, facility type, managing authority (governmental vs. non-governmental), and by urban vs. rural location.

- Generally, use of service information and data to make decisions was poor with only 28% of facilities had evidence for the use of HMIS reports (e.g. numbers of patients, numbers by diagnoses). Marsabit reported 77% while Kirinyaga reported 2% in terms of evidence in the use of HMIS.
- 34% of facilities had a routine process for performance review based on data on facility services, outcomes, or patient feedback. Marsabit reported the highest at 81%, while Mandera reported the lowest at 5%.
- Evidence of use of patient survey data was found in 15% of the facilities, while evidence of use of mortality data was found in 14% of the facilities.
- Implementation of employee satisfaction surveys was the least implemented (11% of facilities).
- Marsabit, Samburu and Busia had the highest evidence of use of data and service statistics.

Figure 265: Proportion (%) of facilities with evidence of use of service information and data for planning and management (N=2927), Kenya 2018

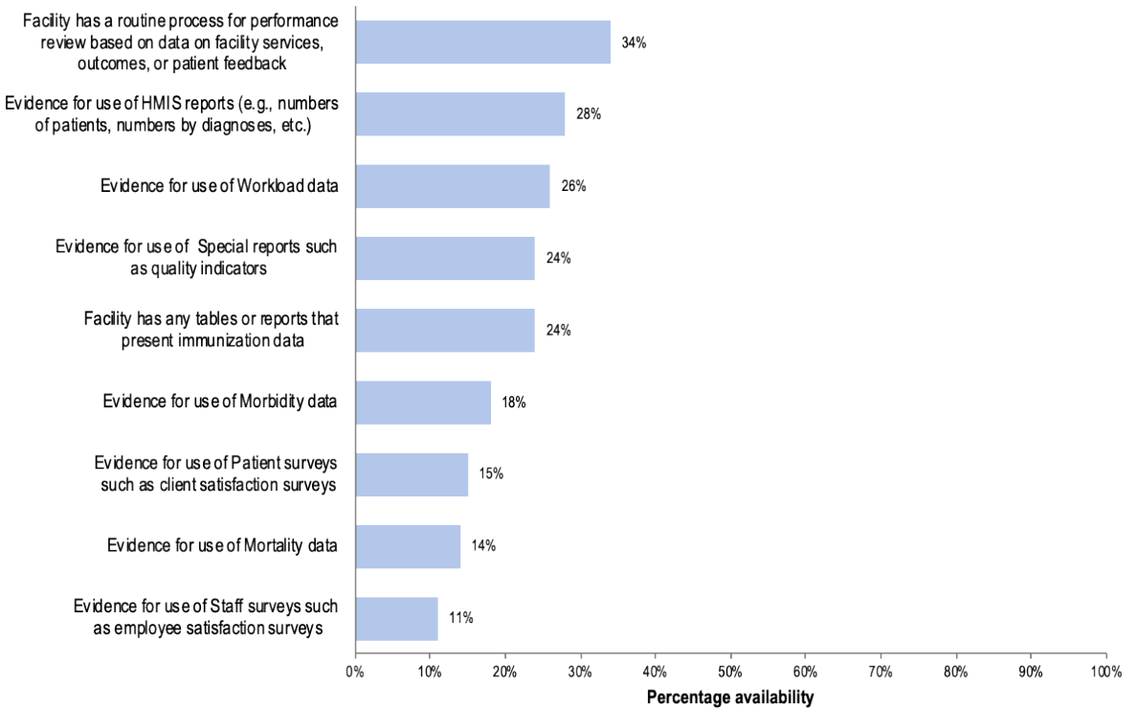
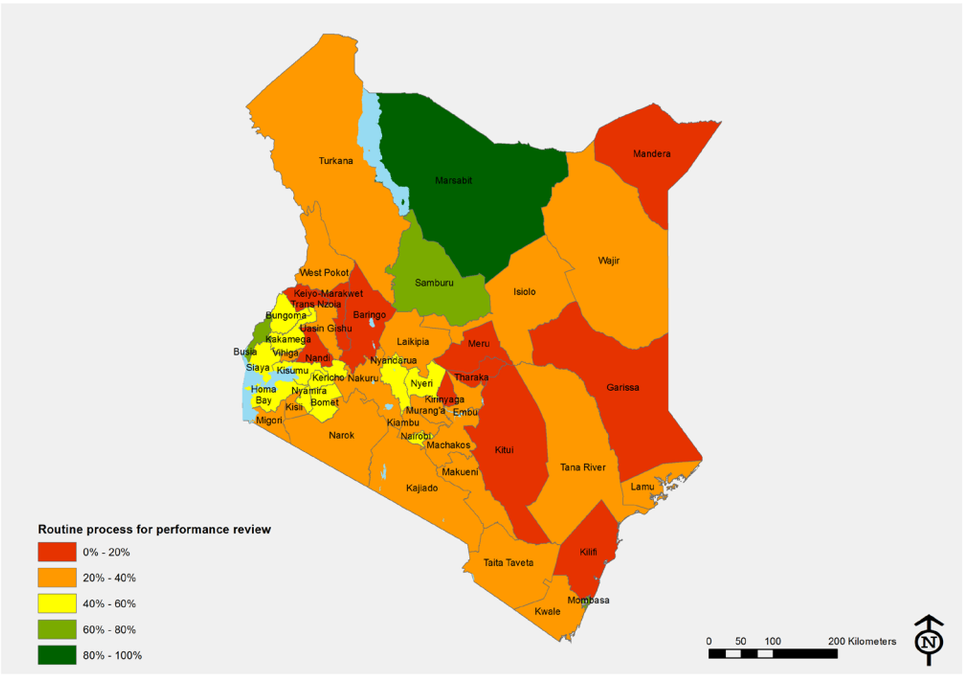


Figure 266: Map of availability of routine processes for performance reviews based on data by county, Kenya 2018



All the health facilities, both public and private, in each county are required to use facility information and data in making informed decisions. The poor performance across the country may be attributed to the weak governance and leadership experienced in the sector over the years. Additionally, health workers at lower level facilities are few in number, have no access to the DHIS2, the national routine health information system either due to lack of training, internet or viewing rights to the system.

7.8 Systems for monitoring indicators of quality of inpatient care

7.8.1 Systems for monitoring indicators of quality of inpatient care

Improving health services is a priority for the Ministry of Health. Quality assurance encompasses a variety of approaches combined and integrated to identify challenges with health care delivery. Such a system should be designed to ensure quality improvement along with monitoring to make sure the activities did what they were supposed to do based on needs and available resources.

Systems for monitoring quality of inpatient care typically include consideration of the resources(inputs) needed to provide healthcare. Equally important are the activities or processes involved in providing care and services. These inputs and processes result in an outcome that may be favourable or unfavourable. An effective monitoring system enables healthcare providers to set priorities, establish quality indicators, and assess the hospital's systems performance to ensure that desired outcomes are achieved.

This section contains information on systems for monitoring indicators of quality of inpatient care. The key indicators include:

- Facility has a system for identifying and monitoring adverse events, such as patient falls or infections
- Healthcare-associated infections (nosocomial infections) are reportable adverse events
- Facility routinely carries out formal case reviews for patients who have not died, where individual patient management is reviewed for quality and potential for improved case management
- Facility conducts death reviews for some proportion of deaths. Facility routinely reviews deaths of paediatric patients who are below 5 years of age

Figure 267 shows the availability of systems for monitoring indicators of quality of inpatient care among hospitals with inpatient services nationally while **Figure 268** shows the availability of systems for reporting adverse events among hospitals with inpatient services by county. In addition, **Annex Table 136** shows the availability of systems for monitoring indicators of quality of inpatient care among hospitals with inpatient services by county, by facility type, by managing authority (governmental vs. non-governmental), and by urban vs. rural location.

- Nationally, two thirds facilities (66%) were routinely carrying out formal case reviews of patients while 59% of facilities reported to having a system for identifying and monitoring adverse events, such as patient falls or infections.
- Below a third of facilities (28%) had health-care-associated infections being reported as adverse events.
- 73% of facilities conducted death reviews for some proportion of deaths.

Figure 267: Proportion (%) of hospitals with systems for monitoring indicators of quality of inpatient care among hospitals with inpatient services (N = 392), Kenya 2018

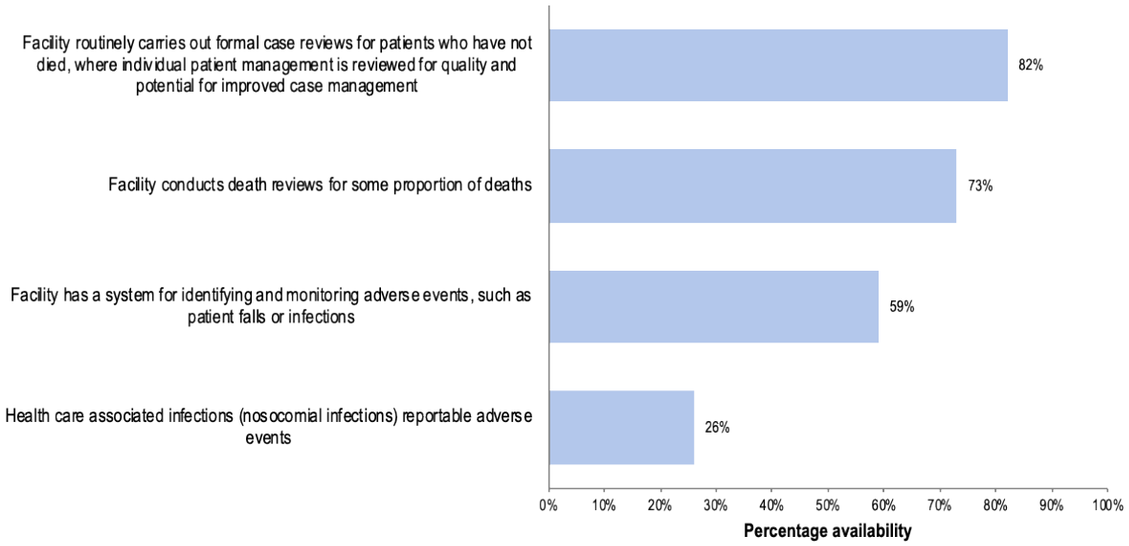
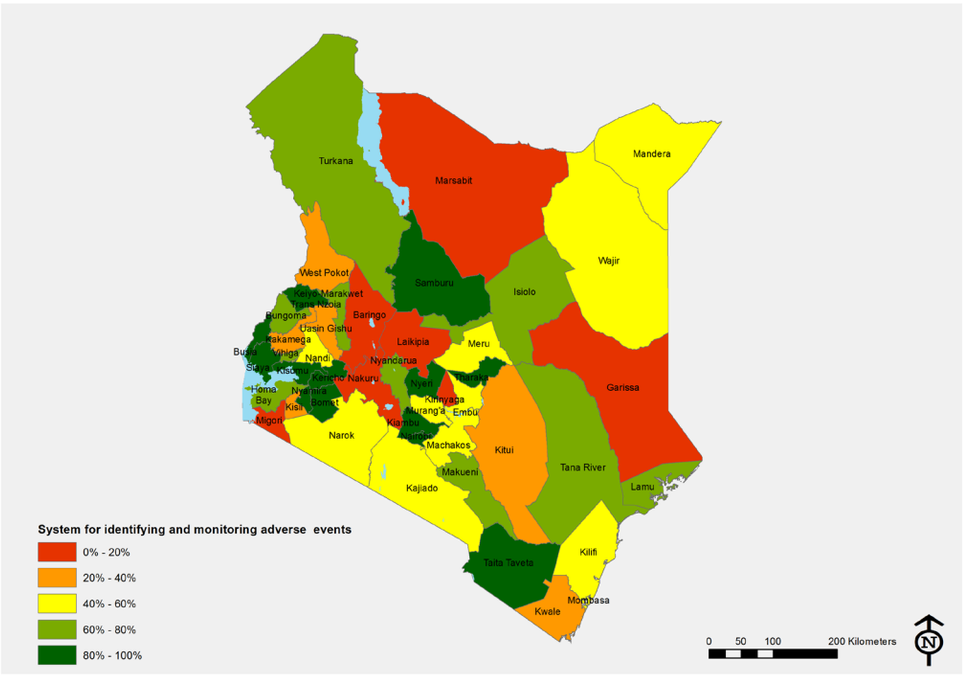


Figure 268: Map of availability of systems for reporting adverse events by county, Kenya 2018



7.8.2 Facility monitoring of case fatality rates

Case fatality rate is a measure of severity of illness. This indicator aims at measuring progress towards the reduction of mortality from a particular disease at the health facility level. It expresses the likelihood that a patient with a particular illness will live after entering the health facility. Monitoring of case fatalities using quality mortality data generated from a facility could support impact evaluation, benchmarking, exploration of links between health system inputs and outcomes and critical scrutiny of geographic variation in quality and outcomes of care. Notably, accurate, complete and timely monitoring of facility mortality is a key attribute of a functioning health system.

This section contains information on facility monitoring of case fatality rates. The key indicators include:

Monitoring case fatality rates for:

- Any specific diagnoses
- Lower respiratory tract infections
- Malaria
- TB
- Cancer
- HIV-infected patients

Figure 269 shows the availability of facility monitoring of case fatality rates among hospitals with inpatient services nationally, while **Figure 270** shows the systems for monitoring case fatality rates among hospitals with inpatient services by county. In addition, **Annex Table 137** shows the availability of facility monitoring of case fatality rates among hospitals with inpatient services by county, by facility type, by managing authority (governmental vs. non-governmental), and by urban vs. rural location.

- Monitoring of case fatality was generally poor, with only 28% of all hospitals monitoring case fatality rates for any specific diagnosis.
- By hospital type, performance ranged from 26% of public primary hospitals to 70% of secondary and tertiary facilities.
- Only 5% of hospitals monitored cancer case fatality, 22% of hospitals monitored fatality rates for malaria, 21% of hospitals monitored fatality rates for lower respiratory tract infections. 20% of hospitals monitored case fatality rates for HIV-infected patients, while 14% of hospitals monitored case fatality rates for TB patients.
- Isiolo (100%) and Nyandarua (75%) had the highest implementation systems for monitoring case fatality rates, while none of the hospitals in Baringo, Bomet, Garissa, Kirinyaga, Kwale, Lamu, Marsabit, Murang'a and Vihiga had these implementation systems.
- NGO/FBO hospitals averaged at 30% while 27% of private hospitals and 28% of public hospitals were implementing systems for monitoring case fatality.

