Kenya Vital Statistics

REPORT

2023

REPUBLIC OF KENYA

Civil Registration Services

Recording life's most vital events.

Every human life counts.

Kenya Vital Statistics

REPORT 2023

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Recording life's most vital events

Every human life counts.

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Terms & Concepts

Age-specific fertility rate (ASFR): The annual number of births to women of a particular age group per 1,000 women in that age group.

Age-specific mortality rate (ASMR): This is the total number of deaths to residents of a specified age or age group in a specified geographic area (country, state, county, etc.) divided by the population of the same age or age group in the same geographic area (for a specified time period, usually a calendar year) and multiplied by 100,000

Burial Permit: Official document, usually issued only for a legally registered death, authorizing the removal of the dead body to the cemetery or other final disposal.

Causes of Death: All diseases, morbid conditions, or injuries that either resulted in or contributed to death and the circumstances of the accident or violence that produced any such injuries. Symptoms or modes of dying, such as heart failure or asthenia, are not considered to be causes of death for vital statistics purposes.

Certifier (of Cause of Death): Person authorized by law to issue a certificate, in a prescribed format, stating the underlying and contributory causes of death and other facts related to the event for submission to the local registrar or other appropriate authority. The certifier is usually the clinician who attended to the deceased in his or her last illness; in the case of deaths of persons who were not attended to during the last illness, then by a clinician; or in the case of deaths due to violence or injury, then the medical-legal officer (e.g., physician or medical examiner).

Civil Registrar: Official authorized by law to register the occurrence and charged with the responsibility for civil registration of vital events in a well-defined area and for recording and reporting information on those vital events for legal and statistical purposes.

Civil Registration System: The institutional, legal, and technical settings established by the government to conduct civil registration in a technical, sound, coordinated and standardized manner throughout the country, considering cultural and social circumstances particular to the country.

Civil Registration: This is the act of recording and documenting vital events in a person's life (birth, marriage, divorce, adoption, and death and causes of death).

Complete Civil Registration: When every vital event that has occurred to the members of the population of a particular country (or area), within a specified period, has been registered in the civil registration system, i.e., has a vital registration record. Thus, the system has attained 100-percent

coverage. Any deviation from complete coverage is measured by "coverage error."

Completeness of registration: This is the proportion of vital events that are registered. It is the number of registered vital events divided by an estimate of the actual number of vital events that occurred in the same population during a specific period of time.

Crude birth rate (CBR): The number of live births relative to the size of that population during a given period, usually one year. It is expressed as the number of live births per 1,000 population per year.

Crude death rate (CDR): The number of deaths relative to the size of that population during a given period, usually one year. It is expressed as the number of deaths per 1,000 population per year.

Data adjustment: Refers to a set of procedures employed to: improve coverage, classification, timing, and valuation of the data; conform to an accounting and recording basis; or address data quality differences in compiling specific data sets.

Data redistribution: Involves the transfer of data from one distribution to another, with the main objective being to enhance its applicability for statistical analysis.

Date of Occurrence: The exact date when the event occurred; it should be expressed in terms of day, month, and year, as well as hour and minute, if appropriate (for live births, fetal deaths, and deaths).

Date of Registration: The day, month, and year when an entry of registration of a vital event is made in the civil register.

Death: Death is the permanent disappearance of all evidence of life at any time after live birth has taken place (postnatal cessation of vital functions without capability of resuscitation). This definition excludes fetal deaths.

Delayed Registration: The registration of a vital event after the prescribed period denoted in existing laws, rules, or regulations (including any grace period, if one is specified). A late registration is the registration of a vital event after the prescribed time period but within a specified grace period. In Kenya, the grace period is from the third to sixth month following the event.

Fetal death (also referred to as 'stillbirth'): **'**Death prior to the complete expulsion or extraction from the mother of a product of conception, irrespective of the duration of pregnancy; the death is indicated by the fact that after such separation the foetus does not breathe or show any other evidence of life, such as beating of the heart, pulsation of the umbilical cord or definite movement of voluntary muscles.'(UN, 2014) Note that this definition broadly includes all terminations of pregnancy other than live births, as defined above.

