



MINISTRY OF HEALTH

MID TERM REVIEW

OF THE

KENYA HEALTH SECTOR STRATEGIC AND

INVESTMENT PLAN 2018-2023

Statistical Report

April 2021



Foreword

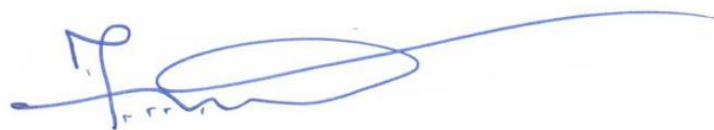
The Statistical review on the performance of the Kenya Health Sector Strategic and Investment Plan (KHSSIP) 2018-2023 is an important input into the overall mid-term review of the KHSSIP. The Report uses data from different sources including data from Health Management Information system and Household surveys to provide a comprehensive overview of the current status of performance of the Health Sector in Kenya. The primary focus of the report is on the core indicators and targets of KHSSIP 2018 – 2023 and is developed within the context of long term international and local health goals which include sustainable; development goals (SDGs), Abuja declaration, Kenya vision 2030 and National Health Policy. The report also pays special attention to additional indicators that help to assess progress towards achieving national priorities and global goals that came into effect after development of the KHSSIP.

The Statistical Review Report was prepared by the Kenya Ministry of Health in close collaboration with other health sector stakeholders drawn from Counties, National Institutions, private sector, non-governmental organizations, local and international partners. It highlights many areas where significant progress has been made and also areas where greater efforts are needed to achieve the KHSSIP targets.

This Report will prove handy to the Senior Management and Technical Experts of the Ministry of Health, County departments of health, other Government Ministries, Departments and Agencies that exert influence on the health sector. The report contains County profiles to aid decision making and resource allocation to the 47 counties. The Report will also be useful for Policy Makers, Parliamentarians, the Civil Society and the Community at large. It is my anticipation that future reports from the Ministry of Health will contain a similar level of analytical thinking.

The Report provides a perfect audit of the status of the health sector, a focus on the second half of the implementation and emerging challenges of the COVID-19 pandemic. It is my hope therefore that all stakeholders in the health sector will use the Report to increase efforts in service provision, allow for greater accountability and raise standards for recording, documenting and reporting. We look forward to using the report to improve performance of health sector which will in turn improve the health of our people.

On behalf of the Ministry of Health, I would like to express my appreciation to all the partners in the health sector for providing the technical and financial support for the mid-term review of the Kenya Health Sector Strategic Plan.



**Sen.Mutahi Kagwe, EGH
CABINET SECRETARY
MINISTRY OF HEALT**

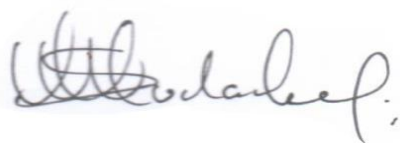
Acknowledgements

The mid-term analytical review of the progress and performance of the Kenya Health Sector Strategic and Investment Plan (KHSSIP) 2018-2023 is an important undertaking of the Ministry of Health. The Ministry is indebted to all those who participated in the development of this Report which was done through a collaborative process. Special thanks and appreciation go to the Cabinet Secretary, Senator Mutahi Kagwe for providing overall leadership and to the Director General, Dr. Patrick Amoth for his technical guidance during the development of this Report.

Additionally, I would like to recognize and congratulate all those individuals, institutions and organizations – public or private, national or international – that contributed to the analysis and writing of this Statistical Review Report. These include the Staff from the Ministry of Health, Counties, Parastatals, National Institutes such as Kenya Bureau of Statistics, Civil Registration Department, Private Sector and Development Partners. To all those who contributed in one way or the other to this endeavor, please accept the sincere appreciation of the leadership of the Ministry for a job well done.

I would, however, on behalf of all who contributed, like to single out a few individuals and institutions to highlight the collective effort that went into producing this Report. At the Ministry, I would like to recognize the efforts of the Technical Working Group led by Dr. Hellen Kiarie, the Head of Health Sector Monitoring and Evaluation Division under the guidance of Dr. Charles Nzioka, the Head of the Directorate of Health Policy, Research, Monitoring and Evaluation and Dr. Joseph Sitienei, the Head of Department Health Informatics, Monitoring and Evaluation. I would like to recognize the members of the technical working group that developed this report including Dr. Janette Karimi, Pepela Wanjala, Samuel Cheburet, Dr. Oren Ombiro, Dr. James Gitonga, Rose Muthee, Aiban Rono, Dr. Violet Oramisi, Samuel Murage, Benard Wambu, Dr Gladwell Gathecha, Dr. Githuka George, John Toweett, Dr. Kiogora Gatimbu, Jeremiah Mumo, James Kiarie, Anthony Komen, Timothy Owiti, Peris Njibu and Cynthia Kyule. In a special way, we would like to thank the consultants Dr. Ties Boerma and Dr. Joseph Mung'atu for their technical guidance and coordination.

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Abbreviations/Acronyms

ALOS	Average Length of Stay
ANC	Antenatal Care

ASAL	Arid and Semi-Arid Lands
CBR	Crude birth rates
COVID-19	Corona Virus Disease 2019
CSHSSPs	County Specific Health Sector Strategic Plans
CYP	Couple Year Protection
DHIS	District Health Information System
KDHS	Kenya Demographic and Household survey
KEPH	Kenya Essential Package for Health
KHIS	Kenya Health Information Systems
KHSSIP	Kenya Health Sector Strategic and Investment Plan 2018-2023
KMIS	Kenya Malaria Indicator Survey
KNBS	Kenya National Bureau of Statistics
KPHC	Population and Housing Census
MOH	Ministry of Health
MTR	Mid-term Review
NCD	Non-communicable diseases
NHIF	National Hospital Insurance Fund
NHP	National Health Policy
OPD	Outpatient Department
SDGs	Sustainable Development Goals
TSR	Treatment success rate
WHO	World Health Organization

Executive Summary

The KHSSIP 2018-2023 is being implemented at a time in which the country is struggling to contain the COVID-19 Pandemic.

The midterm statistical review of KHSSIP focused on evidence for progress made during the first half of the implementation of the plan 2018 to mid-2020 using the available data sources, paying special attention to county progress. The most important data source was the health facility reported data within the KHIS. The KHIS reporting rates were 93% in the year 2018 and 94% in 2020 and the quality of the data was remarkably good for many core indicators.

Access quality and demand of care services: The counties performed within a “good” range, without outliers (beyond 2 Z-score values). Counties on the lower end were Kwale, Narok, Turkana, and Wajir with a Z-score of -1.76. On the upper side of the distribution, we had Embu, Kajiado, Kiambu, Kirinyaga, Laikipia, Machakos, Makueni, Meru, Nyeri, and Tharaka Nithi at 1.28.

Service delivery and quality systems: Two counties performed extremely well (above a Z-score of 2) Homa Bay (2.17) and Tharaka Nithi (2.99) with the county on the lower end being Meru at -1.9.

Health workforce: There was a high skew in the health care workforce with only Lamu and Tharaka Nithi returning a Z-score value of 2.02. A total of 17 counties had a Z-score of -1.04.

Health products and technologies: Muranga (2.44) and Narok (2.65) counties performed exemplary well on the health products and technologies index with Bungoma (-2.09) being on the lower end of the distribution.

Health Information systems: Laikipia county (-2.44) performed the least on HIS since the z-score was in the lower extreme tail. The best performing counties, though below 2 Z-score value, were Bungoma, Busia, Kakamega, Turkana at 1.71.

Reduction of the burden of communicable diseases: Below -2 Z-score value were Bungoma, Vihiga, and Wajir counties at -2.07 with the best performing counties being Embu and Makueni at 2.17.

Halt and Reverse the Burden of NCDs: There no counties on the extreme sides of the distribution with the lower end having Elgeyo Marakwet, Garissa, Kericho, Mandera, Marsabit, Samburu, Turkana, Wajir, and West Pokot counties at a Z-score value of -1.44 and constitute mainly low NCD burden counties. With a Z-score value of 1.5 were Kiambu, Lamu, Machakos, Nairobi, Nyandarua.

Persons centered essential health services: Kisumu, Samburu, and Tana River counties were in the lower tail of the distribution with a Z-score value of -2.2. Kiambu, Siaya, and Vihiga counties performed impressively at a Z-score value of 1.98.

Collaboration with health-related sectors: Collaboration with other related sectors was lowest in Turkana and West Pokot counties, with a Z-score value of -2.24. Kiambu county was the leader in the country, though not in the extreme upper tail (Z-score of 1.77).

The review of the data also brought into light and number of challenges:

- Data on most of the investment areas indicators were not available at this review and so they were dropped
- Survey-based indicators were not available
- Population data for the denominators had been based on projections that were over-estimated resulting in low performance hence low targets

The following is a summary of the overall performance of selected indicators for the mid-term of the

KHSSIP 2018-2023.

Table 1: Summary performance

Table 1: Summary performance

Domain	Performance	Performance Index
Outputs around Access and Demand for Healthcare Services		
Indicators		
i. OPD per capita utilization rate	53.33	91.67
ii. Caesarean section rate (%)	102.67	
iii. Health Facility density (number per 10,000 population)	100.00	
iv. Inpatient beds per capita, relative to a maximum threshold of 18 per 10,000	106.25	
Service Delivery and Quality Systems		
Indicators		
i. The proportion of Fully functional Community Units	77.78	77.78
ii. TB treatment success rate	94.53	
iii. Average Length of Stay (ALOS)(Days)	73.53	
iv. The proportion of facility maternal deaths audited	103.5	
v. Facility neonatal deaths rate per 1,000 live births	106.1	
vi. Fresh stillbirth rate	79.21	
Health workforce		
Indicators		
i. Core Health Worker density per 10,000 Population (Nurses, Doctors, RCOs)	83.00	66.67
ii. Number of Doctors per population ratio (per 10,000 population)	56.67	
iii. Number of Nurses per population ratio (per 10,000 population)	93.08	
Health care financing		
Indicators		

i.	Government allocation to health as % of total government budget	80.91	66.67
ii.	Government spending on health as % of total government spending	80.00	
iii.	Percentage of population covered under NHIF	76.00	

Domain	*Performance	*Performance Index
Health Infrastructure		
Indicators		
i. Health Facility density (number per 10,000 population)	100.00	100
ii. The proportion of counties with approved budgets for maintenance of physical infrastructure	133.33	
iii. The proportion of counties with approved budgets for maintenance of	133.33	
iv. The proportion of counties with Electronic Health Records	110.83	
Health Products and Technologies		
Indicators		
i. % of health facilities with essential medicines (order fill rate)	65.58	55.56
ii. Order fill rate of the 20 tracer non-pharmaceutical commodities by quantity per item as (%)	83.05	
iii. Proportion of functional MTCs at County Level	4.3	
Health Information systems		
Indicators		
i. Percentage of health facilities submitting complete information	104.4	77.78
ii. Percentage of community units submitting complete information	97.88	
iii. Percentage of hospitals reporting on inpatient morbidity and mortality (Level	73.33	
Leadership and Governance		
Indicators		
i. Number of Annual workplan developed on time (30 th June)	100	66.67
ii. Number of Intergovernmental Consultative Forum held in a reporting year	25	
Strategic Objective 1: Accelerate Reduction of the Burden of Communicable		
Indicators		
i. Percentage of children fully immunized at 1 year	94.06	66.67
ii. Percentage of infants receiving three doses of Penta3 (HIB/Hib/DPT3)	92.67	
iii. Children under five with diarrhoea treated with ORS & Zinc (%)	98.48	
iv. TB case notification rate (per 100,000 Population)	94.21	
v. TB Treatment success rate (TSR)(%)	94.57	

vi.	Proportion of HIV positive pregnant women who are currently on ART	131.84	
vii.	Antiretroviral therapy coverage (Adults)	98.77	
viii.	Antiretroviral therapy coverage (Children)	81.48	
ix.	Total confirmed malaria cases (per 1,000 persons per year)	49.43	

Domain	*Performance (Achievement against target)	*Performance Index
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Strategic Objective 2: Halt and Reverse the Burden of Non-Communicable

Indicators

i.	Hypertension incidence rate (per 100,000)	104.39	
ii.	Diabetes incidence rate (per 100,000)	109.61	100
iii.	% of women aged 25-49 years screened for cervical cancer in the past year*	114.40	

Strategic Objective 3: Reduce the Burden of Violence and Injuries

Indicator

i.	Road traffic injuries in OPD as a percentage of all diagnoses	79.31	66.67
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Strategic Objective 4: Improve Persons Centered Essential Health Services

Indicators

i.	Percentage of Pregnant women who completed four or more ANC visits	112.09	
ii.	Proportion of skilled Deliveries conducted in Health facilities	94.47	73.33
iii.	Couple Year Protection (CYP) (Million)	92.50	
iv.	Percentage of Low birth weight in health facilities	53.98	
v.	Number of maternal deaths in health facilities per 100,000 deliveries	85.87	

Strategic Objective 5: Minimize Exposure to Health Risk Factors

Indicator

i.	Percentage of children 0-5 (<6 months) months who were exclusively breastfed	109.9	100
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Strategic Objective 6: Strengthen Collaboration with Health-Related Sectors

Indicators

i.	Percentage of households using improved sanitation facilities	126.62	
ii.	Percentage of households using improved safe water facilities	93.97	
iii.	Percentage of Health facilities with access to source of improved water	70.54	
iv.	Percentage of women completed secondary education	68.40	72.22
v.	Percentage of children under 5 years who are stunted	83.18	
vi.	Percentage of children under 5yrs who are underweight	84.08	

Overall performance

Red: limited or no progress (<50% of midterm target); **Orange:** some progress, but not enough to achieve the target (50 to 99% of midterm target); **Green:** good progress, target achieved (>99%)

*The performance is the percentage of the achievement of the indicator compared to the mid-term target while the performance index is computed as per section 2.3.

The health inputs and outputs indices are presented in Figure 1, the distribution maps, where 32 out of the 47 counties (68%) had a higher output index than the corresponding input index indicating a considerable degree of services efficiency.

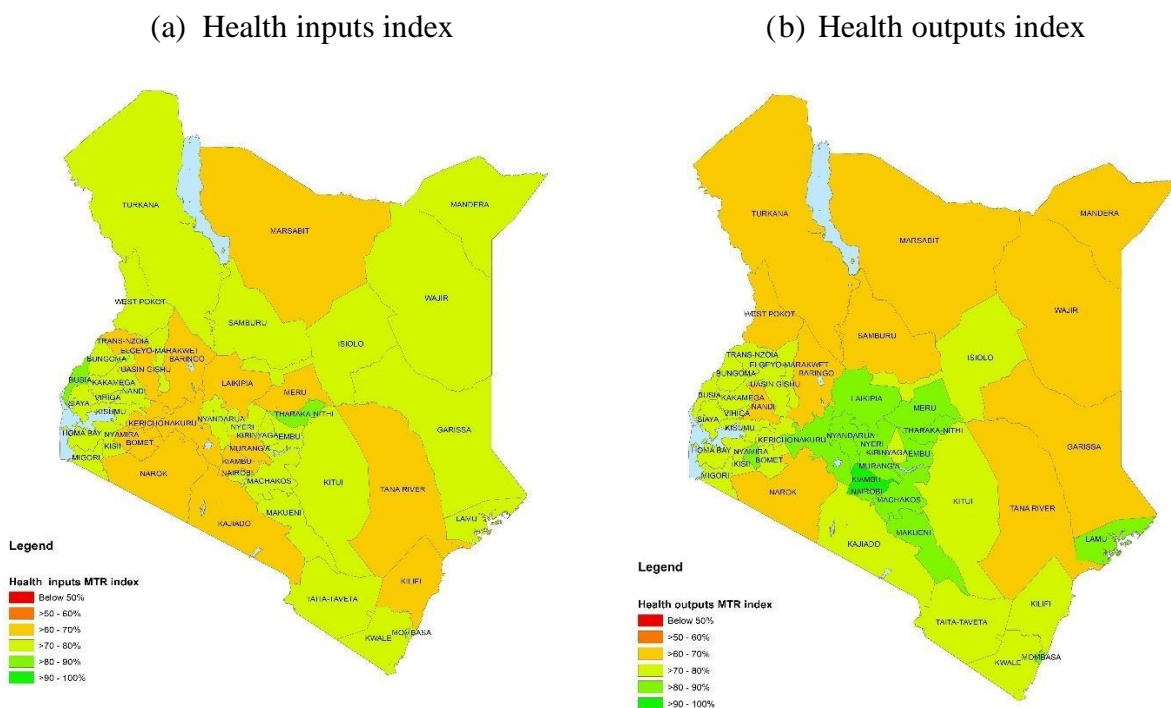


Figure 1: The health inputs Vs outputs indices distribution across the counties

Health Inputs

Counties that put the least investments were Nakuru, Narok, and Trans Nzoia with a Z-score of -1.79. Tharaka Nithi county had astronomically invested the most in health returning a Z-score value of 2.5 on the score of inputs.

Health Outputs

There were two extremes on either side of this score: Wajir county (Z-score = -2.03) on the lower side and Kiambu county (Z-score value= 2.34) on the upper extremity.

Dr. Patrick Amoth, EBS
Ag. **DIRECTOR GENERAL FOR HEALTH**

1. Introduction

1.1 Background Information

This report was prepared as part of the midterm review of the health sector strategic plan 2018-2023 in Kenya. The objective was to provide a statistical review of progress and performance at the national and county levels during the first three years of its implementation. The Ministry of Health in Kenya is guided by a National Health Sector Strategic Plan, which covers a period of 5 years, as the main instrument for informing the implementation of health sector programmes and priorities. This plan is also used to inform County Specific Health Sector Strategic Plans (CSHSSPs), provide overarching strategic direction from which other sector strategic documents are based and form the basis for the development of annual work plans in the sector.

The Kenya Health Sector Strategic and Investment Plan (KHSSIP) 2018 – 2023, which is the subject of this review, was developed within the context of long-term international and local health development goals. These include Sustainable Development Goals (SDGs), Abuja Declaration, Kenya Vision 2030, and the National Health Policy. The NHSP includes strategies and high-impact interventions that aim to speed up the achievement of health-related SDGs.

After three years of implementation, the plan is due for a midterm review (MTR) and a key output of this process is an analysis of Strengths, Weaknesses, Opportunities and Threats (SWOT) within the Kenyan health sector in the context of existing policies, programmes and strategies. It is envisaged that the SWOT analysis will pinpoint the strengths that can be leveraged and weaknesses that can be mitigated in the future implementation of the KHSSIP 2018-2023.

This process was led by the Ministry of Health and supported by a WHO team, with the participation of the Ministry of Health Transforming Health Systems (THS) and other partners at various stages of the process.

1.2 Organization of Health Systems

The health system in Kenya has progressively undergone various reforms to ensure that it is aligned to the government development agenda of ensuring that Kenyans receive the health services they need without encountering financial hardship.

The healthcare system in Kenya is decentralized between the two tiers of Government with the National Ministry of Health and County Governments mandates derived from Schedule 4 of the Constitution of Kenya and the Executive Order No. 1 of June 2018. The national Ministry of Health specific mandates are Health Policy, Health Regulation, National referral health facilities services, Capacity building and Technical assistance to counties, while County governments handle Service delivery at Primary levels (Levels 1 to 5).

Kenya's healthcare system is structured in a hierarchical manner beginning with primary healthcare, whose lowest unit is the community health units (level 1) and primary care facilities (level 2 and 3) consisting of dispensaries and health centres. The next level consists of primary referral facilities/hospitals (level 4) followed by secondary referral facilities (level 5) and finally tertiary referral facilities (level 6).

Health service provision is defined in the Kenya Essential Package for Health (KEPH) that describes the health services expected to be provided across the country and is a move towards implementing the rights-based approach to health as outlined in the Constitution. KEPH elaborates on the health services Kenyans are entitled to receive by the level of care.

The sector intends to move progressively towards Universal Coverage with these interventions, and so assure the right to health. The KEPH services are categorized across the 6 health sector policy objectives, as shown in the table 2 below.

Table 2: Description of KEPH services for the KHSSIP

Policy Objective	Services
Accelerate reduction of the burden of Communicable Conditions	i. Immunization
	ii. Child Health
	iii. Screening for communicable conditions
	iv. Antenatal Care
	v. Prevention of Mother to Child HIV Transmission
	vi. Integrated Vector Management
	vii. Good hygiene practices
	viii. HIV and STI prevention
	ix. Port health
	x. Control & prevention neglected tropical diseases
	i. Community screening for NCDs
	ii. Institutional Screening for NCD's

Policy Objective	Services
Halt, and reverse the rising burden of non-communicable conditions	iii. Workplace Health & Safety
	iv. Food quality & Safety
Reduce the burden of violence and injuries	i. Pre-hospital Care
	ii. Community awareness on violence and injuries
	iii. Disaster management and response
Minimize exposure to health risk factors	i. Health Promotion including health Education
	ii. Sexual education
	iii. Substance abuse
	iv. Micronutrient deficiency control
	v. Physical activity
Provide essential health services	i. Outpatients
	ii. Emergency
	iii. Maternity
	iv. In patient
	v. Clinical laboratory
	vi. Specialized laboratory
	vii. Radiology
	viii. Operative services
	ix. Specialized therapy
	x. Specialized services
	xi. Rehabilitation
	i. Safe water
Strengthen collaboration with health-related sectors	ii. Sanitation and hygiene
	iii. Nutrition services
	iv. Pollution control
	v. Housing
	vi. School health
	vii. Water and Sanitation Hygiene
	viii. Food fortification
	ix. Population management
	x. Road infrastructure and Transport

1.3 Objectives of the Statistical Review Process

The specific objectives of statistical analysis during this midterm review are:

- I. Assess the performance of the KHSSIP 2018-2023 against set targets through statistical analysis.
- II. Assess the progress of implementation of the KHSSIP 2018-2023 strategies by comparing performance to the set targets.
- III. Review the Monitoring and Evaluation (M&E) of the KHSSIP and adjust the M&E Framework for the remaining period of implementation.
- IV. Provide information for inclusion in the national and county fact sheet

2. Methods for the statistical review Process

2.1 Overview of the process

The Ministry of Health of Kenya has been operating an integrated facility reporting system since 2012 using the KHIS. The data generated by the health facilities for the estimation of coverage of selected indicators were found to be of reasonable quality and was used extensively in the analytical report for the midterm review of KHSSIP in 2020. The report was accompanied by a set of 47 county health statistical profiles. The data quality assessment and adjustments follow a standardized process, adapted and expanded from the WHO guidance on data quality assessment of health facility data. Indices were computed to compare the performance of the selected indicators to their set mid-term targets.

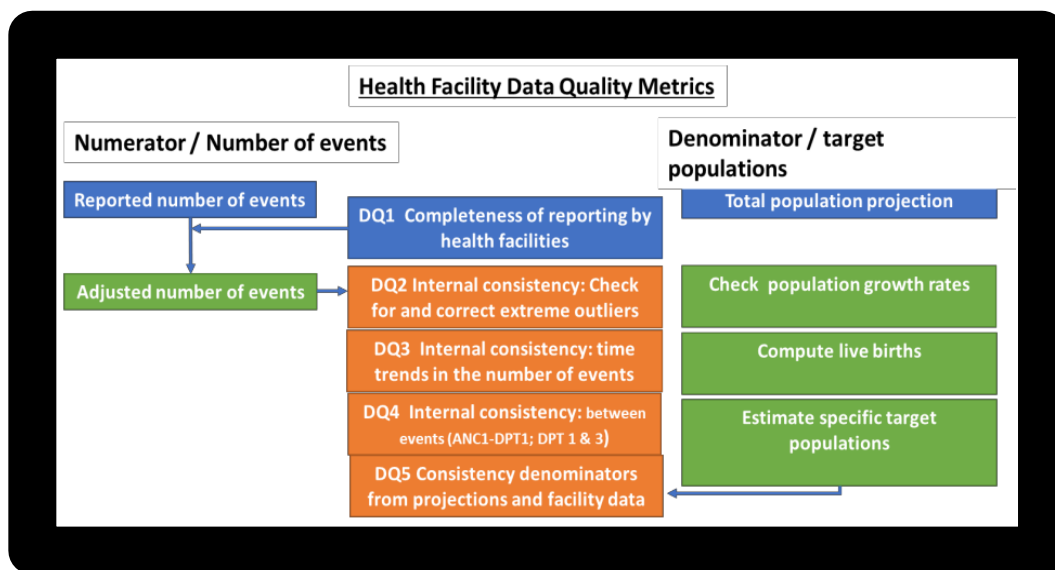


Figure 2: Data quality metrics

2.2 Data Quality Review for the MTR

National reporting rate improved during the period under KHSSIP and was above 95.4% in 2018/19 and 2019/20 with no county reporting below 80%. For some counties reporting rates have improved which could lead to spurious increases in coverage over time. Therefore, it was assumed that the non-reporting facilities provided some services (one-quarter of other reporting facilities).

The county annual reported data had no extreme outliers which are indicative of good reporting and good data quality control practices at the county and national level. The internal consistency between interventions (penta3 and penta1 and penta1 and ANC1) is good at the national and county level and has been improving over time. The 2019 census showed a lower population growth rate (2.1%) than expected and is used to update the general target populations for Kenya and counties.

To obtain the number of live births and associated RMNCH indicators the target populations are estimated from the numbers of 1st ANC visits for maternal and newborn indicators and the first Penta vaccination for immunization/ child health indicators.

2.2.1 Completeness of reporting

The first step was to assess the completeness of reporting by health facilities during 2015/16–2019/20 using the reporting rate. The reporting rate score was computed as the average of 5 forms: Vaccines and Immunization (MOH 710), MOH 711, MOH 717, OPD 705A for under 5, and 705B over 5. National reporting rates improved from 89.6% in 2016/17 to 96.6% in 2019/2020. Also, 2018/19 was 95.4%, up from 86.9% in 2017/18.

Two counties had consistently reported rates exceeding 100% (Kirinyaga and Makueni) suggesting a denominator problem in KHIS. Facility reporting rates were high for all counties and improving over time. By 2019/2020, almost all counties achieved reporting rates of at least 90% (Figure 3). Only Isiolo (81.2%), Wajir (87.1%) and Mandera (89.9%) were below 90%. Nairobi was also low (90.4%). The 15 counties with reporting rates of 99% or higher in 2019/20: Kirinyaga, Makueni, Bungoma, Vihiga, Nyeri, Homa Bay, Lamu, Kiambu, Siaya, Busia, Kakamega, Mombasa, Machakos and Uasin Gishu.

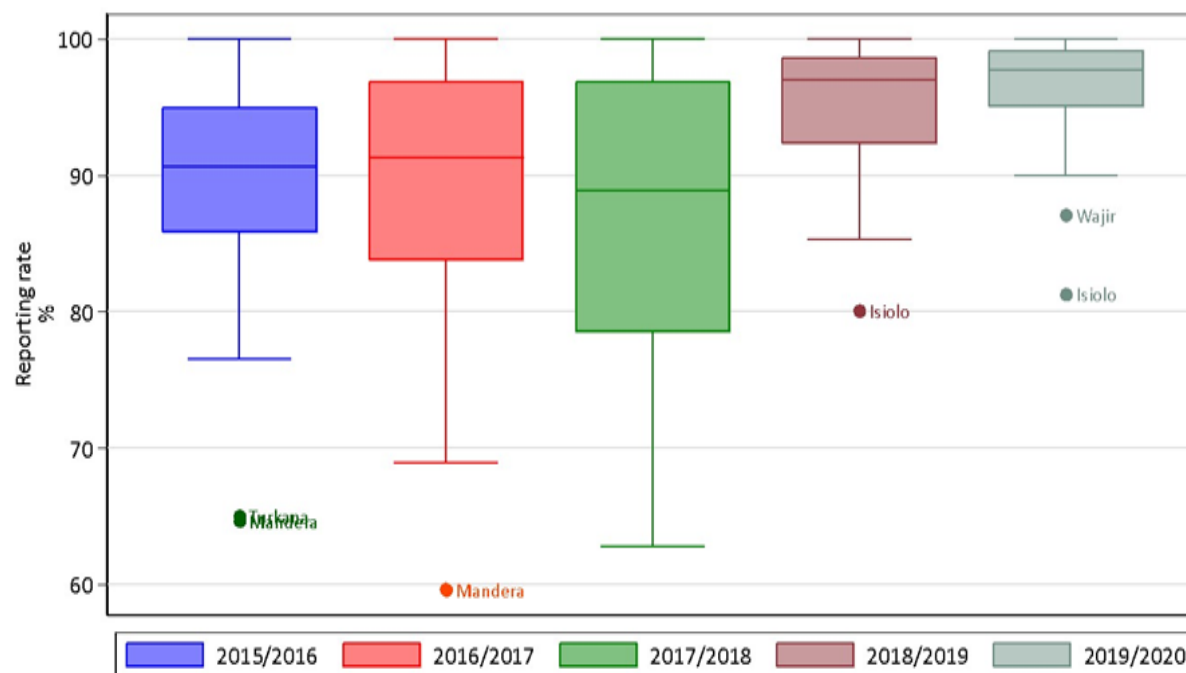


Figure 3: Box plot of reporting mean/median completeness (average rate for 5 forms) by county, KHIS, 2015/16– 2019/2020, Kenya

The number of reported events and the assessment of trends in coverage indicators can be influenced by increasing reporting rates over time. The main issue was the extent to which the non-reporting health facilities are still providing services. If the reporting completeness is ignored this implies that all non-reporting facilities are assumed to provide no services at all. If, however, nonreporting facilities provided some ANC, the 2014

ANC number is a greater underestimate of the true number than in 2018. It is possible to adjust for this bias by assuming an adjustment factor for the nonreporting facilities:

- zero if no service was provided at all at the non-reporting facilities
- 0.25: some services
- 0.5: half as much as the reporting facilities
- 0.75: nearly the same as the reporting facilities
- 1: the same as the reporting facilities.¹

¹ Maina I, Wanjala P, Soti D, Kipruto H, Droti B, Boerma T. Using health-facility data to assess subnational coverage of maternal and child health indicators, Kenya. Bull World Health Organ. 2017, 95(10):683–694.

For the analysis, we assumed an adjustment factor of 0.5 – only some services were provided in the non- reporting facilities. Because reporting rates are high, the impact on the overall trends is small but it may make a difference in some counties where reporting rates have improved considerably over time. At this point, we did not vary the k between services or reporting forms.

An example of the impact of different values of k on the number of deliveries during 2015/16 to 2019/20 is shown for Mandera county, which had the lowest reporting completeness in Kenya, and Kilifi county which had a more typical reporting trend, but below the national average.

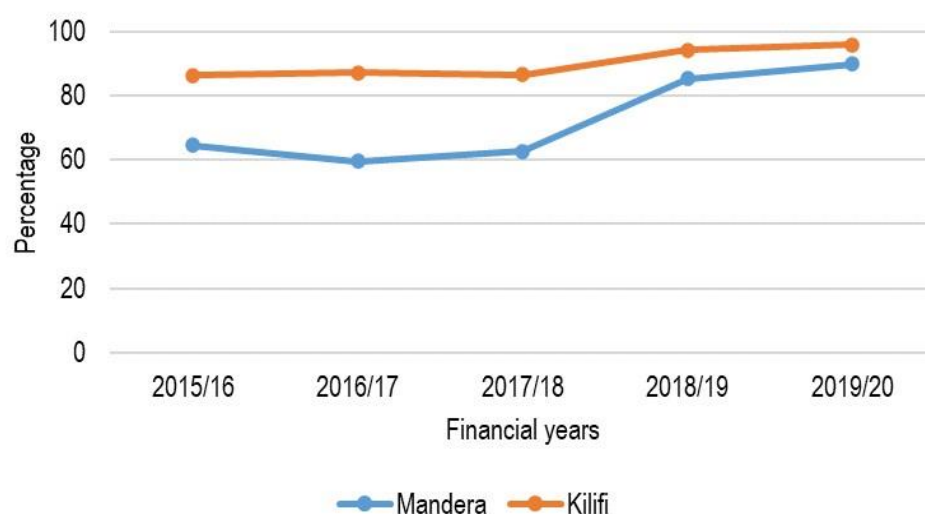


Figure 4: Completeness of reporting, Mandera & Kilifi

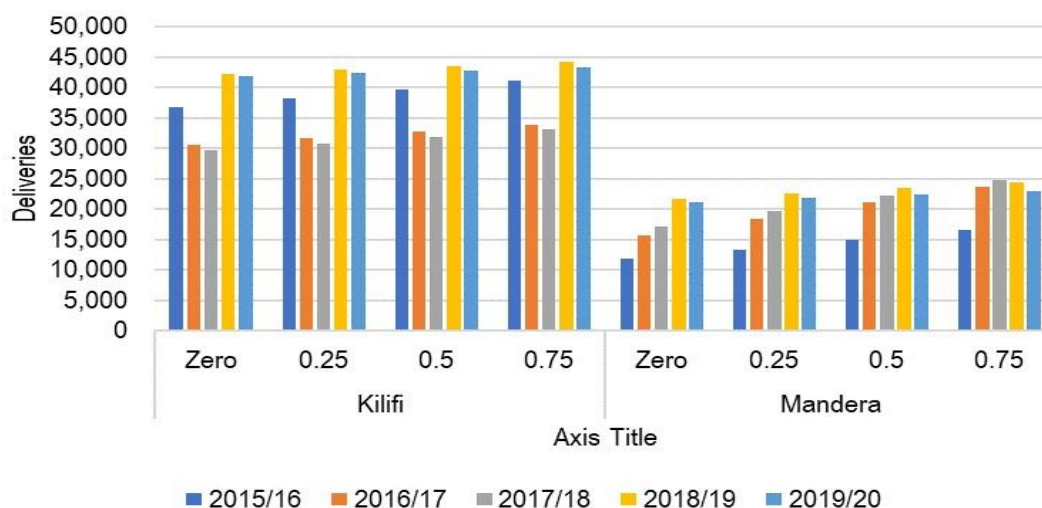


Figure 5: Number of deliveries, according to different assumptions of k

2.2.2 Extreme outliers: detection and correction

The extreme outliers are picked up in the KHIS reporting system and corrected regularly. It is however important to check if there are no more major outliers that can greatly affect the results of an end-line analysis. This is done by considering the time series, as we expect some consistency over time within the same county or district.

For interventions that have constant coverage over time, the expected number of events can be derived by computing the mean for the 5 years 2015/16–2019/20: this refers to the mean for the year 2017/18. The expected numbers for the subsequent/preceding years will be computed using an annual growth rate for the number of births/eligible children/pregnancy. If fertility is kept constant, this growth rate is determined by the population growth in the past: the increase in the number of women in childbearing ages. In this report, we used a growth rate of 2.1% for the national level, but for the counties, we use the county-specific growth rate 2009-2019, obtained from the two censuses. Growth rates ranged from -1.7% in Mandera and 0.1% per year in Nyamira to 6.3% in Isiolo.

We assessed the outliers for counties at the 33% level – i.e. the annual value differed more than 33% from the expected value based on the time trend derived from all values 2015/16–2019/20. There were very few outliers at the 33% level in all years. For interventions with near universal coverage (ANC1, first vaccination), outliers are likely to be due to data errors. For other indicators, the outliers could be a true increase for interventions as well.

No corrections were made as the time trend data were very consistent. Only four counties had values that exceeded the 33% threshold. Tana River, Garissa and Kajiado had considerably higher than expected numbers of deliveries in 2020. Mandera had higher than expected penta3 and OPD in 2019 and 2020, partly due to very low values in 2016 and 2017.