Figure 269: Proportion (%) of hospitals monitoring case fatality rates (N=392), Kenya 2018

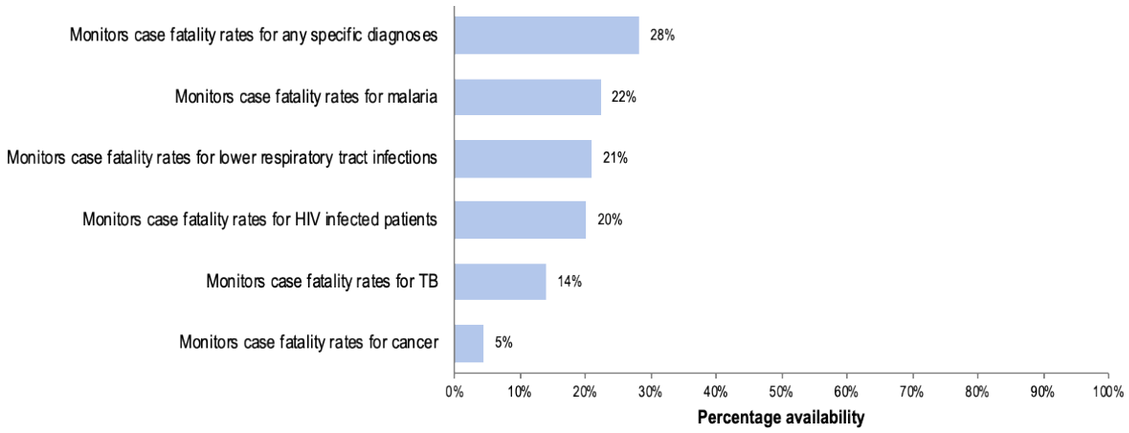
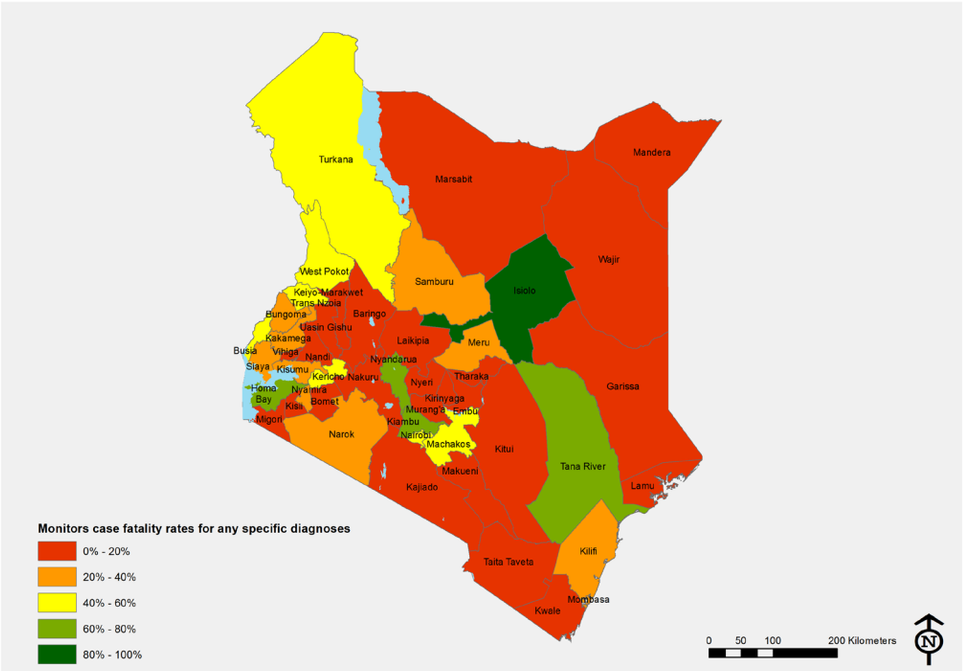


Figure 270: Map of availability of systems for monitoring case fatality rates by county, Kenya 2018



The very low percentage of monitoring of case fatalities is an indication of a poor system for monitoring quality of care in health facilities, arising mainly due to lack of training of health workers who document diagnoses and cause of death, and inadequate investments in information systems generally resulting in inaccurate and incomplete case fatality data. It is prudent that all health facilities and hospitals receive regular audits of mortality reporting, receive feedback on their reporting and develop short- and medium-term plans to address gaps in reporting and strengthen capacity for timely reporting and analysis.

7.8.3 Facility monitoring of inpatient cases

Facility monitoring of inpatient cases informs health system readiness and level of inpatient case management. Ultimately, close monitoring of the quantity and the quality of ongoing health systems interventions will determine the success of any policy translation.

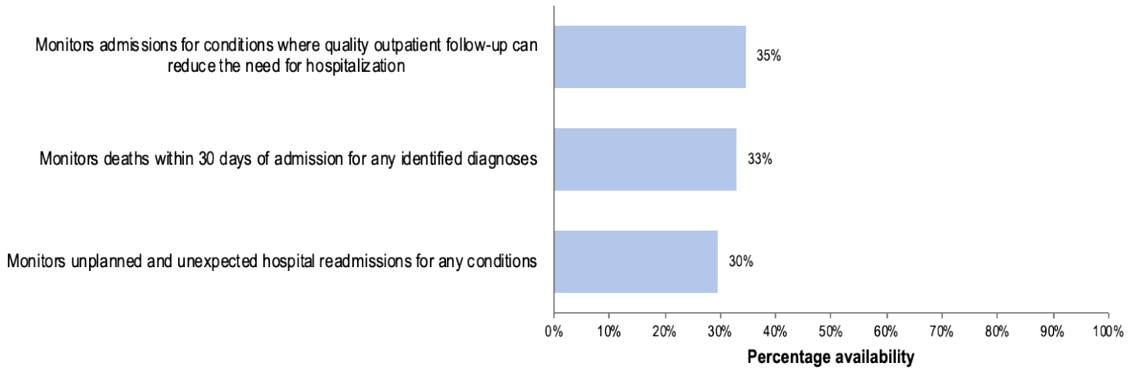
This section contains information on facility monitoring of inpatient cases. The key indicators include:

- Monitoring deaths within 30 days of admission for any identified diagnoses
- Monitoring unplanned and unexpected hospital readmissions for any conditions
- Monitoring admissions for conditions where quality outpatient follow-up can reduce the need for hospitalisation

Figure 271 shows the availability of facility monitoring of inpatient cases among hospitals with inpatient services nationally. In addition, **Annex Table 138** shows facility monitoring of inpatient cases among hospitals with inpatient services by county, by facility type, by managing authority (governmental vs. non-governmental), and by urban vs. rural location.

- Overall, there was low implementation of systems for monitoring indicators of quality of inpatient care with about a third of hospitals having the assessed systems.
- 33% of hospital**s** reported monitoring deaths within 30 days of admission for any identified diagnoses, with Bomet and Samburu counties reporting 100%, while Baringo, Embu, Laikipia, Nandi and West Pokot counties reporting none.
- 53% of NGO/FBO hospital**s** reported monitoring deaths within 30 days of admission for any identified diagnoses.
- 35% of hospital**s** monitored admissions for conditions where quality outpatient follow-up can reduce the need for hospitalisation.

Figure 271: Proportion (%) of hospitals with systems for monitoring indicators of quality of inpatient care, Kenya 2018



7.9 Adverse event reporting guidelines

Monitoring of adverse events (pharmacovigilance) entails a system that detects, reports and monitors adverse drug reactions (ADRs) and other relevant problems with medicines. In Kenya, the Pharmacy and Poisons Board (PPB) aims to ensure the safety and efficacy of pharmaceutical products by implementing activities relating to the detection, assessment, understanding and prevention of adverse effects or any other possible drug-related problems with the view to early detection of hitherto unknown adverse reactions and interactions, detection of increases in frequency of (known) adverse reactions, identification of risk factors and possible mechanisms underlying adverse reactions, estimation of quantitative aspects of benefit/risk analysis and dissemination of information needed to improve drug prescribing and regulation.

The ultimate goal of pharmacovigilance is to ensure rational and safe use of medicines, to assess and communicate the risks and benefits of drugs on the market and to educate and inform patients.

This section contains information on guidelines for adverse event reporting. The key indicators include:

- Guidelines for when and how to submit reports of adverse events
- Documentation on the review process for compiled reports on adverse events
- Notes or reports that show evidence of review and plan of action for the reports about adverse events

Figure 272 shows the availability of guidelines for adverse event reporting among hospitals with inpatient services nationally, while **Figure 273** shows the availability of guidelines for when and how to submit reports of adverse events among hospitals with inpatient services by county. In addition, **Annex Table 139** shows the availability of guidelines for adverse event reporting among hospitals with inpatient services by county, by facility type, by managing authority (governmental vs. non-governmental), and by urban vs. rural location.

- Implementation of pharmacovigilance is generally poor across all facilities.
- A third of facilities (31%) had guidelines on submission of adverse events while a quarter (25%) reported documenting the review process for compiled reports on adverse events. 23% of the facilities had notes/reports that show evidence of review and plan of action for the reports about adverse events.

- Samburu reported implementation in 100% of the facilities, while Baringo, Embu, Isiolo, Kilifi, Kirinyaga, Kisii, Laikipia, Lamu Mandera, Marsabit, Nyeri and Uasin Gishu had none of their facilities implementing these pharmacovigilance systems.

Figure 272: Proportion (%) of hospitals with guidelines for adverse event reporting among hospitals with inpatient services (N=392), Kenya 2018

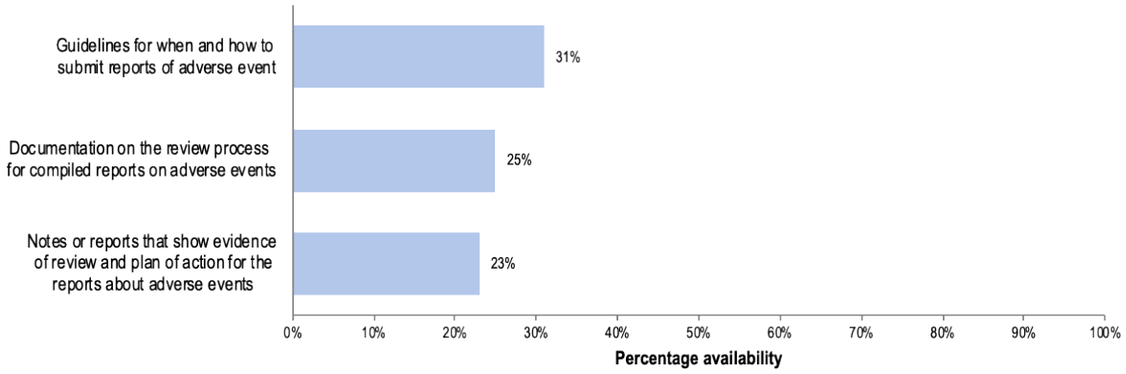
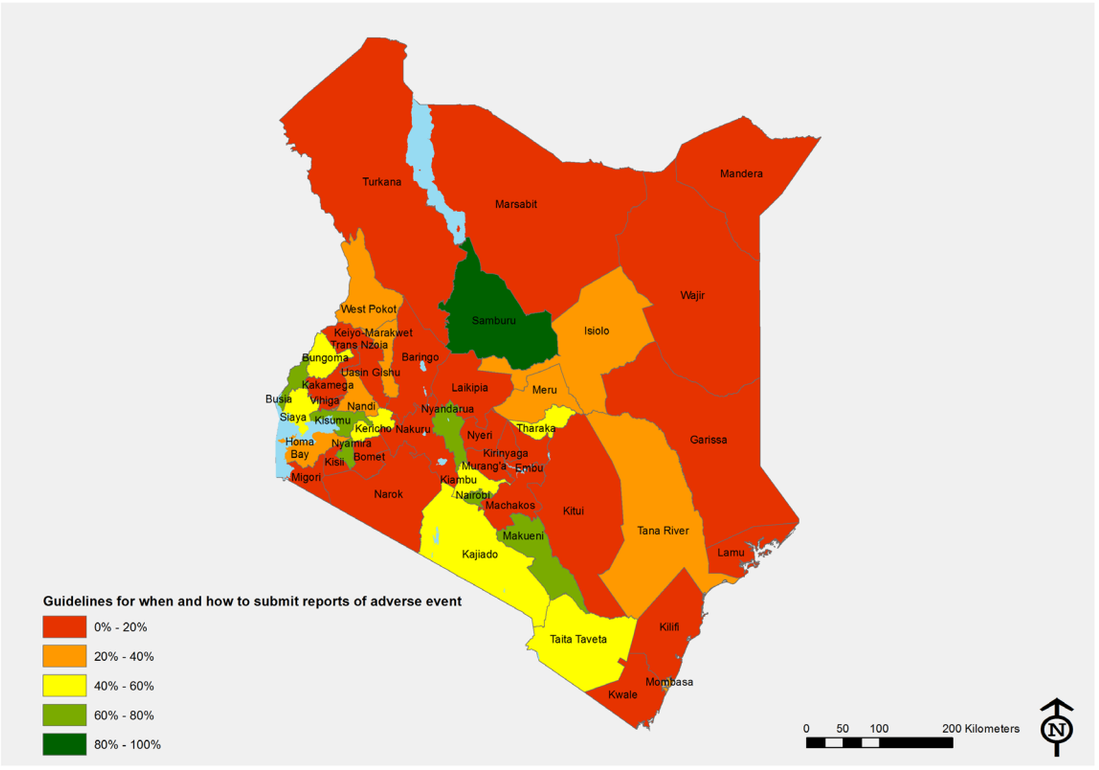


Figure 273: Map of availability of guidelines for when and how to submit reports of adverse events by county, Kenya 2018



7.10 Use of unique patient identifiers

Unique patient identifiers enable all data collected within a facility to be correctly attributed to a specific person. Additionally, where clients receive services from different facilities, relevant information can be effectively shared across services to improve service delivery and strengthen monitoring and evaluation (M&E). This section contains information on the use of patient identifiers. The key indicators include:

- Facility uses unique patient ID numbers for patients
- Facility utilises a standardised set of forms or electronic data entry screens to prepare a complete medical record for each patient
- Stockout of the official patient medical record in the past 6 months
- Same unique patient ID used for the same patient over multiple years

Figure 274 shows the availability of use of patient identifiers nationally, while **Figure 275** shows the availability of use of unique patient ID numbers for patients by county. In addition, **Annex Table 140** shows availability of use of patient identifiers by county, by facility type, by managing authority (governmental vs. non-governmental), and by urban vs. rural location.