Infant Mortality Rate: A vital statistics summary rate based on the number of infant deaths occurring during the same period of time, usually a calendar year, i.e., the number of deaths under 1 year of age occurring in a given geographical area during a given year, per 1,000 live births occurring among the population of the given geographical area during the same year.

Informant: The individual or institution whose responsibility, designated by law, is to report to the local registrar the fact of the occurrence of a vital event and to provide all the information and characteristics related to the event. The informant must be able not only to supply the accurate information necessary for registration, i.e., for legal purposes, but also the particulars required for statistical purposes.

Late Registration: A late registration is the registration of a birth or death after the legally specified time period but within a specified grace period. The grace period is usually considered to be six months after the vital event.

Live Birth: A live birth is the result of the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of pregnancy, which after such separation breathes or shows any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles, whether or not the umbilical cord has been cut or the placenta is attached; each product of such a birth is considered to be live born.

Neonatal mortality rate (NMR): Probability (expressed as a rate per 1,000 live births) of a child born in a specific year or period dying in the first 30 days of life, if subject to age-specific mortality rates of that period.

Population Pyramid: This is the distribution of a population by age groups and sex.

Quality Control: This is the systematic process of ensuring that births and deaths data collected, analyzed, and reported conform to established standards of accuracy, reliability, and relevance.

Quality assurance: This refers to strategies and procedures for ensuring the quality of vital statistics.

Sex Ratio: This is the ratio of males to females in a population and is often expressed as the number of males per 100 females.

Timeliness in Register-Based Vital Statistics: For every vital event registered within the interval specified by legislation, a statistical report form has been forwarded to the agency responsible for the compilation of vital statistics within the established time schedule of the vital statistics program, and the production, publication, and dissemination of the vital statistics is prompt enough to serve the users' needs.

Timeliness in Registration: This element of a vital event report is determined by the difference between the date of the event and the date of

its registration when compared to the interval specified by legislation.

Total fertility rate (TFR): The sum of age-specific fertility rates for females aged between 15 and 49 during a specified period, usually one year. It is an estimate of the average number of children a cohort of women would bear if they went through their childbearing years experiencing the same age-specific fertility rates.

Under-5 mortality rate (U5MR): The probability of a child born in a specific year or period dying before reaching the age of 5, if subject to age-specific mortality rates of that period. The under-5 mortality rate as defined here is strictly speaking not a rate (i.e., the number of deaths divided by the number of populations at risk during a certain period of time) but a probability of death derived from a life table and expressed as rate per 1,000 live births.

Underlying Cause of Death: The cause of death to be used for primary statistical tabulation purposes has been designated as the underlying cause of death. The underlying cause of death is defined as '(a) the disease or injury which initiated the train of events leading directly to death, or (b) the circumstances of the accident or violence which produced the fatal injury..

Verbal Autopsy: VA is a process for diagnosing causes of death based on responses collected from families and/or caregivers to a series of structured questions on the signs and symptoms experienced by the deceased, and their duration. These responses are usually reviewed by a physician to determine the probable cause of death.

Vital Event Record: A legal document entered in the civil register which attests to the occurrence and characteristics of a vital event.

Vital Event: The occurrence of a live birth, death, fetal death, marriage, divorce, adoption, legitimation, recognition of parenthood, annulment of marriage, or legal separation.

Vital Statistical Record: A document or record containing items of information concerning an individual vital event that meets the needs for vital statistics compilation.

Vital Statistics System: In the context of defining a system as a set of interacting or independent components forming an integrating whole and for the purposes of these principles and recommendations, the vital statistics system's components are (a) legal registration, (b) statistical reporting of, and (c) collection, compilation, and dissemination of statistics pertaining to vital events. The vital events of interest are live births, adoptions, legitimations, recognition; deaths and fetal deaths; and marriages, divorces, separations, and annulments of marriage.

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Foreword

AMB. (PROF.) JULIUS K. BITOK, MBS
Principal Secretary,
State Department For Immigration
and Citizen Service

The production of the 2023 Kenya Vital Statistics Report was coordinated by the Civil Registration Services through the continued support of development partners, the Kenya National Bureau of Statistics in collaboration with the Ministry of Health, the Population Studies and Research Institute of the University of Nairobi and other stakeholders. This has ensured that the production of an annual vital statistics report is a continuous process. The production and compilation of this report follows the UN principles and recommendations for vital statistics reports as well as the guidelines developed by UNECA for the region.