2.2.3 Internal consistency over time

Consistency over time for ANC1 and penta1 was assessed by comparing the reported numbers trend with expected numbers based on a log-transformed regression analysis ($\ln(y) = ax + b$, where y is the reported number and x the year). In the case of the near-universal coverage interventions, the increases are only driven by population growth. We expected the slope of the regression to be about 3% (within the range of 1-4.9%) and the year-to-year fluctuations, as measured by the standard errors of the regression line, to be small if data quality is good.

2.2.4 Internal consistency between interventions

Penta1 must be higher than penta3 vaccination in every district. The expected ratio is derived from the most recent household survey which was 0.92 in the KDHS 2014. The Penta 3 to penta1 ratio is consistently in the range of 0.90 to 0.95 in all years, with an increase over time, which is likely due to penta3 coverage increases. Only in a few instances does penta3 exceed penta1 in the reported annual data and these occurred in 2019/2020: Nyamira (1.09 ratio), Nyandarua (1.02) and Garissa (1.01).

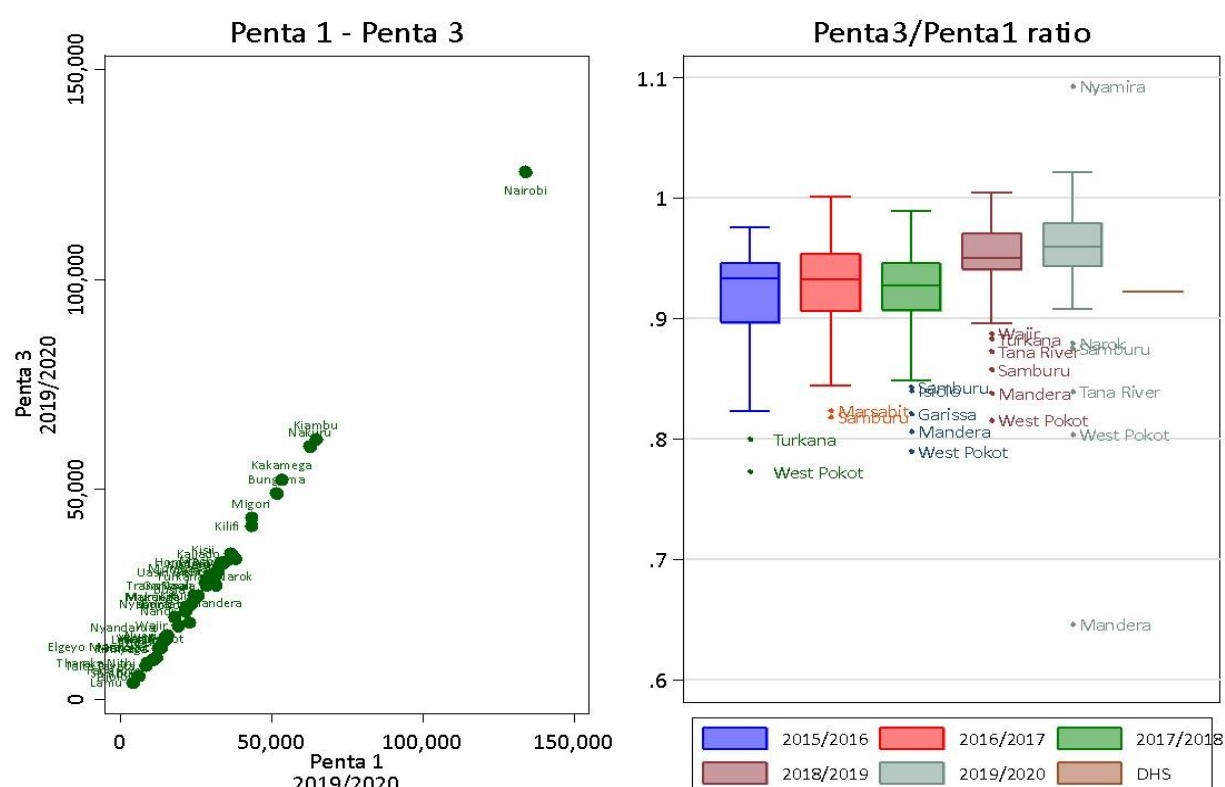


Figure 7: Scatter plot of reported numbers of penta3 by penta1 for counties in 2019/2020, and box plot of the ratio penta3 to penta1 by county 2015/16 to 2019/20

ANC first visit and first pentavalent vaccination (or BCG) should close. We are using Penta1 here, but BCG could also be used. Coverage for both ANC1 and penta1 interventions is high and has been nearly 100% for more than a decade in Kenya. The expected difference is that there are more pregnancies than children eligible for vaccination: abortions after the first ANC visit (assumed at 5%), stillbirths (3%) and neonatal deaths (3%) should be subtracted from

pregnancies to get to eligible children, but multiple births (2%) should be added. Therefore, we expect the ANC1/penta1 numbers ratio to be equal to $1 + (.05 + .03 + .03 - .02) = 1.1$, since the ANC1 and Penta1 coverage rates are about the same according to the KDHS.

The national ratio ANC1/penta1 numbers were 1.08 in 2019/2020, in the expected range (Figure 8). In the earlier years the ratio was 1.01 and 1.02 but then increased to 1.05 in the subsequent two years. These lower- than-expected ratios in the initial years may be due to underreporting of ANC1 visits or over-reporting of penta1 vaccinations.

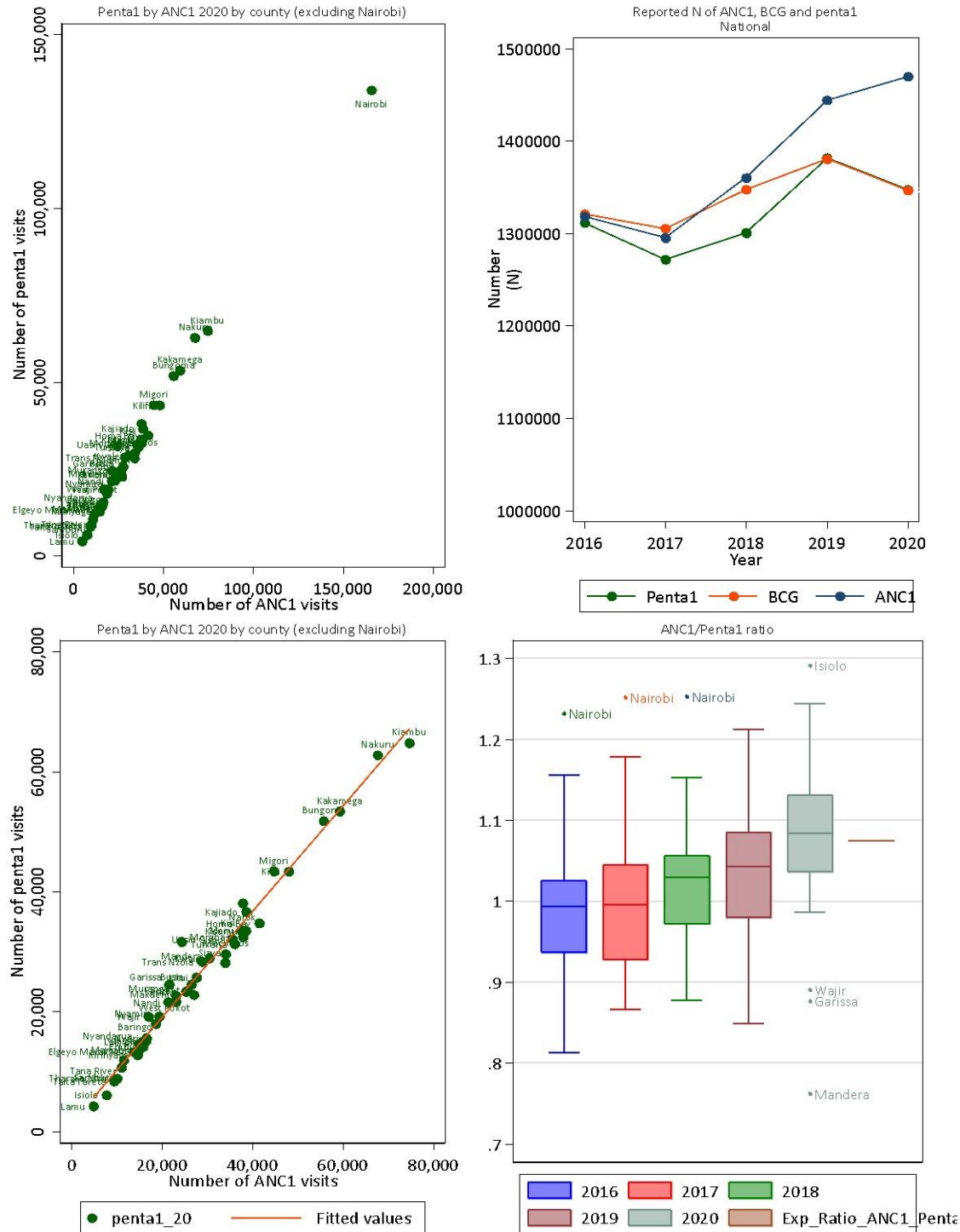


Figure 8: Time trend national for ANC1, BCG and penta1; scatter plot of reported numbers of penta1 by ANC1 for counties in 2019/2020, Kenya; box plot of the ANC1 – penta1 ratio by year, counties.

At the county level, there are a substantial number of counties with ANC1 to penta1 ratios below 1. In several instances, this is possible. For instance, the outlier above the line is Mandera where ANC1 visits may be lower than Penta 1 visits. At the upper end, Kiambu and to a lesser extent Nakuru have considerably more ANC1 visits than penta1. This difference is most pronounced in Nairobi (1.23 times more ANC1), most likely because Nairobi attracts ANC visits from outside the county.

2.2.5 Denominator / target populations

To assess the coverage of interventions a population denominator or target population is needed, such as total population in need of the service, live births, pregnancies, children eligible for immunization. Kenya has the advantage of a recent 2019 population census, conducted in August, which provides information on inter- growth rates. The comparisons are for mid-fiscal year populations (i.e. January). The difference between the current KHIS total population and 2019 population census differ by about 3.2% nationally. The new census population is about 3.2% smaller. The intercensal population growth for Kenya was 2.09% per year, varying from 6.3% per year in Isiolo to negative growth in Mandera.

Table 3: Kenya population projection

	2015/16	2016/17	2017/18	2018/19	2019/20
KHIS projection	45,900,788	46,489,443	47,755,783	48,710,055	49,634,434
2019 census	44,232,659	45,155,213	46,097,009	47,058,448	48,039,939

Crude birth rates (CBR) are critical to deriving live births from the total population for a range of indicators. The Crude birth rates in the KDHS 2014 and Kenya Malaria Indicator Survey (KMIS) 2015 were 3.06% and 3.05%, respectively but there was major variation between counties from 2-4%. The KHIS used a higher CBR. We consider five methods to find the best denominator for counties and national:

- Method 1: KHIS: projection of 2009 census with declining CBR. KHIS projection uses the crude birth rate of 3.7% in 2015/16, declining to 3.4% in 2019/20

- Method 2: Census 2019: back-projection of the total population census in 2019; using CBR of latest surveys to obtain live births for the last 3-5 years (3.05%)
- Method 3: ANC1-based: reported numbers in KHIS, plus 3% never-use (national, differences by county from KDHS 2014), minus 5% fetal loss (2% stillbirths are cancelled by 2% multiple births)
- Method 4: BCG-based: reported numbers in KHIS, plus 3% never use, plus 2% deaths before first vaccination
- Method 5: Penta1-based: reported numbers in KHIS, plus 3% never use, plus 2% deaths before first vaccination

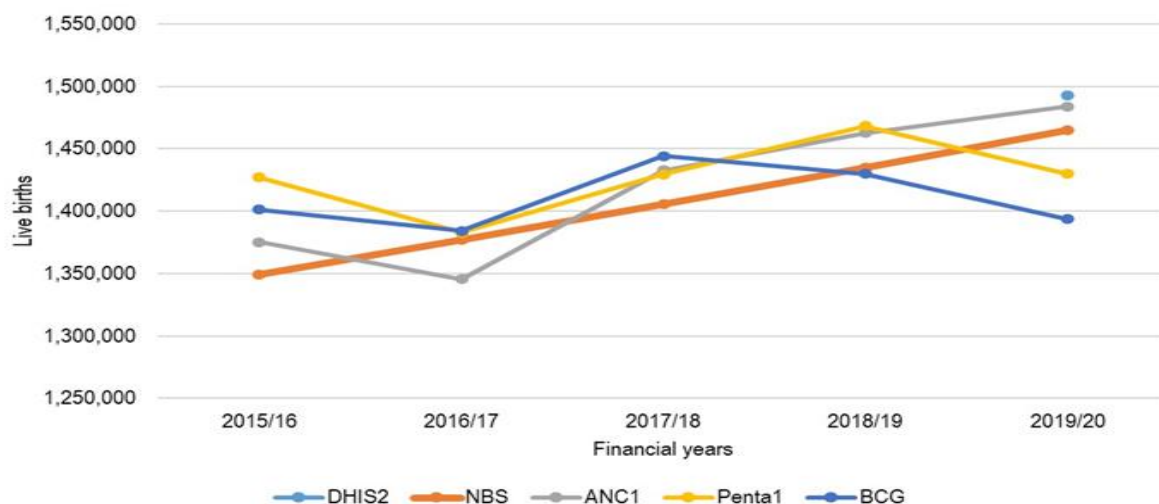


Figure 9: Time trend of the number of live births estimated through different methods, Kenya national

The results for the mainland are shown in Figure 9 and can be summarized as follows:

- Method #1: KHIS live births in 2019/2020 are 1,4983,083, slightly above the highest estimate based on the other 4 methods
- Method 2: KNBS – DHS – 1.47 million live births in 2019/20

- Method #3 – 4 - 5: all three health facility data-derived methods are affected by the swings in the numbers of reported events. The consistency between the live birth estimates from the three interventions is good in 2017/18 and 2018/19, but less so in 2019/20. These may of course be true differences (e.g. a decline in BCG and penta1 but not in ANC1 in 2019/20). There was clear over-reporting in 2015/16; possibly also overreporting in 2017/18.

Based on the national level data both the NBS projections and the penta1 or ANC1 derived denominators are good candidates for the denominators. Using four examples of counties to test if the KNBS census 2019 based forward and back-projection, with the live births from the KDHS 2014 (and KMIS 2015) kept constant is the best for the denominator in 2017/18-209/20.

Kiambu: good fit; ANC1 and penta1 slightly above census-based projection but close. BCG reporting is too high.

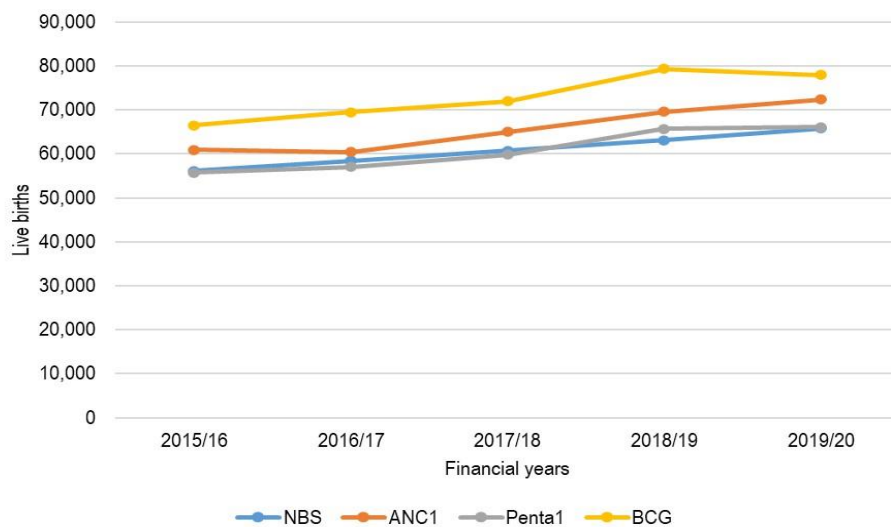


Figure 10: N live births according to KNBS, ANC1, penta1 and BCG

Kakamega: noisy, and difficult to determine what is best - the intercensal growth rate was just 1.2% per year, and therefore the census-based live births increase only slowly. The data for the first two years are noisy. Focusing on the last 3 years still shows quite a bit of fluctuation in ANC1 and penta1 derived live births (and most in BCG with an unlikely decline) and above the projected live births.

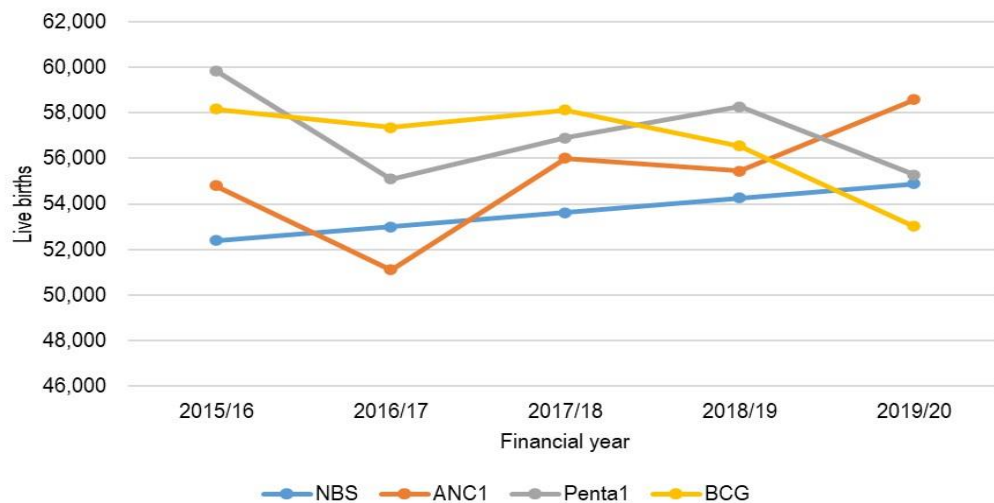


Figure 11: N live births according to KNBS, ANC1, penta1 and BCG

Kilifi: looks quite good for the years 2017/18 and 2019/20 followed by a major decline in 2019/20 which is unlikely in normal conditions, but perhaps it is associated with covid19 (needs monthly data to check). The first two years show the same pattern of over-reporting in 2015/16 and possible underreporting in 2016/17.

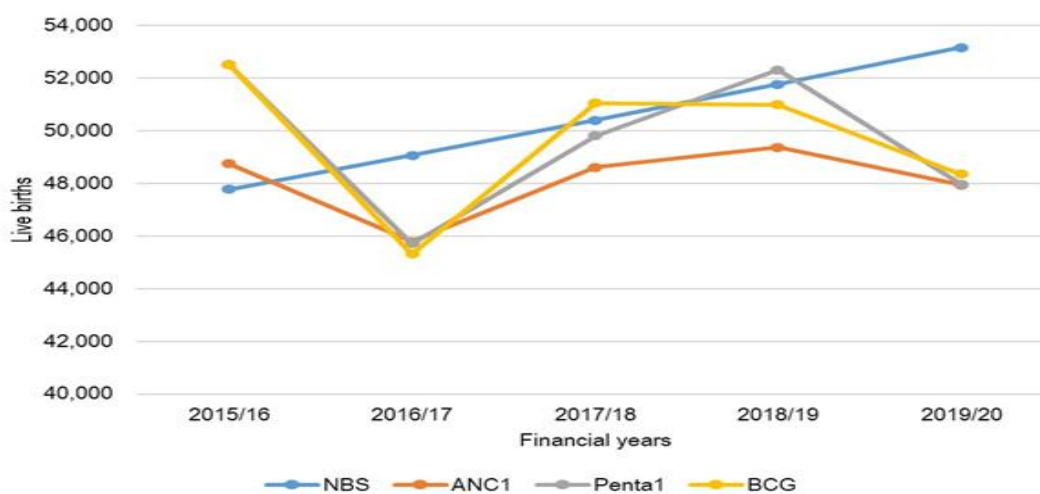


Figure 12: N live births according to KNBS, ANC1, penta1 and BCG

Siaya: good fit of the different methods and that is in favour of the use of the population projection-based method with the 2019 census. The only challenge seems to be that the population growth rate is too slow (1.6% per year according to the intercensal growth rate) and the CBR too low for a county in Nyanza (2.8% according to KDHS).

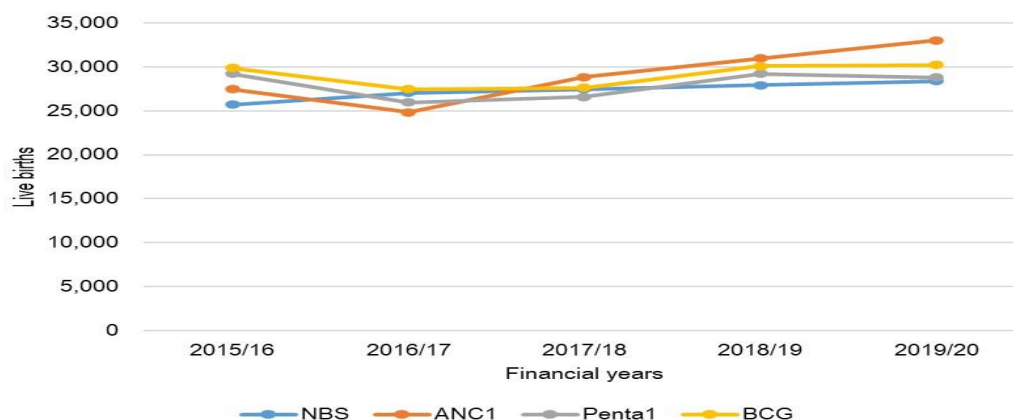


Figure 13: N live births according to KNBS, ANC1, penta1 and BCG

The denominators used were obtained from the 2019 Kenya Population and Housing Census (KPHC) by the Kenya National Bureau of Statistics (KNBS) as well as service delivery data from KHIS. However, the under 1 population, eligible for immunization, was estimated using service delivery data and this arrived at live births and surviving infants. The procedure involved first obtaining the expected deliveries you need to adjust for underreporting pentavalent 1, from KHIS. Adding the estimated percent of children who did not get a vaccination according to the KDHS (mostly 3-5%), since these children are not in the KHIS (often called missed opportunities). From the adjusted BCG or pentavalent 1 data added 3% (infants who died before receiving BCG, mostly early NN deaths, or less), then, subtract 2% of the multiple births, that is, the twins, triplets. For surviving infants, subtracted 3% from the estimated live births.

2.3 Computation of performance indices

For the evaluation of performance against the set targets, one objective way is to rescale their achievements into a range between 0 and 1. The rescaling is based on the range of the performance

achieved. Let the achievement of in an indicator be X, the data may be numbers, rates, percentages, or ratios, the rescaled values are, therefore:

$$= \frac{X}{\text{Target}} \%$$

For instance, an achievement of 58 against a target of 80 would be $58/80\% = 73\%$ or 0.73.

2.3.1 Calculating the score card

For the computation of score cards, we partitioned the value space into three intervals and assigned weights as follows: up to 50% weight of 1 and a red colour, assigned a weight of 2 and colour orange for the range above 50% and below 99%. Above 99%, for the indicators that achieved together with those surpassing their set targets, assign a weight of 3 and colour green., Table 4. However, these computations assume that the targets were prudently set.

Table 4: The colour codes and their respective weights in the score card

Score	0 - 50%	>50 - 99%	>99%
Colour	Red	Orange	Green
Weight, w_i	1	2	3

2.3.2 Computation of the index for sub-domains

The weighted index approach is aimed at normalizing the values within a range between 0 and 100, irrespective of the initial units of measurement, that is, whether they were initially numbers, rates, percentages, or ratios.

Let the total number of indicators be N, and are divided into k domains each containing indicators n_i where $i, i = 1, 2, \dots, k$, is the number of indicators in the i-th domain.

Then, the index for the i-th domain was calculated as follows:

$$I_i = \frac{\sum_{j=1}^{n_i} w_{ij}}{n_i * \max(w_i)} = \frac{\sum_{j=1}^{n_i} w_{ij}}{3n_i} \quad 2.1$$

And the overall index is given by

$$I = \frac{\sum_{i=1}^k \sum_{j=1}^{n_i} w_{ij}}{3 \sum_{i=1}^k n_i} = \frac{\sum_{i=1}^k \sum_{j=1}^{n_i} w_{ij}}{3N} \quad 2.2$$

2.3.3 UHC service coverage index

The index was computed as follows:

1. RMNCH = (FP · ANC · DTP3 · Pneumonia) ^{1/4}
2. Infectious = (ART · TB · WASH · ITN) ^{1/4}
3. NCD = (BP · FPG · Tobacco) ^{1/3}
4. Capacity = (Hospital · HWD · IHR) ^{1/3}
5. UHC service coverage index = (RMNCH · Infectious · NCD · Capacity) ^{1/4}

3.0 Morbidity and Mortality Outcomes

3.1 Morbidity Patterns of Disease Burden

The life expectancy in Kenya was estimated to be 66.7² years in 2020. Communicable diseases have remained the leading cause of outpatient clinic visits as well as inpatient admissions. Upper respiratory tract infections and other respiratory illnesses have remained the leading cause of morbidity in children under 5 years from 2016 to 2020 with 38% of OPD diagnoses being due to respiratory tract illnesses. Diarrhea (7.5%), diseases of the skin (7.5%) and Malaria (6.1%) are the other top causes of OPD visits in children under 5 as shown in

Table 5: Top ten OPD diagnoses for children < 5 years, financial years 2016/2017 to 2019/2020

Cases	Jul 2016 to Jun 2017 % of total cases	Cases	Jul 2017 to Jun 2018 % of total cases	Cases	Jul 2018 to Jun 2019 % of total cases	Cases	Jul 2019 to Jun 2020 % of total cases
Upper Respiratory Tract Infections	30.8	Upper Respiratory Tract Infections	31.2	Upper Respiratory Tract Infections	29.4	Upper Respiratory Tract Infections	30.3
Other Dis. Of Respiratory System	9.2	Diarrhoea	7.9	Diarrhoea	7.7	Diarrhoea	7.5
Confirmed Malaria (only Positive cases)	8.4	Other Dis. Of Respiratory System	7.5	Other Dis. Of Respiratory System	6.1	Disease of the skin	6.7
Diarrhoea	8.3	Confirmed Malaria (only Positive cases)	6.6	Disease of the skin	5.5	Confirmed Malaria (only Positive cases)	6.1
Disease of the skin	5.8	Disease of the skin	5.9	Confirmed Malaria (only Positive cases)	5.5	Other Dis. Of Respiratory System	5.9
Pneumonia	3.1	Pneumonia	3.3	Pneumonia	3.2	Pneumonia	3.5
Eye Infections	2.1	Tonsilitis	2.2	Tonsilitis	2.3	Tonsilitis	2.5
Tonsilitis	1.7	Ear Infections/ Conditions	1.6	Ear Infections/ Conditions	1.7	Ear Infections/ Conditions	1.9
Ear Infections/ Conditions	1.6	Eye Infections	1.6	Eye Infections	1.5	Eye Infections	1.6
Intestinal worms	1.6	Intestinal worms	1.6	Intestinal worms	1.4	Intestinal worms	1.5

² United Nations - World Population Prospects In the last four financial years, upper respiratory tract infection and other diseases of the respiratory tract, confirmed malaria and urinary tract infections have been the top causes of over 5-year-old outpatient attendance as seen in **Table 6**. However non-communicable diseases like arthritis and hypertension have been on the rise.

Table 6: Top ten OPD diagnoses for persons above 5 years, Financial years 2016/2017 to 2019/2020

Cases	Jul 2016 to Jun 2017 % of total cases	Cases	Jul 2017 to Jun 2018 % of total cases	Cases	Jul 2018 to Jun 2019 % of total cases	Data / Period	Jul 2019 to Jun 2020 % of total cases
Upper Respiratory Tract Infections	19.1	Upper Respiratory Tract Infections	20.7	Upper Respiratory Tract Infections	19.2	Upper Respiratory Tract Infections	17.8
Confirmed Malaria (only Positive cases)	8.0	Disease of the skin	6.2	Disease of the skin	5.6	Confirmed Malaria (only Positive cases)	5.5
Disease of the skin	6.7	Confirmed Malaria (only Positive cases)	6.1	Confirmed Malaria (only Positive cases)	5.3	Disease of the skin	5.5
Other Dis. Of Respiratory System	6.4	Other Dis. Of Respiratory System	5.6	Other Dis. Of Respiratory System	4.5	Other Dis. Of Respiratory System	3.9
Urinary Tract Infection	3.6	Urinary Tract Infection	3.9	Urinary Tract Infection	4.0	Urinary Tract Infection	3.9
Arthritis, Joint pains, etc.	3.4	Arthritis, Joint pains, etc.	3.4	Arthritis, Joint pains, etc.	3.7	Arthritis, Joint pains, etc.	3.2
Diarrhoea	3.2	Diarrhoea	3.1	Diarrhoea	3.0	Diarrhoea	2.6
Hypertension	2.2	Hypertension	2.6	Hypertension	2.6	Hypertension	2.5
Pneumonia	2.0	Pneumonia	2.1	Pneumonia	2.0	Pneumonia	2.0
Intestinal worms	1.5	Intestinal worms	1.6	Intestinal worms	1.6	Intestinal worms	1.5

3.2 Underlying Causes of Death

Figure 4 shows the distribution of deaths in health facilities by main cause category over time. It's evident that despite the declining trend of mortality from communicable disease/ infectious diseases, these conditions are still the leading cause of facility mortalities. Mortality due to NCDs is on the rise, with 42.8% of death being attributed to NCDs in 2020, compared to 37% in 2016 while mortality attributable due to injuries is also gradually increasing.

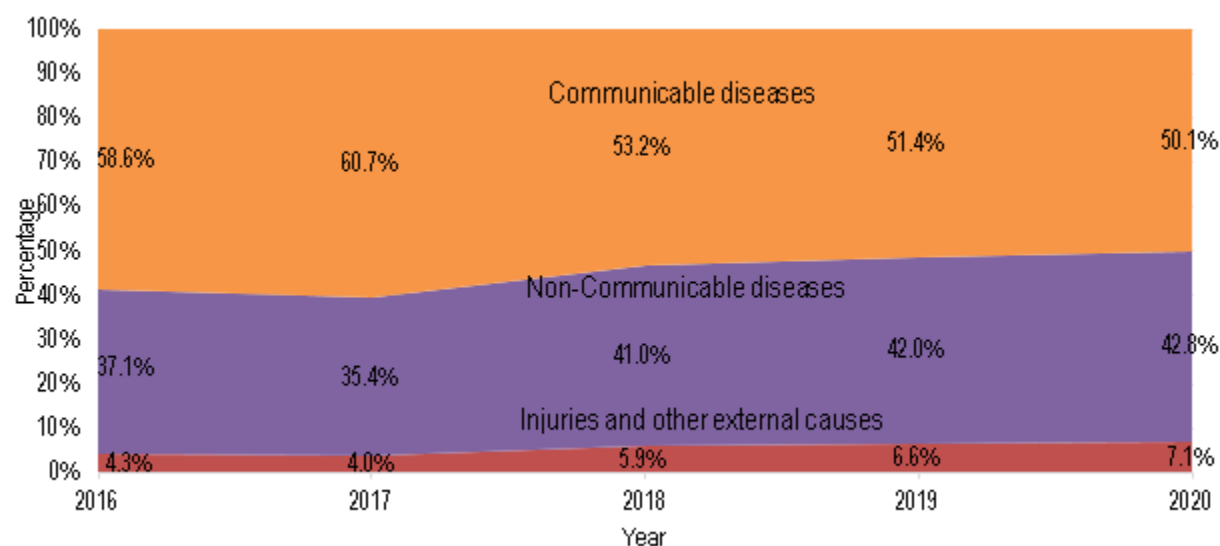
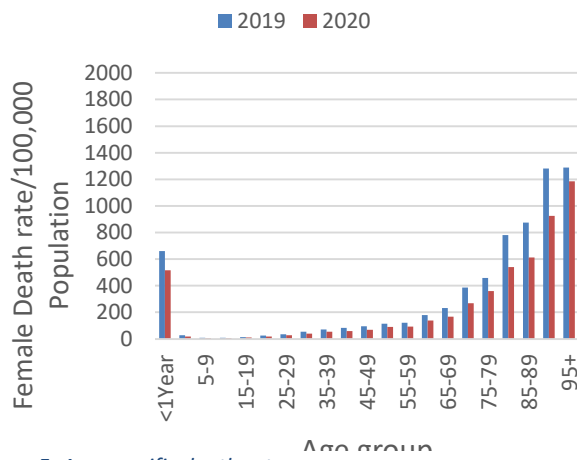


Figure 4: Facility causes of death by category, 2016-2020

Figure 5 shows mortality patterns by age groups. Mortality is high among infants and young children, and above the age of 65. The general trend is similar for both males and females. Mortality is lowest between 5 and 60 years, though it starts to increase from 35 years

Female death rate by age and sex, 2019-2020



Male death rate by age and sex, 2019-2020

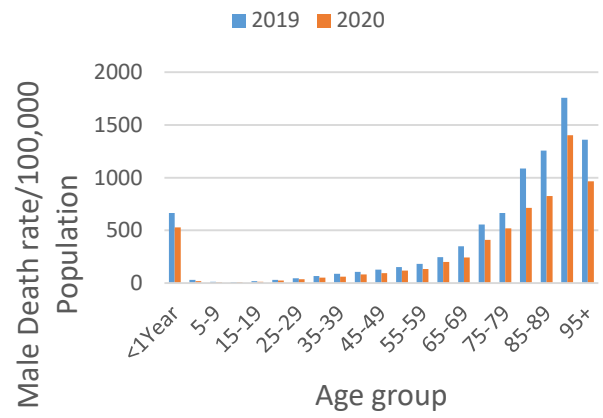


Figure 6 shows that the mortality due to road traffic accidents has significantly reduced in 2020 as compared to 2019. The age bracket most affected by road traffic accident mortalities are above 60, however, 15- to 44- year-olds have equally high mortalities due to RTAs.

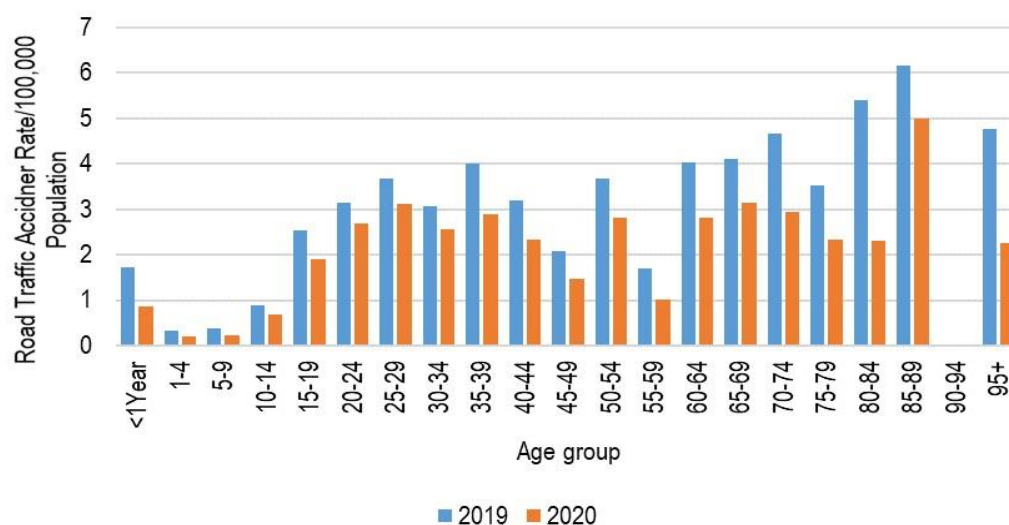


Figure 6: Health facility reported Road Traffic Accidents rate, 2019-2020

4.0 Outputs around Access and Demand of Healthcare Services

A total of four (4) tracer indicators were used to illustrate the level of progress in access and demand of health care services during the midterm review with 3 out of four indicators achieving the set targets. There was a general increase in access and demand for services over the review period. The average number of outpatient visits per person per year increased from a baseline of 1.4 to 1.6 visits at midterm missing the set target of 3 visits. In terms of increasing access, the number of health facilities per 10,000 population increased from 2.4 to 2.5 indicating scaled-up infrastructural investments. Similarly, the number of inpatient beds per 10,000 population showed a significant increase with the targets surpassed from 13 at baseline to 17 at midterm.