- While most facilities (90%) were using unique patient ID numbers for patients, utilisation of the same over time was only in a third (33%) of those facilities, while half (50%) of the facilities utilised a standardised set of forms or electronic data entry screens to prepare a complete medical record for each patient.
- The lowest performing counties were Mandera and Garissa with only 48% and 60%, respectively, of facilities using unique patient identifiers.
- 7% of health facilities reported having stockout of the official patient medical record in the past 6 months. Baringo, Machakos, Meru, and Trans Nzoia reported not having any stock out of medical records.

Figure 274: Proportion (%) of facilities using unique patient identifiers (N = 2927), Kenya 2018

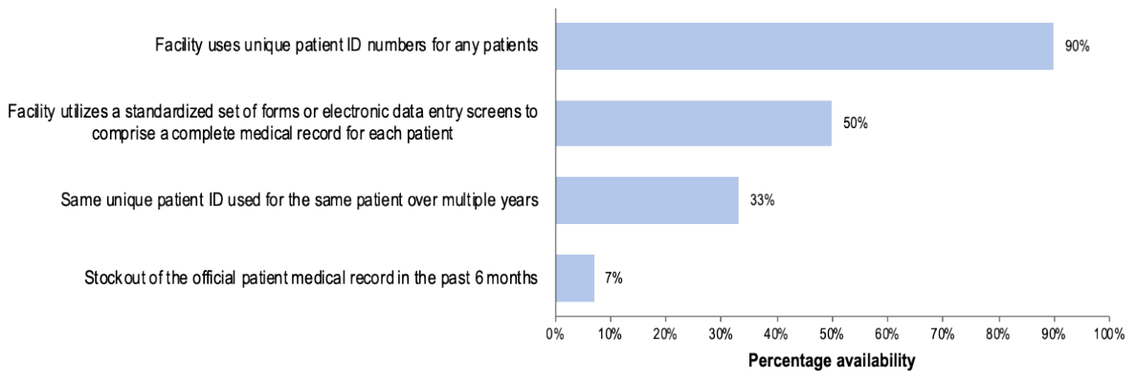
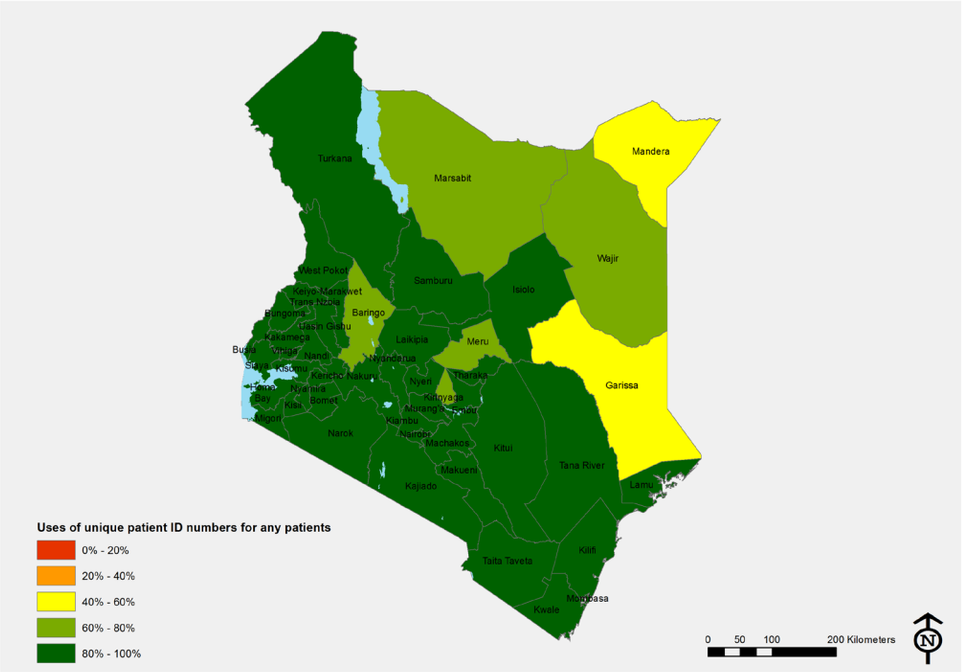


Figure 275: Map of availability of use of unique patient ID numbers for patients by county, Kenya 2018



7.11 Accountability for user fees

Healthcare financing in Kenya has evolved over the years more so with user fees being introduced as a response to significant economic constraints and increasing donor pressure in order to generate additional revenue that could be used to improve equity and efficiency. Concerns regarding the consequences of user fees and out-of-pocket payments led to a shift in health financing with a policy directive to abolish user fees in all primary healthcare facilities. This was because user fees hindered poor and vulnerable people's access to health services and contributed to inequalities in access to healthcare. After abolishing the user fees, there was an increase in outpatient attendance for children under the age of five and the general population, at 25% 37%, respectively[54]. This section contains information on accountability for user fees. The key indicators include:

- Facility charges user fees for any outpatient services
- Facility charges user fees for any inpatient services
- User fees for outpatient services posted at the facility so that patients can see them (among facilities offering outpatient services and charging user fees)
- User fees for inpatient services posted at the facility so that patients can see them (among facilities offering inpatient services and charging user fees)

Figure 276 shows the availability of accountability for user fees nationally, while **Figure 277** shows the availability of outpatient user fees by county and **Figure 278** shows the availability of inpatient user fees by county. In addition, **Annex Table 141** shows the availability of accountability for user fees by

[54] Annual Evaluation of the Abolition of User Fees at Primary Healthcare Facilities in Kenya, 2015

county, by facility type, by managing authority (governmental vs. non-governmental), and by urban vs. rural location.

- On average, 40% of facilities charged user fees for any outpatient services, while 16% charged user fees for any inpatient services.
- Regarding the managing authority, only 10% of government facilities were charging user fees for outpatient services, while 80% of public primary hospitals were charging OPD user fees.
- 35% of the facilities posted user fees for outpatient services at the facility for patients to see, while 34% of the facilities posted user fees for inpatient services for patients to see.
- Despite the policy directive to abolish user fees in public primary healthcare facilities, a sizeable percentage of health facilities in the counties continue to charge user fees.

Figure 276: Proportion (%) of facilities with user fees for outpatient and inpatient services, Kenya 2018

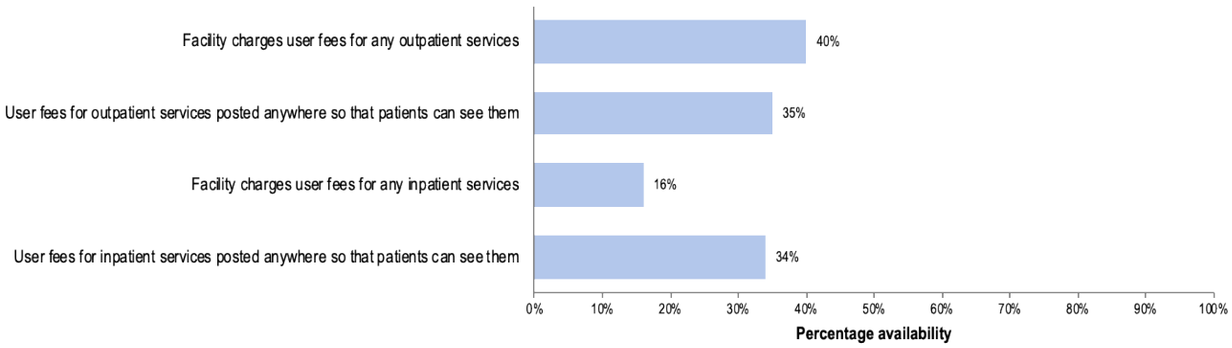


Figure 277: Map of availability of outpatient user fees by county, Kenya 2018

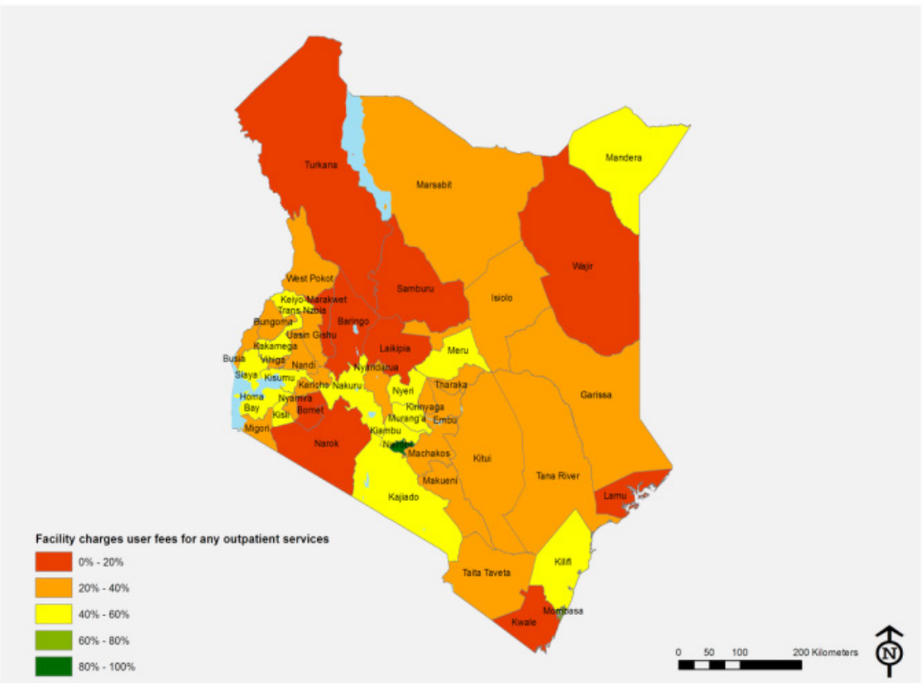
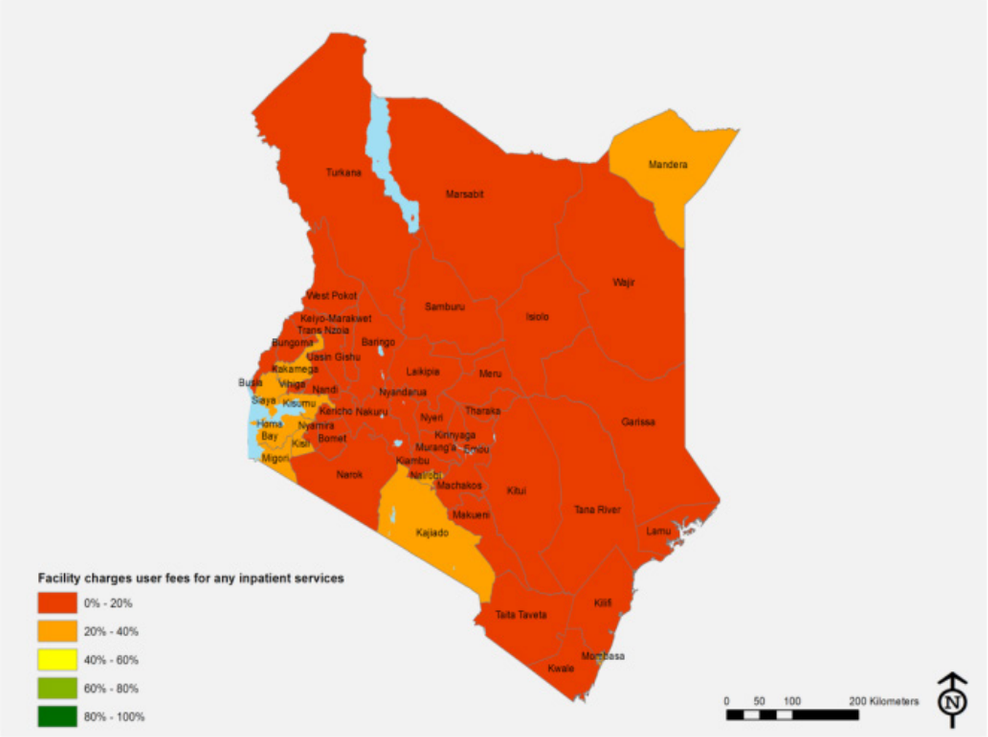


Figure 278: Map of availability of inpatient user fees by county, Kenya 2018



7.12 Financial accountability

Financial accountability results from holding an individual accountable for effectively performing a financial activity, such as a key control procedure within a financial transaction process. A well-defined financial accountability structure serves as the foundation for establishing effective financial processes. The public financial management (PFM) legal framework is firmly anchored in Article 201 of the constitution and gives effect to 'the principles of public finance. In particular, the Bill emphasises openness, accountability, and public participation in PFM; equitable sharing of revenue; equitable sharing of burdens and benefits of public borrowing; and fiscal discipline. This section contains information on financial accountability. The key indicators include:

- Facility receives an annual external audit of facility accounts
- Facility has a budgeted annual work plan (2018/19) (amongst facilities that agreed to provide financial information)
- Facility has an annual financial report

Overall, about half of the facilities had financial accountability systems; this was implemented by 82% of facilities in Samburu compared to 10% in Turkana.

Figure 279 shows the availability of financial accountability indicators nationally, while **Figure 280** shows the availability of budgeted annual work plans by county. In addition, **Annex Table 142** shows the availability of financial accountability indicators by county, by facility type, by managing authority (governmental vs. non-governmental), and by urban vs. rural location.