The 2023 Kenya Vital Statistics Report is the eleventh in a series of annual CRVS reports produced since 2010. The report aims to provide a snapshot of the 2023 vital statistics extracted from the civil registration system. The report covers births, deaths and causes of death registered in health facilities and the community in Kenya. The analysis, compilation, review and validation of this report was performed by CRS, KNBS and other key stakeholders.

A complete CRVS system should provide vital statistics for births and deaths for evidence-based decision-making and key indicators of fertility and mortality.

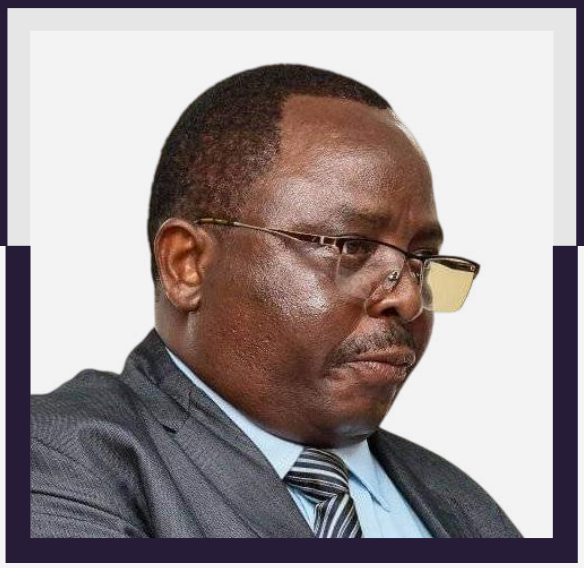
The report covers births, deaths and causes of death registered in health facilities and the community in Kenya. The analysis, compilation, review and validation of this report was performed by CRS, KNBS and other key stakeholders.

The Government of Kenya recognizes that a well-functioning CRVS system plays a central role in attaining good governance, economic and social development of a nation as envisioned in the Kenya Vision 2030. Furthermore, Kenya has also committed to achieving various targets set out in regional and global frameworks on sustainable development. Therefore, the information provided in this report will be used in tracking and reporting the progress made by the country in achieving these targets.

It is my sincere hope that this report will be useful in informing related policies and decisions and guiding strategic interventions aimed at strengthening the CRVS system in Kenya.

“A complete CRVS system should provide vital statistics for births and deaths for evidence-based decision-making and key indicators of fertility and mortality

Acknowledgment



PAUL D. MWANGEMI
Secretary,
Civil Registration Services

The Kenya Vital Statistics Report 2023 was developed by Civil Registration Service (CRS) in partnership with various Government Agencies and key development partners.
First, we wish to acknowledge the support, leadership and policy guidance by the Government of Kenya through the Ministry of Interior and National Administration and the State Department for Immigration and Citizen Service.

Second, we are indebted to the concerted effort of various Government Ministries, departments, agencies, international and local organizations for their technical support during the collection, compilation, analysis, peer review, validation, publishing, launch and dissemination of this report.

These include Kenya National Bureau of Statistics (KNBS), United Nations Population Fund (UNFPA) Kenya, National Government Administration (NGA), Ministry of Health (MOH),

We are indebted to the concerted effort of various Government Ministries, departments, agencies, international and local organizations for their technical support during the collection, compilation, analysis, peer review, validation, publishing, launch and dissemination of this report.

Population Studies and Research Institute (PSRI), the Kenya Medical Research Institute (KEMRI Welcome Trust), UN Women, National Council for Population Development (NCPD) and Vital Strategies.

Third, we acknowledge the financial support of the UNFPA Kenya and World Bank- Eastern Africa Regional Statistics Program for Results (EARSPforR) through KNBS.

Lastly, we wish to appreciate the CRS Directors and staff from Civil Registration Services for their contribution towards the generation of this report.