The average caesarean section rate Nationally was slightly higher than the target (15.4% vs 15). WHO recommends an ideal caesarean section rate of between 10-15%. Studies show that at the population level, caesarean section rates higher than 10% are not associated with reductions in maternal and newborn mortality rates. Despite the national caesarean section rate nationally being high, there are wide subnational variations with 27 counties not meeting the target.

Table 7: Outputs around Access and Demand of Care Services

Indicator	Baseline (2017/18)	Achievement 2019/20	Target 2020/21	Progress	Data source	Comments
OPD per capita utilization rate	1.4	1.6	3		KHIS	Progress being made
Caesarean section rate (%)	14.5	15.4	15		KHIS	Target achieved but will remain at 15% as CS rates beyond this may show misuse of CS
Health Facility density (number per 10,000 population)	2.4	2.5	2.5		KMHFL	Target achieved. Indicators to show the quality/capacity of health facilities should be added
Inpatient beds per capita, relative to a maximum threshold of 18 per 10,000 population	13.2	17	16		KMHFL, KHIS	Target achieved

Red: limited or no progress (<50% of midterm target); **Orange:** some progress, but not enough to achieve the target (50 to 99% of midterm target); **Green:** good progress, target achieved (>99%).

Figure 7 shows the number of outpatient visits per person per year. There is a general indication of progress with significant county differences ranging from 1 visit per person per year to 3 visits per person per year. The number of outpatient visits per person per year for the country remained well

below the target. Generally, counties in the central region performed better than those in the north eastern and western regions.

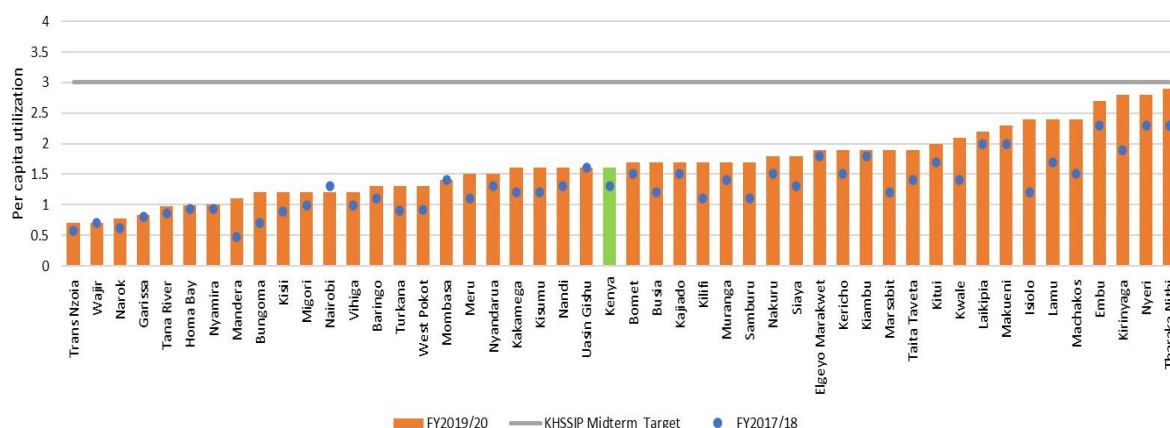


Figure 7: OPD utilization rate, national and by county (KHIS, 2020)

Figure 8 illustrates the cesarean section rates among the counties. About half of Counties (27 of 47) are below the Mid Term Target of 15% with 20 Counties having lower CS rates than the WHO recommended lower threshold rate of 10%. This indicates limited access for women who need this service in many Counties.

On the other hand, 19 Counties were above the target with some having significantly high rates of CS rate (up to 30% in Kirinyaga). While this is an indication of adequate access to CS services, it could also indicate overutilization or even misuse of the service resulting in having women go through elective CS sections while they are fit to go through the normal delivery. This situation was reported to be more likely to happen in private facilities.

In general, CS rates were highest in urban, Central, and Eastern counties and lowest in the North Eastern, Western, and Nyanza Counties.

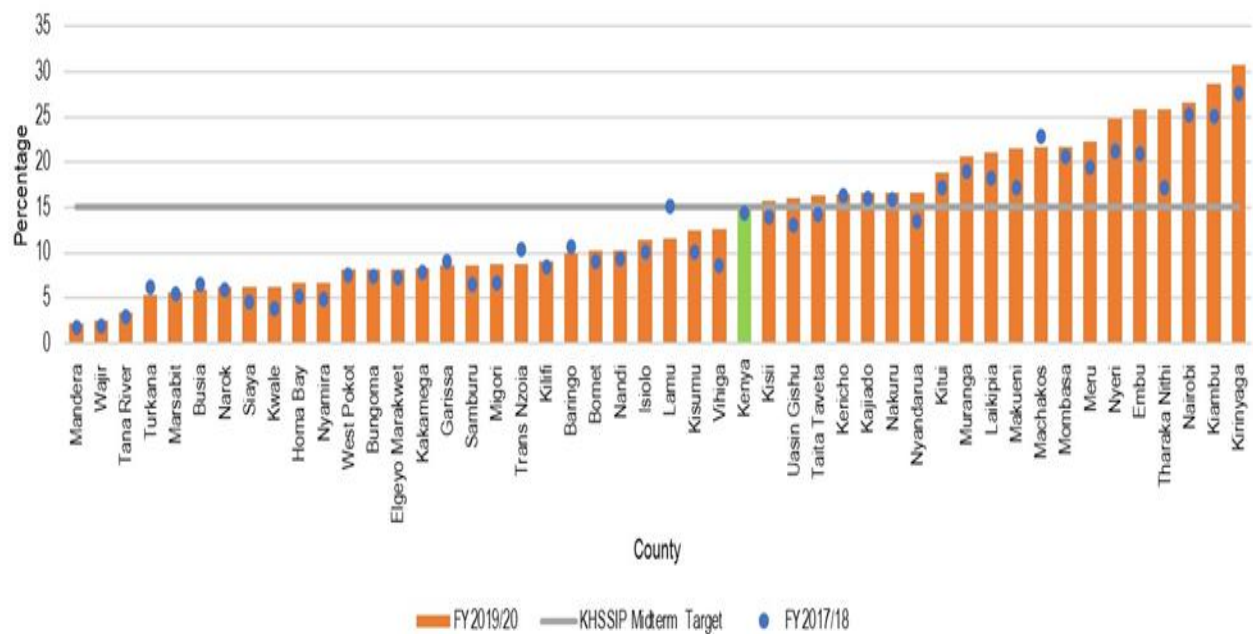


Figure 8: Caesarean section rate, national and by county (KHIS, 2020)

5.0 Health Investment Achievements and Performance

WHO outlines the health system building blocks that contribute to the building of an effective health system which includes;

- i. Health leadership
- ii. Health financing
- iii. Service delivery
- iv. Human resource
- v. Health products and technologies
- vi. Infrastructure
- vii. Monitoring and evaluation

Adequate investment into each of these is key to strengthening a health system to adequately deliver services to the population. Table 8 summarizes the national proportionate spending in each of the health investment pillars. Overall, the highest expenditure was on Human resources for health taking on average just below half of all health resources across the years. Spending on service delivery was second, taking on average about 16% of health resources. Spending on Infrastructure was 13% on average during the first two years with a notable decline in the year 2019/20. Spending on health products and commodities was seemingly low at 6% on average while insignificant resources were allocated to health Information & M&E.

Table 8: Government expenditure by investment areas (%)

Investment area	2017/18	2018/19	2019/20
Service delivery	16.1	16.6%	17.7%
HRH	49.4	48.0%	43.7%
HPT	6.6%	6.4%	5.9%
Infrastructure and Equipment	13.7	13.5%	9.0%
Leadership and governance	10.5	10.7%	19.4%
Information & M&E	0.0%	0.0%	0.0%
Health Financing	0.1%	0.4%	0.3%
Health Research and development	3.6%	4.4%	3.9%
Total	100.0%	100.0%	100.0%

5.1 Service Delivery and Quality Systems

KHSSIP 2018-2023 identifies service delivery and quality systems as key pillars in attaining Universal Health

Coverage. Different components build towards efficient service delivery and quality systems. These components include primary health care systems, functional referral systems, emergency response measures and national health security.

Indicators outlined in the M&E plan to measure the different components of the service delivery (person centeredness, comprehensiveness of service e.g. diagnostic services and emergency response measures, continuity e.g referral services were not utilized as data post baseline were not available.

Consequently, to gauge the quality of services provided, TB treatment success rate, the average length of stay in the hospital, audited facility maternal deaths, facility neonatal deaths and fresh still birth were used as proxy indicators. Progress made in this area is shown in Table 9.

Progress

- Generally, there was moderate progress in all the indicators for service delivery and quality systems although most targets were not met.
- The proportion of fully functional community units increased (66% to 70%) but this was still below the set target of 90%. Moderate progress was also recorded for TB treatment success rate, Average length of stay in hospital as well as fresh still birth rate. Targets for the proportion of facility maternal deaths audited and facility neonatal death rate was nevertheless achieved.

Table 9: Service Delivery and Quality Systems

Indicator	Baseline (2017/18)	Achievement 2019/20	Target 2020/21	Progress	Data source	Comments
Proportion of Fully functional Community Units	66	70	90		KHIS	This indicator was assessed based on CU reporting but other criteria for functionality like Dialogue days and Action days, trained CHVs were not assessed. This will require a survey
TB treatment success rate	81	81.3	86		TIBU	No change in performance from baseline
Average Length of Stay (ALOS)(Days)	7.8	6.8	5		KHIS	Target achieved
The proportion of facility maternal deaths audited	80.4	90	87		KHIS	Target achieved. However, there is a need to assess the number uploaded into KHIS
Facility neonatal deaths rate per 1,000 live births	10.1	6.6	7		KHIS	
Fresh stillbirth rate	12.8	10.1	8		KHIS	
Red: limited or no progress (<50% of midterm target); Orange: some progress, but not enough to achieve the target (50 to 99% of midterm target); Green: good progress, target achieved (>99%)						

Significant variations were recorded within the Counties for service delivery indicators. Seven counties achieved the target of 90% functional community units with Mandera County reporting 100% functional community units as shown in Figure 9.

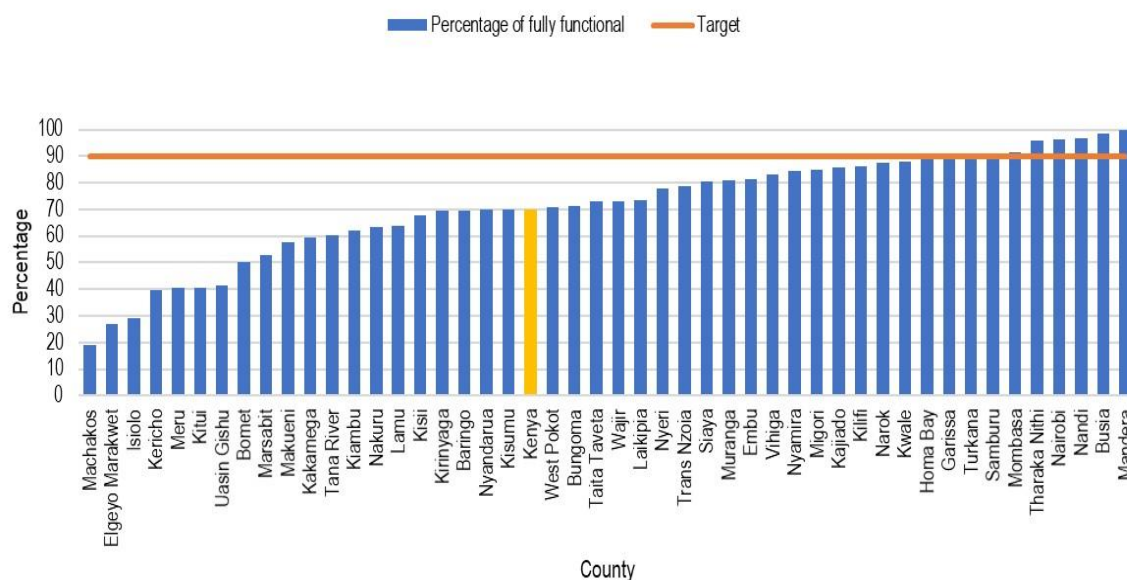


Figure 9: Percentage of fully functional community units across the counties and national against the KHSSIP target

The fresh stillbirth rate generally decreased Nationally and in most Counties from a national average of 12.8 at baseline to 10.1 at midterm. Most Counties with high fresh stillbirth rates also had low caesarean section rates with several of those with high caesarean section rates recording low fresh stillbirth rates. (Figure 10).

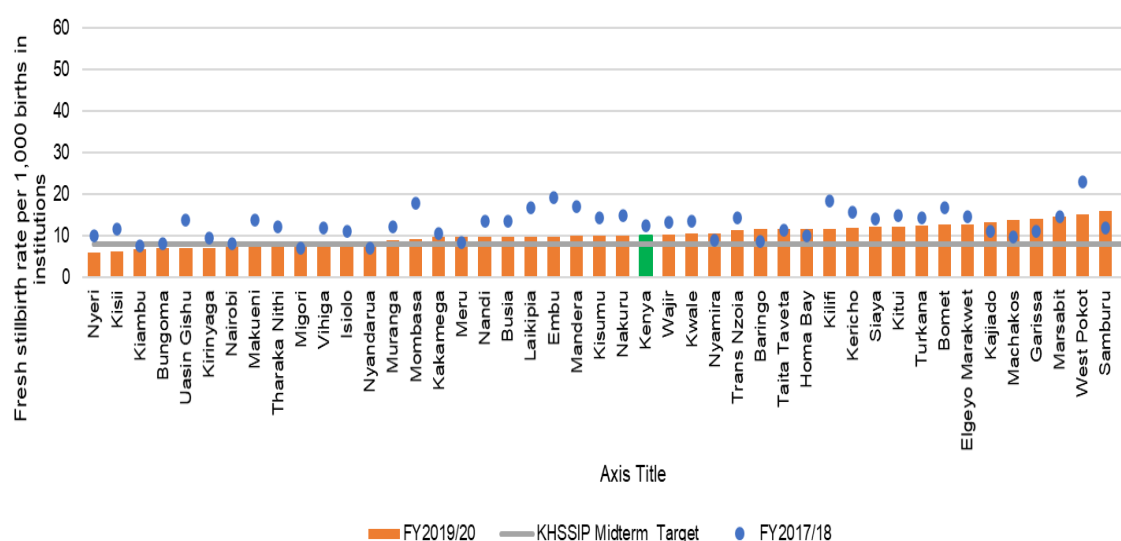


Figure 10: Fresh still births rate across the counties (Source KHIS, 2020)

5.2 Health Workforce

The WHO outlines the core healthcare workers as medical doctors, nurses and clinical officers. The minimum threshold for core health worker density required for effective service delivery is 23 health workers per 10,000 population. According to HRIS regulatory records, Kenya had a total of 148,322 registered health workers in 2018 (public and private sectors). This represented a 41% increase from 105,369 in 2013. However, only 68% of these health workers renewed their practicing licenses in 2018 indicating that many are not providing health care services. This section provides results of progress in the health workforce during the period under review, outlining densities per population of the core health workers.

Progress

Moderate progress was recorded with an overall increase in all core health workers retained Inservice

although the midterm targets were not achieved for any of the core health worker cadres (Table 10).

Although the density of community health workers was not readily available due to lack of appropriate data, it is expected that this number increased as a result of significant investment in the community health strategy including an increase of community health workers as part of the implementation of UHC.

Table 10: Health workforce indicators

Indicator	Baseline (2017/18)	Achievement 2019/20	Target 2020/21	Progress	Data source	Comments
Core Health Worker density per 10,000 Population (Nurses, Doctors, RCOs)	15.4	16.6	20		Emory/iHRIS 2018	Target unlikely to be met at the end term Discussions needed on rationalization of HRH staff needs/norms and standards to achieve what is practical
Number of Doctors per population ratio (per 10,000 population)	1.5	1.7	3		Emory/iHRIS 2018	
Number of Nurses per population ratio (per 10,000 population)	11.3	12.1	13		Emory/iHRIS 2018	
The density of community health volunteers (per 5,000 population)	7.8	-	8.4		KMCUL	No data current CHV numbers. There is a need for a system for the collection of CHVs numbers

Red: limited or no progress (<50% of midterm target); **Orange:** some progress, but not enough to achieve the target (50 to 99% of midterm target); **Green:** good progress, target achieved (>99%)

There were wide variations in County performance; Kilifi had the lowest density as well as the number of health care workers while Lamu had the highest density at 19.6 HCWs per 10,000 population. Nairobi recorded the highest number of health workers with a relatively low density of 5, possibly due to a high population density. Notably, none of the Counties had achieved the minimum WHO threshold of 23 HCWs per 10,000 population. (Figure 11).

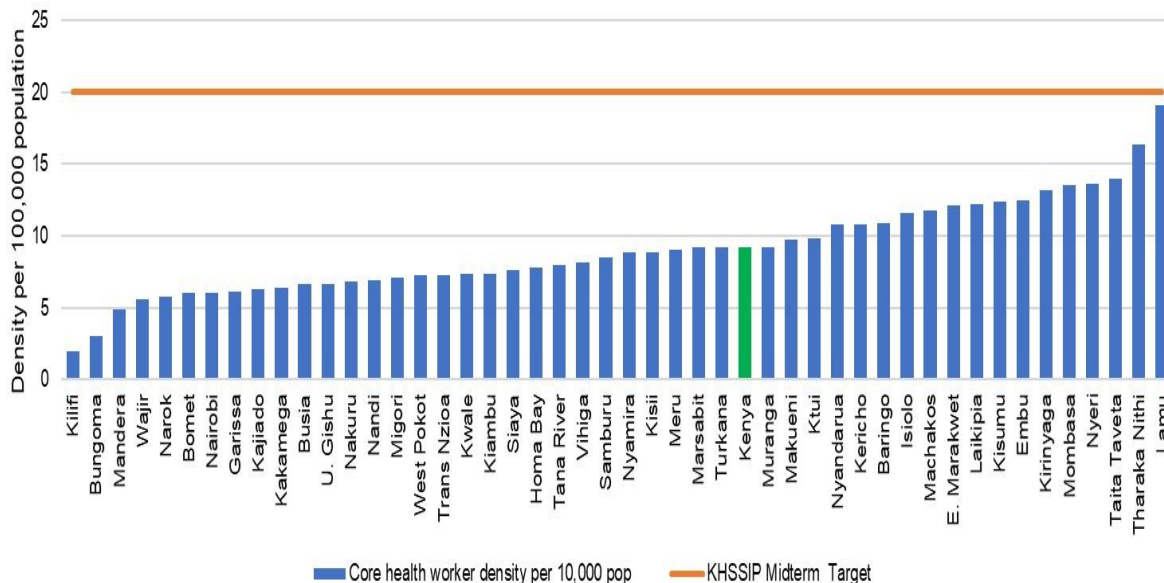


Figure 11: Distribution and Density of Core Health workers in counties FY 2019/20

5.3 Health care Financing

The current strategic plan underscores adequate health financing as a key element in ensuring that there are adequate resources to support its implementation. The main area of focus is increasing public financing for health, maximizing the availability of resources and equity in the distribution of resources.

Progress

Analysis of health expenditures reveals that;

- Government budget allocation and expenditure have steadily increased over the last three years but were still below expected targets
- The total Government budget allocation (National and County) for health increased from 6.8% FY 2017/18 to 7.4% in FY 2019/20 but was less than the targeted 13%.
- The proportion of the population covered by the NHIF increased from 17.5% in FY 2017/18 to 24% in FY 2019/20. The performance was lower than the target of 30% population coverage by NHIF.

Table 11: Health care financing indicators

Indicator	Baseline (2017/18)	Achievement 2019/20	Target 2020/21	Progress	Data source	
Government allocation to health as % of total government budget	6.8	7.4	13			Target unlikely to be made at the end term
Government spending on health as % of total government spending	6.8	7.4	13			
Percentage of population covered under NHIF	17.5	24	30		NHIF	

Red: limited or no progress (<50% of midterm target); **Orange:** some progress, but not enough to achieve the target (50 to 99% of midterm target); **Green:** good progress, target achieved (>99%)

Figure 12 shows the distribution of expenditure proportions by the two levels of government over the implementation period. The relative contribution by the National government has been increasing while County expenditures on health have declined slightly.

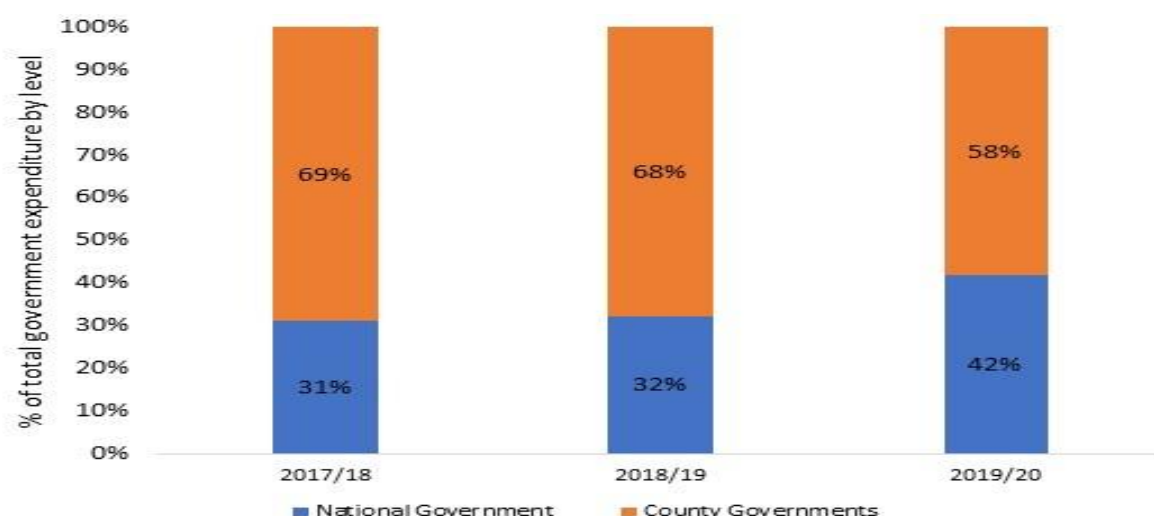


Figure 12: Relative contributions of public health expenditure by government

In terms of County expenditure on health, there were variations in public expenditure per person in the counties which were persistent over time (2017/18 and 2019/20). The highest spending on health per person in 2019/19 was in Lamu County at Ksh 7,249 per person followed by Isiolo, Marsabit. The lowest spending per person on health was in Nairobi (Ksh 1,030) and Bomet (Ksh

1,307). Higher health spending per capita does not necessarily translate to the best use of health funds. Looking at the efficiency in spending is key. Despite Lamu having the highest health per capita spending, it had one of the highest inefficiencies, i.e. the input: output ratio was high meaning the county spent a lot more resources to produce the same output compared to other sources. Migori, Bungoma, and Nairobi are among the counties with low per capita health expenditure but were the most efficient in resource utilization.

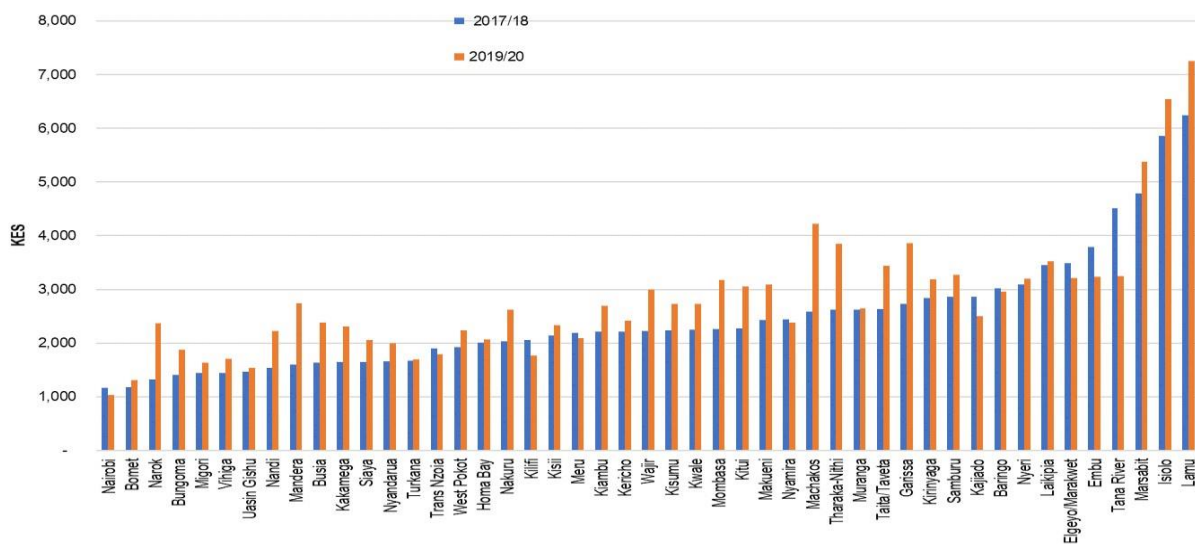


Figure 13: Per capita County government expenditure on health

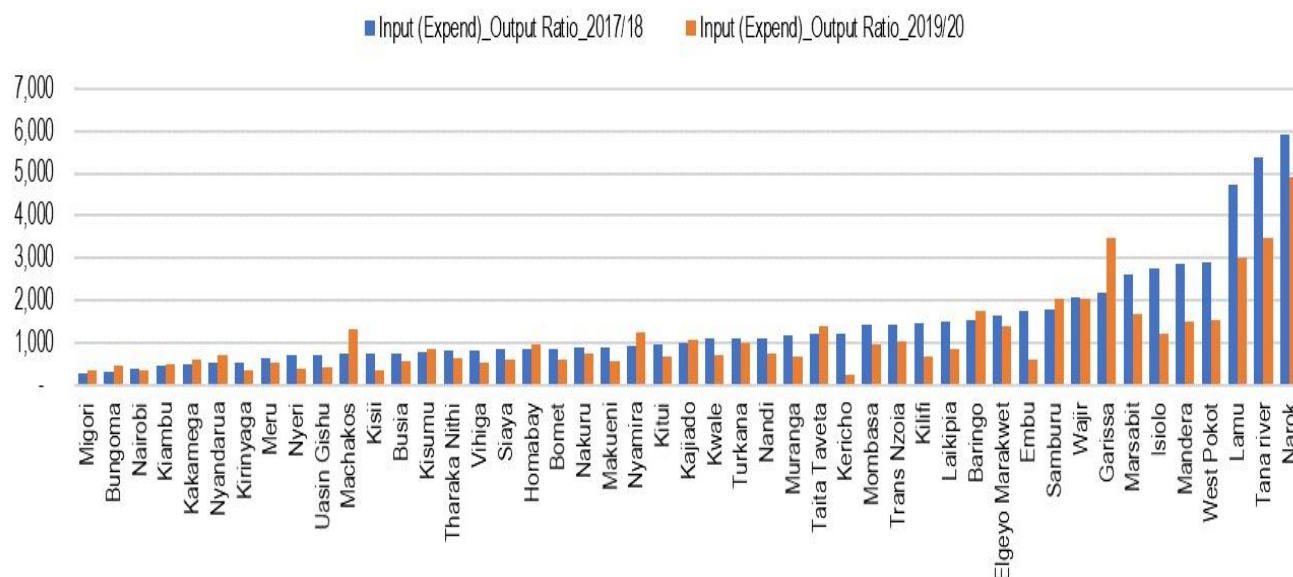


Figure 14: Efficiency in the use of resources per county

5.4 Health Infrastructure

Availability of modern and adequate infrastructure is of utmost importance in facilitating safe and efficient delivery of healthcare. During the period under review, National and County governments continued to invest in health infrastructure particularly the health facilities to ensure a progressive increase in the number and quality of health services across the Country. Moreover, the strategic plan outlines approved budgets for maintenance of physical infrastructure, medical equipment and devices, as well as Electronic Health Records as key areas for monitoring. Patients' electronic management systems are critical considerations to invest in to facilitate real time capture and transmission of data from the health facilities.

Progress

An overall increase in the number of health facilities was recorded with the density increasing from 2.4 to 2.5 health facilities per 10,000 population achieving the midterm target.

All counties reported having approved budgets for maintenance of physical infrastructure. This may indicate that the baseline (20%) is likely to have been erroneous and revision of this indicator is recommended.

The proportion of counties with electronic health records in at least one health facility was recorded at 53% meeting the mid-term target of 48%. The baseline was not well established as county reports were not comprehensive enough to enumerate all facilities using EMR services

Table 12: Health Infrastructure in the counties

Indicator	Baseline (2017/18)	Achievement 2019/20	Target 2020/21	Progress	Data source	Comment
Health Facility density (number per 10,000 population)	2.4	2.5	2.5		KMHFL	The Country has achieved the global targets
The proportion of counties with approved budgets for maintenance of physical infrastructure	20	100	75		County Reports	Recommend removal of this indicator as all counties have expenditure in this area. ● Consider the proportion of health budget spent on infrastructure ● Consider assessment of tracer items in facilities per KEPH level
The proportion of counties with approved budgets for maintenance of medical equipment and devices	20	100	75		County Reports	Recommend removal of this indicator as all counties have expenditure in this area
The proportion of counties with Electronic Health Records	0	53.2	48		County EMR Implementation Report	The baseline was likely an underestimate; The only available data was on counties with electronic health records and not health facilities.

Red: limited or no progress (<50% of midterm target); **Orange:** some progress, but not enough to achieve the target (50 to 99% of midterm target); **Green:** good progress, target achieved (>99%)

The number of health facilities increased by 9% over the review period from 9,751 to 10,671 with the largest increase reported among level 2 facilities, which increased by 9.4% over this period.

Table 13: Number and proportion of health facilities by KEPH, 2017/18 to 2019/2020

Level	2017/18	Proportion	2018/19	Proportion	2019/20	Proportion
Level 2	9,751	78	10,194	78	10,671	77
Level 3	1,992	16	2,154	16	2,313	17
Level 4	697	6	741	6	782	6
Level 5	18	0	18	0	18	0
Level 6	6	0	6	0	6	0
	12,464	100	13,113	100	13,790	100

5.5 Health Products and Technologies

The availability of essential medicines and non-pharmaceuticals is critical to health service delivery. Timely supply of medical commodities ensures that facilities do not run out, consequently assuring adequate treatment interventions in health facilities. Order fill rate, the percentage of orders items or order value that get fulfilled by a supplier, is often used as an indication of the adequacy of medical commodities in health facilities and is often associated with the efficiency of the supplying agency. In Kenya, KEMSA supplies the largest proportion of health products to county health facilities. Achievement in health products including blood is outlined in Table 14.

Progress

Generally, there was notable poor performance in the availability of commodities including blood, with performance dipping from the baseline for all indicators. Order fill rates dropped by 28% from 85.4% at baseline to 62.3% at midterm, missing the target of 95%. Similarly, order fill rates for non-pharmaceutical supplies dropped by 8% from 85% at baseline to 79% at midterm, missing the target of 95%

Table 14: Health Products and Technologies

Indicator	Baseline (2017/18)	Achievement 2019/20	Target 2020/21	Progress	Data source	Comments
Order fill rate of the 22 tracer pharmaceutical commodities* (%)	85	62.3	95		KEMSA	Target unlikely to be met at end term as order fill rate has been declining
Order fill rate of the 20 tracer non-pharmaceutical commodities by quantity per item as (%)	85	78.9	95		KEMSA	
Proportion of functional MTCs at County Level	2.12 (1 county)	4.3 (2 counties)	100		Surveys, MTR	Not on track
The proportion of safe blood available for transfusion	NA		50%		KNBTS	Data not available

Red: limited or no progress (<50% of midterm target); **Orange:** some progress, but not enough to achieve the target (50 to 99% of midterm target); **Green:** good progress, target achieved (>99%)

Performance across the review period shows that there was a consistent downward trend over the four years from baseline. Twenty-four (24) Counties had an order fill rate above the national average at midterm, with Narok



Figure 15: Order fill rate for the selected essential medicines and non-pharmaceuticals

County recording the highest order fill rate at 87.5% while Bungoma County recorded the lowest at 50.6% non-pharmaceuticals recorded a marginal rise in 2019/20 (75.4% to 78.9%) but had an overall decline over the period. Twenty-six (26) Counties had an order fill rate above the national average at midterm with tracer non-pharmaceuticals, with Busia County having the highest order fill rate at 88.5% while Lamu County recorded the lowest at 68.0%. The number of Counties with functional Medicines and Therapeutics Committees (MTCs) increased slightly from one at baseline to two. The target at midterm was to have functional MTCs in all Counties.