- 47% of facility reported having received an annual external audit of facility accounts.
- 52% of the facilities had a budgeted annual work plan (2018/19.
- Mandera, Turkana and Elgeyo Marakwet counties reported the lowest percentage of facilities with annual work plans at 20% and below.

Figure 279: Proportion (%) of facilities with budgeted workplans and external audits of facility accounts, Kenya 2018

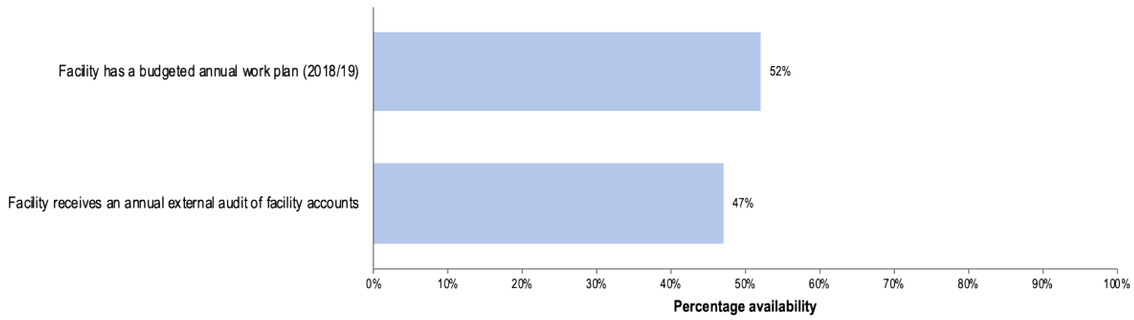
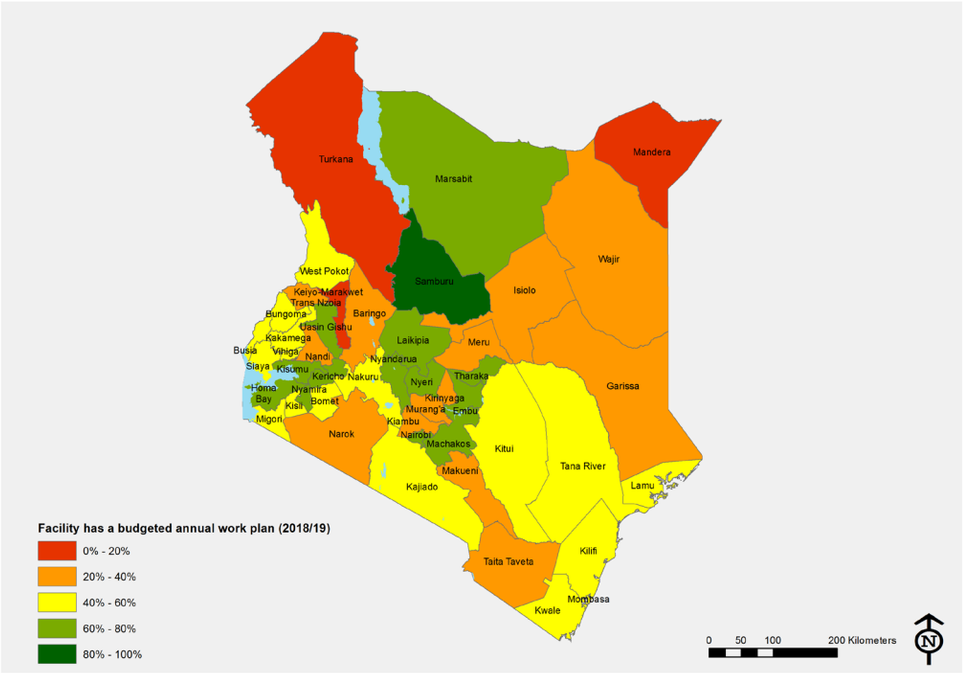


Figure 280: Map of availability of budgeted annual workplans by county, Kenya 2018



7.13 Health insurance coverage

Health insurance is a healthcare financing mechanism based on the principle of pooling funds and entrusting management of such funds to a third party that pays for healthcare costs of members who contribute to the pool. The main objective of health insurance is to improve healthcare utilisation and to protect households from becoming impoverished as a result of out-of-pocket medical expenditures. This section contains information on health insurance coverage for inpatients and outpatients.

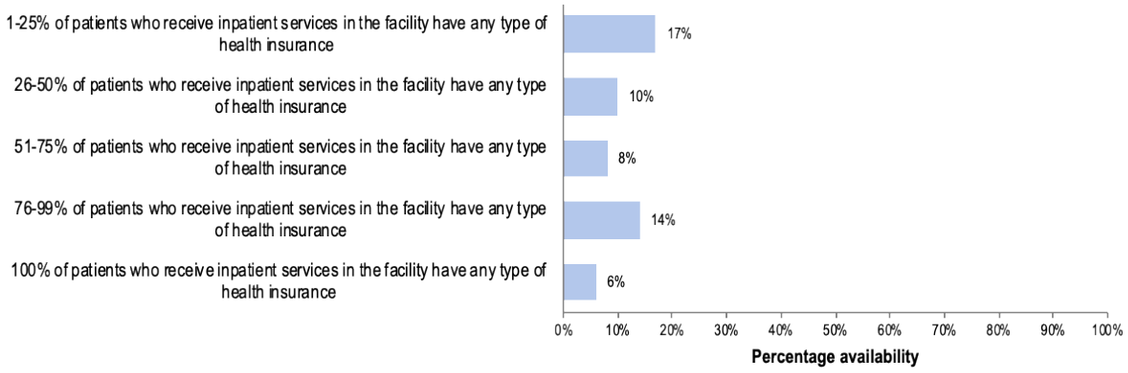
7.13.1 Health insurance for inpatients

This section contains information on health insurance coverage for inpatients and the proportion of patients with health coverage.

Figure 281 shows the availability of health insurance coverage for inpatients amongst facilities with inpatient services who agreed to provide financial information nationally. In addition, **Annex Table 143** shows the availability of health insurance coverage for inpatients amongst facilities with inpatient services who agreed to provide financial information by county, by facility type, by managing authority (governmental vs. non-governmental), and by urban vs. rural location.

- Overall, 55% of facilities had some inpatients being attended having health insurance coverage; on average 100% of facilities in Mombasa, Wajir and Kituo had some patients being attended with insurance coverage compared to none in Tana River.
- Generally, availability of health insurance among patients utilising health services was low for inpatients.
- The most commonly available insurance scenario was between 1 and 25% of inpatients having some type of health insurance with 17% of facilities.
- Only 6% of facilities reported to have had all patients receiving inpatient services in the facility having any type of health insurance.

Figure 281: Proportion (%) of facilities with inpatient services where inpatients have health insurance (N=594), Kenya 2018



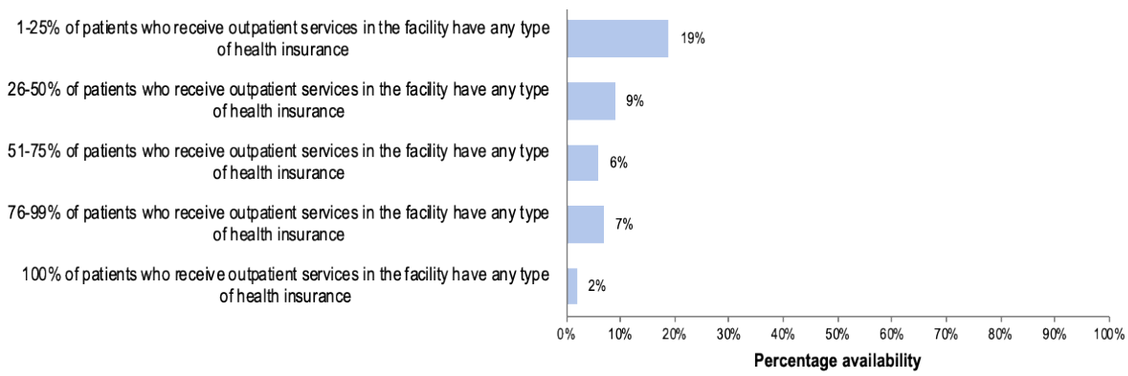
7.13.2 Health insurance for outpatients

This section contains information on health insurance coverage for outpatients and the proportion of patients with health coverage.

Figure 282 shows of availability of health insurance coverage for outpatients amongst facilities with outpatient services who agreed to provide financial information nationally. In addition, **Annex Table 144** shows availability of health insurance coverage for outpatients amongst facilities with outpatient services who agreed to provide financial information by county, by facility type, by managing authority (governmental vs. non-governmental), and by urban vs. rural location.

- In total, 43% of facilities reported to have received some outpatient patients with health insurance.
- The most common insurance scenario was between 1 and 25% of outpatients having some type of health insurance (19% of facilities).
- In only 2% of facilities, all OPD patients had some type of health insurance, and counties with the highest insurance rates were Makueni (28%), Wajir (27%) and Kirinyaga (24%).
- By facility type for both inpatients and outpatients, the most common scenario was 76 to 99% of patients attended to in private/NGO/FBO primary hospitals having some kind of insurance. This averaged 57% for outpatients and 46% for outpatients.

Figure 282: Proportion (%) of facilities with inpatient services where inpatients have health insurance (N=1038), Kenya 2018



8. COMMUNITY SYSTEMS AVAILABILITY AND READINESS

8.1 Overview of the community health module

The inclusion of the community health module as part of the KHFA was meant to assess the quality and functioning of community health services, and to identify areas of the community health system that need strengthening. The specific objectives were to:

- Assess the availability of services that are delivered under the community health system at the community and health facility levels;
- Assess the readiness of the structures to deliver community health services;
- Assess the financial and management requirements for enhanced delivery of community health services; and
- Assess client and health worker views on the quality of services provided.

8.2 Availability of community health services

Community health volunteers (CHVs) and mothers with children aged two and below were interviewed for views relating to the range of health services provided at the community and health facility levels. A wide range of preventive, promotive, and basic curative services are being provided through community health services. Key among them are child health services, family planning, maternal health services, screening and treatment of non-communicable diseases, sexually transmitted infections, HIV/AIDS, TB, and malaria. The bulk of the services, however, fall under the broader remit of reproductive, maternal, newborn, child, and adolescent health (RMNCAH). **Table 56** shows the range of services available at the community and health facility levels.

Table 56: Range of health services available at the community and health facility levels

Health service area	Services available
Reproductive health	Family planning
Maternal health	ANC education and sensitisation on facility delivery Breastfeeding education
Child health	Deworming Immunization services Polio campaigns
Adolescent health	Guidance and counselling adolescents on reproductive health
Communicable diseases	Malaria prevention and testing HIV testing and counselling
Cross-cutting	Personal and environmental hygiene and sanitation Birth and death notification Referrals to health facilities Water treatment education Nutrition education

The following illustrative quotes capture the range of services provided.

> "First when we go to the household we assess the problem of that family so if they need family planning we talk about family planning because we were trained how to talk to the mother who needs a family planning and if it is a disease we assess what kind of disease like malaria we were taught to identify if a person has malaria, we identify and if it malaria we refer but if it is slight malaria then we give AL to the patient." – ***FGD1, CHV, Kisumu***

> "We also advocate for best health practices like personal hygiene, sanitation, how to dispose waste and may be in terms of nutrition how to get balanced diet. We also have services like referring pregnant women who are in remote areas, you can access the facility." – ***KII, CHV5, Bomet***

> "Family planning and immunization services and also the CHVs come and teach us on how to breastfeed our children." – ***FGD2, Mothers, Elgeyo Marakwet***

> "The health services I get are family planning, taking my child for immunization, and sometimes we are given nets to sleep in." – ***FGD 2, Mothers, Homa Bay***

> "At our households we receive water treatment tabs which the CHVs give us. They also give us zinc and ORS for our children and polio vaccines. We were taught about mother to mother support group and father to father support group by the CHVs." – ***FGD, Mothers, Isiolo***

Other services that were commonly reported were those relating to linking the community to health facilities. In some counties, the linkage from the community to the health facilities was reported to be working well. In these counties, the relevant referral tools were available, there was good coordination between the CHVs and the health facility, and there was a functioning community health unit.

In other cases, however, the ability of the community health services (CHS) to spearhead referral services was reportedly compromised by several factors, including lack of referral tools, inadequate resources to cater for transport, and inadequate communication to the referral facility, and failure of health workers at the health facility to recognise referrals made by CHVs. Other challenges to effective referral include poor communication between the community and the referral facilities and unsupportive health workers at the facility level. The following illustrative quotes make explicit some of these challenges.

> "Our referrals are not taken seriously by the doctors, they throw them away." – ***FGD, CHV, Kwale***

> "The in-charge at the facility should take referrals seriously. We feel so demoralised when our referrals are not taken seriously." – ***FGD1, CHV, Laikipia***

> "The doctors at the health facility…. they don't respect our work." – ***FGD,2, CHVs, Kisumu***

> We don't have referral books, we had them, but they are finished and were advised to use papers, but when you write a referral the patient ignores it and throws it. So, we request for the referral books." – ***FGD3, CHV, Lamu***

> "At the moment it is not effective because the staff who are at the facility level, they are not conversant with the community strategy, that is one. Second, some of them have an attitude towards the CHVs. Thirdly, community members have been complaining that

when they come here, they are delayed being given services, reason being the personnel is there but there are no equipment's, in terms of drugs, disinfectants." – ***KII, CHEW 2, Machakos***

Despite the above challenges, the provision of community health services was perceived to have contributed to several health benefits for the community. The commonly mentioned benefits, including a reduction in communicable diseases, an increase in the utilisation of healthcare services, especially those relating to maternal, reproductive, child and adolescent health, improvements in nutrition status, and increased uptake of health promotion and treatment services. The illustrative quote below points to these benefits.