“The production and compilation of this report follows the UN principles and recommendations for vital statistics reports as well as the guidelines developed by UNECA for the region

Acronyms & Abbreviations

ABN	Acknowledgement of Birth Notification
AG	Attorney General
ASFR	Age Specific Fertility Rate
ASMR	Age Specific Mortality Rate
CD	Communicable Diseases
CDC	Center for Disease Control and Prevention
CoD	Cause of Death
CRDP	Civil Registration Demonstration Project
CRP	Civil Registration Program
CRO	Civil Registration Office
CRS	Civil Registration Services
CRVS	Civil Registration and Vital Statistics
CRVSS	Civil Registration and Vital Statistics System
HIS	Health Information system
ICD	International Classification of Diseases
IOM	International Organization for Migration
KDHS	Kenya Demographic and Health Survey
KNBS	Kenya National Bureau of Statistics
KNEC	Kenya National Examination Council
KPHC	Kenya Population and Housing Census
KVSR	Kenya Vital Statistics Report
MCH	Maternal and Child Health
MDAs	Ministry, Departments and State Agencies
MoH	Ministry of Health
MCCD	Medical Certification of Cause of Death
NCD	Non-Communicable Disease
NCPD	National Council for Population Development

NEMIS	ational Education Management Information System
NGA	National Government Administration
NGO	Non-Governmental Organization
NHIF	National Hospital Insurance fund
NIIMS	National Integrated Identity Management System
PSRI	Population Studies and Research Institute
RA	Registration Agent
SDG	Sustainable Development Goal
TB	Tuberculosis

EXECUTIVE SUMMARY

Introduction

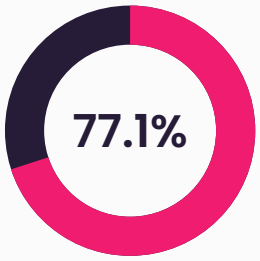
The 2023 Kenya Vital Statistical Report was prepared in accordance with the United Nations Principles and recommendations, the Constitution of Kenya 2010 and the Registration of Births and Death Act (Cap 149 Laws of Kenya). The Act mandates Civil Registration Services Directorate to register births and deaths occurring in the country and for Kenyans occurring abroad. The 2023 Kenya Vital Statistical Report (KVSR) provides information that can help monitor and evaluate the registration of vital events (births and deaths) in Kenya.

The report provides key highlights on births and deaths registration completeness by various characteristics including live birth by sex of child, place of occurrence, age of mother, marital status, mother's level of education and foreign births registration. It also highlights death by place of occurrence, deaths by age and sex, deaths my marital status, neonatal deaths, crude death rate, foreign registration of deaths, causes of death and leading causes of deaths for different age groups that occurred within the year 2023.

This report was generated using data from health facilities and community registration. The report is organized in seven chapters namely: 1) Introduction, 2) The Civil Registration System; 3) Methodology and

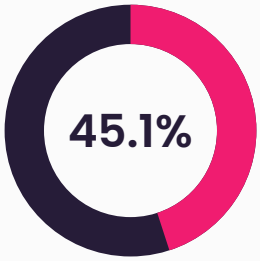
Data quality 4) Births Registration, 5) Deaths Registration 6) Causes of death 7) Conclusion and Recommendations.

The National birth registration completeness in 2023 was 77.1 percent. This was a decline from a completeness rate of 80.6 percent in 2022. A total of 12 counties attained birth registration completeness of 90 percent and above. These are: Nairobi City (131.6%), Kericho (127.5), Nyamira 123.2% Kisii (101.7%), Kiambu (100.4%), Uasin Gishu (100.2%), Mombasa (96.3%), Kilifi (95.9%), Kisumu (93.9%), Tharaka Nithi (93.7%), Taita Taveta (92.5%) and Siaya (90.3%). Nine counties in the Arid areas had the lowest birth registration completeness; Wajir (12.2%), Mandera (13.9%), Samburu (34.3%), Turkana (35.8%), Tana River (44.3%), Marsabit (46.8%), Garissa (52.5%), Narok (52.8%) and Isiolo (56.5%).



The National birth registration completeness in 2023, a decline from a rate of 80.6 percent in 2022

Nationally, death registration completeness in 2023 was 45.1 percent which was a decline from 47.6 percent recorded in 2022. The proportion of registered deaths in health facilities increased slightly from 53.0 percent in 2022 to 54.9 percent in 2023. Conversely, the proportion of registered deaths in the community decreased from 47.0 percent to 45.1 percent during the same period



National death registration completeness in 2023, a decline from 47.6 percent recorded in 2022

The counties with highest proportion of deaths registered in health facilities in 2023 were Uasin Gishu (80.1%), Kericho (78.0%) and Nairobi City (76.7%) while those with highest proportion of community death registration were Mandera (88.8%), Wajir (85.2%) and Vihiga (76.3%).