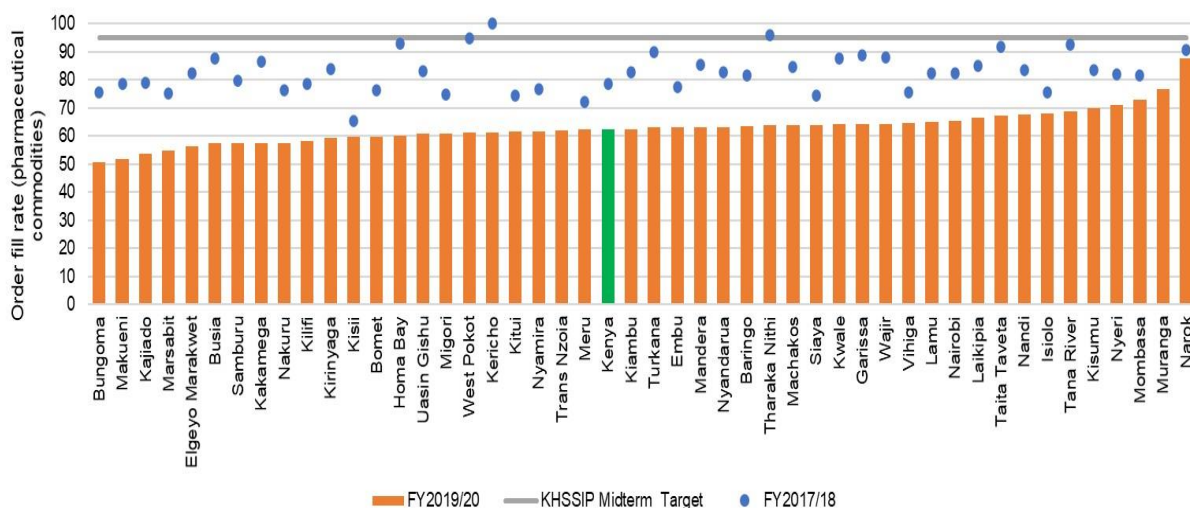


Figure 16: Order fill rates for 22 tracer pharmaceutical commodities (%)

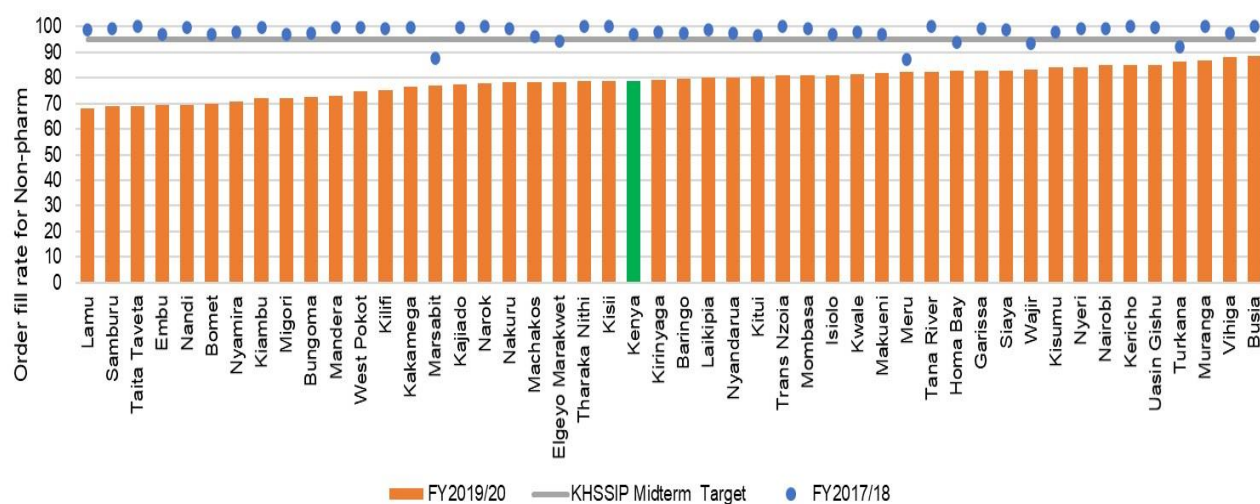


Figure 17: Order fill rate of the 20 tracer non-pharmaceutical commodities by quantity per item as (%)

5.6 Health Information systems

One of the key investments in the sector is the strengthening of health information systems across the spectrum of data collection, transmission, storage, information generation, analysis, and utilization to support effective decision-making among producers and consumers at all levels. The sector has been utilizing a uniform platform for generating aggregate information through KHIS, while also implementing the Health information policy 2014- 2030, e-Health policy 2014-2030 and the Kenya standards and guidelines for m-Health applications. During the period under

review, the integration of the Kenya Health Master Facility List and KHIS was completed to enhance the Kenya Health Information System (KHIS).

The Health sector indicators and standard operating procedures were defined and data collection and reporting tools were reviewed, printed and distributed to health facilities across the 47 counties in Kenya.

Reporting rates are often used as an indication of the strength of a health information system. The overall reporting rate takes into account the average reporting rate of 5 summary tools i.e., MOH 711 (RMNCAH), MOH 731(HIV care), MOH 705 A and B (OPD utilization under 5 and over 5).

The country started to lay the foundation for digitizing all health data collection and transmission to the national warehouse, in conformity with the Health Act, 2017 and Data Protection Act, 2019. As a national response, the government identified *the enabler ministries* including the Ministry of ICT, Ministry of Energy, and Ministry of Roads to support the roll-out of the Digital Health Platform (DHP). Through this project, 80 of the targeted 121 level 4 to 6 facilities were linked to National Optic Fiber Backbone Infrastructure (NOFBI).

Progress

Performance was moderate for health information systems with good progress on all indicators. There was a significant increase in the proportion of health facilities submitting reports within the KHIS from 89% at baseline to 94% at Mid-term against a target of 90%. In terms of service delivery reporting at the community level, performance similarly increased by 9% from 69% reported at baseline to 78% at midterm, against a target of 80% thus narrowly missing the Mid-term target. More importantly, the percentage of hospitals reporting inpatient morbidity and mortality showed some level of improvement from 30% reported as a baseline to 44% at mid-term. Though this was significant progress, it was still slightly below the midterm target. Consequently, efforts are needed to strengthen all admitting health facilities to report morbidity and mortality to enable the country to generate a county-specific burden of disease.

Table 15: Health Information systems

Indicator	Baseline (2017/18)	Achievement 2019/20	Target 2020/21	Progress	Data source	Comments
Percentage of health facilities submitting complete information (completeness of reports)	89	94	90	Green	KHIS	Revise indicator to read “Facility reporting rate” because facilities that do not offer all services cannot report on all sections of the report for services, they do not offer
Percentage of community units submitting complete information (completeness of reports)	69	78.3	80	Orange	KHIS	Revise indicator to read community units reporting rate for similar reasons above.
Percentage of hospitals reporting on inpatient morbidity and mortality (Level 4)	30	44	60	Orange	KHIS Tracker	Low hospital inpatient reporting rates observed

Red: limited or no progress (<50% of midterm target); **Orange:** some progress, but not enough to achieve the target (50 to 99% of midterm target); **Green:** good progress, target achieved (>99%)

Overall, reporting rates across the counties were good with only 12 counties having reporting rates below the 90% target, with Isiolo recording the lowest reporting rates at 79%.

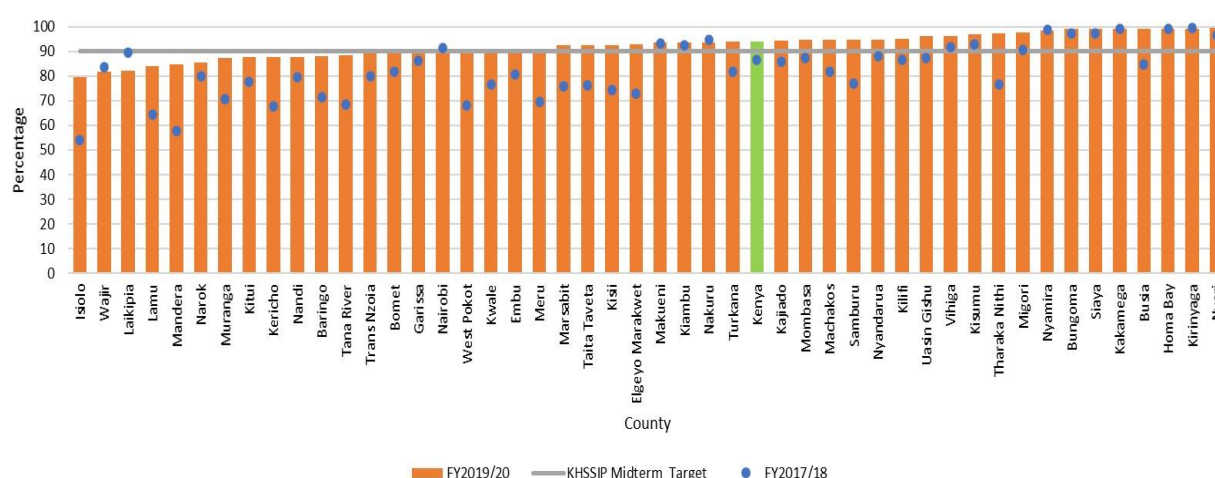


Figure 18: Overall Facility Reporting rate across the counties

Reporting rates from community units through MOH 515 were much lower among Counties compared to facility reporting rates. Laikipia and Lamu Counties recorded the lowest performance at 4% and 10% respectively.

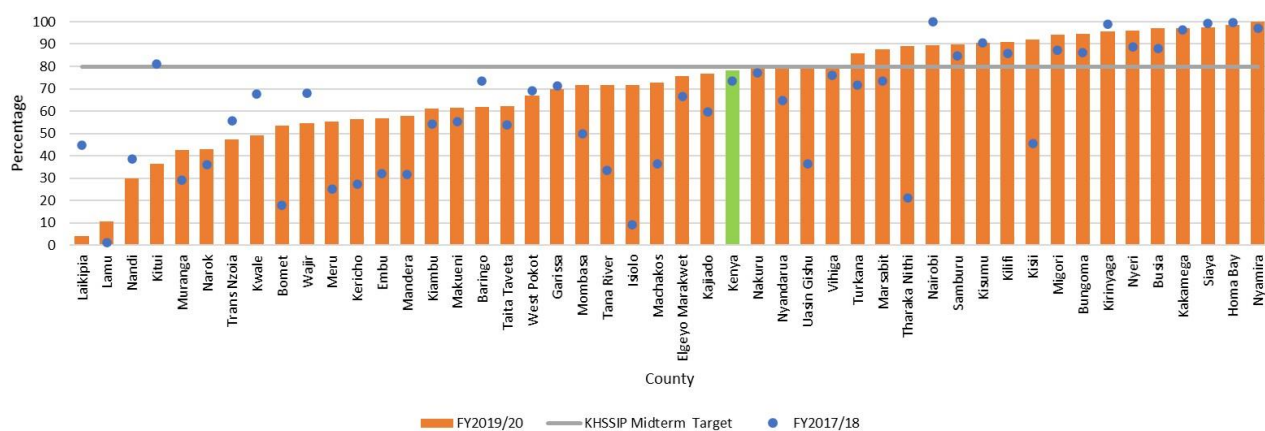


Figure 19: Community Units reporting rates across the counties

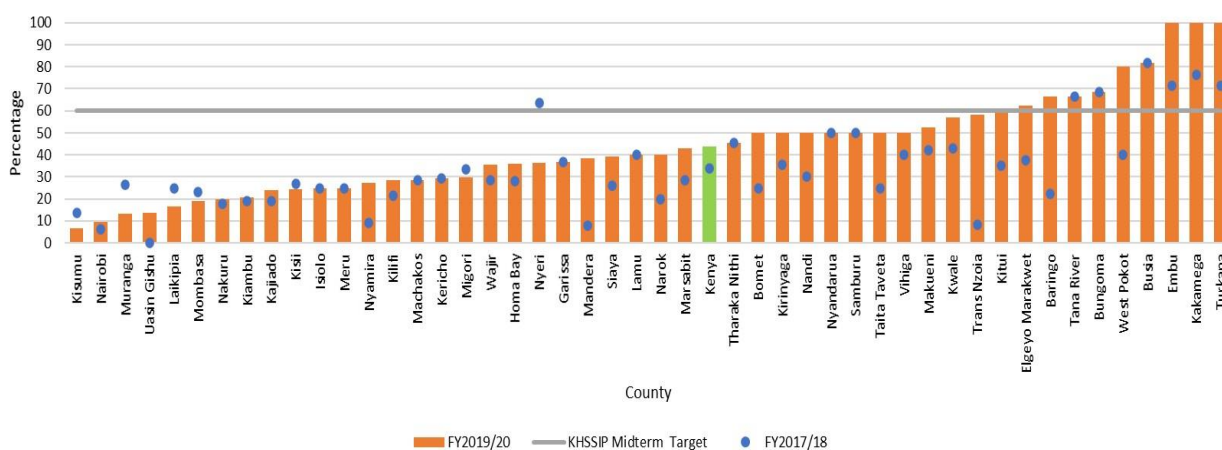


Figure 20: Percentage of hospitals reporting on inpatient morbidity and mortality (Level 4) across the counties.

5.7 Health Research and Development

Health research is a critical component towards ensuring that the highest standards of health are available to a population. Health research coordination and knowledge management are key functions of the Ministry of Health that are performed through the Directorate of Health Policy, Research, Monitoring & Evaluation. The Research department has made notable achievements highlighted below despite facing challenges like lack of formal research indicator data collection modalities for country-led research activities and low prioritization and funding of research at national and county levels.

Progress

- There was notable progress in the proportion of health budgets that were allocated to research over the review periods.
- Some members of staff had been trained on knowledge translation, and this number (18) exceeded the mid-term target.

Table 16: Research and development indicators

Indicators	Baseline 2017/18	Achievement 2019/ 20	Target 2020/21	Progress	Data Source	Comments
Number of national-level staff capacity built on knowledge translation	-	18	15		Training Reports	Target achieved but review the targets for end term
Proportion of health budget allocated to research (%)	<2	3.9	7		County and National Annual Health Reports	Target achieved, however, this is majorly to KEMRI only
Number of policy briefs developed to inform on evidence	-	4	4		Uploads on KHRO	

Red: limited or no progress (<50% of midterm target); **Orange:** some progress, but not enough to achieve the target (50 to 99% of midterm target); **Green:** good progress, target achieved (>99%)

Developed an integrated research plan and capacity-building initiative at the national and county levels

- Development of two key documents: Research for Health(R4H) Policy Framework 2018 – 2030 and Research Priorities 2018 – 2023. The Research for Health Policy Framework explicitly outlines the need to support the formation of R4H committees and structures at the county level to coordinate and prioritize R4H in counties.
- 18 Staff at the Division of Research and Innovation were capacity built on knowledge translation and rapid evidence synthesis. Furthermore, five capacity-building sessions with researchers affiliated to KNH on the development of policy briefs.

Increased enhanced investment in research and evidence generation for effective policy and Programme development

- Three policy briefs were developed, and one manuscript was published.
- Policy brief on Knowledge Attitudes, Practices & Perception on COVID-19 among Kenyans. Evidence briefs on “Reopening of schools during the COVID-19 pandemic – A summary of strategies from other countries”
- Webinar-based Knowledge Attitudes, Practices & Perception evidence brief developed.
- Manuscript on the systematic analysis of community interventions for COVID-19 published in PLoS One Journal

5.8 Leadership and Governance

The Health Sector Partnership and coordination Framework 2018-2030 was launched in 2020. It encourages partnerships based on mutual accountability, benefit and learning and also establishes structures and mechanisms that bring together all key partners in health to work together to achieve common goals. It further establishes structures and mechanisms for partnership and coordination at different levels. The framework aims to enhance aid effectiveness through a Sector Wide Approach to health service delivery.

Annual work plans are an important indicator of a well-coordinated and health system. They offer linkage between implementing level and the leadership and management levels. Each implementing unit is expected to develop a work plan annually.

The Health Sector Intergovernmental Consultative Forum (HSIGCF), which brings together county health departments represented by the County Executive Committee members for health (CEC) and the Cabinet Secretary (CS) at the National level is also an important part of the health system coordination. This forum (HSIGCF) plays a crucial role in a structured dialogue on health matters through cooperation, collaboration, consultation, concurrence, consensus, communication and commitment between the two levels of governments.

Progress

- All Counties and National level implementing units had an annual work plan
- One intergovernmental forum (HSIGCF) took place every year over the review period

Table 17: Leadership and Governance indicators

Indicator	Baseline (2017/18)	Achievement 2019/20	Target 2020/21	Progress	Data source	Comments
Number of Annual work plan developed on time (30 th June)	47	48	48	Green	Council of Governors and MOH	Tool to collect county data on the leadership needed to populate other indicators on
Number of Intergovernmental Consultative Forum held in a reporting year	-	1	4	Red	Council of Governors and MOH	Leadership and governance in the M&E plan

Red: limited or no progress (<50% of midterm target); **Orange:** some progress, but not enough to achieve the target (50 to 99% of midterm target); **Green:** good progress, target achieved (>99%)

6.0 Status of the KHSSIP Strategic Objectives

6.1 Strategic Objective 1: Accelerate Reduction of the Burden of Communicable Diseases

Communicable diseases have been the leading cause of death in Kenya accounting for 58% of all mortalities in 2018. However, this has declined over the review period to 50% of all mortality attributable to communicable diseases in FY 2019/20.

Progress was moderate for most indicators on communicable diseases, with a number of indicators on track while several midterm targets were missed. Inequality in coverages between Counties was assessed using the gini coefficient which measured the distribution of coverages across the counties. The coefficient ranges from 0 to 1, with 0 representing perfect equality and 1 representing perfect inequality. A higher Gini index therefore indicates greater inequality.

Overall progress

Full immunization coverage, while high at 85.8% at midterm was still below the set target of 91% while the number of children with diarrhea who were treated with ORS and Zinc increased from 85% to 89% at midterm. Adult ART coverage achievement was 80% against a target of 81%. There was progress on the proportion of HIV positive pregnant and breastfeeding women who were initiated on antiretroviral therapy by midterm (94% against a target of 95%). However, pediatric ART coverage did not meet the target, with a notable decline from 84% at baseline to 66% at midterm. Similarly, TB case notification rate showed reduced performance (177 per 100,000 population) compared to the baseline (185 per 100,000 population) while TB treatment success rate reduced marginally to 81% from a base line of 83%. On the other hand, there was a significant decline in progress in combating Malaria with Malaria incidence (cases per 1000 persons) increasing from 78 at baseline to 93 at midterm against the set target of 46, indicating reversing trends over the reporting period.

Table 18: Accelerate Reduction of the Burden of Communicable Diseases

Indicator	Baseline (2017/18)		Achievement 2019/20	Target 2020/21		Progress	Data source	Comments
	M&E plan	Adjusted+		M&E plan	Adjusted+			
Percentage of children fully immunized at 1 year	74	86.7	85.8	80	91	94.06	KHIS	
Percentage of infants receiving three doses of Penta3(HIB/Hib/DPT3)	80	91.8	89.5	90	97	92.67	KHIS	
Children under five with diarrhoea treated with ORS & Zinc (%)	25	85.8	88.9	65	90	98.48	KHIS	
TB case notification rate (per 100,000 Population)	185	187	177	191	188	94.21	TIBU	
TB Treatment success rate (TSR)(%)	81	83.2	81.3	86	86	94.57	TIBU	
The proportion of HIV positive pregnant women who are currently on ART	94	71	94	97	95*	131.84	KHIS	*The end-term target was adjusted from 71% to 95% to be aligned with program targets
Antiretroviral therapy coverage (Adults)	67	74	80	74	81	98.77	KHIS	
Antiretroviral therapy coverage (Children)	84	72.4	65	89	81	81.48	KHIS	The denominator for this indicator has been unstable over the last five years. Need for a survey to validate it
Total confirmed malaria cases (per 1,000 persons per year)	78	78.4	93	47	46	49.43	KHIS	
Red: limited or no progress (<50% of midterm target); Orange: some progress, but not enough to achieve the target (50 to 99% of midterm target); Green: good progress, target achieved (>99%)								

The adjustment was done based on the 2019 population census numbers that turned out to be lower than what was projected at baseline, to estimate the *real* performance of the indicators.

Immunization

The lowest performance for both Penta 3(89.5%) and FIC (85.8%) was recorded in FY. 2019/20 down from a peak in 2015/16 where Penta 3 coverage was98% and Full immunization coverage was 91%. There has been a slight fluctuation of performance in the years in between.

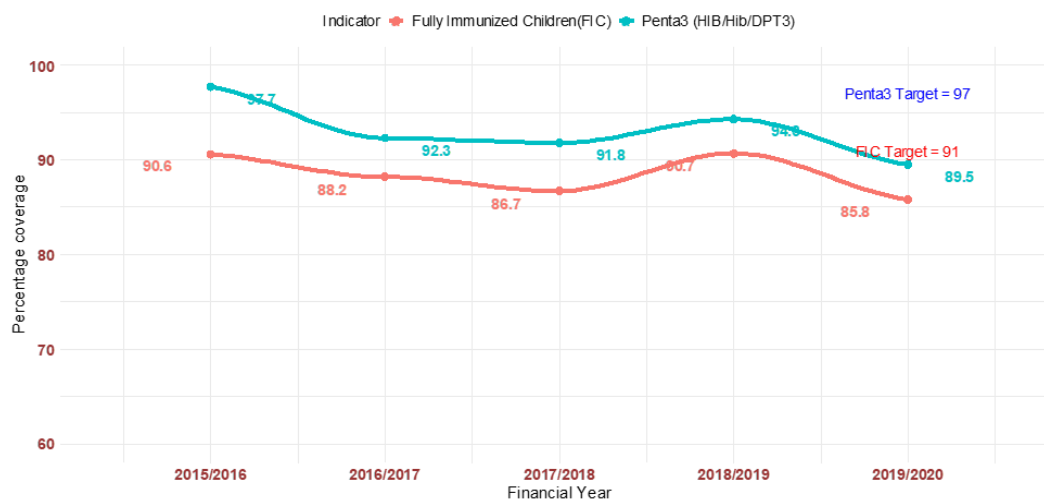


Figure 21: National trend of immunization over five years

In terms of equality in immunization coverage, Penta3 vaccination coverage was more equitably distributed with gini/inequality index ranging from 0.0269 to 0.04479 across the counties, compared to fully immunized coverage which ranged from 0.062 to 0.079. Notably, equity has improved over the years with a marginal retrogression in 2019/20 for both indicators as demonstrated in figure 22 below. Improving all the immunization coverages is expected to reduce the disparities across the counties

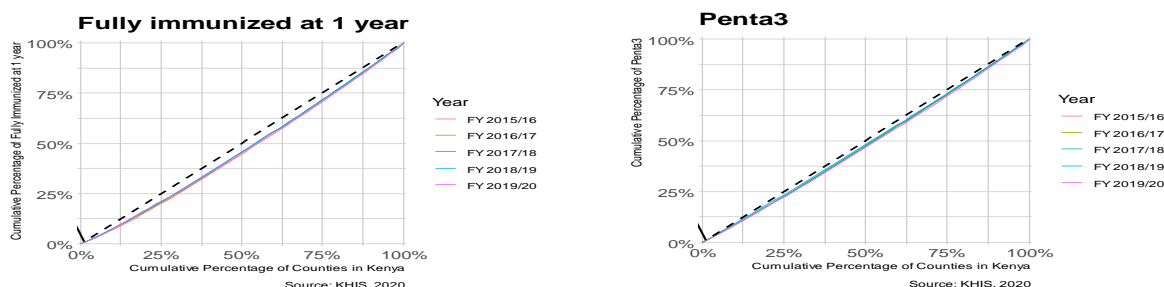


Figure 22: Distribution of the proportions of fully immunized children and Penta 3 coverage in the counties over the five years

Coverages for Pentavalent 3 showed only slight variations at the subnational level with most Counties recording over 80% coverage. Only 4 Counties had coverages below 80% and these included West Pokot (69%), Turkana (78%), Kitui (79%), and Samburu (79%).

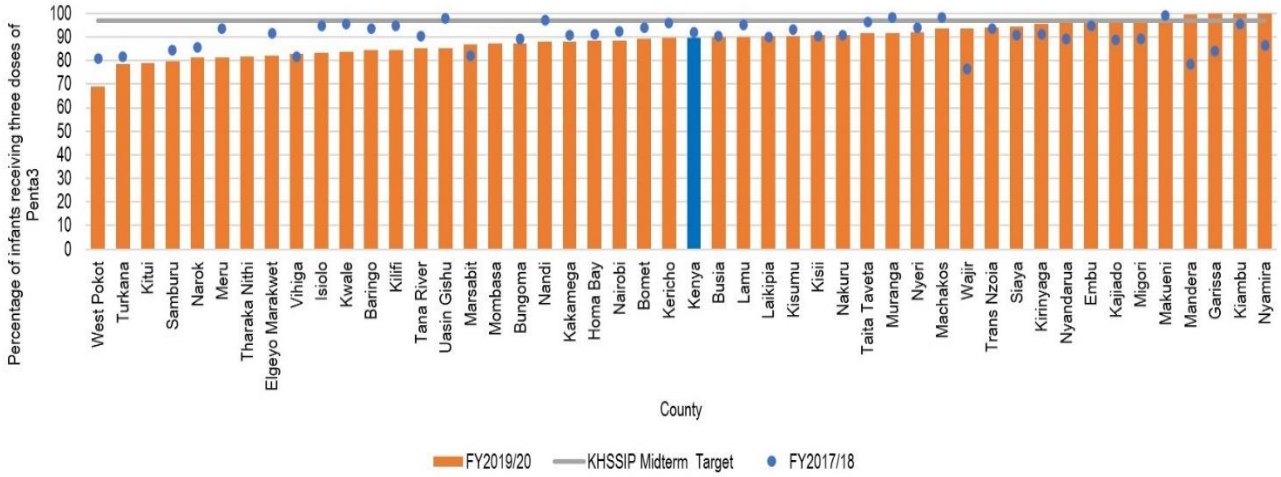


Figure 23: Percentage of infants who received the third dose of Pentavalent vaccine, national and by county (KHIS, 2020)

Similarly, coverages for fully immunized children demonstrated a fairly even subnational variations with only four Counties having FIC rates below 70% (West Pokot (56%), Samburu (63%), Narok (68%) and Turkana (68%)) Additionally, 13 counties were below the National level performance of 90%. Most of the low performing counties were in the arid and semi-arid lands.

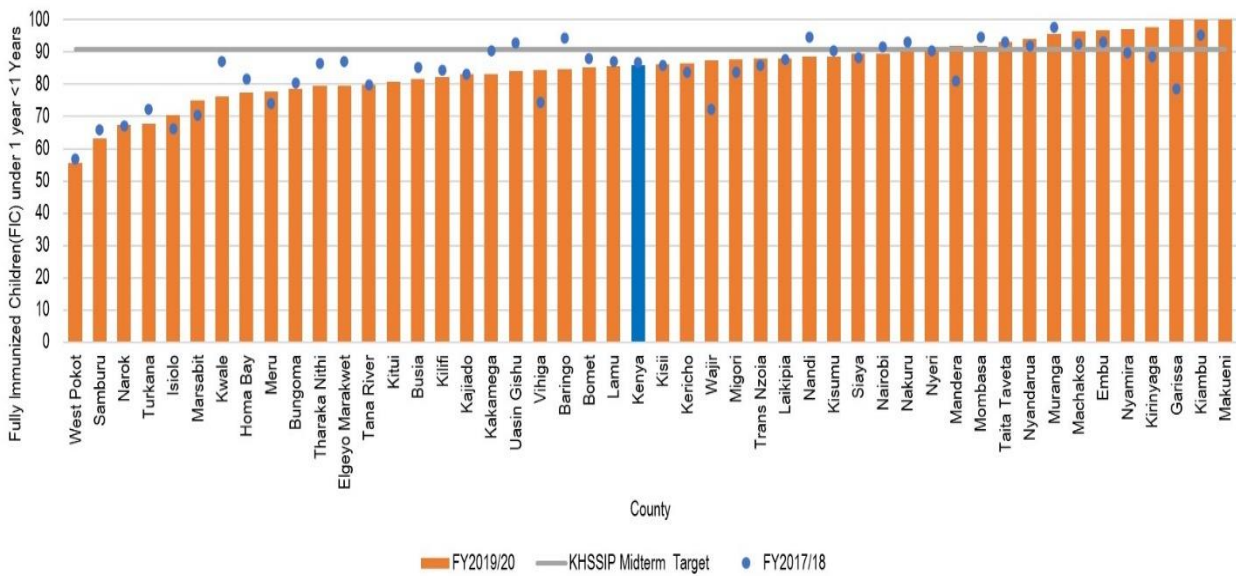


Figure 24: Percentage of fully immunized, national and by county (KHIS, 2020)

Notably, some counties reported higher full immunization coverage compared to Pentavalent 3 coverage including Makueni, Kirinyaga, Embu, Machakos, Muranga, Taita Taveta, Mombasa, Nairobi, Nandi, Baringo, Vihiga and Kitui. This is likely due to children born outside the county coming to complete their vaccinations within these counties or data quality issues.

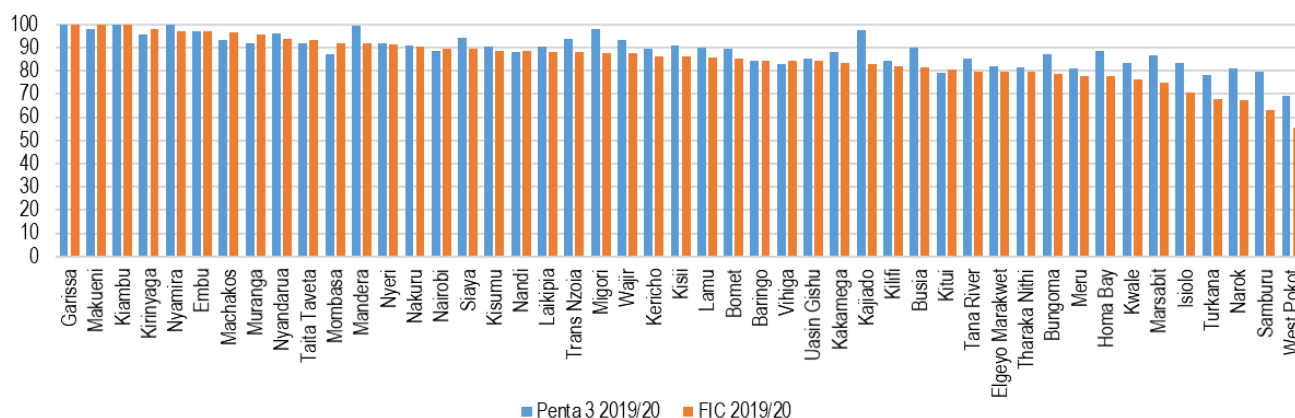


Figure 25: Comparison between Penta3 and FIC coverage across the counties

HIV

Progress in treatment of HIV was modest with coverages for adult Antiretroviral Treatment (ART) and PMTCT recording good progress while Children ART coverage declined significantly.

Adult ART coverage has increased over the years with an exception of 2018/2019 financial year, where performance was majorly affected by transition from the old to the new revised data collection and reporting tools and some data were missed out.

Coverage for mothers on HAART has improved over time with current performance at 94% against the midterm target of 95%.

Children ART coverage has been declining over time with current performance standing at 65% compared to a midterm target of 81%

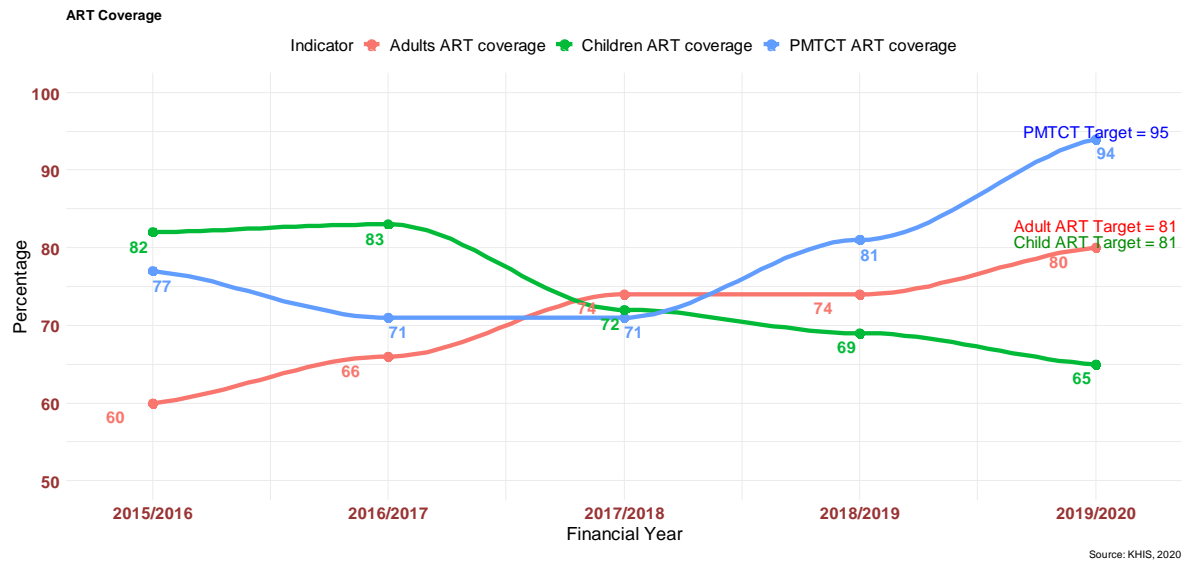


Figure 26: National trend of ART coverage over five years

The coverage of ART in adults was more equitably distributed (gini/inequality index ranging from 0.122 to 0.202) across the counties compared to children ART coverage, whose index was slightly higher ranging from 0.155 to 0.220. Equality improved over the years although there was a marginal decrease in 2019/20 for ART in children.

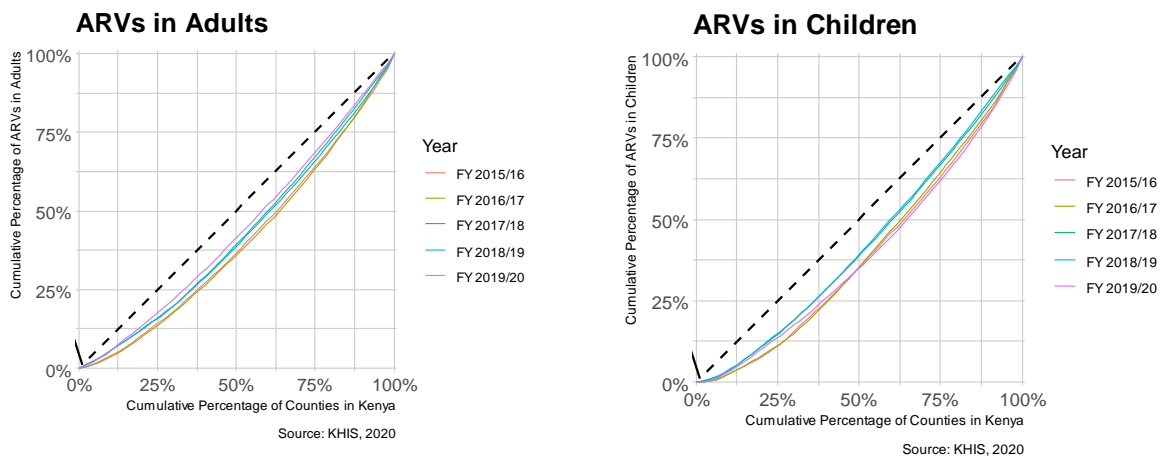


Figure 27 Distribution of the proportions of ARVs in adults and children in the counties over the five years

Adults ART Coverage

About a third of counties (15) achieved the midterm target of 81%. Nairobi (100%), Laikipia (97%), Nyamira(95%), Makueni (94%) and Kakamega(93%) had the highest Adult ART coverage meeting the 90% global target for ART uptake. Conversely, Wajir(24%), Marsabit(41%), Turkana(44%) and Narok(46%) had the lowest adult ART coverage

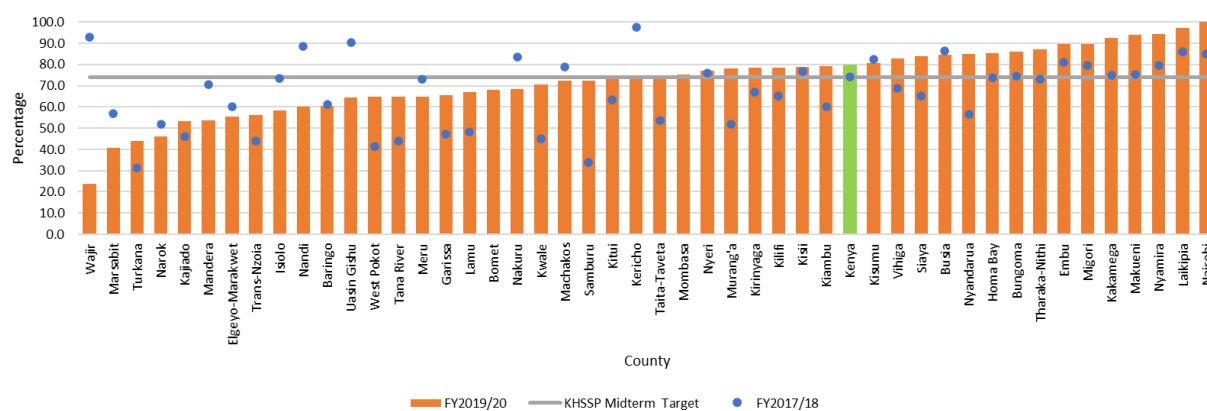


Figure 28: Antiretroviral therapy coverage among the adults, national and by county (KHIS, 2020)

Pediatric ART Coverage

Generally, wide variations in coverages for pediatric ART were recorded across Counties; Only 23% (11) of Counties achieved the midterm target of 81%.