"We have a lot of CUs reporting zero home deliveries … deliveries in our sub- county is around 65 percent because most of our mothers deliver in the nearest sub-county…, so it is not a magic it is an effort by community health workers, …I can say for sure community health system is working." – ***KII, SCCHC1, Kisumu***

"Here are a lot of changes, there is reduction of disease burden, when called for baraza a number of them shows they are in good health." – ***KII, CHC, Baringo***

"There has been a decrease in maternal deaths in the community. This has been done since the community is aware of the importance of delivering in hospitals." – ***KII3, CHC, Bungoma***

"The immunization coverage in Suba was 48%. It is now about 80%. In terms of latrine coverage, we have improved from 37% to 82%." – ***KII, SCCHC, Homa Bay***

A combination of structural, financial, social cultural, and organisational barriers impedes utilisation of community health services. At the community level, structural barriers include the limited number of community units to cover the entire population and the few numbers of community health volunteers to provide services to households under their jurisdiction. On the other hand, financial barriers include the lack of resources to support efficient delivery of services and payment of stipends, while structural barriers at the facility level range from shortages in essential drugs and commodities to limited number of health workers, long distances to the nearest health facility, and inability to respond to emergencies occurring outside the official operating hours especially at the dispensaries and health centres. Lastly, the organisational barriers include poor health worker attitudes, limited resources to facilitate referrals, and weak community representation at the facility health committees. Interview excerpts below illustrate these barriers.

"There are so many requirements for you to be admitted to maternity –gloves, basin, cotton wool, surgical blade. We even buy these things in advance and keep them with us to stay prepared. These items are not available at the facility. Without which you cannot be attended to deliver." – ***FGD, Mothers, Nyeri***

"In most cases, the CHVs… they don't have a first aid kit, in case something happens in the community they can't assist without a kit. They also need a means of transport to visit the households." – ***KII, CHEW, Isiolo***

"We need uniforms, boots, and raincoats. We also need equipment and tools. The gadgets are very few. We only have one blood pressure machine per sub location. Sometimes they are not working because we don't have batteries. There are shortages of blood sugar kit." – ***KII, CHEW2, Nyeri***

Some of the suggested solutions to address the challenges include increasing resources earmarked for supporting primary healthcare services, strengthening data capture to promote evidence-based delivery of healthcare services, community sensitisation to take an active role in managing their health, and advocacy for respectful care at the health facility, especially for pregnant women and those with disabilities.

8.3 Readiness to provide community health services

Assessment of the readiness of structures to provide community health services examined the availability and functionality of community health units, number and adequacy of the community health workforce, training and competencies of the community health workforce, and the functionality of management structures, such as community health committees.

The assessment shows that critical structures, such as the community health units (CHUs) and the community health committees (CHCs) that are tasked with the implementation of community health services are facing challenges that affect their functionality. These include poor staff motivation, shortages of community health workforce owing to high rate of attrition, inadequate training, and inadequate supply of essential commodities to be used by the CHVs. These challenges are illustrated by interview excerpts below.

> "Okay there are several challenges, one among them is in the issue of the high rate of dropouts experienced because of the CHVs being volunteers they are not earning anything at the end of the month, they don't have stipend then they drop out." – ***KII, SCCHC, Baringo***

> "CHCs died because they don't have finances and we don't involve them in any activities." – ***KII, SCCHC2, Nyeri***

> "We've also recommended a consistent supply of essential commodities that we require to use in the community." – ***KII, CHEW, Kisumu***

A weak CHC undermines capacity for resource mobilisation and management, representation performance appraisal of CHVs, and information management. In terms of numbers, there is a palpable shortage of the community health workforce in general and CHVs. The community health strategy envisages at least 10 to15 CHVs per community health unit, serving a population of 5,000 individuals (1,000 households). Although there are counties such as Siaya who reported 100% coverage in terms of the number of CHUs, data from this assessment points to a critical shortage of community health workforce characterised by fewer numbers of CHVs and membership to CHCs and outright unavailability in most cases.

Based on the revised structure for community health services, five community health extension workers (CHEWs) are expected to provide services within the community, with the support of approximately 10 to 15 CHVs. The logic of the CHS in Kenya is premised on a cadre of community health workforce to deliver a variety of preventive, basic curative, and health promotive services. Any shortage of this critical workforce has far-reaching implications in terms of the ability to deliver community health services. These shortages mainly emanate from dropouts and lack of financial support, as illustrated by the quotes below.

> "At the community unit level…we have a great problem. One, the way we motivate the CHC. Two CHCs are supposed to be the bakers of the bread…to look for the finances to support the unit. However, as I earlier said when selection was done, they expected to be

supported not them supporting the unit so … what we are grappling now with is a lot of CHCs dropping out and I think our coverage would be below 30 percent." ***KII, SCCHC2, Kisumu***

"For the community health committee…we've never had a meeting since 2015 till now,…the reason behind it is motivation, you know this is a group of people who have responsibilities and most of them are working…So people tend to see that they will leave their jobs and yet there is nothing that they are going gain out of it, hence they don't come for the meeting." – ***KII, CHEW2, Machakos***

"CHVs lack motivation, transport is not provided, and they feel misused. Some CHVs drop out on the way. They are also ambushed when they are called on short notices, this also breaks families. We have very few men because there is no payment." – ***KII, CHEW2, Nyeri***

Improving the readiness of the CHS requires a critical mass of community health workers with requisite skills and competencies to implement CHS. Ideally, the CHVs, CHC members, and the CHEWs are expected to undergo focused training to prepare them for service. The CHVs, for instance, are expected to undertake both the basic and technical community health modules to equip them with skills to deliver community health services. Interviews with both the CHVs and the sub- county community health focal persons show that some of the CHVs are not adequately trained. In other cases, the CHVs have not undergone the recommended training comprising the basic and the technical modules. Owing to the high attrition rate that characterise the community health workforce, frequent training and orientation of the workforce is critical.

8.4 Financing community health services

The finance and management component for the community module examined the views relating to the financing of both the community health services and payment of health services by community members. The two were deemed important to tease out views regarding resource allocation practices for supporting community health services and to explore the uptake of health insurance to protect communities against catastrophic health expenditure. The findings show that the financing of the community health services remains a key challenge in several counties. Only a handful of county governments reported to have taken positive steps to finance the CHS. In other cases, the establishment and running of community units and other operational structures is largely left to partners, which makes service delivery erratic. This challenge is particularly vexing in places where the CHCs are not able to mobilise resources to support the operations of the CHUs.

Views relating to uptake of health insurance show that communities understand the important role it plays in promoting access to health services and protecting families and individuals from catastrophic health expenditure. The following excerpts illustrate this understanding.

"Basically, in terms of financing in the county majorly we get our support from the partners the county government has been planning, we've got support but not as much as we are getting in from the partners, I think in terms of percentage I would give the partners around 70% and the county around 30%." – ***KII, SCCH1, Kisumu***

"For those of us who don't have insurance, we must pay for health services through harambees, help from relatives or out of pocket." – ***FGD, Young mother, Kakamega***

> "Yes, I have heard of it and my husband have the NHIF [National Hospital Insurance Fund] card if anyone in my family gets sick we go to the hospital with the card and we will not pay anything for the services." – ***FGD, Mother 8, Mandera***

> "For NHIF, I have used it for six years and sometimes when my child is sick, and I don't have money, I take the child to Nangina Holy Family and the card will cover." – ***FGD, Mother5, Busia***

> "LINDA MAMA helped me a lot because when I was having this baby I was carried for free, I just called them, and they carried me for free and took me to the hospital and after giving birth also, that is my gain." – ***FGD, Mother 3, Busia***

Several private and public-funded insurance schemes are available to the community. Some of the commonly mentioned schemes include the national health insurance scheme (NHIF), Linda Mama, Afya Bora and Afya Plus, and M-Tiba. Despite the general knowledge regarding the importance of health insurance, low uptake was attributed to fears relating to affordability of monthly premiums and lack of access to registration facilities/centres at the local level.

8.5 Conclusions

The services that are expected to be delivered through the community health services are available albeit in a suboptimal manner. Several barriers limit the accessibility of health services at community and health facility levels. These include costs associated with travel to the health facilities and negative attitudes of some health workers at the facility level.

The readiness to provide services is undermined by several structural and organisational barriers that should be addressed to promote the functionality of community health services and prepare the path for universal health coverage. There are policy and regulatory steps that should be taken to improve the readiness to deliver services. Policy steps will need to engage with resource allocation to support the community health services, including the need to integrate the CHVs into the formal workforce, while regulatory steps should seek to implement the requirements of the Kenya quality model.

Overall, there are glaring gaps in the implementation of the community health services, with noticeable disparities across the counties in relation to the number of functional CHUs, CHVs, CHCs, and CHEWs. Together, these gaps compromise the readiness to deliver community health services and ultimately, access and utilisation of services provided at level 1 and 2 of the healthcare systems.

9. CROSS-CUTTING COUNTRY PERFORMANCE: INEQUITIES, ASSOCIATIONS, AND STUDY SYNTHESIS

This chapter discusses inequality analysis across all the services areas covered in the study. Associations are also sought in trying to discover trends and patterns in the data. The identified patterns across the results are discussed with the possible factors that might explain variations in study findings given. Heterogeneity in study findings is explored in order to synthesise all the modules. The aim of this synthesis is to increase the generality and applicability of those findings and to develop new knowledge through the process of integration. To this end, all the quantitative analyses are integrated with the community module, which was purely qualitative.

9.1 Inequity analysis

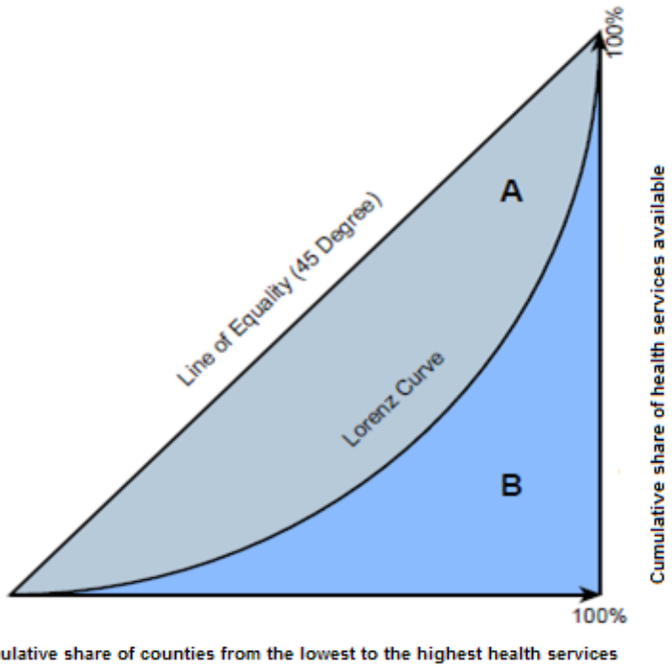
Equity has long been considered an important goal in the health sector. Although part of the variation in health status between individuals is biological in origin, disparities in health between nations and between social groups and individuals within nations are largely determined by economic, political and social factors and in how societies are organised. Equity analysis highlights the disparities in health outcomes between different groups and is useful for policy-making and for those involved in the allocation of health sector resources.

9.1.1 Measures of health inequality

There are various measures to report health inequality. For this report, we have chosen to use the concentration coefficient and the Gini coefficients to examine inequalities in service availability and service readiness between counties. For both the concentration and Gini coefficients, a coefficient of zero expresses perfect equality, where all counties have the same level of service availability or service readiness. coefficient of one (or 100%) expresses maximal inequality among counties (e.g. only one county has all the services available and no other counties have any services available).

The concentration index and the related concentration curve, provides a means of assessing the degree of health services-related inequality. The Gini coefficient is a single number aimed at measuring the degree of inequality in a distribution. The Gini coefficient can then be thought of as the ratio of the area that lies between the line of equality and the Lorenz curve (marked A in **Figure 283**) over the total area under the line of equality (marked A and B in the diagram); i.e. G = A/(A + B). It is also equal to 2A and to 1 − 2B due to the fact that A + B = 0.5 (since the axes scale from 0 to 1). The Gini coefficient is equal to the area between the actual health services distribution curve, as expressed by the Lorenz Curve, and the line of perfect health services equality. The more bowed out a Lorenz curve is, the higher is the inequality.

Figure 283: Graphical representation of the Lorenz curve (Gini coefficient), Kenya 2018



9.1.2 Construction of overall indices

The overall KHFA index was computed as the geometric mean of all the areas of assessment, that is: basic amenities mean score; basic equipment mean score; standard precautions mean score; diagnostics mean score; essential medicines mean score; general service readiness index; health services infrastructure index; health workforce index; service utilisation index; general service availability index; maternal, newborn, child, and adolescent health availability index; communicable diseases availability index; non-communicable diseases availability index; surgical care availability index; specific service availability index; maternal, newborn, child, and adolescent health readiness index; communicable diseases readiness index; non-communicable diseases readiness index; surgical care readiness index; specific service readiness index; support for quality of care index; monitoring of quality of care index; adherence to standards index; quality of care index; and management and finance index.

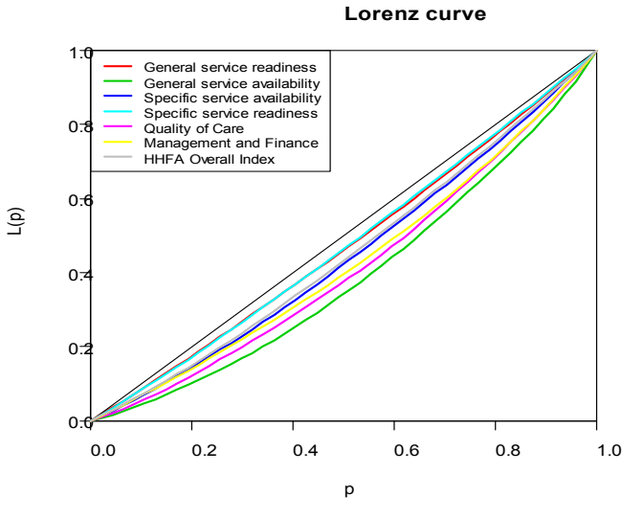
Each of the above mean scores and indices (that are all out of 100 points) are composed of a number of indicators, as found in the Annexure Tables. The geometric mean was selected due to the fact that we had indices weighted by various sample sizes as well as them being percentages.