Over the past five years, from 2019 to 2023, pneumonia has emerged as the leading cause of death while cancer is on an upward trend moving to number two killer disease in 2023. Among persons aged between 50 and 59 years, cancer was the leading cause of death during the period under review. Among the neonates, prematurity and asphyxia were the leading cause of death. Additionally, injuries and cancer were the leading causes of death for persons aged 15-49 years.

CHAPTER ONE

Introduction

Vital statistics constitute the collection of statistics on vital events in a lifetime of a person as well as relevant characteristics of the events themselves and of the person and persons concerned. This includes live births, deaths and fetal deaths, marriage, registered partnership, separation, divorce, legal dissolution of registered partnerships and annulment of marriage, adoption, legitimation, and recognition. The critical source of vital statistics are records of vital events derived from civil registration system, which refers to the continuous gathering of information on all relevant vital events occurring within the boundaries of a country or a well-defined area within a country (UN, 2014).

Vital events recorded in the civil registration system in Kenya is confined to births and deaths which, provide crucial and critical information on the population in the country. Vital statistics and their subsequent analysis and interpretation are essential for socioeconomic planning and informed decision-making, setting targets, monitoring and evaluating social and economic programs including health and population interventions, measurement of demographic indicators including quality of life, life expectancy, the infant mortality, population estimates and projections, fertility and nuptiality.

The Kenya Vision 2030 and the Bottom-up Economic transformation agenda (BETA) which are the main government

The critical source of vital statistics are records of vital events derived from civil registration system, which refers to the continuous gathering of information on all relevant vital events occurring within the boundaries of a country

blueprints can be realized effectively when the country's population profiles in terms of numbers and key social and economic indicators are known as evidenced in the KVSR. Vital statistics are also invaluable for planning, monitoring, and evaluating various programs such as those dealing with primary health care, social security, family planning, maternal and child health, nutrition, education, public housing, and monitoring progress towards achievement of targets of regional and global frameworks on sustainable development. These include, East African Community Vision 2050, African Union Agenda 2063, ICPD25 Kenya Country Commitments, Addis Ababa Declaration on Population and Development (AADPD), 2030 Agenda for Sustainable Development.

The Kenya Vision 2030 and the Bottom-up Economic transformation agenda (BETA) which are the main government blueprints can be realized effectively when the country's population profiles in terms of numbers and key social and economic indicators are known as evidenced in the KVSR

The Civil Registration Services in Kenya is responsible for registration of all births and deaths that occur in the country. One of the core functions of CRS is to process, analyze, and disseminate vital statistics. To this end, CRS has prepared the Kenya Vital Statistics Report (KVSR) on an annual basis since 2010. The vital events covered in this report are those that occurred and notified at the health facilities and the community and were registered in 2023 including events that occurred outside Kenya and were registered upon request by either individuals or family members.

The main objective of the report is to present information on the status of registered events to inform policy and enhance use of quality vital statistics for evidence-based decision making

1.2 Objectives of the report

The main objective of the report is to present information on the status of registered events to inform policy and enhance use of quality vital statistics for evidence-based decision making.

The specific objectives are:

- To present registration completeness, patterns and trends of birth and death registration at national and county level.
- To present gaps, challenges, opportunities and recommendations for improvement of vital events registration in Kenya.

1.3 Scope of the report

This report presents data on births, deaths and causes of death by various characteristics that were registered in 2023. Other vital events like marriage, divorce, judicial separation, adoption, and judicial declaration of paternity are under the Office of the Attorney General (AOG) and are not covered in this report. The analysis of births and deaths is limited to national and county levels. The report also focuses on the number of events registered within the officially stipulated period of six months from the date of occurrence from health facilities and community.