Wajir(6.5%), Mandera(8%), Garissa(23%), Marsabit(34%) and Bungoma(38%) had the lowest pediatric ARV coverage. The most improved Counties in performance include Laikipia, Embu, Lamu, Kwale, Taita Taveta, Kajiado, Turkana, Tana River and Garissa; however, majority of the counties saw a drop in coverage.

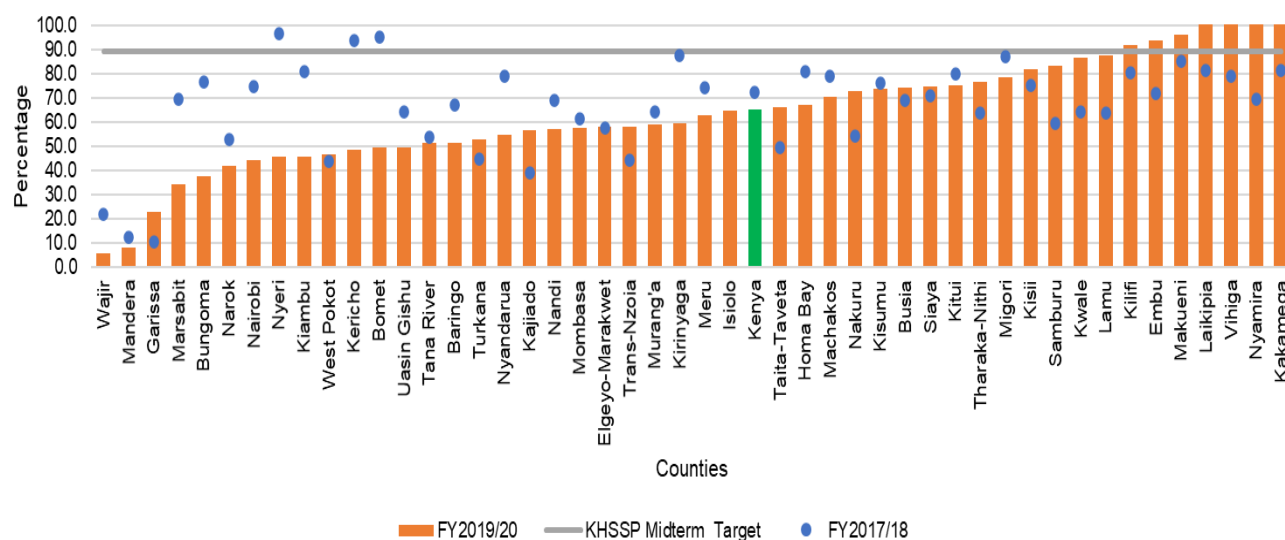


Figure 29: Antiretroviral therapy coverage among the children, national and by county (KHIS, 2020)

PMTCT ART Coverage

Close to half (22) counties met the mid-term target of 95%. There was improved performance in Maternal HAART coverage in all the counties except for Nairobi and Wajir which recorded a slight decrease in their performance.

The most improved Counties are Samburu, Isiolo, Tharaka Nithi, Narok and Meru.

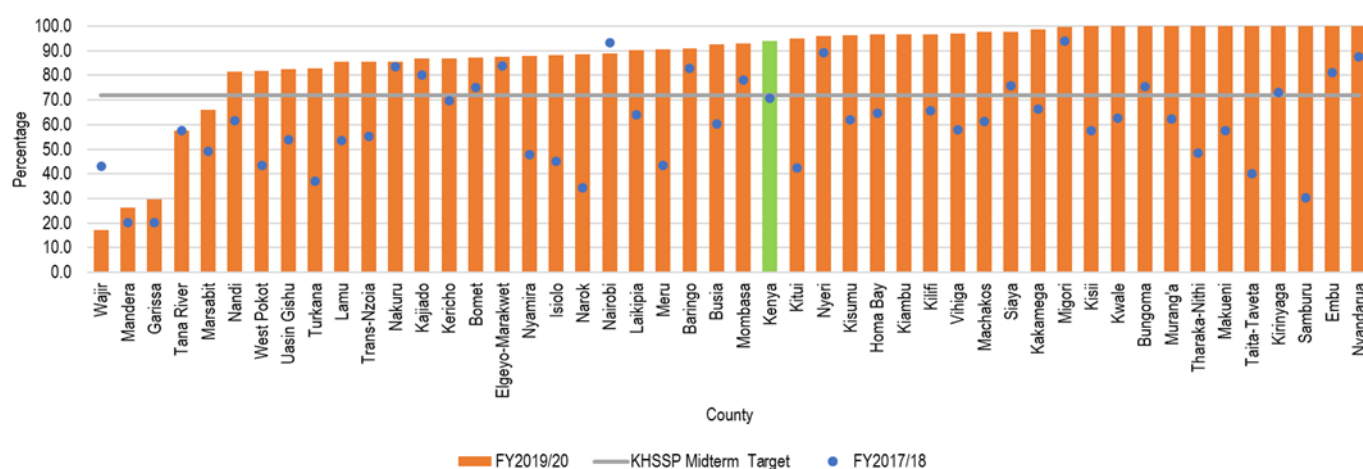


Figure 30: The proportion of HIV positive pregnant women who are currently on ART, national and by county (KHIS, 2020)

Tuberculosis

- Performance for TB indicators generally declined with midterm targets not achieved
- The case notification rate reduced from 187 per 100,00 population at baseline (2017/18) to 177 per 100,000 at midterm (2019/20).
- The best performance was recorded in FY 2018/19 with TSR at 190 per 100,000 population.

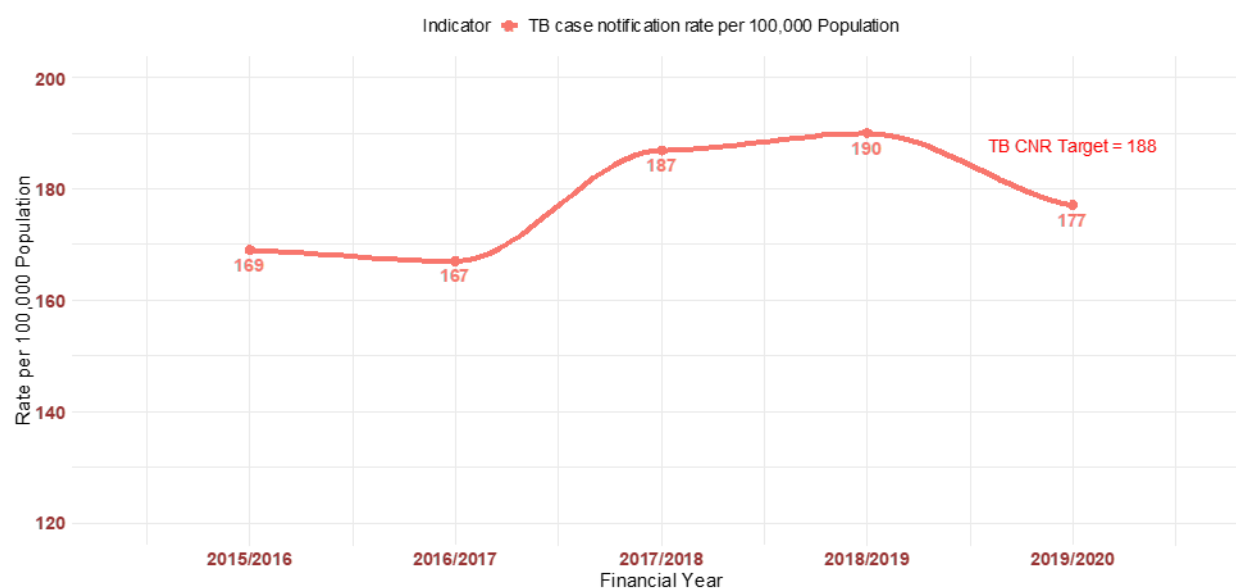


Figure 31: Trends of TB CNR per 100,000 population, Kenya

Tuberculosis Case Notification Rate (CNR) per County

The notification rates varied across the counties with 19 counties (40%) surpassing the mid-term target of 188 per 100,000.

At midterm (Financial Year 2019/2020), Mombasa County had the highest CNR (335 per 100,000 population) while Wajir and Mandera counties had the lowest CNR (73 per and 74 per 100,000 population).

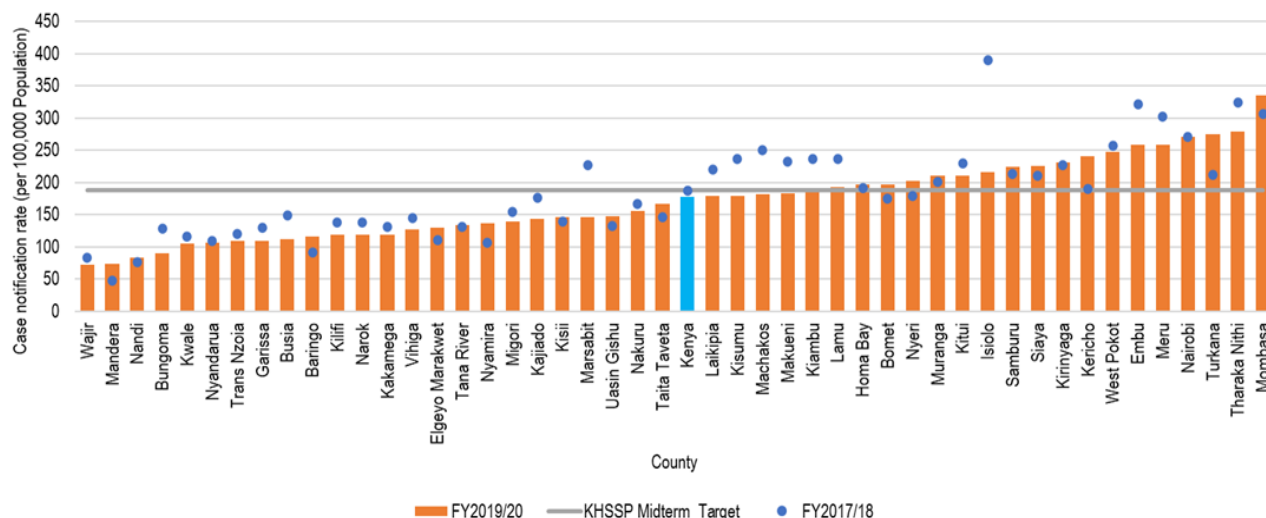


Figure 32: TB Case Notification Rate per 100,000 population

TB Treatment Success Rate

Overall treatment success rate has remained high over 80% Nationally but there has been a decline over the last few years. The overall TB treatment success rate for the country at midterm (2019/20) was 81.3% which was a slight decline from baseline (83.2%).

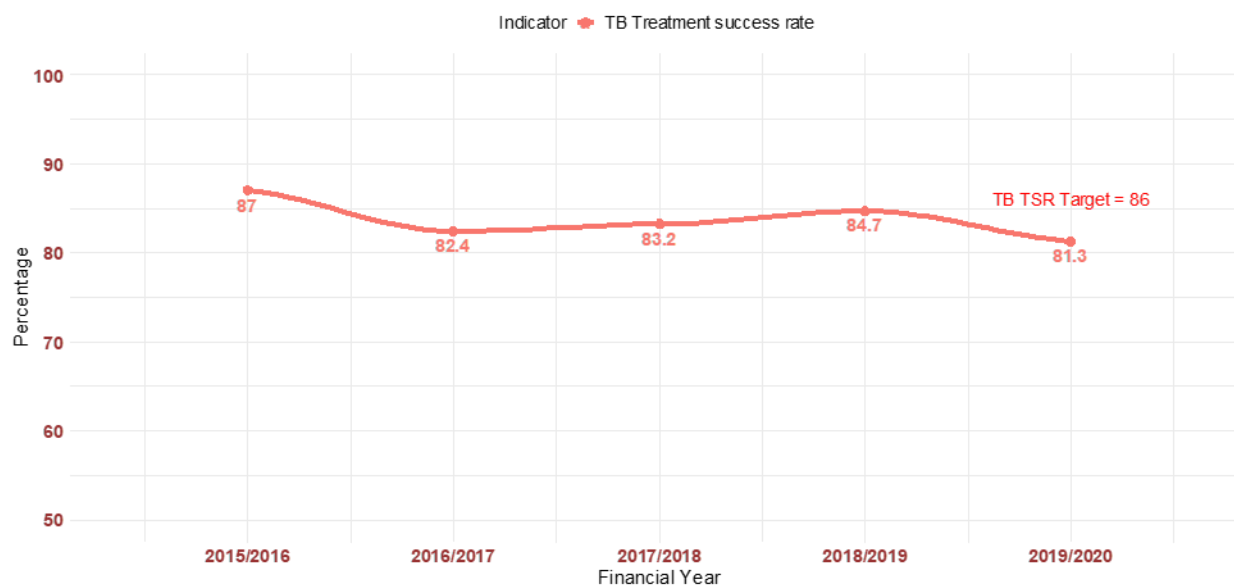


Figure 33: National trend of TB treatment success rate over five years

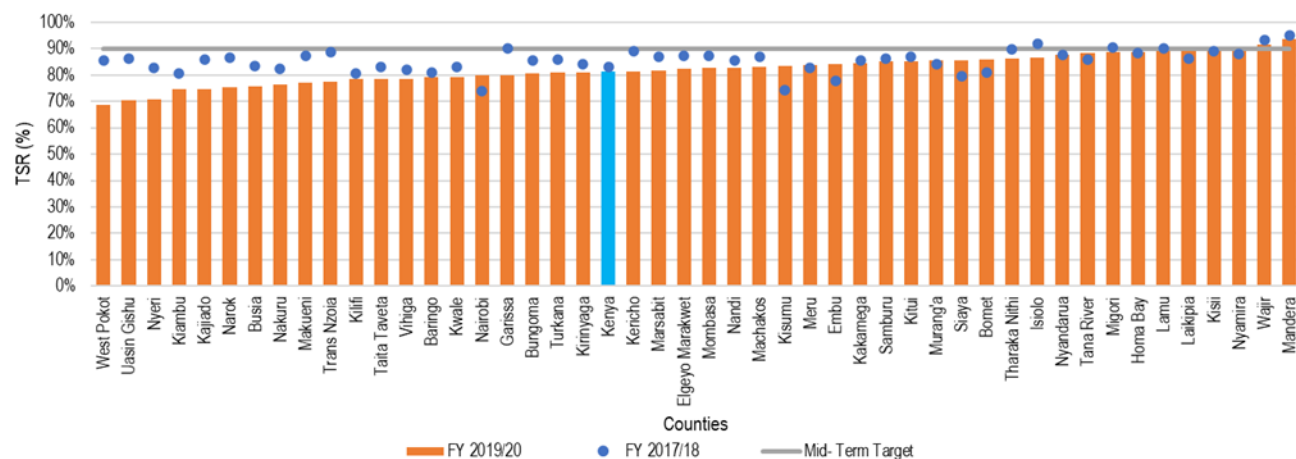


Figure 34: TB Treatment Success Rate

- Only 12 (26%) counties attained the set target of 86%, with Mandera (93.7%), Wajir (91.5%) and Nyamira (90.6%) having the highest rates. West Pokot, Uasin Gishu and Nyeri counties had the lowest treatment success rates at 68.8%, 70.6% and 70.8% respectively.
- The main challenges have been patients who are lost to follow up, those who are transferred out and their outcomes not known and lately, fatality rates have been above 5%. The high fatality rates are due to late diagnosis, malnutrition and HIV.

Malaria

- The National trend shows a general reduction in confirmed malaria cases per 1000 population over the years with the largest reduction recorded in in 2017/2018.
1. Over the current strategic period, confirmed malaria cases increased by 19% (from 78.4 in 2017/2018 to 93 in 2019/2020)

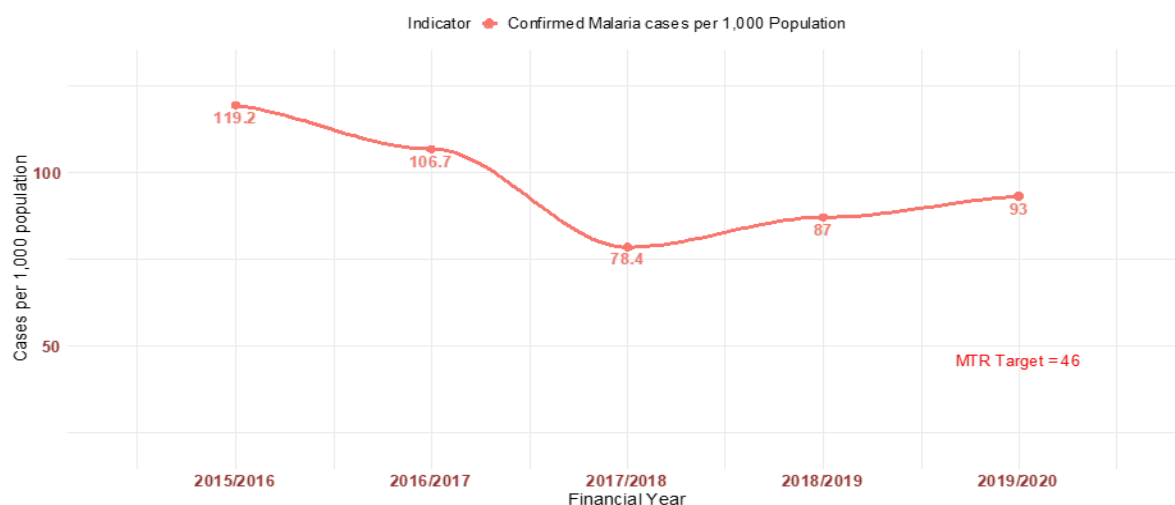


Figure 35: National trend of total confirmed malaria cases per 1,000 persons

- At the subnational level, it was observed that 10% of counties accounted for more than 50% of total malaria confirmed cases in the country with Siaya having the highest burden.

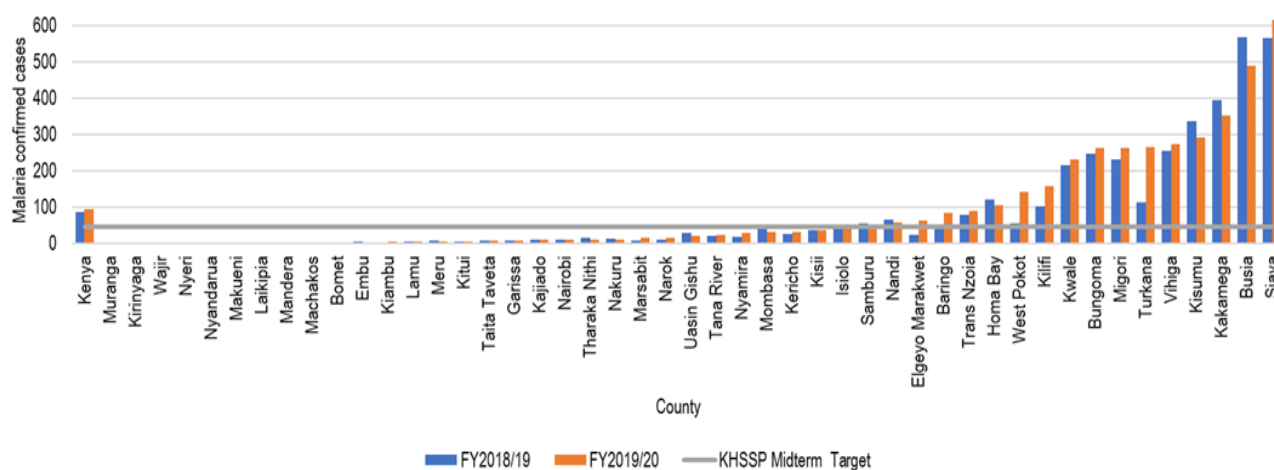


Figure 36: Malaria incidence per 1,000 population, national and by county (KHIS, 2020)

Diarrhea treatment in children under five

Among children under five with diarrhea in the community, 89% were treated with ORS & Zinc, just below the midterm target of 90%. These children are given the ORS at the community level by Community Health Volunteers with reporting done through the community reporting tools.

Performance for this indicator has remained relatively stable with little variation over the strategic period

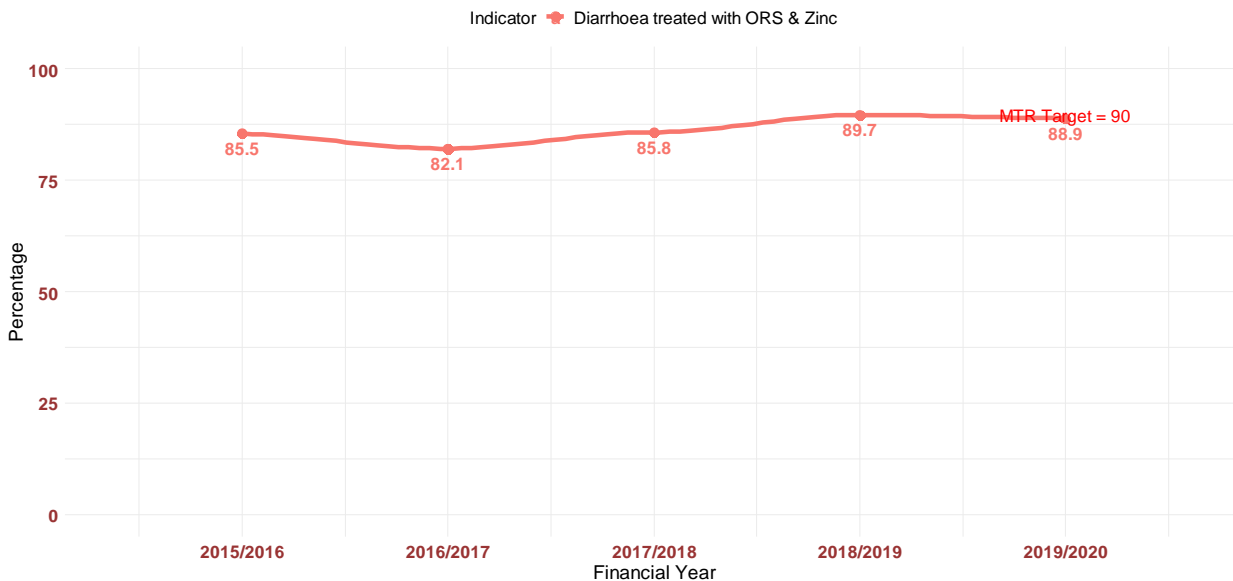


Figure 37: National trend of children with diarrhea treated with ORS and Zinc

- Just about a half of counties (47%) achieved the midterm target of 90%, with most Counties recording over 75% achievement.
- Bungoma and Kilifi Counties had the lowest performance with only one in every five children in the community with diarrhea treated with ORS and zinc.

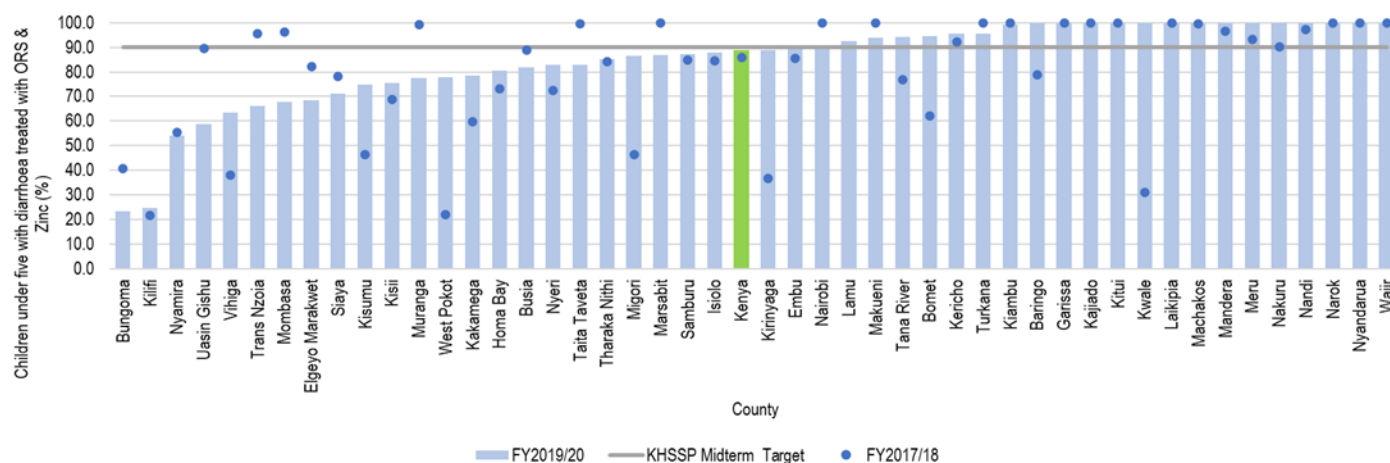


Figure 38: Proportion of under-five with diarrhea who were treated with ORS and Zinc, national and by county (KHIS, 2020)

6.2 Strategic Objective 2: Halt and Reverse the Burden of Non-Communicable Conditions

Non-Communicable Diseases (NCDs) have emerged as conditions of great public health concern in Kenya. Mortality due to NCDs is on the rise contributing to 42.8% of deaths in 2020 compared to 37% in 2016 (MoH,2020). NCDs reduce economic output by subjecting households to catastrophic expenditures spiraling them into a vicious cycle of poverty.

The four major NCDs namely cancer, diabetes, chronic respiratory diseases, and cardiovascular diseases comprise 33% of all the NCD deaths while other diseases such as hematological disorders, neurological disorders, mental conditions, and digestive disorders are responsible for the rest (GBD,2019). Identification of persons living with NCDs is an important entry point into care and prevention of complications and mortality.

The sector has developed mechanisms aimed at increasing the number of new patients identified and linked to care through awareness creation, enhanced screening, increased diagnostic capacity, and integration into primary health care. There was generally good progress in the indicators relating to the identification of NCD patients as detailed in Table 19.

Table 19: performance of key NCD performance indicators

Indicator	Baseline (2017/18)		Achievement 2019/20	Target 2020/21		Progress	Data source	Comments
	M&E plan	Adjusted ⁺		M&E plan	Adjusted ⁺			
Hypertension incidence rate (per 100,000)	2557	2304	2703	2953	2564	104.39	KHIS	The source of data for these indicators is the general outpatient register. This often tends to miss patients seen in specialist clinics. Further, it has been noted that some facilities capture all visits rather than only new patients. New tools (MoH 740) have been developed to address these
Diabetes incidence rate (per 100,000)	890	802	943	981	852	109.61	KHIS	issues and also capture other important indicators such as the cumulative number on care, treatment coverage, and control rates. However, the reporting rate for this tool is currently low (42.3%) limiting comprehensive tracking of these indicators.
% of women aged 25-49 years screened for cervical cancer in the past year*	1.9	11.05	13.3	10	12	114.40	KHIS	The Global Strategy for Elimination of Cervical Cancer launched in 2020 targets to have 90% of eligible girls vaccinated against HPV, 70% of eligible women screened and 90% treatment coverage by 2030. The KHSSIP targets will need to be reviewed to be aligned with these global commitments and program targets.
Number of mental health cases per 1000 outpatient visits	2	1.9	2.3				KHIS	The indicator was not in the KHSSIP M&E plan but was included in the MTR given the increasing public health concern posed by mental health. A target for the end term needs to be established.

Red: limited or no progress (<50% of midterm target); **Orange:** some progress, but not enough to achieve the target (50 to 99% of midterm target); **Green:** good progress, target achieved (>99%)

⁺The adjustment was done based on the 2019 population census numbers that turned out to be lower than what was projected at baseline, to estimate the *real* performance of the indicators.

Hypertension

- The past five years have seen an increase in the number of new hypertension patients per 100,000 OPD visits from 1715 in 2015/16 to 2,703 in 2019/20 against a target of 2,564 at mid-term (a 104.4% performance against target). However, there were wide variations in county performance, with only 18 (38%) of counties attaining the mid-term target.

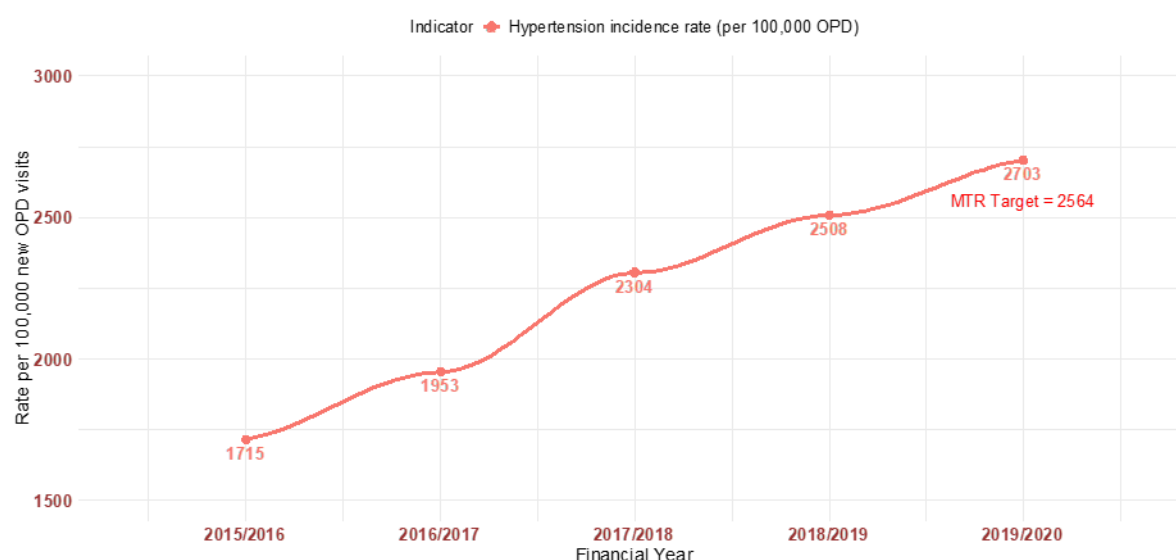


Figure 39: New hypertension cases per 100,000 OPD visits

The counties with the highest hypertension incidence per 100,000 new OPD visits are largely from the Eastern and Central region including Makueni (6,492), Muranga (5,420), Kitui (5,250), Laikipia (5,154), Machakos (4,661), Embu (4,612), Lamu (4,439), Tharaka Nithi (4,192), Nyandarua (3,967) and Nairobi (3,598).

The counties that reported the lowest incidence per 100,000 new OPD visits in 2020 were largely in the arid and semi-arid lands (ASAL) counties including Migori (999), Marsabit (953), Isiolo (764), Elgeyo Marakwet (661), Wajir (583), Samburu (392), Mandera (330), West Pokot (259), Turkana (154).

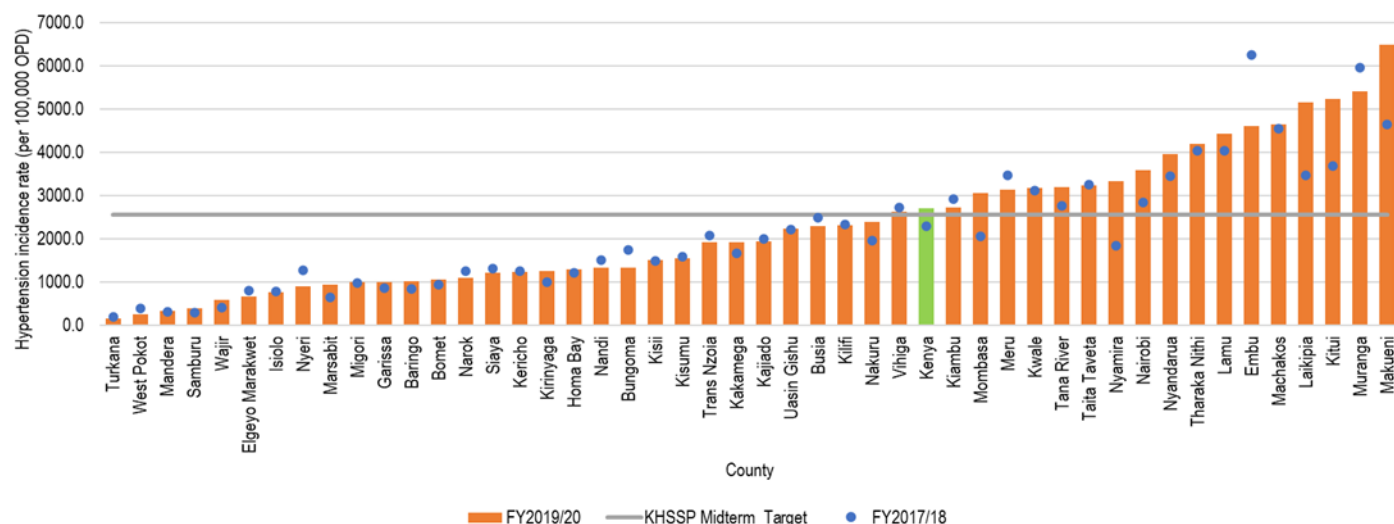


Figure 40: Hypertension incidence rate per 100,000 new OPD visits, national and by county (KHIS, 2020)

Diabetes

The country saw an upward trend in the number of new diabetes patients, from 525/100,000 OPD visits in 2015/16 to 943/100,000 in 2019/20 against a midterm target of 852 per 100,000 (109.6% performance against target). County variations were however noted, with less than a third of counties (14) achieving the mid-term target.

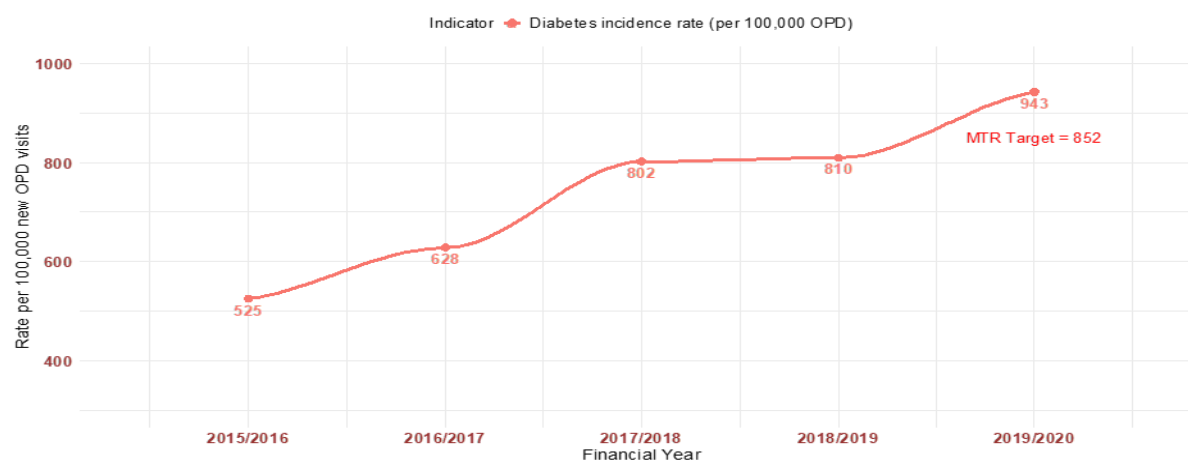


Figure 41: Diabetes incidence trends per 100,000 new OPD visits

The counties with the highest reported new diabetes cases per 100,000 new OPD visits were largely in the central region including Embu (1,897), Laikipia (1,740) and Murang'a (1,685). Nairobi (1,624) and Mombasa (1,361) also reported a high number of cases. Just like hypertension, the lowest rates were reported in the ASAL counties of Isiolo (198), West Pokot (188), Mandera (179), Samburu (155) and Turkana (69).