9.1.3 Overall inequity results

The concentration coefficient for the seven indices are presented in **Annex Table 145**. The Lorenz curve is a graphical representation of the Gini coefficient. In the Lorenz curve, the line at the 45° angle shows perfectly equality, while the other lines show the actual distribution. The further a Lorenz curve deviates from the perfectly equal straight line (which represents a Gini coefficient of 0), the higher the Gini coefficient and the less equal the society. **Figure 284** displays a Lorenz curve for the seven KHFA indices.

- The lowest inequalities were observed in specific service readiness (Concentration coefficient = 0.02145 and Gini coeficient = 0.04995), with the highest inequalities being experienced in the general service availability distribution across the counties.
- Although the general service showed the highest inequalities, they were equitably ready in the facilities where they were found.
- The percentage of counties is higher than the percent of all the services and facilities at their disposal, for example 20% of the bottom counties have less than 10% of the total general services available in the country, which is the most unequal domain of the six.
- The ideal situation is where 20% of the counties have a general service availability of 20% all the services.
- The top three domains' distribution to address include the general service availability, quality of care as well as Management and Finance.

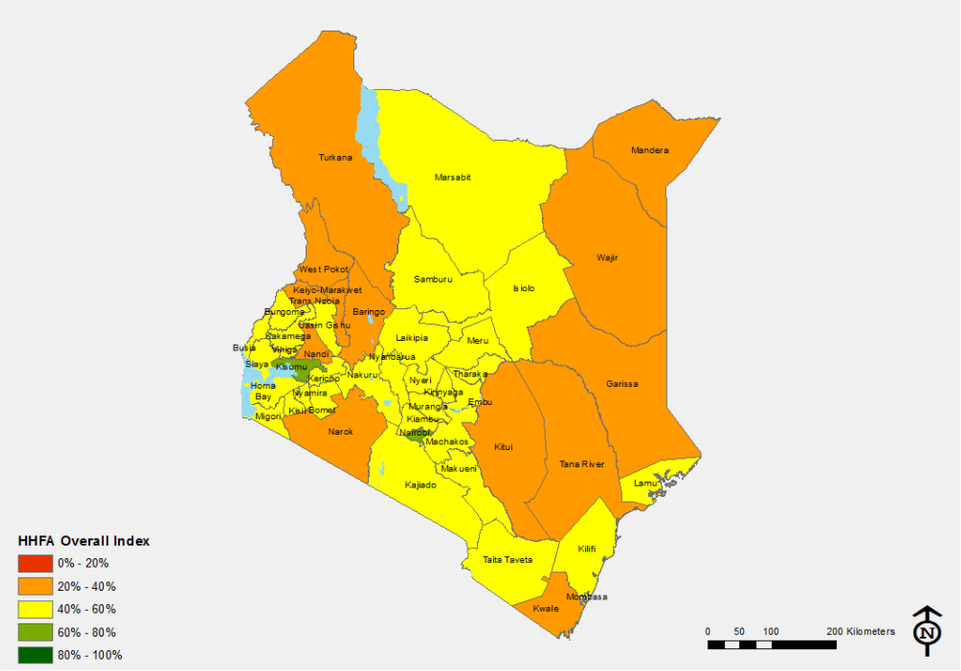
Figure 284: Lorenz curve for the seven KHFA indices, Kenya 2018



The overall KHFA index varied by counties. **Figure 285** shows the variation in the overall KHFA index by county.

- The overall KHFA index varied by counties. The overall KHFA performance index 2018 was 44.58%.
- The top five counties, overall were Kisumu (62.15%), Nairobi (61.57%), Busia (56.83%), Homa Bay (55.23%), Taita Taveta (54.81%)
- The bottom five counties overall were Garissa (33.87%), West Pokot (33.06%), Mandera (32.24%), Turkana (31.97%), and Wajir (30.21%).

Figure 285: Variation in the overall KHFA index by county, Kenya 2018

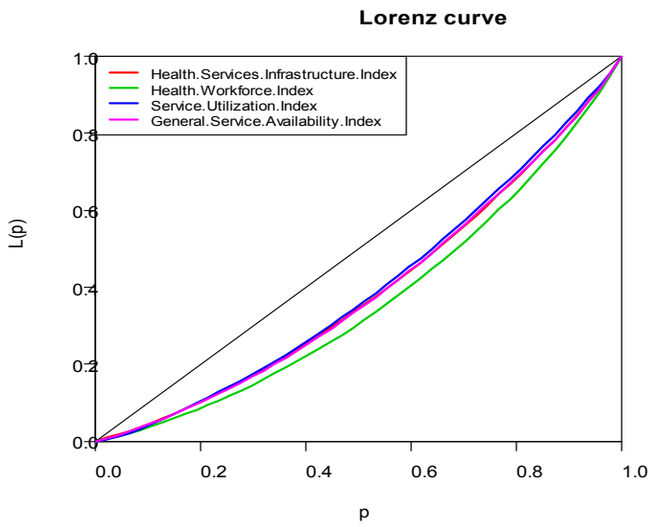


9.1.4 General service availability Index: Inequity results

The composition of the general service availability index, the index with the highest inequalities was further explored to better understand the source of the inequality (**Figure 286**).

- The main source of the inequality was due to health workforce distribution across the counties (concentration coefficient = 0.02624 and Gini coefficient = 0.26976).
- On the other hand, health services infrastructure and service utilisation were found to have a more even distribution.
- Therefore, in order to improve general service availability equity, it will be useful to have equitable distribution of the health workforce across the counties.

Figure 286: Lorenz curve for the general service availability index and index components, Kenya 2018

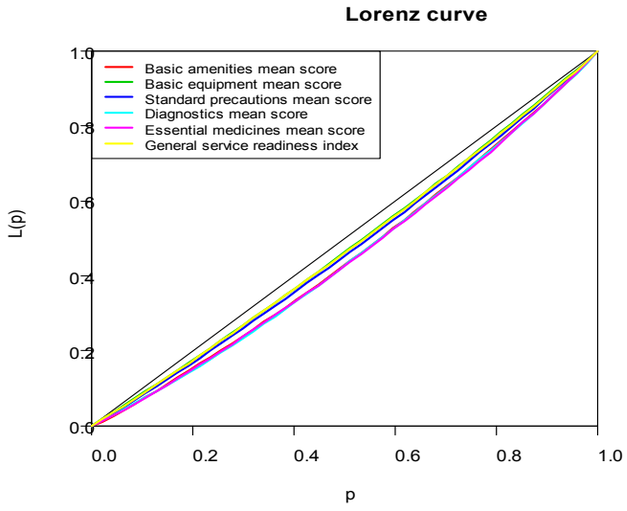


9.1.5 General service readiness index: inequity results

The composition of the general service readiness index was further explored to better understand the source of the inequality (**Figure 287**).

- The three high inequalities across the counties under general service readiness were observed in diagnostic, essential medicines and basic amenities.
- The general services readiness equity was boosted by standard precautions and basic equipment that were comparatively more equitably distributed across the counties.

Figure 287: Lorenz curve for the general service readiness index and index components, Kenya 2018

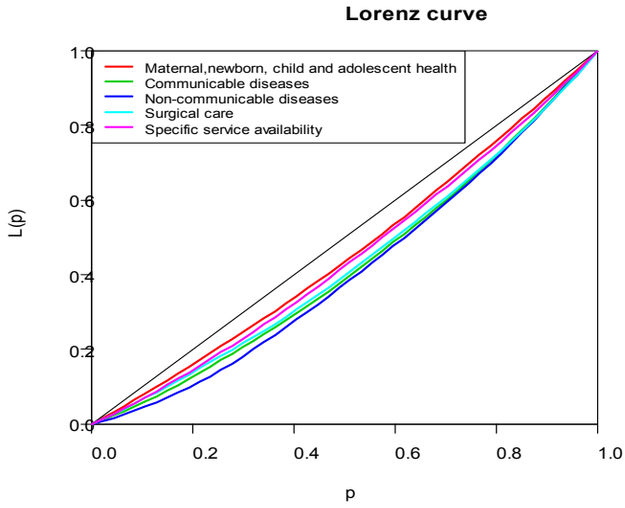


9.1.6 Service-specific availability Index: Inequity results

The composition of the service specific availability index was further explored to better understand the source of the inequality (**Figure 288**).

- The specific services availability equity was boosted by maternal, newborn, child, and adolescent health.
- The least equitable services across the counties under this domain were NCDs as well as communicable diseases' service availability.

Figure 288: Lorenz curve for the service-specific availability index and index components, Kenya 2018

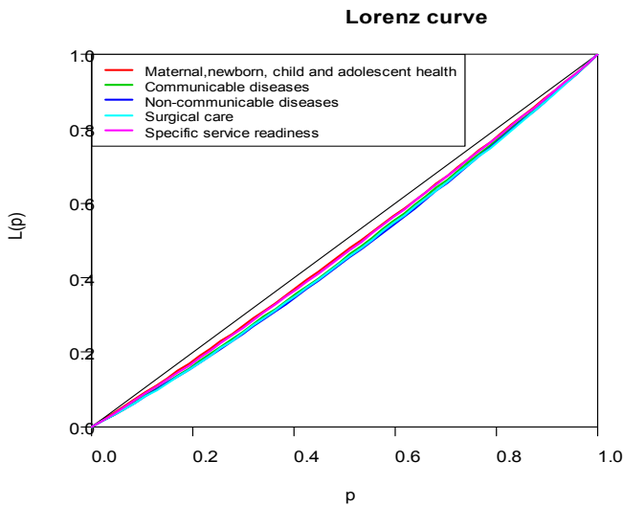


9.1.7 Service-specific readiness index: Inequity results

The composition of the service-specific readiness index was further explored to better understand the source of the inequality (**Figure 289**).

- Specific-service readiness was found to be the most equitable.
- The service-specific readiness index was broken into four domains: maternal, newborn, child, adolescent health; communicable diseases; non-communicable diseases; and surgical care. Amongst the four domains, the best performer (least inequality) was seen in the domain of maternal, newborn, child, and adolescent health (Concentration coefficient = 0.0214, Gini coefficient = 0.04482)
- In order to sustain equality, continuous investments must be made across services.

Figure 289: Lorenz curve for the service-specific readiness index and index components, Kenya 2018

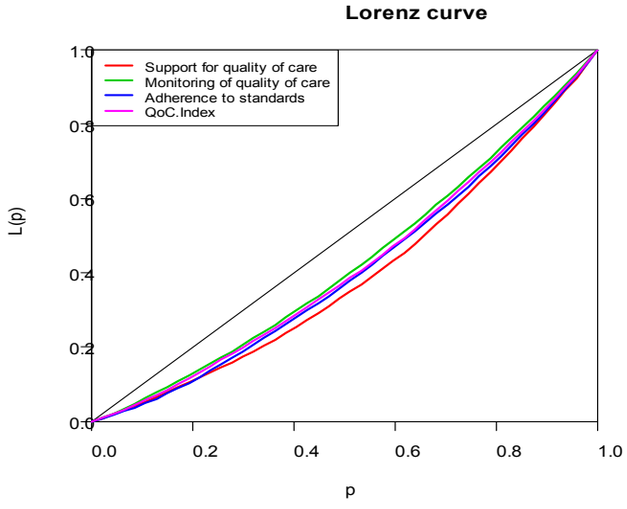


9.1.8 Quality of care index: Inequity results

The composition of the quality of care index was further explored to better understand the source of the inequality (**Figure 290**).

- Quality of care was the second largest source of inequality.
- The quality of care index was broken into three domains: support for quality of care, monitoring of quality of care, and adherence to standards. The main source of inequality was support for quality of care, (Concentration coefficient = 0.02431, Gini coefficient = 0.21451, see **Annex Table 145, Book 2**).
- Thus, to improve quality of care that affects the performance of the overall index, it is desirable to have more support for quality of care.

Figure 290: Lorenz curve for the quality of care index and index components, Kenya 2018

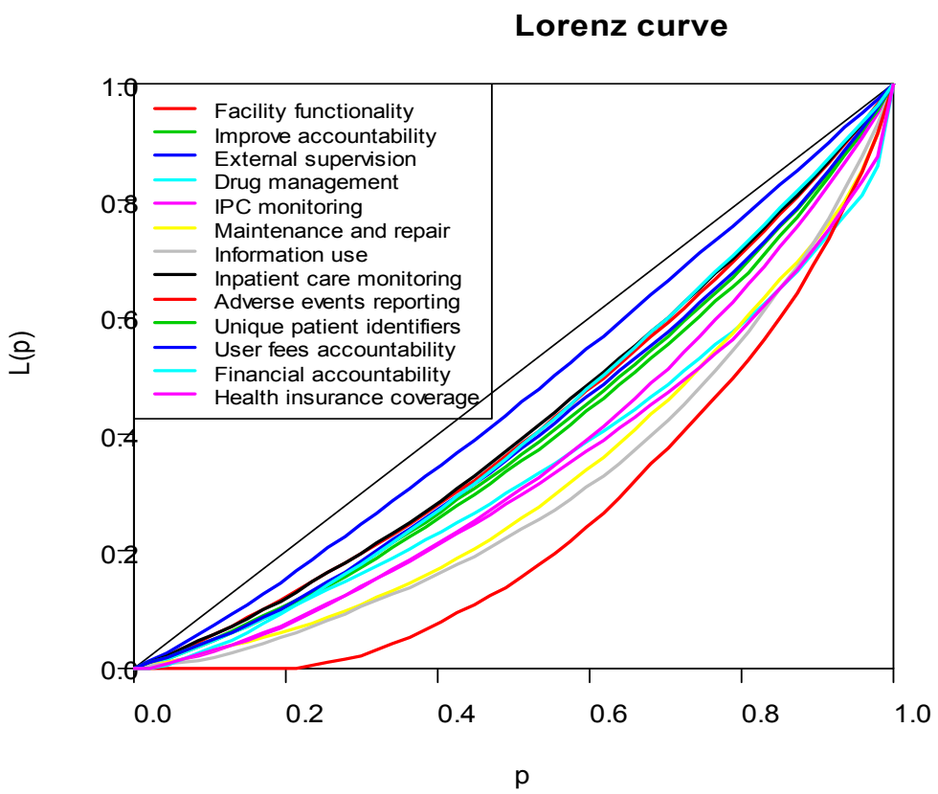


9.1.9 Management and finance index: Inequity results

The composition of the management and finance index was further explored to better understand the source of the inequality (**Figure 291**).