1.4 Country profile

1.4.1 Geographical and ecological characteristics

Kenya is located on the Eastern Coast of Africa, and covers an area of about 591,6970 square kilometers. It lies between latitudes 40

North and 40 South and longitudes 340 East and 40 West. The equator runs through the country dividing it into almost two equal parts. Kenya borders five (5) countries, namely, Somalia to the East, Ethiopia to the North, South Sudan to the Northwest, and Uganda to the West and Tanzania to the South as shown in Map 1.1. To the Southeast, Kenya borders the Indian Ocean along a coastline that is approximately 536 kilometers long. The lowest point in the country is at the coastline which is zero meters above sea level while the highest point is at the Batian peak of Mount Kenya which is 5,199 meters above sea level.

More than 80 percent of Kenya is classified as arid and semi-arid lands, which are mainly found in the Northern and Eastern parts of the country. The remaining part of the country is classified as arable land, which sustains the largely agricultural Kenyan economy as well as providing settlement for most of the country's population. In addition to the land area, the country also has notable water masses, which include Lake Victoria and Lake Turkana. The Great Rift Valley, which is part of the East African Rift that runs from Mozambique to Ethiopia, is a notable physical feature found in Kenya's landscape.

Kenya's water resources are classified into two sources; surface water and groundwater represented by lakes, rivers, reservoirs, swamps, springs, dams, water pans and groundwater. Kenya's main water catchment areas include Lake Victoria North, Lake Victoria South, Rift Valley, Athi, Tana and Ewaso Nyiro North.

“ More than 80 percent of Kenya is classified as arid and semi-arid lands, which are mainly found in the Northern and Eastern parts of the country. The remaining part of the country is classified as arable land, which sustains the largely agricultural economy as well as providing settlement for most of the country's population

Administratively, Kenya is divided into 47 Counties, which are further divided into 380 sub-counties, 986 divisions, 3,963 locations and 9,058 sub-locations as at 2023.

1.4.2 Cultural and religious diversity

Kenya is founded on a cultural diversity as recognized by the Constitution of Kenya (2010) which emphasizes the value of culture and cultural heritage. The Constitution of Kenya obligates the Government to promote various forms of cultural expression.

The ethnic groups in Kenya define the country's vibrant cultural diversity as evident from the numerous traditional and religious practices. In addition to this, Kenya hosts a sizable population of foreign nationals who contribute to the country's cultural and religious diversity. English and Kiswahili are Kenya's official languages while Christianity and Islam are the main religions.

1.4.3 Demographic profile

Kenya's population has increased more than five-fold from 8.6 million people in 1962 to 47.6 million people enumerated during the 2019 Kenya Population and Housing Census and is projected to reach 51.5 million in 2023. Table 1.1 presents Kenya's population from 1962 to 2019 and a population projection for 2023.

8.6

Kenya's population, in millions, in 1962 which has risen fivefold to 47.6 million people enumerated during the 2019 Kenya Population and Housing Census and is projected to reach 51.5 million in 2023

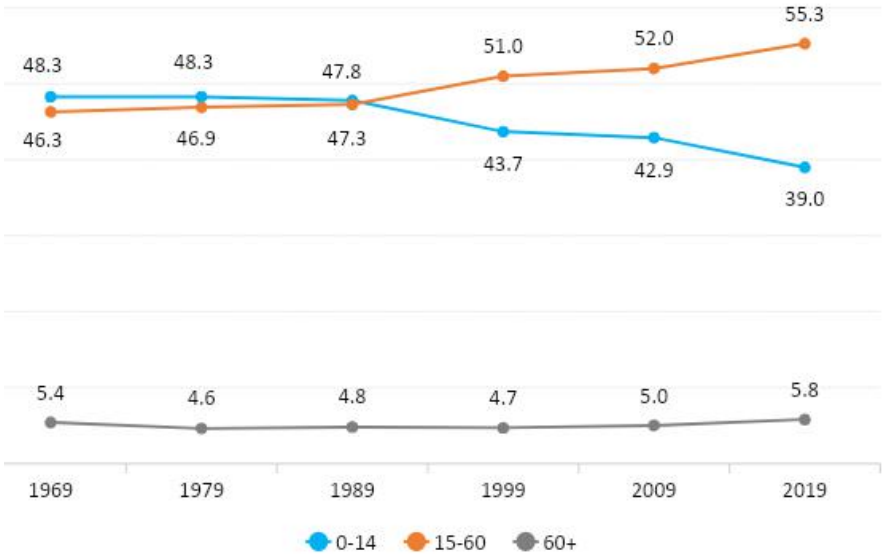
Table 1.1: Kenya's Population,1962-2023

Year	Population (millions)
1962	8.6
1969	10.9
1979	15.3
1989	21.4
1999	28.5
2009	37.7
2019	47.6
2023	51.5