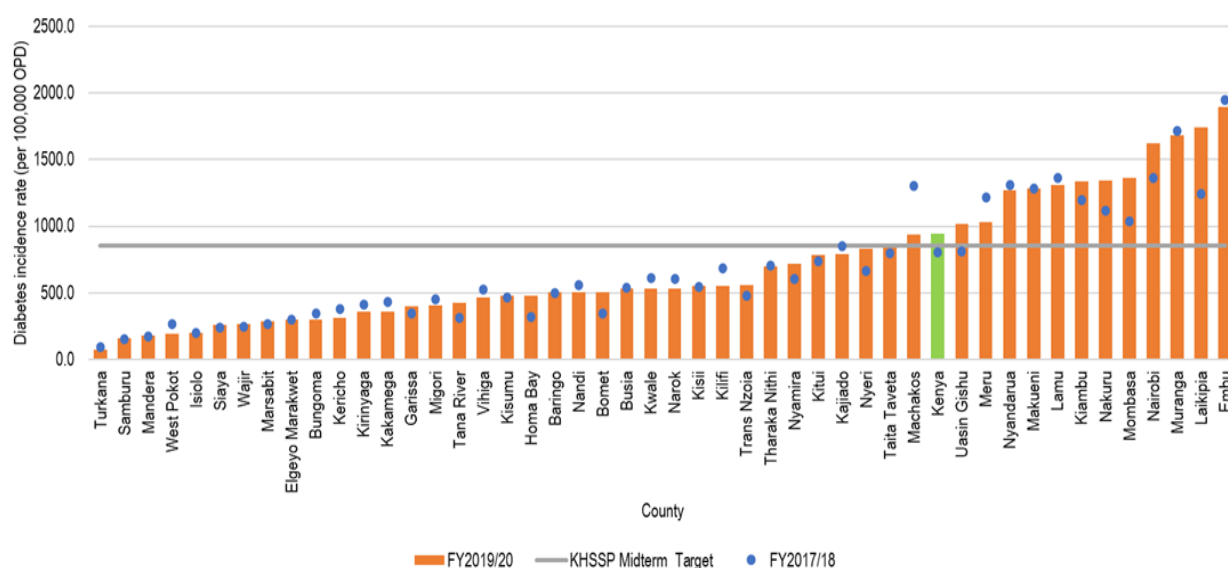


Figure 42: Diabetes incidence rate per 100,000 new OPD visits, national and by county (KHIS, 2020)

Cervical Cancer Screening

Thirteen percent (13.3%) of eligible women aged 25-49 years were screened for cervical cancer in 2019/20 against a mid-term target of 12% (114.4% performance against target).

However, only 15 counties (31% of all counties) achieved or surpassed the mid-term target of 12% for women age 25-49 years screened for cervical cancer in 2019/20, with ASAL counties reporting the lowest rates. These include Marsabit (0.84%) Garissa (0.75%), West Pokot (0.14%), Mandera (0.01%). Further, some counties including Kajiado, Vihiga, Kitui, Uasin Gishu, Kirinyaga and Nyeri saw a substantial decline in screening rates between baseline and mid-term as shown in Figure 43.

The Counties that achieved the highest performance in their annualized targets are largely from the Nyanza region including Nyamira (42.8%), Kisii (40.3%), Siaya (39.1%), Migori (35.7%), and Kisumu (27.7%).

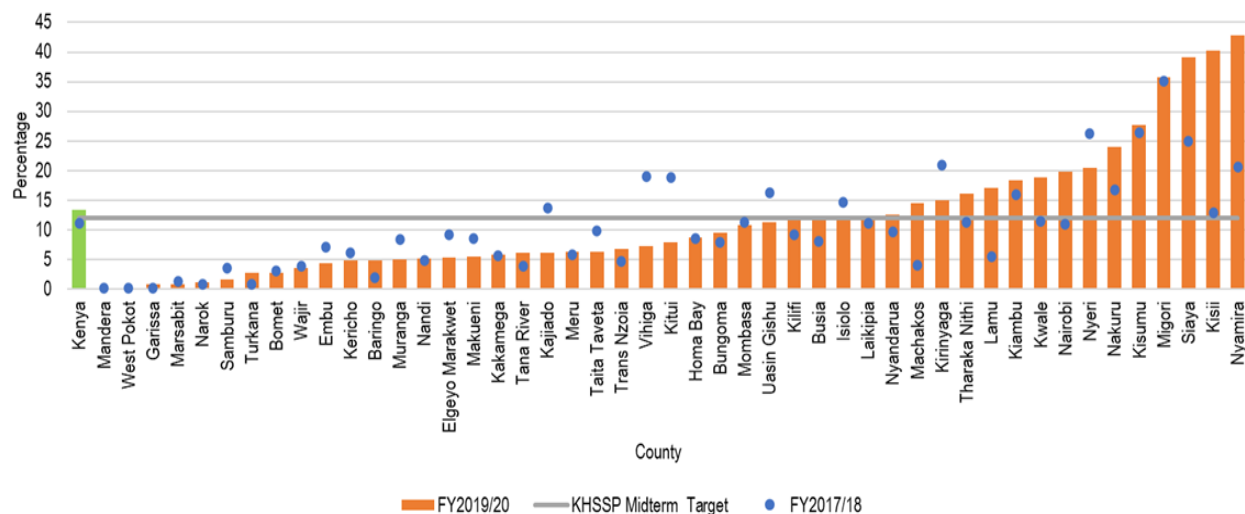


Figure 43: Cervical cancer screening for females aged 25-49 years

Mental Health

There was an increase in the number of mental health cases reported per 1,000 outpatient visits from 1.8 over the mid-term review period.

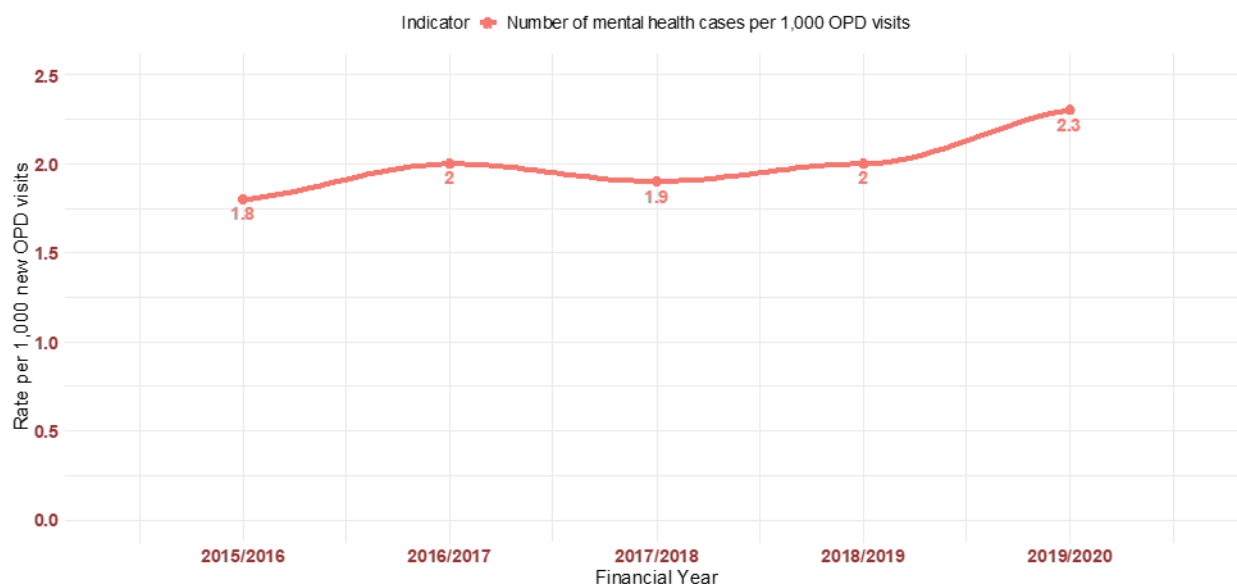


Figure 44: National trend of mental cases as a proportion of new OPD visits

Among counties, the highest burden seemed to be within urban and centrally located Counties as highlighted below; The highest burden of mental health cases were in Nairobi (5.7), Taita Taveta (5.3), Nyeri (5.0), Nyandarua (4.6) and Laikipia (4.4) while Mandera (0.7), Kisumu (0.6), Siaya (0.6), Isiolo (0.6) and Migori (0.5) had the lowest number of cases.

Other than Lamu County that reported a significant drop in cases, the number of mental cases in OPD across counties at midterm was comparable to the numbers reported at baseline (2017/18).

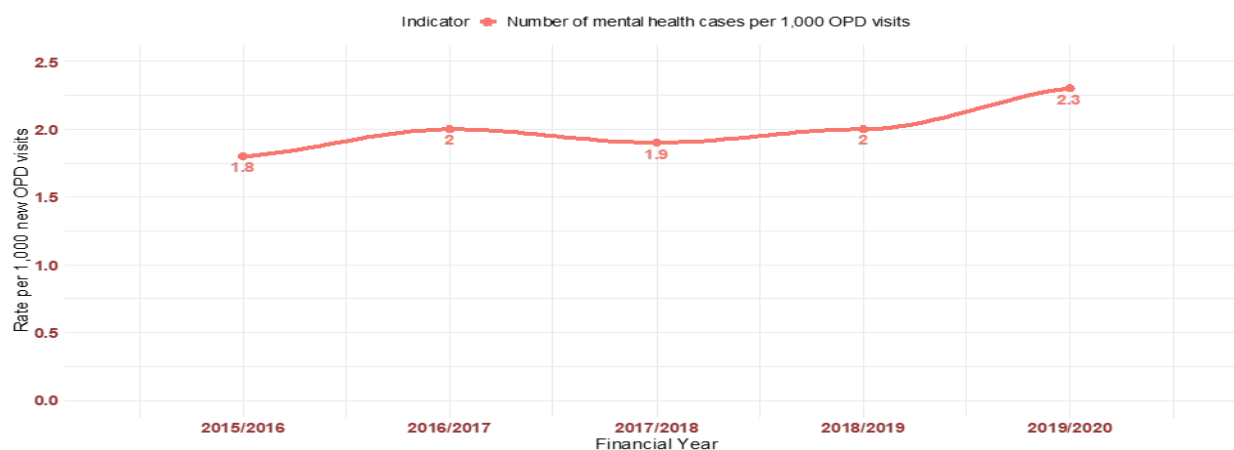


Figure 45: The number of mental health cases per 1,000 new OPD visits, national and by county (KHIS, 2020)

6.3 Strategic Objective 3: Reduce the Burden of Violence and Injuries

The leading cause of death associated with violence and injuries is road traffic accidents with assault and poisoning following closely.

Table 20: Proportion -Trend on Cause of death by Injuries and Other External causes, 2012-2020

Injuries and Other External causes	2016	2017	2018	2019	2020	Average
Road Traffic Accident	44.8	49.8	46.8	46.1	42.7	43.1
All other external causes	16.5	14.1	14.5	14.9	15.6	16.8
Assault	15.0	18.3	15.1	16.2	20.0	16.8
poisoning	16.2	10.5	12.4	11.4	10.3	14.0
Falls	4.4	3.8	6.8	6.4	5.0	5.2
Exposure to smoke, fire and flames	1.6	1.4	1.9	2.6	1.4	1.9
Intentional self-harm	0.8	0.6	+0.7	1.5	2.4	1.2
Drowning	0.7	1.5	1.8	1.0	2.5	1.1

2. Although data for these indicators is still not well established, existing sources indicate that the proportion of burden attributable to road traffic accidents has declined slightly over the five-year period while that due to other forms of violence and injuries has increased marginally.
3. In the year 2020, road traffic injuries accounted for 43% of deaths caused by injuries and other external causes.
4. The proportion of deaths due to assault has been on a rising trend from 15% in 2016 to 20% in 2020 similar to the proportion of deaths from intentional self-harm and drowning, both of which increased from 1% to 2 % and 1% to 3% respectively.
5. On the other hand, the proportion of mortality due to poisoning went down from 16% in 2016 to 10 % in 2020 as shown in Table 20.

Table 21: Reducing the Burden of Violence and Injuries indicators

Indicator	Baseline (2017/18)		Achievement 2019/20	Target 2020/21		Progress	Data source	Comments
	M&E plan	Adjusted ⁺		M&E plan	Adjusted ⁺			
Road traffic injuries in OPD as a percentage of all diagnoses	2.5	0.32	0.29	1.8	0.23	79.31	KHIS	The indicator is limited as it is affected by the burden of other diseases in OPD. It does not, therefore, measure the true burden of the injuries and needs to be reviewed.
Road traffic fatalities per 100,000 population	6.9/100,000 (2015, NTSA) 12.4/100,000 (2015, CRS)		2.1* 6.3**	8			KHIS NTSA	*This estimate is from the routine KHIS data **This estimate is from the NTSA data NTSA reports deaths on the road while KHIS reports those who die in the health facilities. The correct value should be the sum of the two.

Red: limited or no progress (<50% of midterm target); **Orange:** some progress, but not enough to achieve the target (50 to 99% of midterm target); **Green:** good progress, target achieved (>99%)

+The adjustment was done based on the 2019 population census numbers that turned out to be lower than what was projected at baseline, to estimate the real performance of the indicators. The trends of road traffic injuries reported in outpatient as a percentage of all diagnoses have been reducing over the last five years from 0.4% in 2016/17 to 0.3% in 2020. Additionally, an improvement was recorded in the reported road traffic fatalities per 100,000 population, reducing from 6.9 to 6.3/100,000 during the period under review. There are however variations across different data sources, i.e., KHIS, NTSA and CRVS.

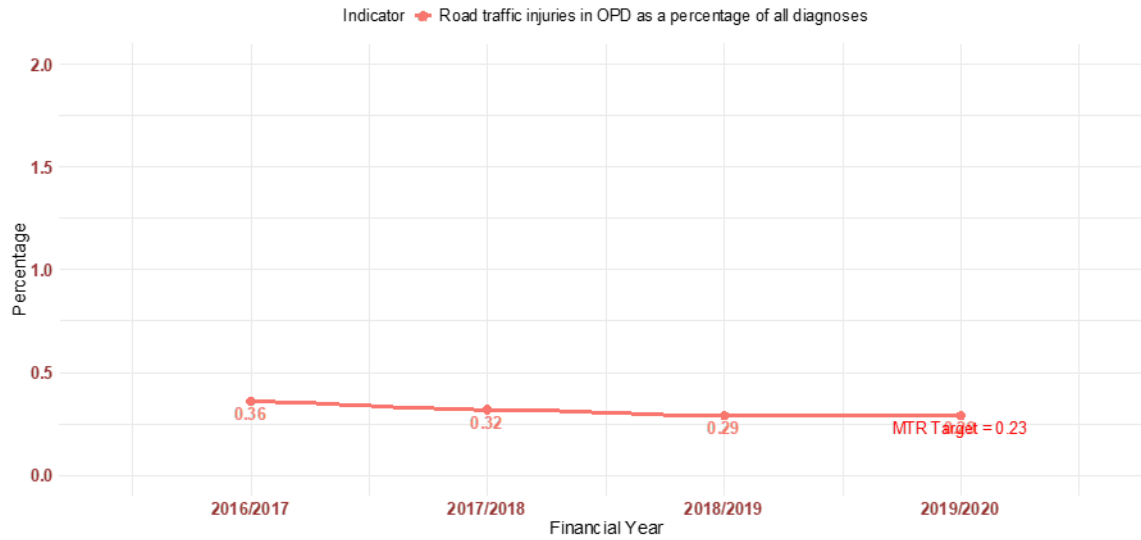


Figure 46: National trend of road traffic injuries as a percentage of all diagnoses

The counties that had the highest proportion of road traffic injuries in OPD as a percentage of all diagnoses were Kisii and Trans Nzoia both at 0.4% while Nyandarua and Embu had the lowest at 0.1%. Counties that recorded significant reductions from the baseline in 2017/18 were Trans Nzoia and Machakos while Lamu and Kisii reported an increase in road traffic injuries in OPD as a proportion of all diagnosis in 2020 as shown in Figure 47.

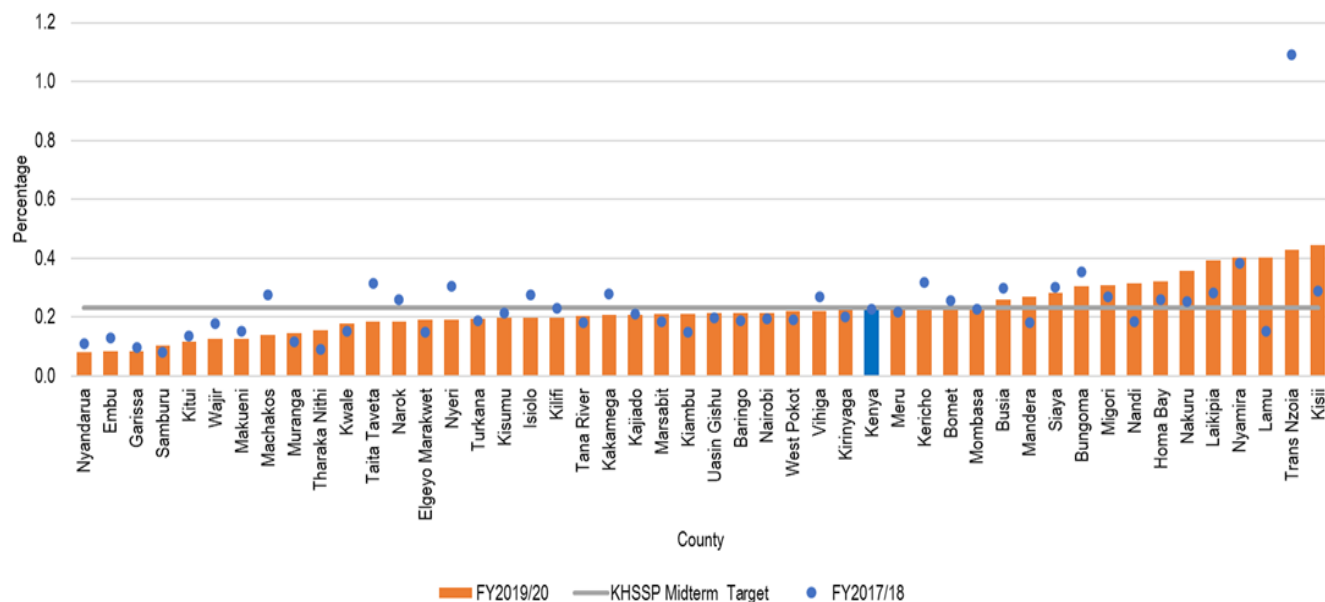


Figure 47: Road traffic injuries in OPD as a percentage of all diagnosis, national and by county (KHIS, 2020)

Figure 48 shows that road traffic injuries increased marginally in most Counties in 2020 compared to 2018. Counties recording the highest road traffic injuries in 2020 consisted mostly of urban Counties, with Nairobi and Nakuru having the highest burden while the lowest numbers were reported in largely ASAL Counties (Samburu, Garissa, and Tana River).

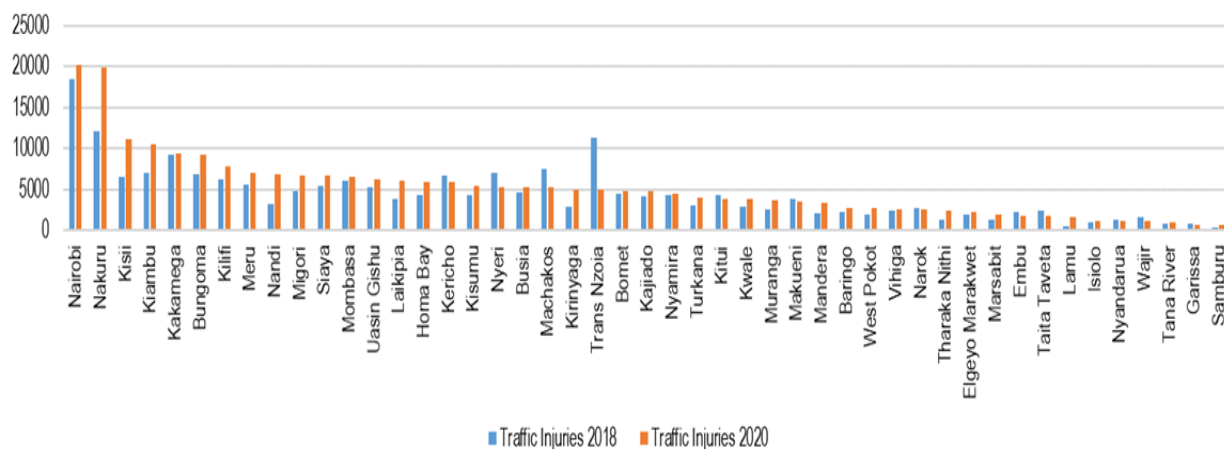


Figure 48: Absolute number of Traffic Injuries per County 2018, 2020 comparison

6.4 Strategic Objective 4: Improve Persons Centered Essential Health Services

The fourth Kenya health policy strategic objective focuses on health interventions that are aimed at improving access and quality of Maternal, Newborn and Child Health (MNCH) services. The indicators used to measure performance in this area relate to access and quality of reproductive, maternal and child health care which are essential health services.

There was overall good progress in performance of essential services indicators with the exception of proportion of low birth weight although most indicators did not achieve the midterm targets. Performance of selected MNCH indicators is outlined in the table below.

Table 22: Improve Persons Centered Essential Health Services

Indicator	Baseline (2017/18)		Achievement 2019/20	Target 2020/21		Progress	Data source	Comments
	M&E plan	Adjusted+		M&E plan	Adjusted+			
Percentage of Pregnant women who completed four or more ANC visits	49	45	55.1	55	49	112.09	KHIS	
The proportion of skilled Deliveries conducted in Health facilities	59	72.7	79.3	70	84	94.47	KHIS	
Couple Year Protection (CYP) (Million)	1.63	3.4	3.7	7	4	92.5	KHIS	
Percentage of Low birth weight in health facilities	5	4.9	5.3	3	3	53.98	KHIS	Poor performance of this indicator in 91% of the counties. The set target of 3% seems to be too
Number of maternal deaths in health facilities per 100,000 deliveries	102	93	92	89	79	85.87	KHIS	

Red: limited or no progress (<50% of midterm target); **Orange:** some progress, but not enough to achieve the target (50 to 99% of midterm target); **Green:** good progress, target achieved (>99%)

+The adjustment was done based on the 2019 population census numbers that turned out to be lower than what was projected at baseline, to estimate the *real* performance of the indicator

Fourth ANC Visit and Skilled deliveries

- There has been a progressive increase in 4th ANC coverage over the last five years with midterm performance surpassing the set target of 49%.
- On the other hand, coverage for skilled deliveries (proportion of deliveries conducted in health facilities) remained relatively constant with the midterm target of 84 being missed as seen in **Table 22**.
- Over the review period (2018/19 to 2019/2020), both 4th ANC and skilled births coverage recorded some good progress from a baseline of 46 and 72.7 respectively to 66.1 and 78.2 respectively.

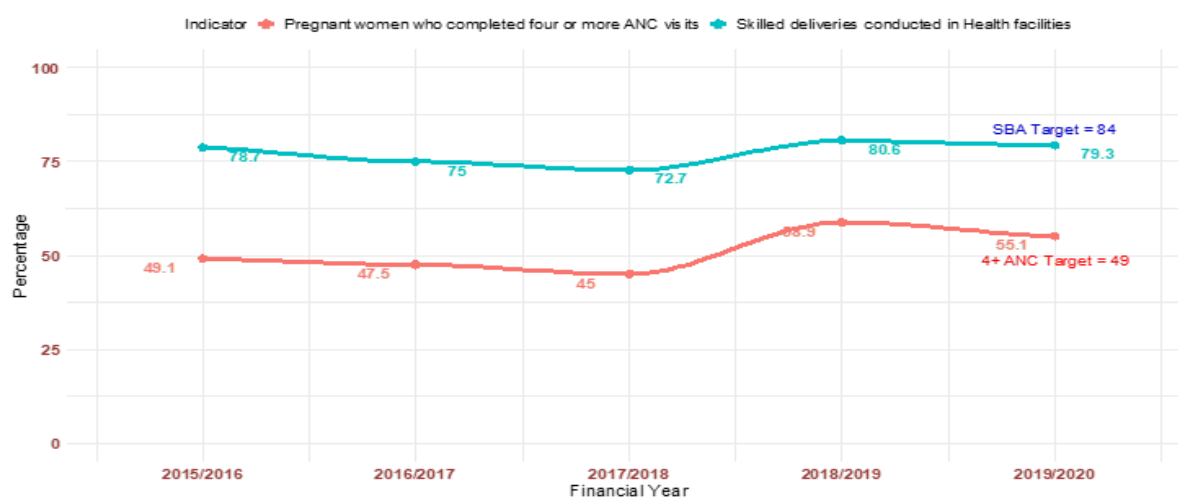


Figure 49: National trend of 4th ANC and Skilled Deliveries

There was a general increase in 4th ANC visits coverage across most counties over the review period as shown in Figure 50. Wajir, Narok, and West Pokot recorded the lowest coverages all averaging below 30% while Nyamira, Siaya and Nairobi recorded among the highest coverages all above 70%.

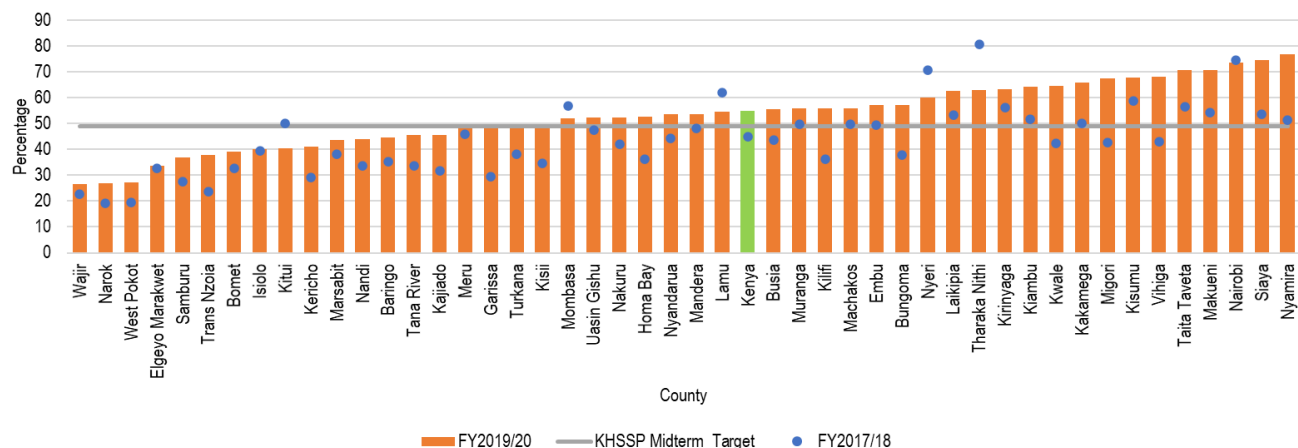


Figure 50: Percentage of pregnant women who completed four or more ANC visits, national and by county (KHIS, 2020)

In terms of skilled deliveries, there was an overall improvement in skilled birth attendance over the review period with most counties performing above the National average of 84%. Kiambu, Nyeri and Siaya had the highest skilled births coverages. Notably, urban Counties and Counties within the central and rift valley regions had among the highest coverages in SBA. On the other hand, six counties had coverages below 60% including Tana River, Samburu and Narok, all within the ASAL or otherwise pastoralist communities. (Figure 51)

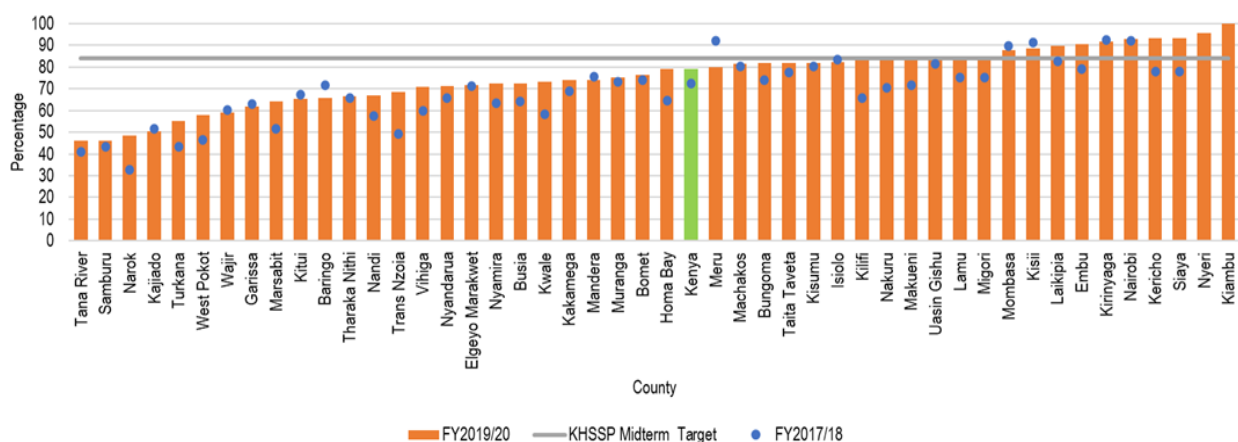


Figure 51: Proportion of skilled Deliveries conducted in Health facilities, national and by county (KHIS, 2020)

Facility Maternal Mortality Ratio

Significant progress was recorded in maternal mortality with a general decline in facility maternal mortality ratio (maternal deaths per 100,000 deliveries) over the past five years as seen in **Figure 52**. The peak was recorded in 2016/2017 at a rate of 120.5 possibly due to a prolonged national strike by health workers during that year. The midterm achievement (92.2) is still below the national target of 79 maternal deaths per 100,000 live births.

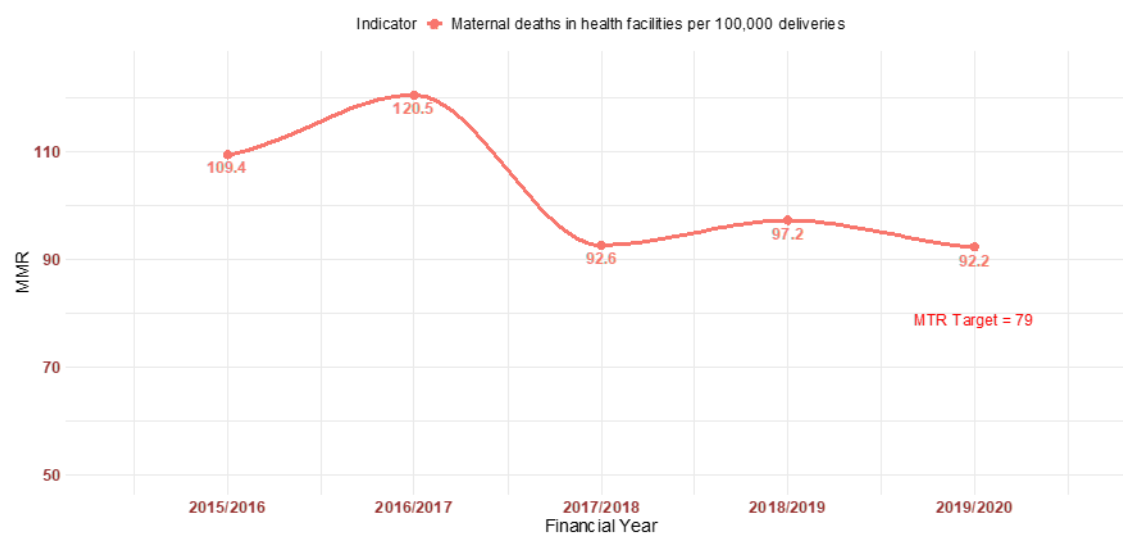


Figure 52: Trend of health facility maternal deaths over five years

At the County level, maternal mortality ratios varied considerably with Garissa, Mombasa and Kisumu counties recording high facility maternal death rates at 246, 223 and 169 respectively for every 100,000 deliveries in health facilities, while Tharaka Nithi, Nyamira and Taita Taveta had the lowest maternal mortality rates at health facilities at 13, 21 and 27 respectively at midterm as seen in Figure 53.

Counties were distributed at about 50% among those who met the midterm target and those who missed it.

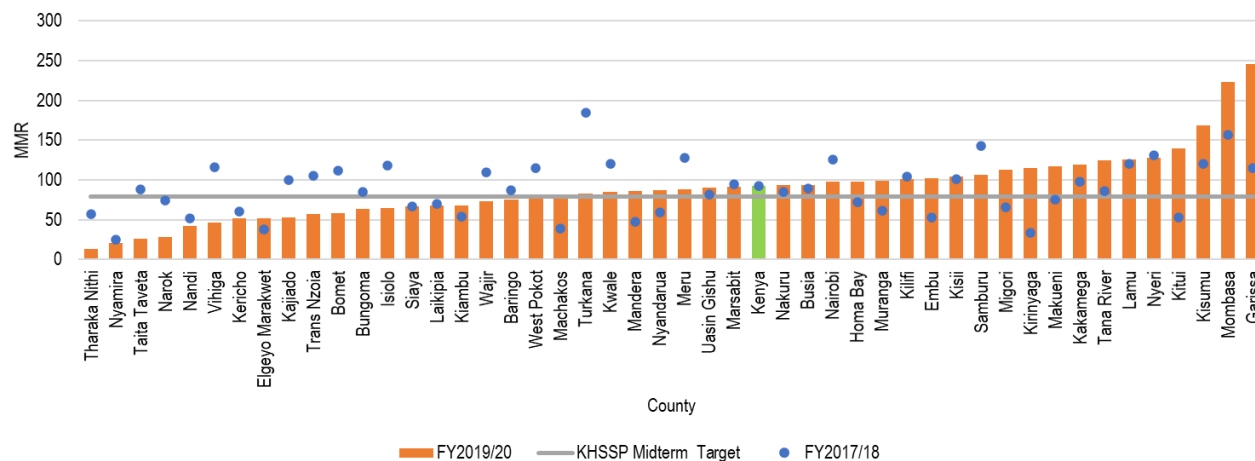


Figure 53: Facility maternal mortality rate per 100,000 deliveries

Family Planning

The national goal for family planning is to ensure universal access to a wide range of quality and affordable family planning commodities, information, and equitable services to enable all individuals to achieve their desired family size and improve overall health of mothers and children. Couple Year Protection (CYP), the estimated protection provided by contraceptive methods during one year, based upon the volume of all contraceptives sold or distributed is often used to estimate overall coverage by family planning methods. It may however be erroneous where contraceptives sold in pharmacies and private facilities are not documented and reported.

Figure 54 indicates that the national CYP has been increasing since 2015/2016, suggesting increases in population using modern contraceptives with a slight decline in 2019/2020. The midterm CYP target of 4 (million) was however not met.