- Management and finance was the third largest source of inequality overall, but produced the highest equalities in some of the domains.
- The index was further broken down into adverse event reporting guidelines, drug management systems, health insurance coverage, facility use of information for management, systems for maintenance and repair, IPC monitoring system, systems to improve accountability, use of unique patient identifiers, accountability for user fees, financial accountability, management systems to support facility functionality, monitoring indicators of quality of inpatient care, and facility level external supervision.
- The three main sources of these inequalities were adverse event reporting guidelines (Concentration coefficient = 0.03888, Gini coefficient = 0.49026), drug management systems (Concentration coefficient = 0.03884, Gini Coefficient = 0.30572) and health insurance coverage (Concentration coefficient = 0.03599, Gini coefficient = 0.33221)

Figure 291: Lorenz curve for the management and finance index and index components, Kenya 2018



9.2 Associations between domains

Spearman's rank correlation was used to investigate the associations between pairs of domains following the trends that were observed in the counties. The rank correlations were the preferred choice since we were dealing with indices that were not normally distributed and that could be ordered from the best to the worst. All associations were checked in relation to their co-movement with the overall to the overall KHFA index. The overall performance was highly influenced by an increase in the performance of all the domains computed (**Annex Table 146**), though at different levels. High levels of overall performance were associated with high levels of quality of care followed by management and finance. This implies that the counties that had exemplary overall performance also topped in their quality of care as well as management scores. Other domains that were associated with increasing overall performance were specific-service availability, general service availability, general service readiness and lastly, specific-service readiness, in that order.

10. CONCLUSIONS AND RECOMMENDATIONS

10.1 Service availability

10.1.1 Conclusions

- Most of the essential services were available. However, this availability was affected by a number of missing components in every service package. For instance, infrastructure was available but with inadequate staffing.
- General service availability: health facility infrastructure were in place in all counties though witnessing low utilisation levels.
- Inequalities were witnessed across the counties in the general service availability distribution, with the contributory factor being health workforce.
- The most impressive services that were beyond an availability of 75% included family planning, antenatal care, care for low birth weight and sick newborns, child health preventive and curative care services, malaria treatment services, HIV/AIDS counselling and testing, PMTCT services, treatment of sexually transmitted infections, and basic surgery.
- The least available services, (below 25%) were services for the diagnosis and treatment of cervical cancer, breast cancer, prostate cancer, and colorectal cancer, mental health and neurological care, palliative care, rehabilitation care, and blood transfusion.

10.1.2 Recommendations

- It is highly recommended that all the services in every package be provided together in order to improve on the completeness of the available services at each level.
- A deliberate effort should be made to have in place more cancer services (all forms), mental health care, palliative care rehabilitation care as well as blood transfusion services available across the country.
- Equitable distribution of services is also highly recommended, especially health workforce and infrastructure that were found to be the main sources of health service inequalities.

10.2 Service readiness

10.2.1 Conclusions

- There was evidence that most of the facilities were ready to offer services, with more than two-thirds with ready items.
- Despite the tracer items being ready to offer services, health facilities are not maintaining all the tracers as a package, as witnessed by extremely low proportions of the health facilities with all the tracer items under respective service areas.
- Generally, the index for Kenyan health facilities is 59%, meaning that nearly 6 in 10 health facilities are ready to provide health services.
- An impressive readiness of tracer items (above 75%) was witnessed in the areas of family planning services, malaria treatment services, as well as HIV/AIDS counselling and testing.

- Low levels of readiness of tracer items (below 25%) were observed in postnatal care for mothers and newborns, breast cancer, colorectal cancer, and basic surgery.

10.2.2 Recommendations

- It is recommended that the areas that were found lagging behind in their readiness to offer services be supported further to in order to improve them. These include: postnatal care for mothers and newborns, breast cancer colorectal cancer diagnosis and treatment, and basic surgery.
- There should be a deliberate effort to have all the tracer items within a service area ready as completeness of service packages was nearly zero.
- Strengthening disease programmes can further improve the readiness to offer services, as witnessed in family planning, malaria treatment and HIV testing and counselling.
- It is also recommended that the other services that were found to be more ready be supported for sustainability and continuous improvement.

10.3 Quality and safety

10.3.1 Conclusion

The quality of health service delivery across the country is generally inadequate based on the parameters covered in the survey. Wide variations exist across the counties between levels and types of care in private, NGO/FBO and private facilities in both urban and rural areas. There is therefore need for targeted interventions to improve quality of care based of the needs of the different counties.

10.3.2 Recommendations

- There is a need to strengthen the quality of outbreak and disaster preparedness across the country. Only 10% of facilities countrywide had disaster preparedness or facility safety plans. Of these, only 13% had conducted an outbreak preparedness drill in the past 12 months.
- There is a need to improve adherence to the guidelines. Only 34% of facilities countrywide had pharmaceutical commodity storage conditions that meet basic pharmaceutical guideline requirements.
- Targeted interventions based on the gaps identified need to be instituted for uniformity. There were wide variations in the quality of care across counties.
- There is a need to develop national guidelines on supportive supervision for the health sector that will be applicable across all facility types. There were wide inter-county variations in levels of supportive supervision (50% absolute gap).
- The national level should enforce implementation of the guidelines on formation of health facility boards and committees. Private facilities should also have such boards or committees, or a mechanism for patient feedback. Thirty-eight percent of facilities do not have mechanisms for including community participation in their service provision.

10.4 Management and finance

10.4.1 Conclusion

There was evidence of management practices starting from the management systems that were in place in a majority of the facilities. There were also guidelines on public finance management. However, these were not widely implemented on the ground.

10.4.2 Recommendations

- Kenya Quality Model of Health (KQMH) recommends monthly meetings in facilities. The survey found that a majority of facilities did not meet the recommended KQMH standards, hence the need to encourage monthly meetings.
- The mission of the Ministry of Health is to build a responsive client-centered health system. However, the results indicate gaps in regards to determining clients' experiences and satisfaction. Therefore, there is a need to promote a client-centred approach to service delivery.
- There is a need to strengthen documentation of the supervisory visits.
- There is a need for facilities to prioritise preventive maintenance in their policies and budgetary and human resource allocation to ensure health facilities deliver a full service unimpeded by non-functioning health care technology. There is a need to build the capacity of human resources to perform preventive maintenance of medical equipment.
- Management practices affect quality improvement. Human resources for health are key players for improving the quality of services. Awareness of the guidelines of KQMH and motivation of the staff implementing the guidelines haves a significant influence on quality of health services.
- There is a need to raise awareness on the importance of adhering to the national infection prevention and control (IPC) guidelines.
- Reinforce external auditing of all facility accounts by the county Treasury and the Office of the Auditor General.
- Reinforce policy that abolishes user fees in primary health facilities

10.5 Community systems

10.5.1 Conclusion

- The services that are expected to be delivered through the community health services are available albeit in a suboptimal manner. Several barriers limit the accessibility of health services at the community and health facility levels. These include costs associated with travel to the health facilities, and negative attitudes of some health workers at the facility level.
- The readiness to provide services is undermined by several structural and organisational barriers that should be addressed to promote the functionality of the community health services and prepare the path for universal health coverage. There are policy and regulatory steps that should be taken to ameliorate the readiness to deliver services. Policy steps will need to engage with

resource allocation to support the community health services, including the need to integrate community health volunteers (CHVs) into the formal workforce, while regulatory steps should seek to implement the requirements of the Kenya quality model.

- Overall, there are glaring gaps in the implementation of the community health services, with noticeable disparities across the counties in relation to the number of functional community health units (CHUs), CHVs, community health committees (CHCs) and community health extension workers (CHEWs). Together, these gaps compromise the readiness to deliver community health services and ultimately, reduce access and utilisation of services provided at level 1 and 2 of the healthcare systems.

10.5.2 Recommendations

Based on the findings, the following are the recommended steps to improve availability of services and promote the readiness of the CHS to deliver services:

- Recruit appropriate number of CHVs, CHEWs and CHC members in compliance with the Kenya quality model.
- Strengthen community health committees and equip them with knowledge, skills and resources to undertake their mandate.
- Allocate budgetary support for community health services as a critical and necessary component towards achieving universal health coverage (UHC).
- Consider incorporation of CHVs into the formal healthcare workforce.
- Create awareness at the community level to use the CHV as the first point of contact before visiting the health facilities.

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Annex 1: Availability of essential health workforce by cadre, level and county

Available essential health workforce for level 2

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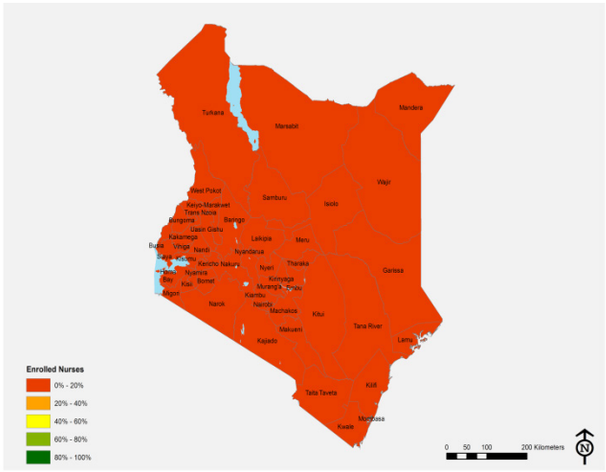
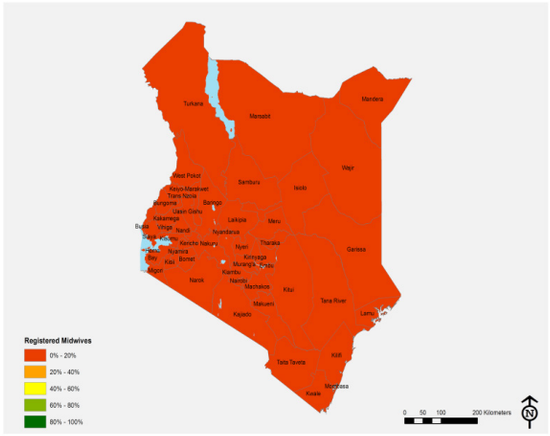
<tr><td> 
</td><td> 
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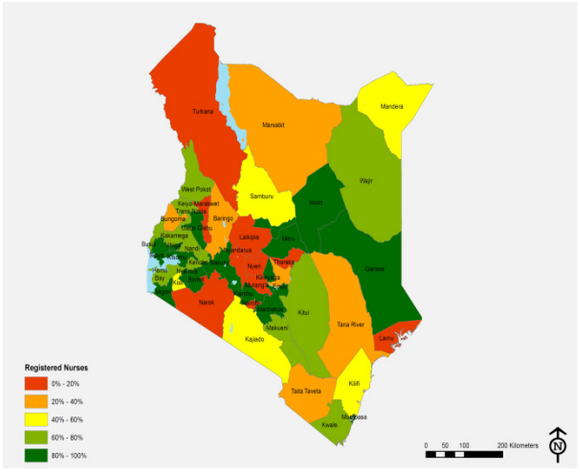
<tr><td>Enrolled Nurses</td><td>Registered midwives</td></tr>
<tr><td> 
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<tr><td>Registered nurses</td><td></td></tr>
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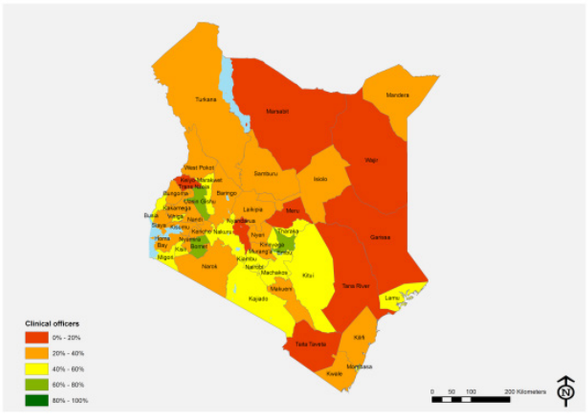
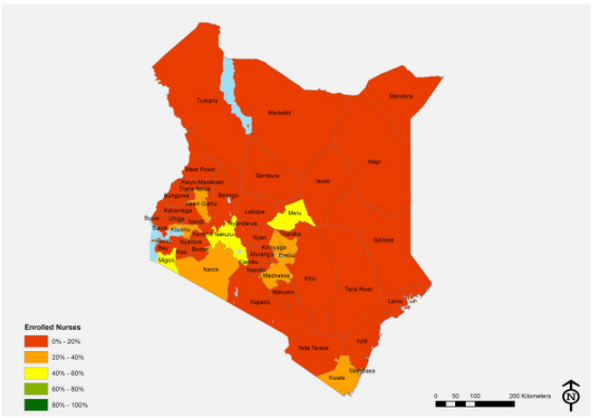
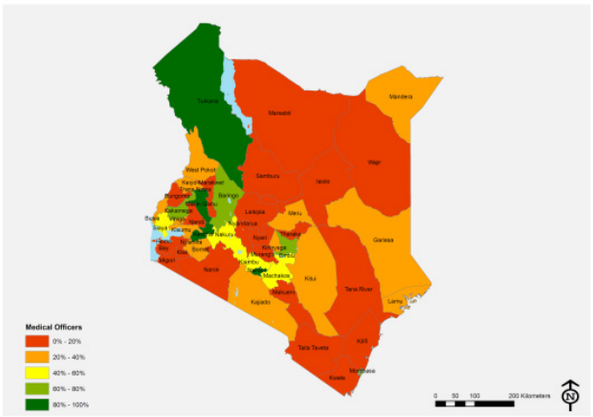
Available essential health workforce for level 3



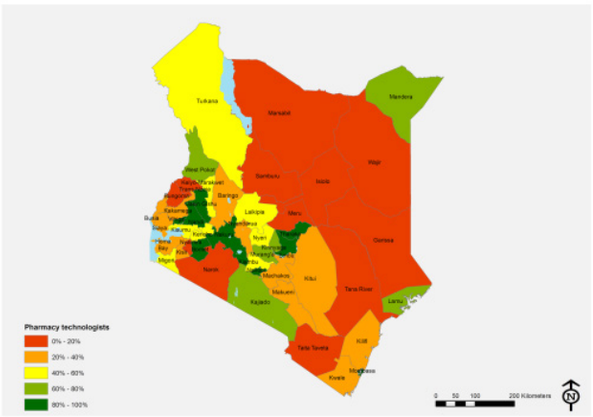
Clinical Officers



Enrolled Nurses



Medical Officers



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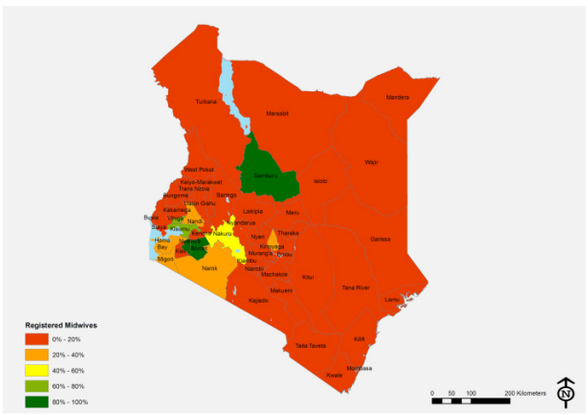
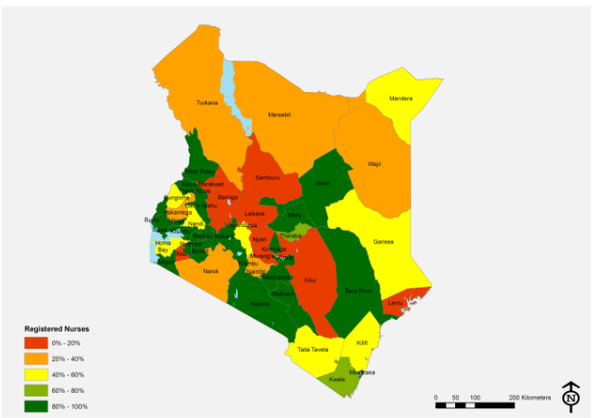
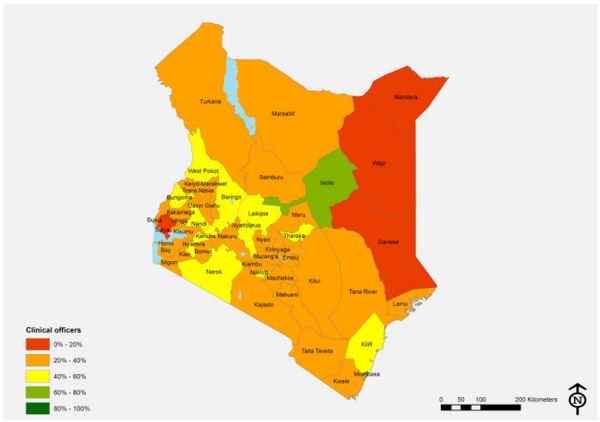


Registered midwives

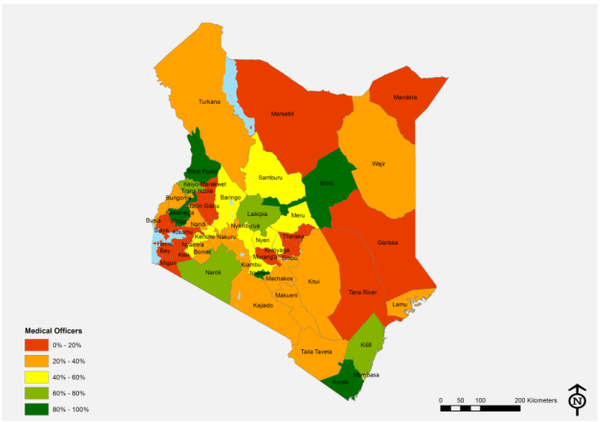


Registered nurses

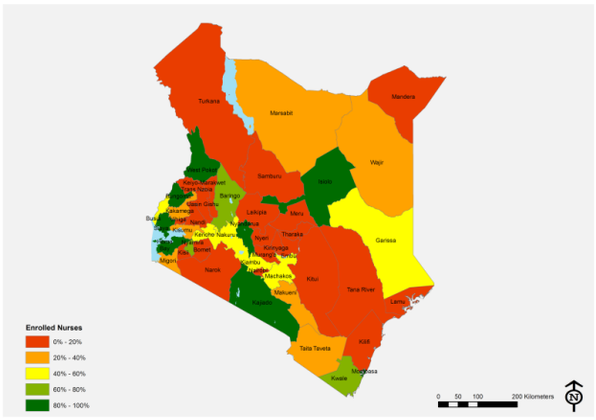
Available essential health workforce for level 4



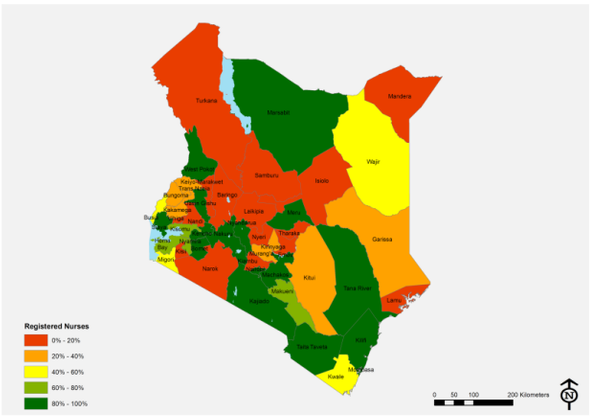
Clinical Officers



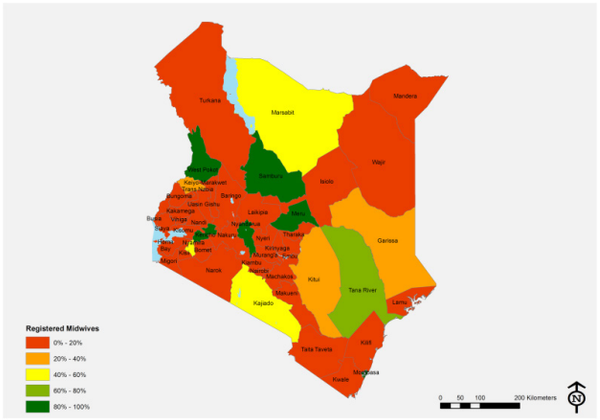
Medical Officers



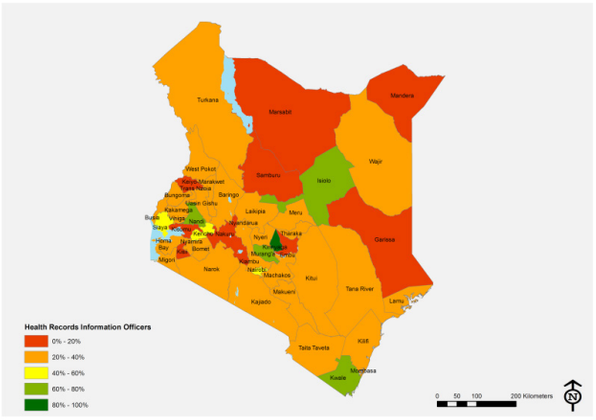
Enrolled Nurses



Registered nurses

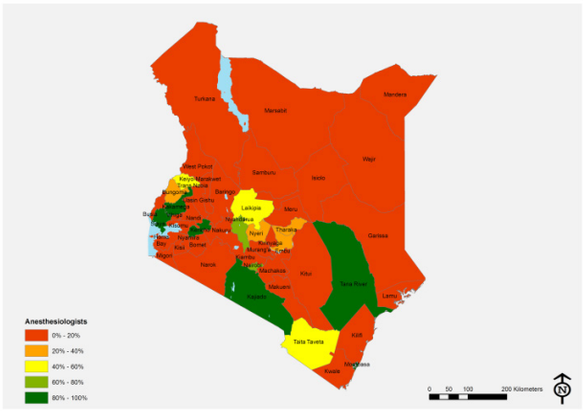


Registered Midwives

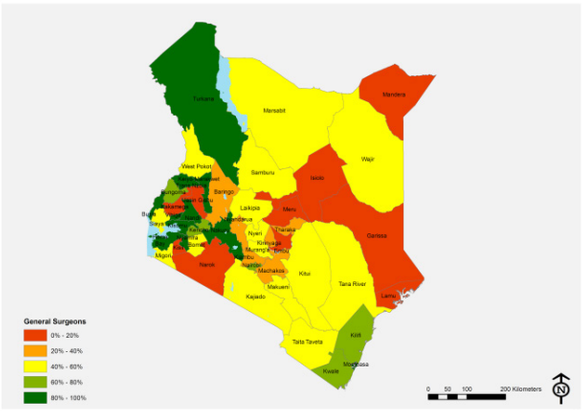


Health Records information officers

Available specialists' health workforce for level 4



Anesthesiologists



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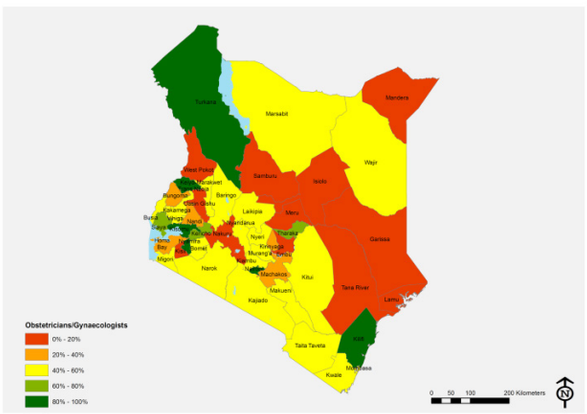

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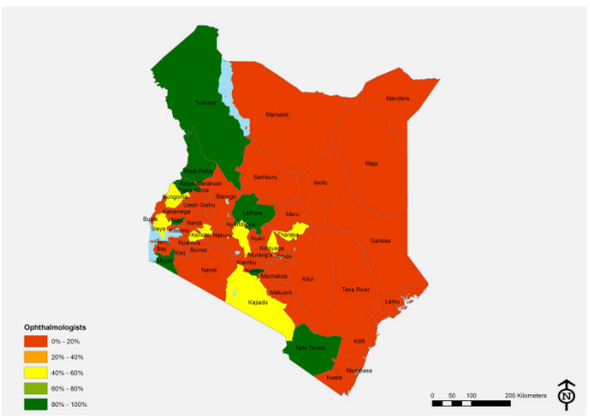
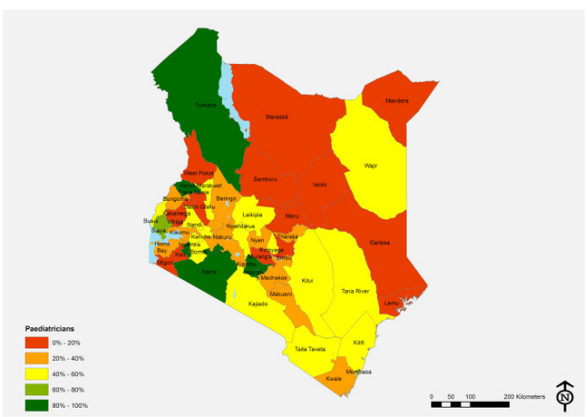


ophthalmologists



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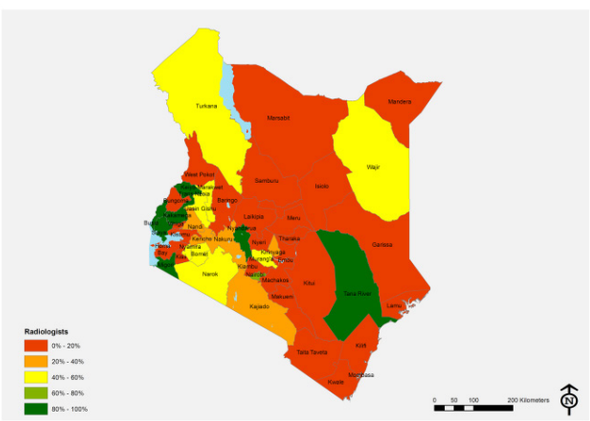

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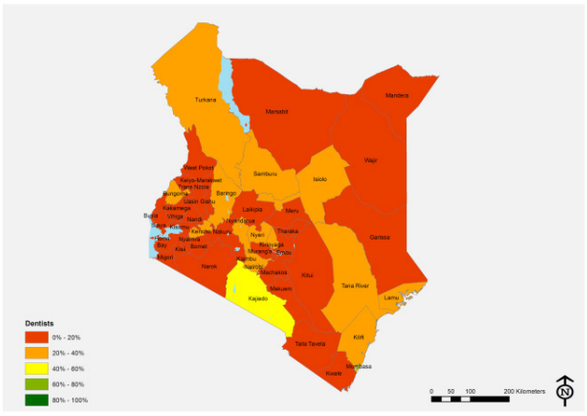	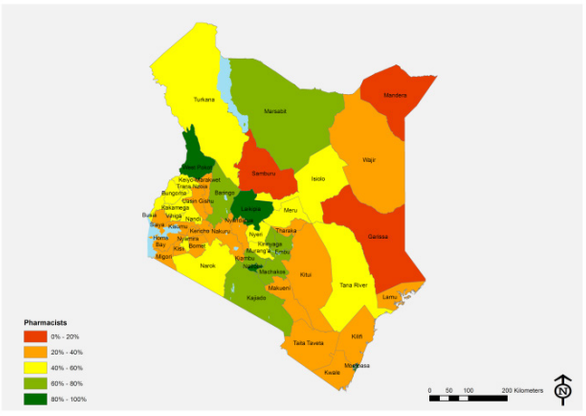
Dentists	Pharmacists

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OF DENMARK
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