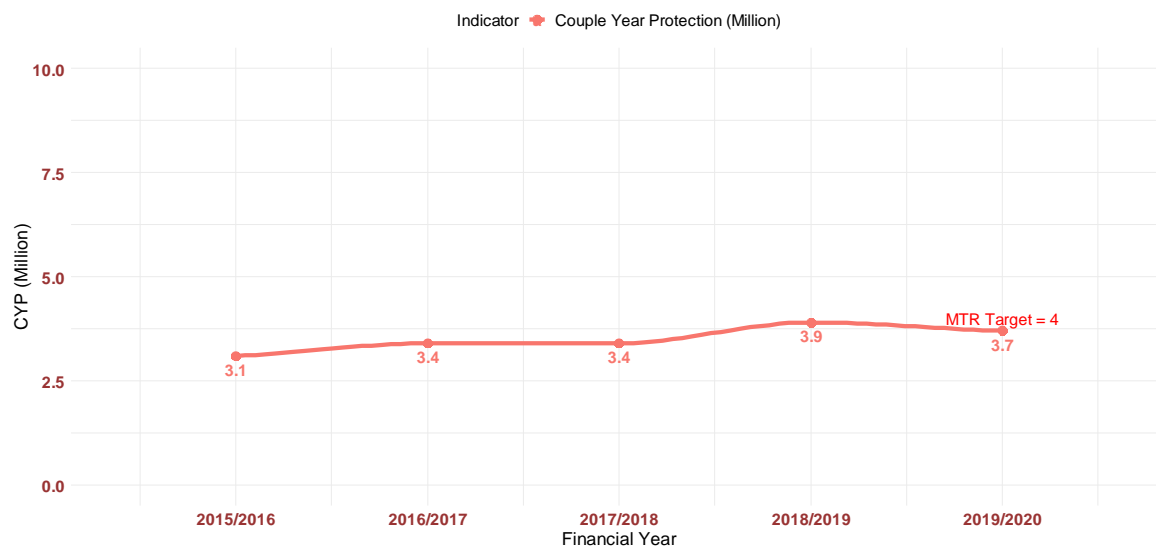


Figure 54: National trend of couple year of protection

CYP has remained relatively constant in each county between 2017/18 and 2019/20, but wide variations exist among the Counties. Generally, Counties within the central and western regions as well as urban Counties recorded high CYP coverages while Counties in the ASAL regions had the lowest coverages as seen in **Figure 55**.

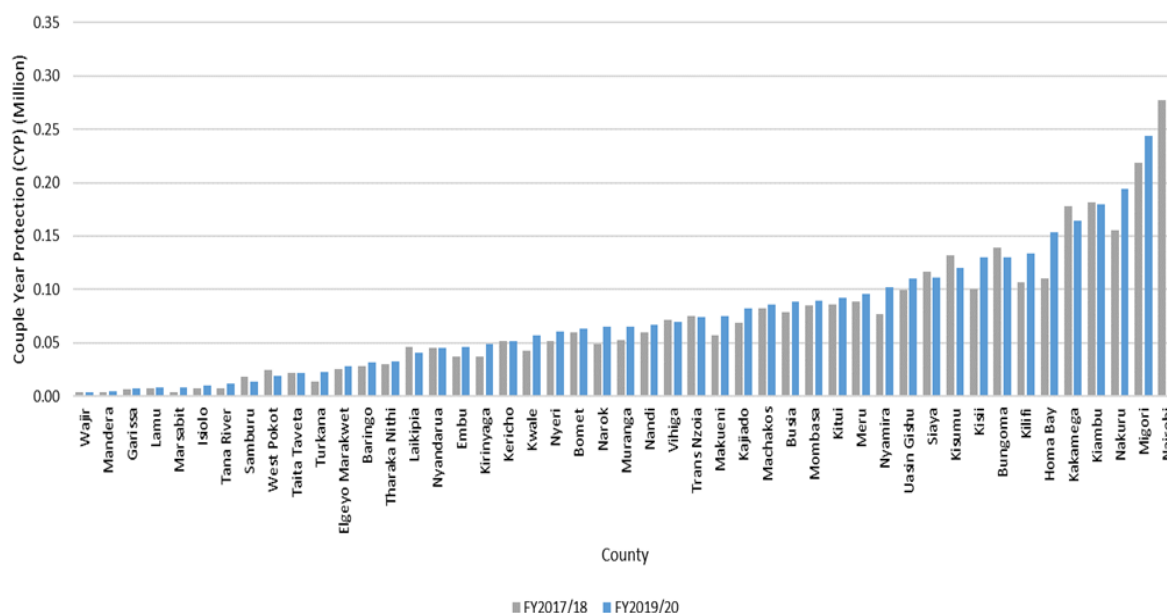


Figure 55: Couple year protection (Million), national and by county (KHIS, 2020)

Low Birth Weight

Globally, it is estimated that low birth weights range between 15% to 20% of all births while in Kenya the KDHS 2014 reported a National low birth weight prevalence of 7.6%. There has been a moderate increase in the proportion of low birth weight in facilities over the last five years from 4.7% in 2015/16 to 5.3% in 2019/20, against a target of 3% at midterm as seen in **Figure 56**.

This could be attributed to improved reporting rates by health facilities due to the availability of reporting tools at the lowest level of health care.

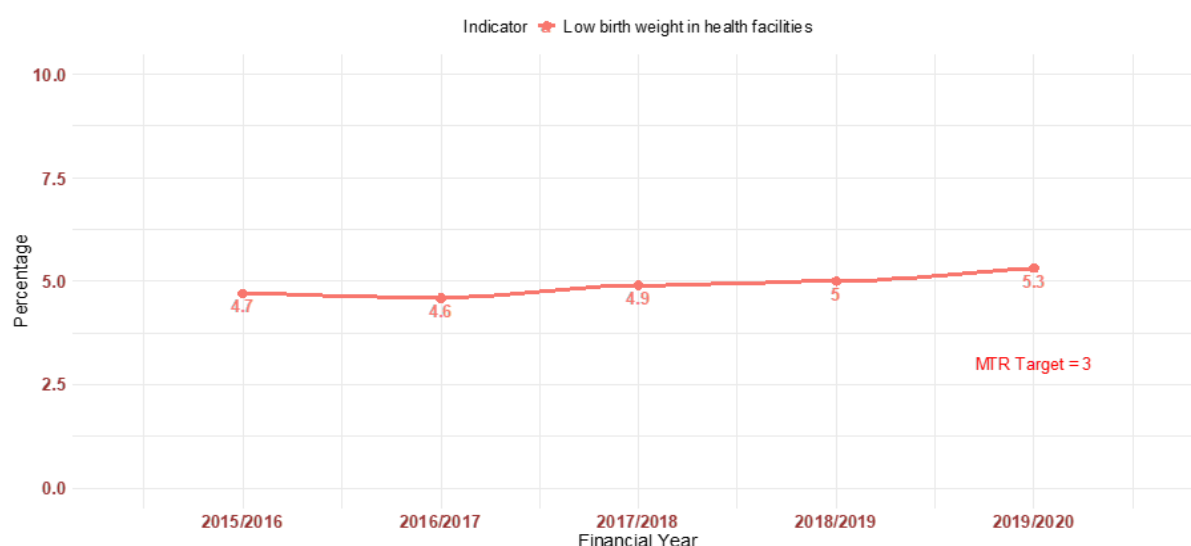


Figure 56: National trend of low birth weight in health facilities over a period of five years

Most Counties met the midterm target of 3% with ASAL Counties recording among the lowest proportions of low birth weights (LBW) as shown in Figure 57. Four counties (Mandera, Wajir, Marsabit and Vihiga) reported LBW lower than the midterm target of 3% while Elgeyo Marakwet (9%), Uasin Gishu (8%), and Nyeri (7%) had among the highest proportion of LBWs.

6.5 Strategic Objective 5: Minimize Exposure to Health Risk Factors

Factors that increase risk for disease, injury and death in Kenya include unsafe sex, suboptimal breastfeeding (child nutrition), alcohol and tobacco use, obesity and physical inactivity.

Nutrition has a direct relationship with child survival, physical and mental growth, learning capacity, adult productivity, overall social and economic development. Unacceptably high levels of malnutrition remain a public health concern and a hindrance to achieving the country's developmental agenda. A triple burden of malnutrition has emerged where undernutrition (underweight, stunting and wasting), overweight/obesity and micronutrient deficiencies are on the increase (KDHS, 2014).

Data for most of these indicators was unfortunately not available at midterm and therefore, only the exclusive breastfeeding indicators was used to review progress in in control of risk factors. A National survey is needed to provide estimates for most of these indicators. Exclusive breastfeeding coverage has been increasing over the review period from a baseline of 69.7% to 82.4% at midterm, exceeding the set target of 75% as shown in Table 23.

Table 23: Minimize Exposure to Health Risk Factors

Indicator	Baseline (2017/18)		Achievement 2019/20	Target 2020/21		Progress	Data source	Comments
	M&E plan	Adjusted ⁺		M&E plan	Adjusted ⁺			
Percentage of children 0-5 (<6 months) months who were exclusively breastfed	61	69.7	82.4	67	75	109.87	KHIS	This is a proxy indicator that is based on data collected in health facilities; It may not represent population prevalence

Red: limited or no progress (<50% of midterm target); **Orange:** some progress, but not enough to achieve the target (50 to 99% of midterm target); **Green:** good progress, target achieved (>99%)

⁺The adjustment was done based on the 2019 population census numbers that turned out to be lower than what was projected at baseline, to estimate the real performance of the indicators. There has been a steady increase in infants under 6 months of age who were exclusively breastfed, among those who attended the growth monitoring and promotion in Child Welfare Clinics from 61% to 82% over the last 5 years as illustrated in Figure 57.

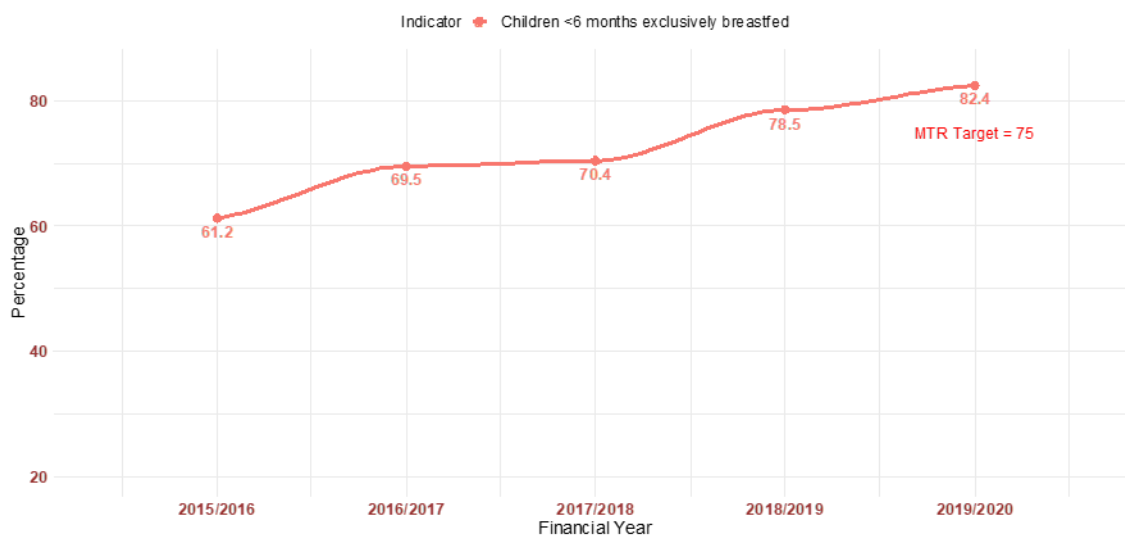


Figure 57: National trend of children under 6 months who were exclusively breastfed over a period of five years

Majority of Counties (94 percent) reported high coverages for exclusive breastfeeding among infants attending CWC at midterm (2019/2020). Almost all Counties reported an improvement from the baseline (2017/2018), with slight declines recorded only in Kisumu, Siaya and West Pokot counties.

Slightly more than a half of the counties (29) reported an exclusive breastfeeding rate of 80 percent and above with Kitui, Turkana and Wajir counties leading at 96, 94 and 92 percent respectively. Two counties, Taita Taveta, and Busia counties recorded a coverage that was below the set mid-term target of 67 percent at 50 and 64 percent respectively. Seven (7) counties (Mombasa, Kisii, Bomet, Trans Nzoia, Kericho, Busia and Taita Taveta) did not achieve the adjusted midterm target of 75%.

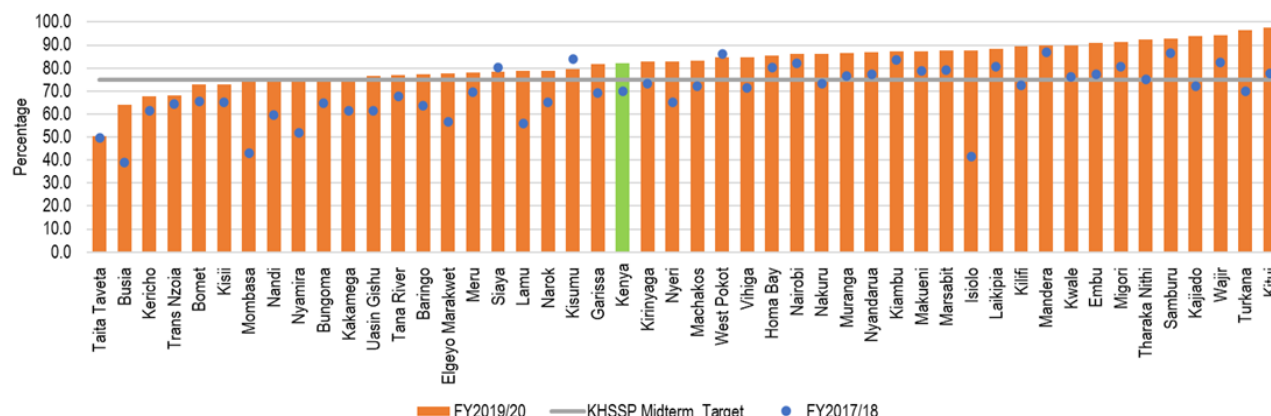


Figure 58: Percentage of the children <6 months who are exclusively breastfed across the counties, National

6.6 Strategic Objective 6: Strengthen Collaboration with Health-Related Sectors

There is a need to enhance the demand for preventive and promotive healthcare services. One of the key ways of doing this is to have investments in sectors that have an impact on the health outcomes of individuals and the population at large. These include but are not limited to collaboration and advocacy concerning the provision of safe water, sanitation and hygiene for all at household and health facility levels, enhancing educational opportunities and reduction of stunting and underweight children.

Nationally, of the six indicators that are being tracked for this objective, targets were met and surpassed for one indicator; Percentage of households using improved sanitation facilities. Moderate progress was recorded for the other five indicators but targets were not achieved (Percentage of households using improved safe water facilities, Percentage of Health facilities with access to a source of Improved water source, Percentage of women completed secondary education, Percentage of children under 5 years who are stunted and Percentage of children under 5yrs who are underweight) as shown in Table 24.

Access to safe water and sanitation facilities generally showed progress at the household level while it declined at the health facilities. The percentage of households using improved sanitation facilities increased from 52% in 2018 to 82.3% in 2020 (KHPC 2019) surpassing the set mid-term target of 65%. There was a marginal increase in the percentage of households with safe water from 71% in 2018 to 73% (KHPC 2019) in 2020 though this was still lower

than the set target of 78%. However, the percentage of health facilities with access to improved water seemed to decline from 86% to 65%. The data measurement method could account for this decline. There has been an improvement in the proportion of children under 5 years who are stunted from 26% in 2018 to 24% in 2020 as per the Kenya Nutrition survey 2017-2020. However, there is a need to strengthen the interventions to ensure that the target of 20% is achieved by the end of 2023. Also, notably, the percentage of women who completed secondary education over the reporting period increased from 27% in 2017/18 to 34% in 2019/20.

Table 24: Strengthen Collaboration with Health-Related Sectors

Indicator	Baseline (2017/18)		Achievement 2019/20	Target 2020/21		Progress	Data source	Comments
	M&E plan	Adjusted		M&E plan	Adjusted			
Percentage of households using improved sanitation facilities	52		82.3	65		126.62	Census Report 2019	Baseline was KDHS 2014, but achievement was as per census 2019 report
Percentage of households using improved safe water facilities	71		73.3	78		93.97	Census Report 2019	
Percentage of Health facilities with access to source of Improved water source	86		64.9*	92		70.54	COVID rapid assessment 2020	*Baseline data from KHFA assessment with achievement from Covid rapid assessment.
Percentage of women completed secondary education	27		34.2	50		68.40	Census Report 2019	Baseline was KDHS 2014, but achievement was as per census 2019 report
Percentage of children under 5 years who are stunted	26	27	24.3	20	20	83.18	KHIS	Baseline data was KDHS 2014 but achievement is from routine KHIS facility data
Percentage of children under 5yrs who are underweight	10	4.9	3.97	7	3	84.08	KHIS	

Red: limited or no progress (<50% of midterm target); **Orange:** some progress, but not enough to achieve the target (50 to 99% of midterm target); **Green:** good progress, target achieved (>99%)

+The adjustment was done based on the 2019 population census numbers that turned out to be lower than what was projected at baseline, to estimate the *real* performance of the indicators. Figures 60 and 61 demonstrates a marginal reduction in both stunting and underweight children over the past five years from 27% and 4.8% in 2015/16 to 24% and 4% in 2019/2020 respectively.

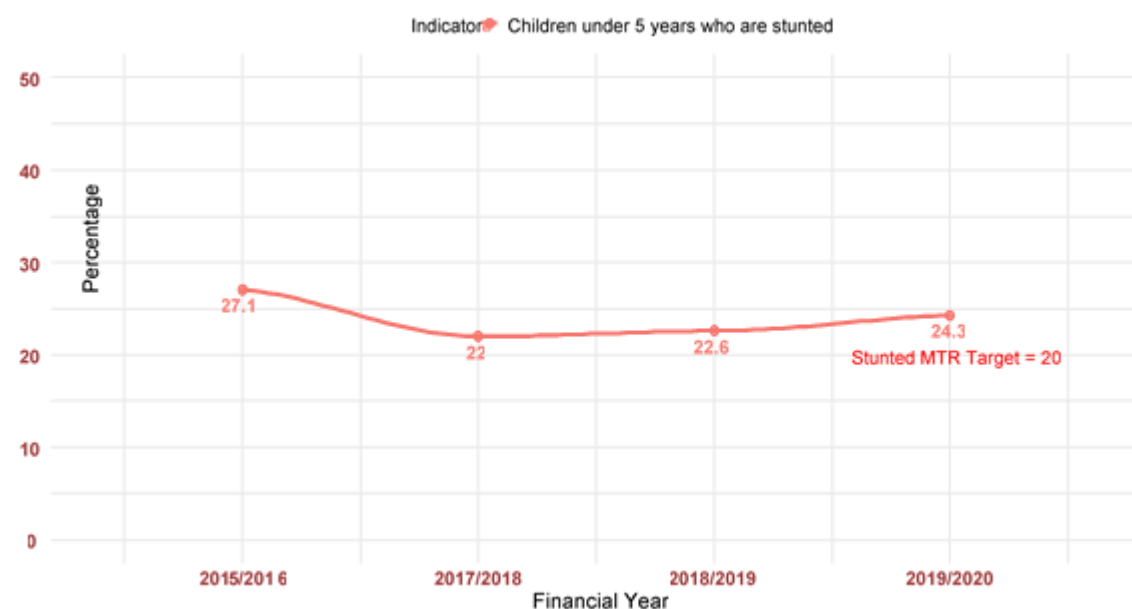


Figure 59: Trend of the percentage of children under 5 years who are stunted

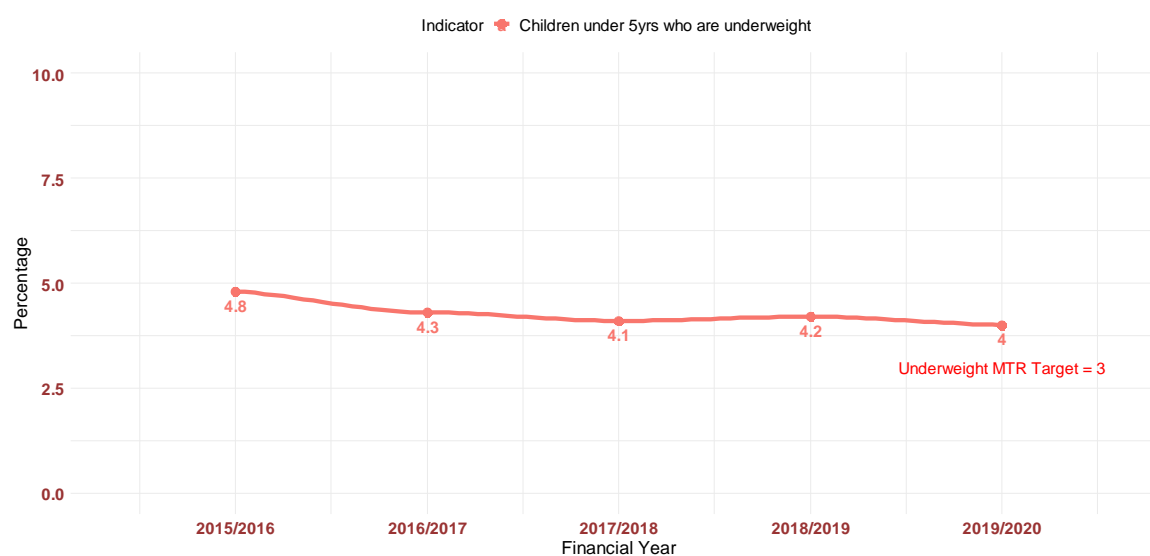


Figure 60: Trend of the percentage of children under 5yrs who are underweight

Households with improved sanitation facilities

Across the country, there were disparities in the percentage of households that had improved sanitation facilities. Eight (8) counties (Turkana, Samburu, Wajir, Mandera, Garissa, Marsabit, Tana River and West Pokot), all in the ASAL region had less than 50% of the households with improved sanitation facilities as shown in Figure 62. Generally, Counties in the central and western regions had more than 80% of the households having improved sanitation facilities. ASAL counties are consequently at risk of adverse health outcomes such as infectious waterborne diseases. This could partly explain cholera outbreaks in some of these counties including Tana River and Wajir over the last couple of years.

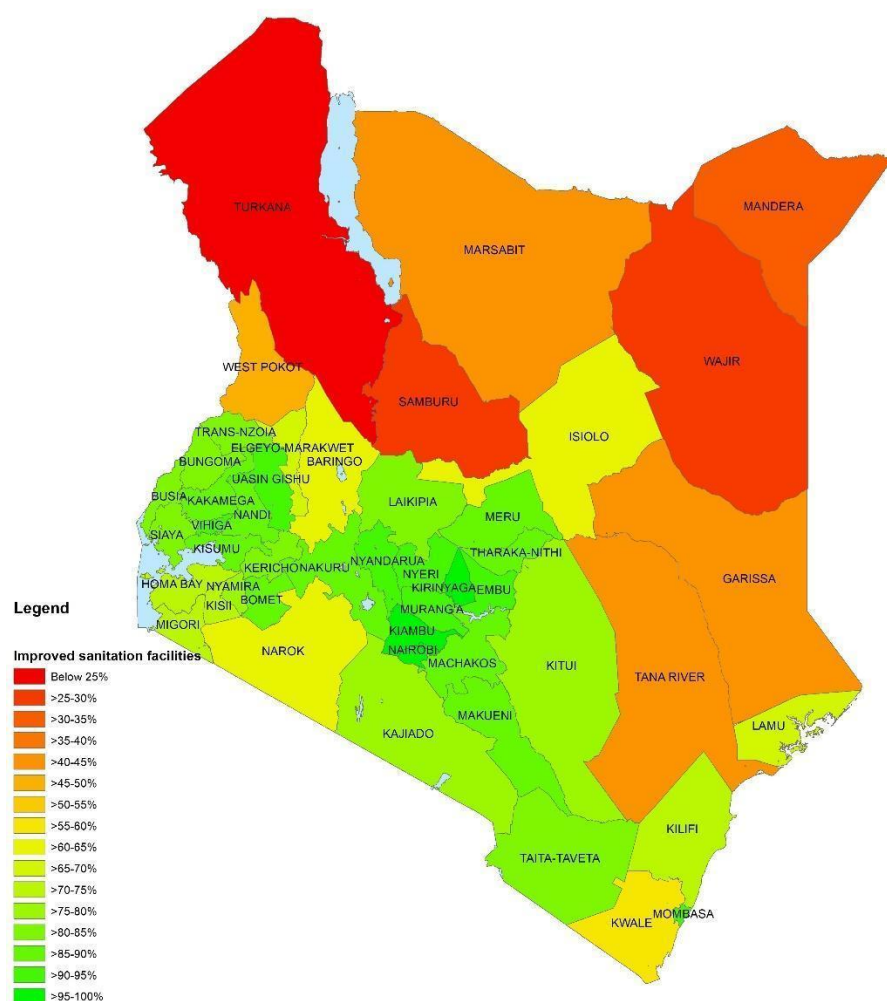


Figure 61: Percentage of House Holds with improved sanitation facilities (Source KPHC 2019)

Households with improved water source

Only 3 Counties recorded poor access to clean water (below 40% of households), with majority of Counties having between 50% and 70% of households having access to clean water (Figure 63).

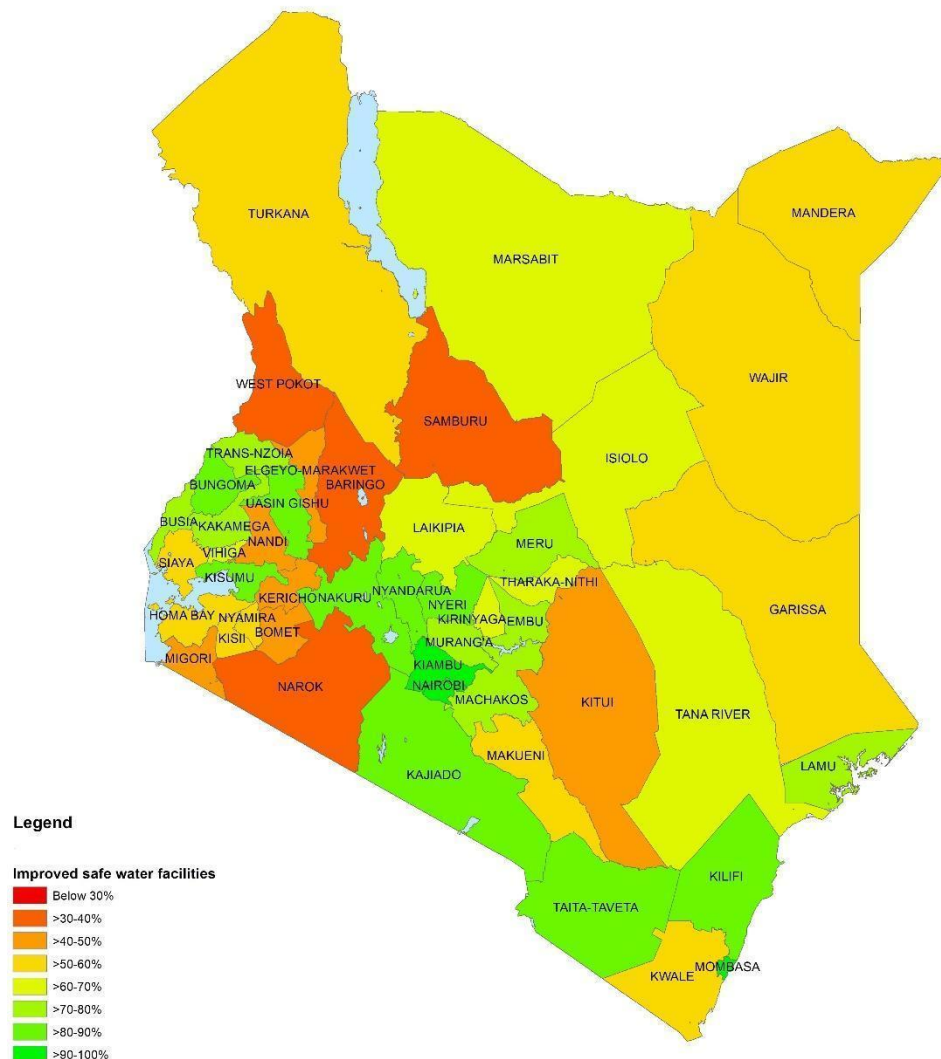


Figure 62: Percentage of Households with improved water facilities (source: KPHC 2019)

Access to improved water in health facilities

Access to improved water in health facilities similarly varied across the country. Four (4) counties had less than 40% of their health facilities having access to improved water facilities while on the other hand, only 2 Counties had more than 90% of their facilities having improved water facilities as shown in Figure 64. These counties working with relevant departments need to

ensure that investments are geared towards the provision of water to the health facilities especially during this COVID-19 times when IPC issues are critical in the control of COVID-19

Women with complete secondary school education

The percentage of women who had completed secondary school education in Kenya was 34% at midterm (KPHC 2019). Nairobi and Kiambu Counties had the largest proportion of women who had completed secondary education at 58% and 51% respectively. This can be attributed to the fact that these two counties are largely urban. On the other hand, Tana River and Mandera counties had the lowest proportion of women who have completed secondary school education at 16% and 17% respectively. Only six counties had over 40% of women who had completed secondary school education which include Kajiado (46%), Nyeri (44%), Nyamira (43%), Uasin Gishu, Nakuru and Mombasa at 41% each. The arid, semi-arid and coastal counties had less than 25% of women who had completed secondary school education.

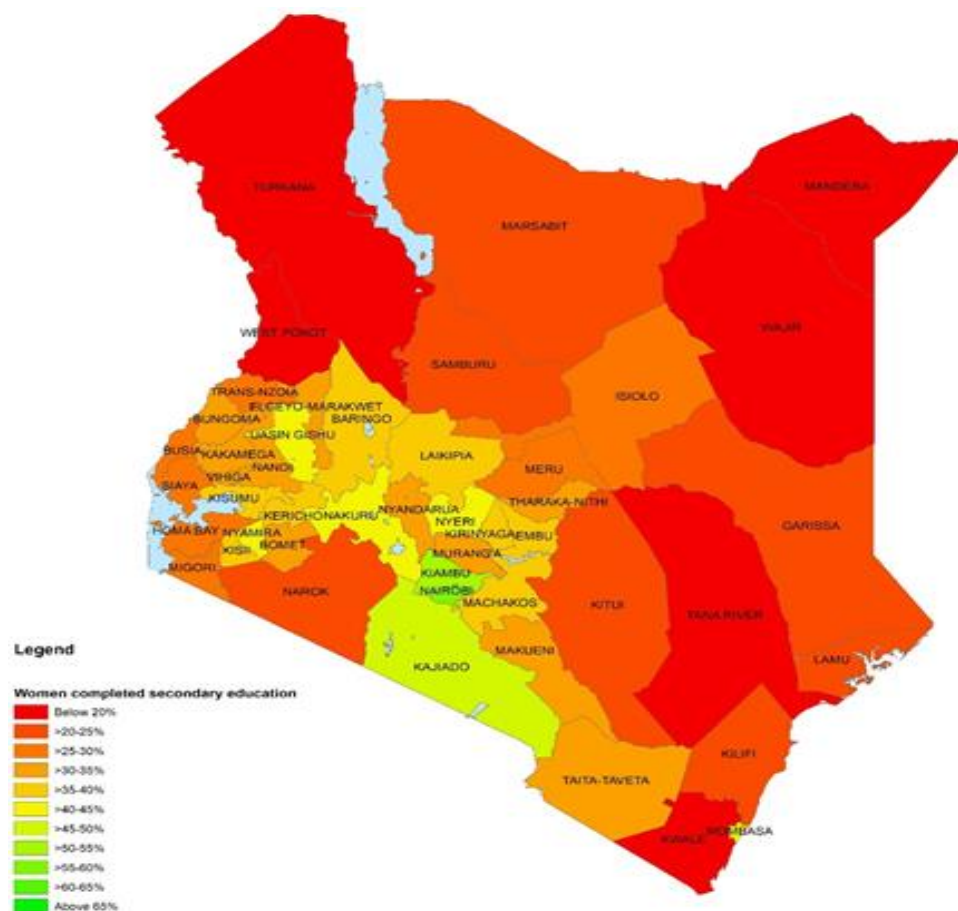


Figure 63: Percentage of women who have completed at least secondary school per county
(Source, KPHC 2019)

7.0 Overall Health Sector progress

7.1 Introduction

This section summarizes the overall progress made in the first half of the implementation of the overarching health sector strategy for the period 2018 to 2023. The progress is assessed around health inputs (health investments) and outputs (the strategic objectives) in regards to how much had been achieved of the set target at mid-term (see health investment achievements and performance as well as status of the KHSSIP strategic objectives).

7.2 Overall KHSSP MTR performance Index

KHSSIP MTR composite index (performance against set targets for the 46 indicators selected for the MTR) is presented in Figure 80. Generally, all Counties performed fairly well, all scoring over 50% against targets. Counties in the central and lower eastern region generally recorded the highest performance (Tharaka Nithi (84.1), Embu (84.1) Nyandarua, (82.6 each), Nairobi (81.9), Kiambu (81.9), and Makueni (81.9). ASAL Counties recorded the least performance against targets (Marsabit, Mandera (66.7), West Pokot (65.2), Wajir and Narok (at 64.5 each). The Average Kenya MTR Index was 69.8% with 23 counties having an MTR index below the national average.

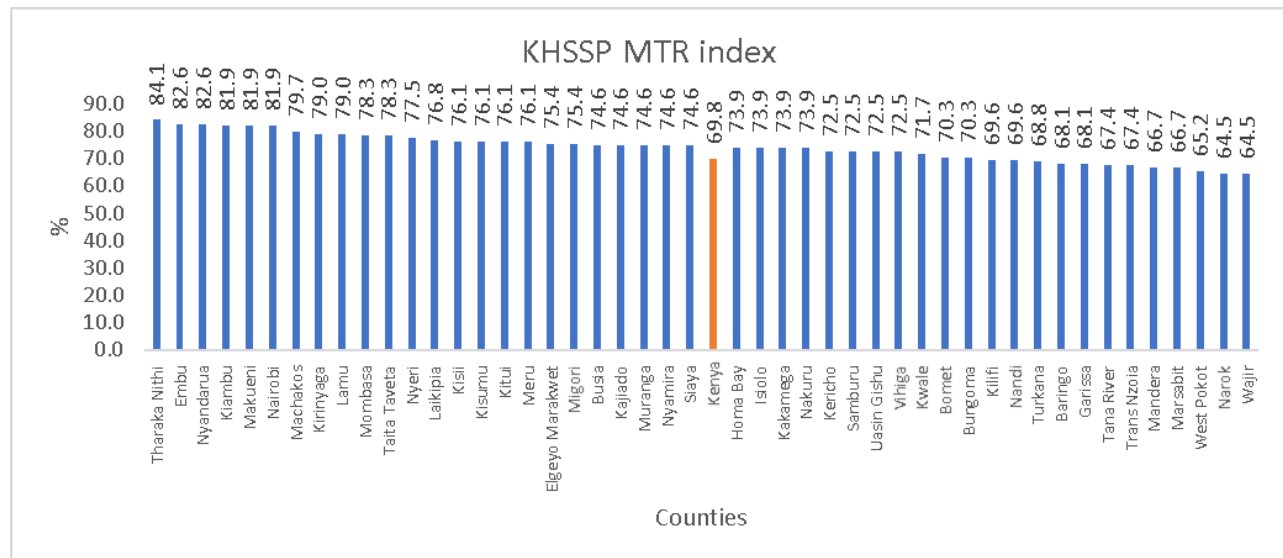
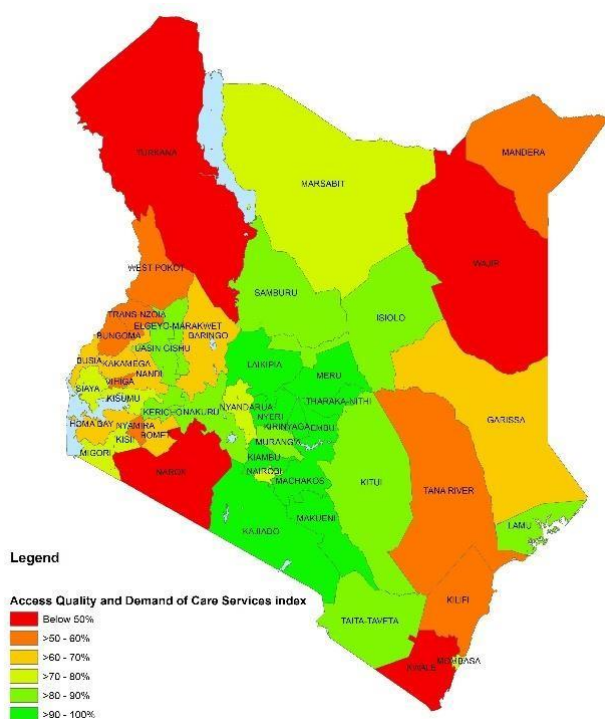


Figure 64:: The overall KHSSIP MTR performances index

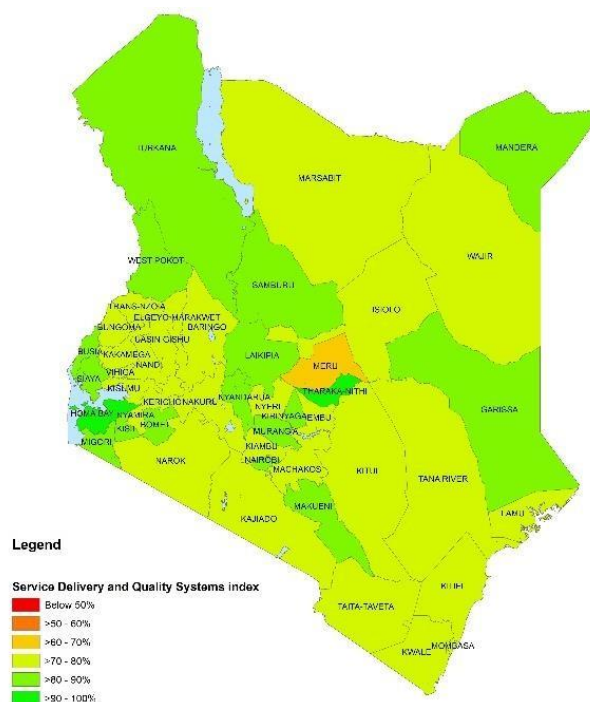
7.3 MTR Index Health inputs and output (Access, Quality and Demand) distribution

The MTR Health Inputs-Output Index was computed in sub domains where data was available and sufficient. The components assessed were; service delivery and quality systems index(input), health workforce index(input), health information systems index (input) and access quality and demand index(output). These were assessed for performance across county/geographical distribution. The most inequitably distributed index across counties was the health output domain i.e. access, quality and demand index. Service delivery domain demonstrated the least disparity in distribution across counties while health workforce performed poorest across most Counties when compared to the set targets.

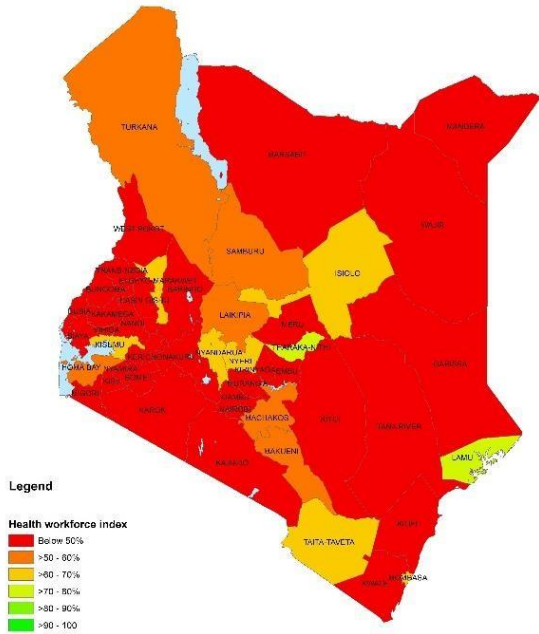
(a) Access, Quality and Demand index
Systems index



(b) Service Delivery and Quality Systems index



(c) Health workforce index



(d) Health Information systems index

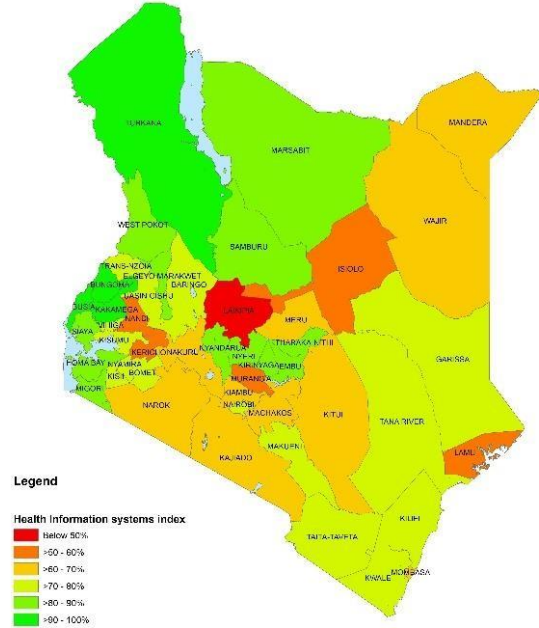


Figure 65: Components of the health inputs index

Access quality and demand of care services:

Counties with the lowest access and demand for services included mostly those in the arid and semi-arid lands (Turkana, Wajir and Mandera) while Kwale, Narok, Tana river and Kilifi also had among the lowest scores on access and demand for health services. Counties in the central belt had higher demand and access to services.

Service delivery and quality systems: Generally, most counties had good performance in service delivery and quality systems with Meru having the lowest. Distribution was fairly even across the Country. Homa Bay and Tharaka Nithi had strong service delivery and quality systems.

Health workforce: Almost all Counties had lower than expected performance in health force with only a few Counties averaging at 60% or more. Distribution of this index across the Country did not show any meaningful pattern.

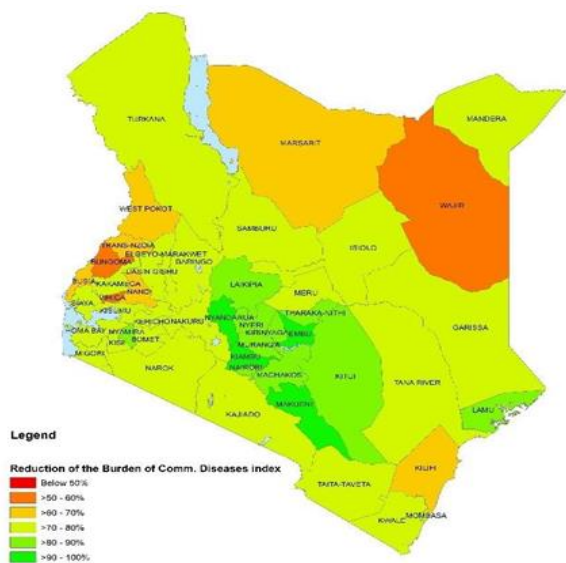
Health products and technologies: Muranga returned the highest index for products and technologies while Bungoma was on the lower end of the distribution.

Health Information systems: On average, most Counties had strong health information systems, with **Laikipia** county having the least. Counties in the western region (Bungoma, Busia, Kakamega) had stronger HIS systems as was Turkana County.

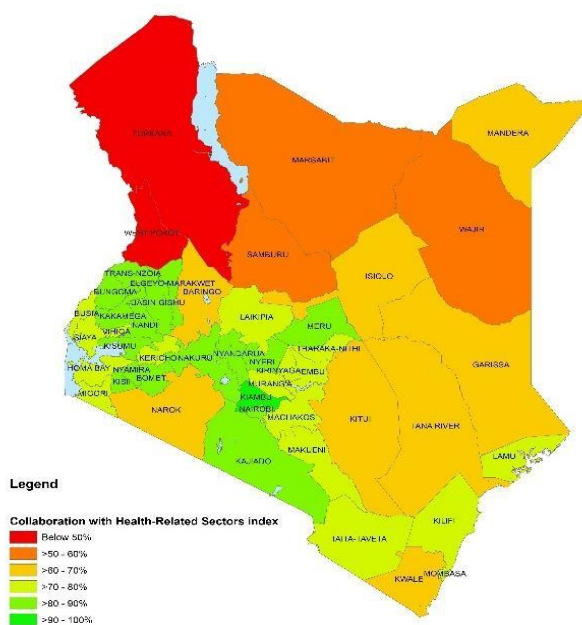
7.4 MTR Index Health outputs performance

Indices for health outputs were similarly computed for each County to assess average performance for each output index as presented in Figure 67. Outputs for reduction of the burden of communicable diseases and persons centered essential health services had the best performance against targets and were also the most equitably distributed across counties. On the other hand, outputs for halting and reversing the burden of non-communicable diseases had marked inequality in distribution across Counties, with Counties in the ASAL region recording the least output indices. Most of the counties that recorded low output index for NCDs notably have a low burden of NCDs. Outputs around collaboration with other sectors also recorded low output index in the ASAL Counties.

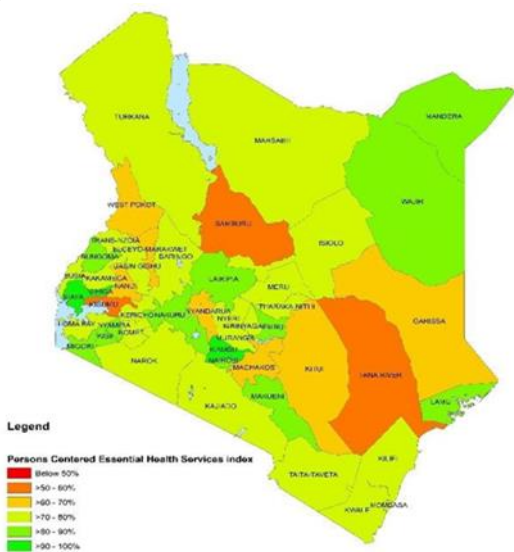
(a) Reduction of the Burden of Communicable Diseases index



(b) Halt and Reverse the Burden of NCDs index



(c) Persons Centered Essential Health Services index



(d) Collaboration with Health-Related Sectors index

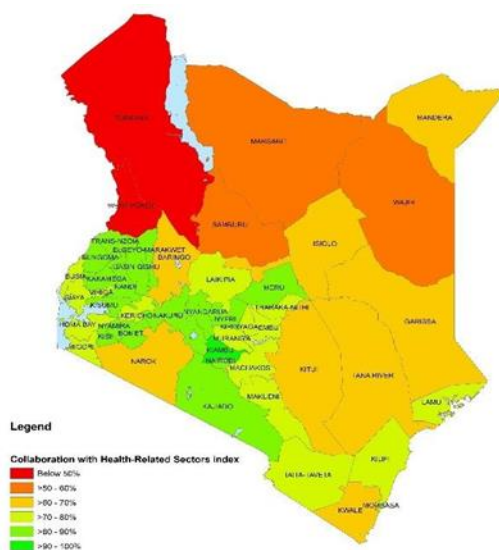


Figure 66: Components of the health outputs index

7.5 Analysis of efficiency in use of MTR Index Health inputs to produce outputs performance

An analysis on efficiency in use of health investments to generate outputs was done by comparing health inputs index and health outputs index for each County. This is presented as a scatter diagram in Figure 75. The analysis shows that 32 of 47 counties (68%) returned a higher output index compared to the corresponding input index, indicating a considerable degree of service delivery efficiency. Nakuru, Meru, Murang'a Kiambu and Nyamira Counties used less inputs to produce considerably more outputs. On the other hand, Elgeyo Marakwet, Busia, Tharaka Nithi Samburu and Turkana used more inputs to produce less outputs over the review period. However, the association between inputs and outputs was not significant as shown in figure 75.

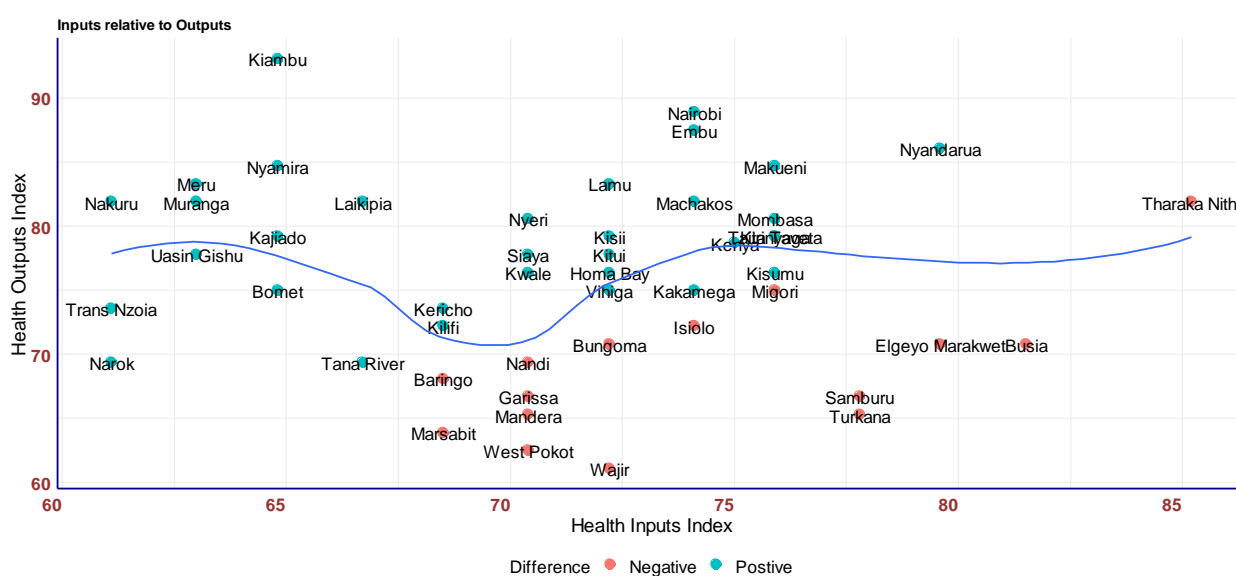


Figure 67:: Health inputs index Vs Output index scatter diagram

7.6 UHC coverage index

The strategic plan had a strong focus on UHC, with an overall aim of having universal coverage by the year 2022. Monitoring progress against this target therefore remains a top priority for the health sector. UHC service index was computed along the guidance from WHO and was calculated as outlined below; a UHC index was calculated along the following areas;

Service Coverage consisting of data on; Reproductive, maternal, newborn and child health (Child immunization (DTP3), 4+ visits (ANC), skilled birth attendance, Children with diarrhea treated with Zinc and ORS & Percentage of pregnant mother on ART), Infectious disease control (TB effective treatment (TB) computed as TSR x cases notified & HIV treatment (ART) -Adults), Non-communicable diseases (new hypertension cases among the OPD visits, new diabetes cases among the OPD visits & cervical cancer screening).

Service Access consisting of data on;

- Bed density per 10,000 population,
- core health workforce density,
- OPD per capita utilization rate,
- health facility density per 10,000 population

Service Quality consisting of;

- Health facility maternal deaths,
- Fresh still birth rate,
- Institutional neonatal deaths,
- Proportion of maternal deaths audited &
- TB treatment success rate (TSR).

The overall UHC index score of 77% demonstrates good progress in the journey towards universal health coverage for all. The analysis demonstrated that, service coverage was the main driver for UHC coverage at 83.3% while Service access scored a moderate

75%. Service quality index was the weakest link among the three domains assessed with a score of 73.3% (Figure 69).

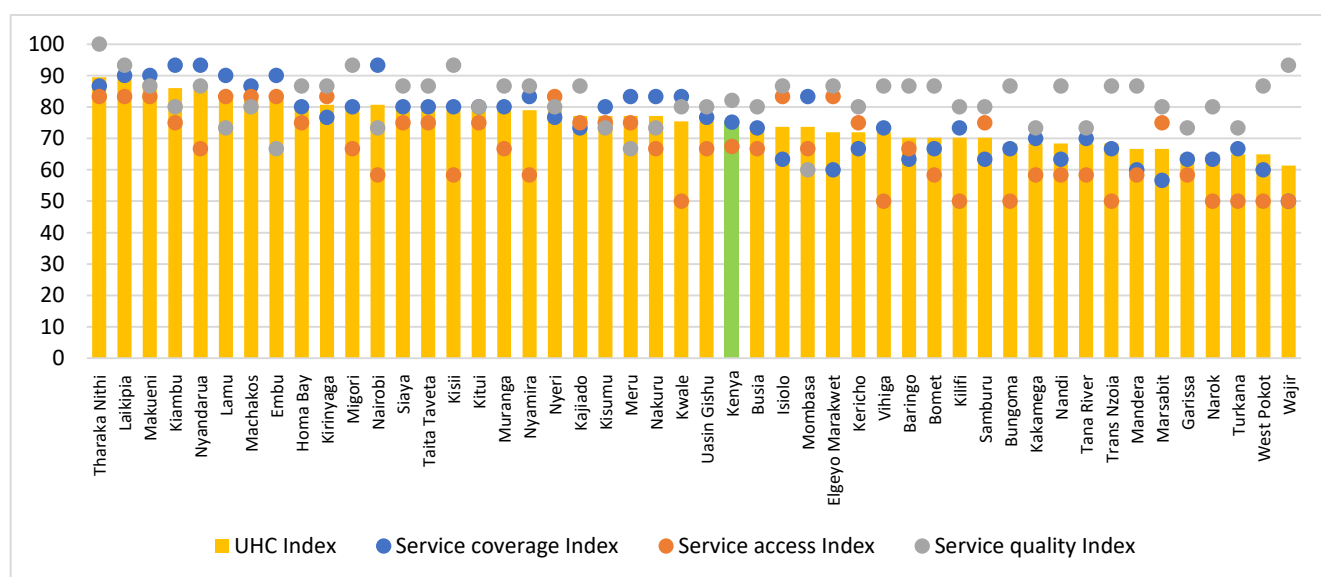
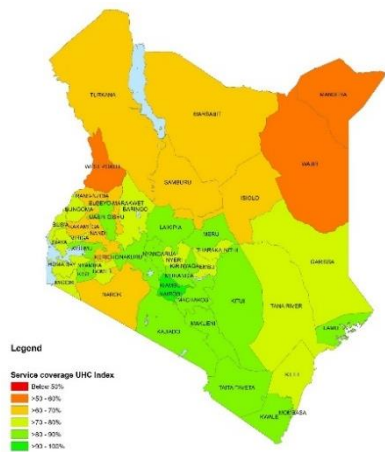


Figure 68:: UHC index for the year 2019/2020

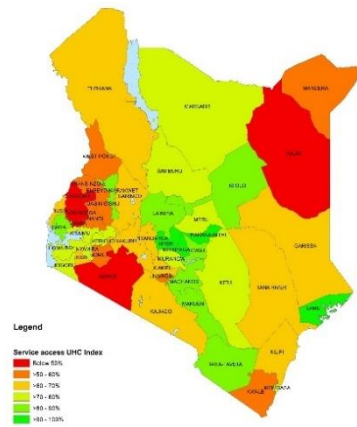
At the County level, Counties in the ASAL belt and the western region scored relatively low in UHC coverage; Low performance seemed to be associated with low service access, which also had the largest disparities with Wajir, Kakamega, Narok, Bungoma and Vihiga having low scores as shown in figures 71.

Twenty Counties had service coverage indices above the national value of 83.3%; Service access had 11 counties scoring above the national value of 75%. Service quality had 32 counties being above the National value of 73.3%. Generally, Counties that a high overall UHC coverage inversely had service quality index as the lowest performing index while counties with low UHC overall index generally had the service quality index as the best performing.

(a) Service coverage index



(b) Service access index



(c) Service quality index

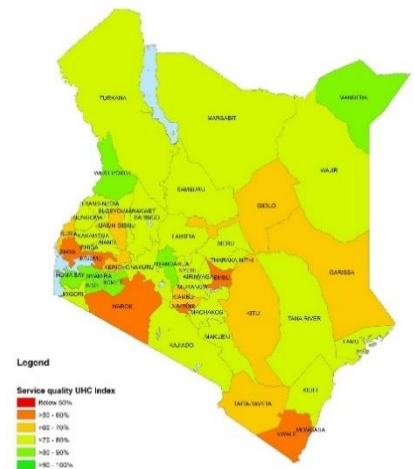


Figure 69: UHC index components for the year 2019/2020

8.0 Conclusions and Recommendations

8.1 Conclusions

8.1.1 Outputs around Access and Demand for Health Care Services

In general, there was good progress for the four (4) tracer indicators used to assess performance in access, quality and demand of health care services during the midterm review, with three (3) of four (4) indicators achieving the set targets.

Access for health services increased with an increase in number of health facilities as well as number of inpatient beds available proportionately to population density. Demand for health services however remained slightly behind with a marginal increase in outpatients visits. Access to caesarean section recorded a significant increase indicating better access for maternal services across most Counties. Patterns of inequality were however still persistent with Counties in the Northern part of the Country consistently left behind while urban, central and eastern located Counties generally recorded better performance in access and demand to services.

8.1.2 Service Delivery and Quality Systems

Indicators populated to measure service delivery progress were few due to lack of data availability.

Although the target for fully functional community units was not achieved, dedicated investments into the community level to strengthen primary health care resulted in some good progress with functional community units at 66% against the set target of 70%. Progress indicates that the KHSSP targets will be achieved given the current trajectory.

All assessed areas indicate progress in improving quality of service in health facilities. However, more efforts are needed if end term targets for community units, TB treatment success rate and fresh still births are to be achieved.

8.1.3 Health Workforce

Marginal progress was recorded for Health workforce but all indicators did not meet set targets. In addition, systems for Health workforce data are still not efficient to show the true picture of health workers deployed across the Country while data for community health workers was not available.

8.1.4 Health care Financing

Government allocation to health has increased over the years but has not yet reached the recommended threshold of 13%. NHIF coverage increased to 24% at midterm. While these gains are noteworthy, there is still a significant risk of poor and inadequate access to good quality healthcare to the vast majority of Kenyans, with many risking impoverishments in the event of a major illness.

8.1.5 Health Infrastructure

Investment in health infrastructure has been prioritized across the Country; Targets for facilities per 10,000 population have been met. However, Counties with vast geographical areas are yet to achieve adequate access to ensure that majority of the population are within 5 to 10 KM of a health facility. In terms of distribution of facilities across levels,

majority of the facilities (77%) were dispensaries (level 2), 17% health centers (level 3) and 6% primary hospitals (level 4). This translates to improved access to healthcare especially at the primary level, which offers free health services. In addition, availability of approved budgets and expenditure for maintenance of physical infrastructure and maintenance of medical equipment and devices signifies commitment to ensuring these facilities are operationalized. Access to specialized care was scaled up through establishment of 5 cancer treatment centers and also establishment of the East African Kidney Institute.

Automation of health facilities increased but was not fully established due to lack of reliable measurement method.

8.1.6 Health Products and Technologies

There was a general decline in availability of medical commodities, including drugs and non-pharmaceutical supplies resulting from inadequate supply from the National supply body (KEMSA). Consequently, Counties are likely to have bridged the gap by sourcing supplies from other sources which are likely to be more cost ineffective. This translates into a risk for poor quality service in public facilities where treatment was likely to be highly inadequate.

8.1.7 Health Information systems

Facility reporting rates have seen remarkable improvement over the years with almost all facilities (94%) reporting into the KHIS. On the contrary, hospital inpatient morbidity and mortality reporting and community level reporting remained low recording only marginal increases.

8.1.8 Health Research and Development

There was a notable improvement in the proportion of health budget that were allocated to research over the review period although this did not achieve the mid-term target. In addition, capacity building of staff on knowledge translation was adequate signifying increasing prioritization of research in the Counties. On the other hand, data on research activities were fragmented across the various bodies conducting health research hence difficult to access.

8.1.9 Leadership and Governance

Implementation process for annual work plans was well established in the Counties while intergovernmental consultative mechanisms were lagging behind. Robust indicators and mechanisms to monitor leadership and governance were not well established across the County and National levels. Furthermore, many of the identified indicators would need reporting at County level where an established routine reporting system does not exist.

8.1.10 Accelerate Reduction of the Burden of Communicable Diseases

Progress in control of communicable conditions was generally good with the country seeing an increase in coverage of most indicators.

In terms of HIV, progress was made in ART coverage for adults and HIV positive pregnant women while pediatric ART coverage saw a significant decline. This decline though maybe be attributable to a reduced denominator with less children estimated to have been infected following effective treatment for HIV positive mothers.

Control and treatment of diseases among children saw progress with an increase in immunization coverage for children under 1 as well as the proportion of children with diarrhea treated with ORS and zinc.

Tuberculosis control and treatment saw a declining trend; TB case notification rate and TB treatment success rate both declined over the reporting period. Similarly, the trend malaria control saw a decline with malaria cases having an upward trend over the review period.

8.1.11 Halt and Reverse the Burden of Non-Communicable Conditions

The country has made significant gains in control of communicable diseases resulting in overall reduction of burden of disease attributable to communicable conditions. Over the review period, efforts were directed mainly at getting more people screened and starting treatment for NCDs. The number of new patients screened and treated for hypertension and diabetes, identification of new mental patients as well as women screened for cervical cancer increased hitting the set targets. Although these targets were achieved Nationally, there were large disparities across counties, with ASAL counties reporting way below the mid-term targets compared with the rest of the country across the selected NCD indicators. This variation among Counties is attributable partly to unequal distribution of burden across geographical areas.

Data quality issues, including underreporting of new hypertension and diabetes cases still undermine good estimation of the burden of NCDs in Kenya. This also impacted tracking and reporting on other important indicators such as treatment coverage and control levels. Further, other NCD indicators such prevalence in the population can only be accurately estimated using surveys. There were no recent surveys to provide current estimates as the last NCDs specific survey (STEPS Survey) was conducted in 2015. As a result, the survey-based indicators were not reported in this MTR.

8.1.12 Reduce the Burden of Violence and Injuries

The burden of violence and injuries has been on the rise in the country accounting for a higher proportion of loss of healthy life (mortality and morbidity). This rise in burden is driven mostly by road traffic accidents, which rose over most of the review period declining only in the year 2020 possibly due to reduced travel associated with COVID-19 restrictions on movement. The rate of assault rose by 5% over the review period while poisoning rates declined. Other injuries including falls, exposure to smoke, fire and flames, intentional self-harm and drowning generally accounted for a much lower proportion of burden over the review period.

8.1.13 Improve Person Centered Essential Health Services

There was notable progress in the provision of essential RMNCH services during the period under review, which included a marked increase in numbers of women delivering

in health facilities, coverage for the 4th ANC visit as well as a marginal decline in maternal deaths in health facilities. Coverage for family planning as measured using modern contraceptives also increased over the review period while no progress was made in reducing the prevalence of low birth weight.

8.1.14 Minimize Exposure to Health Risk Factors

Lack of reliable data made assessment of progress in control of risk factors difficult during this review. Indicators to measure most health risk factors (alcohol, smoking, physical inactivity, safety among others) require survey data which was not available at midterm.

Progress was seen in exclusive breastfeeding coverage over the review period exceeding the set mid-term targets.

8.1.15 Strengthen Collaboration with Health-Related Sectors

Generally, there was good progress in collaboration with health-related sectors over the implementation period although only one indicator achieved the set target with the others recording good progress.

Progress was recorded in access to sanitation surpassing the set mid-term target while access to safe water increased marginally. The proportion of children under 5 years who are stunted and percentage of women who completed secondary education improved over the reporting period. The latter is still low with only 34% of women having completed secondary education.

8.1.16 Overall progress towards Universal Health Coverage

The overall UHC index score of 77% demonstrates good progress in the journey towards universal health coverage for all.

Service coverage was relatively high in most Counties apart from those in the ASAL region; similarly, significant inequities were recorded in access to services with Counties in the ASAL region as well as some Counties in the western region recording low access to health services. Service quality varied irrespective of geographical location.

8.2 Recommendations

8.2.1 Outputs around Access, Quality and Demand of Care Services

- i. Investments in health facilities needs to be balanced such that most services are supported with adequate human resources, medical commodities as well as equipment for diagnosis and treatment. This should be accompanied by demand creation to improve utilization of health services.
- ii. There is need for regulation of caesarean section through appropriate guidelines and policy to avoid misuse in health facilities.

8.2.2 Service Delivery and Quality Systems

- i. Implement targeted mechanisms to strengthen service delivery systems These include more investments in the community health system as well as the referral system.
- ii. Establish targeted mechanisms to improve quality of services provided, targeting all disease areas including maternal and child health, communicable as well as non-communicable conditions.
- iii. Implement client satisfaction surveys to gauge citizen's satisfaction with services provided in the sector.
- iv. Institute mechanisms to collect data to inform all identified indicators measuring progress in service delivery systems. Surveys to assess service availability and readiness should also be institutionalized to regularly collect service delivery data.
- v. Review indicators for service delivery and quality, and develop tools to collect reliable data on these areas during the end term evaluation.
- vi. Implement a primary health care system assessment to evaluate status of community health units' functionality and outputs, as well as functionality of other systems at the primary level.

8.2.3 Health Workforce

- i. Increase investments in human resource to meet the end term targets for all HRH areas; prioritize increasing numbers of all cadres of health workers as well as community health volunteers.
- ii. Harmonize HRH data collection systems including the IHRIS, professional bodies databases and the KHIS for easy access and analysis of human resource data.
- iii. Create a system for monitoring active community health workers (CHVs), their training and other HR management issues.

8.2.4 Health care Financing

- i. Increase budgetary allocations and expenditure in health by both the National and County governments. These should be aimed at ensuring achievement and maintenance of a minimum of 15% allocation to healthcare as per the Abuja declaration.

- ii. Institute mechanisms to ensure optimal use of limited resources efficiently; Counties demonstrating high efficiency level should be encouraged to share some of their best practices.

8.2.5 Health Infrastructure

- i. Institutionalize regular joint inspections/assessments to assess the level to which facilities meet the norms and standards.
- ii. Strengthen mechanisms to support adherence to norms and standards to ensure all existing facilities are fully functional.
- iii. A framework to guide establishment of new facilities is urgently needed to ensure that construction of new facilities is based on needs (with a needs assessment done), ensuring that all existing facilities are functioning within optimal capacity before establishing new ones. New facilities should be adequately equipped and staffed consistent with the norms and standards.
- iv. Set a minimum standard for definition of EMR to enable accurate measurement of EMR functionality at facility level.
- v. Revise infrastructure indicators to more adequately measure progress of infrastructure in the country.

8.2.6 Health Products and Technologies

- i. Align County HPT needs with KEMSA's capacity to stock and supply HPTs and other health supplies.
- ii. Prioritize commodities' needs with reference to the Kenya Essential Medicines list and disease burden
- iii. Increase health commodities budgets to ensure adequate commodities to meet health needs.
- iv. Strengthen LMIS system to facilitate end to end visualization of county HPT orders and processing from KEMSA, and consequently allow for timely strategic procurement of health commodities.

8.2.7 Health Information systems

- i. Strengthen electronic community data collection and streamline transmission of data directly into KHIS to improve reporting rates at community level.
- ii. Strengthen Hospital inpatient reporting by scaling up use of ICD 11, use of electronic medical records and capacity strengthening for staff.

8.2.8 Health Research and Development

- i. Establish a central system to collate health research data and research related activities in the sector.
- ii. Review research and development indicators and establish mechanisms for measuring these indicators.
- iii. Increase budgetary allocations to research at National and County levels.

8.2.9 Leadership and Governance

- i. Regularize intergovernmental meetings.
- ii. Review the leadership indicators to adequately measure progress in institutionalization and strengthening of leadership and governance and develop tools to collect data on performance.

8.2.10 Accelerate Reduction of the Burden of Communicable Diseases

- i. Sustain ongoing interventions in control and reduction of communicable conditions including ART coverage among adults and pregnant women with HIV and childhood immunization.
- ii. Review current interventions and/or institute measures to improve tuberculosis case notification and treatment services.
- iii. Establish pediatric population living with HIV to validate the current estimates given the effectiveness of prevention of mother to child transmission strategies.
- iv. Scale up mechanisms to arrest the rising number of malaria cases in the high endemic counties and address any County specific challenges.

8.2.11 Halt and Reverse the Burden of Non-Communicable Conditions

- i. Scale up screening, diagnostic capacity and other NCD services, including integration into primary health care to identify, link to care and manage non-communicable diseases.
- ii. More efforts should focus on increasing demand for and access to these services in low-reporting counties, particularly ASAL counties.
- iii. Strengthen data systems for NCDs, including availing the new data management tools, training, support supervision, data quality audits and mentorship, as well as ensure timely execution of relevant surveys such as the STEPS. The sector (national and County level) should prioritize printing of the new data management tools and their integration into existing electronic health records.
- iv. New global commitments such as the Global Strategy for Elimination of Cervical Cancer necessitates revision of targets for cervical cancer interventions, including adoption of the 90-70-90 targets (90% HPV vaccination coverage, 70% screening coverage and 90% treatment coverage).

Reduce the Burden of Violence and Injuries

- i. Institute and strengthen measures to control the rising number of road accidents leading to loss of life and decreased quality of life.
- ii. Link the various data sources from Ministry of Health, and other health related sectors including transport, NTSA for accurate estimation of burden of disease caused by road traffic accidents.

- iii. Work with the concerned line ministries/citizens to capacity build on defensive driving
- iv. Mainstream policies and strategies to address the rising burden of violence and injuries between Health and other health related sectors.
- v. Strengthen citizen's engagement in dialogues to identify root causes and suggest measures to control cases of assault in society.

8.2.13 Improve Persons Centered Essential Health Services

- i. Sustain current gains made in maternal health services by maintain and /or scaling up current interventions to realize end term targets.
- ii. Increase investment in RMNCH interventions to reach the poorest in all counties to further increase skilled deliveries, reduce maternal mortality and increase ANC attendance to address the problem of low birth weight.
- iii. Collaborate with other sectors including Ministries of Agriculture, Social security and Education to identify children at risk of getting stunted and underweight, and establish inter-sectoral mechanisms to reach them with support for both better livelihoods and improved nutrition.
- iv. Include in the routine monitoring systems an additional indicator on proportion of 1st ANC visits that are within the first trimester to monitor timely uptake of ANC.
- v. Establish a mechanism to monitor clients attaining 8 ANC sessions, in line with new Country direction to ensure mothers get to at least 8 ANC contacts; This is aimed at increasing maternal and newborn positive outcomes.

8.2.14 Minimize Exposure to Health Risk Factors

- i. Include indicators on health risk factors in the KDHS to assess progress made in prevention of disease at population level.
- ii. Establish a mechanism to have health and health related surveys preceded reviews, to facilitate measurement of outcomes and impact indicators especially for health risk factors.

8.2.15 Strengthen Collaboration with Health-Related Sectors

- i. Strengthen collaboration between Ministry of Health and other health related sectors in various aspects, and institute measure that will facilitate achievement of the set targets and optimal utilization of resources.
- ii. Scale up investments that support collaboration between the relevant entities with the health sector to achieve set goals. These include Roads and Infrastructure including ICT, Agriculture, Water and Sanitation, Environment, Social Protection among others.

8.2.16 Overall progress towards Universal Health Coverage

- i. Sustain investments in service coverage and institute specific interventions to increase coverage of all services in ASAL Counties.

- ii. Increase access to critical health services in the ASAL and western Counties through more, better equipped and staffed health facilities, including in key services to support maternal and child health such as caesarean sections services.
- iii. Improve quality of care across all regions to support access to quality health services especially to the population in the lower social economic status

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Annexure

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