In 1969, the proportion of the population of children below 15 years old was 48 percent of the total population and by 2019, this proportion had reduced to 39 percent as shown in Figure 1.1. The proportion of the population aged 15 - 60 years to total population increased from 46 percent in 1969 to 55 percent in 2019. However, the proportion of the population of older persons (age 60+ years) has remained almost the same, ranging between five and six percent over the period.

Source: KNBS

Figure 1. 1 Trends in proportion of select population age groups in Kenya (1969-2019)

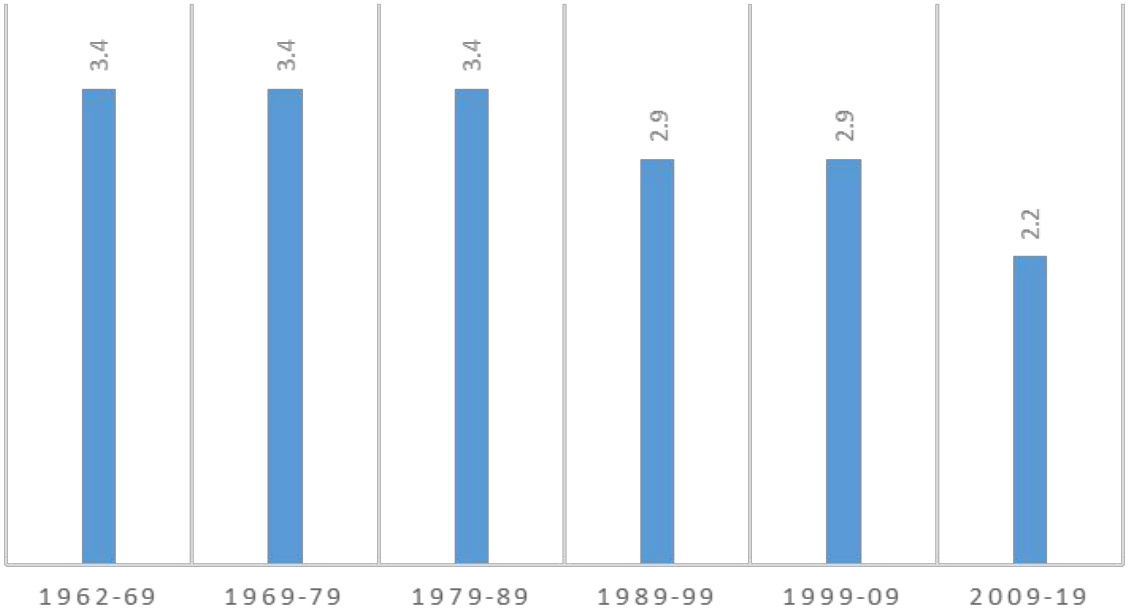


The proportion of the population aged 15 - 60 years to total population increased from 46 percent in 1969 to 55 percent in 2019

1.5 Intercensal growth rate

This is the rate at which a population grows or declines between two census counts. It is calculated by comparing the population counts from one census to the next, and then determining the average annual growth rate over the intercensal period and is often expressed as a percentage. Figure 1.2 shows the intercensal growth rate from 1962 to 2019. The population growth rate has declined from 3.4 percent in 1962 to 2.2 percent in 2019. This can be attributed to the declining fertility rate in the country as shown in Table 1.2.

Figure 1.2: Intercensal growth Rate, 1962-2019



Source: 2019 KPHC, Kenya National Bureau of Statistics

1.6 Total fertility rate

The Total Fertility Rate (TFR) is a standard demographic indicator that is used internationally to estimate the average number of children born per woman in a population. In Kenya, a decline in fertility has been experienced over the years as shown in Table 1.2. TFR has declined from 6.7 in 1989 to 3.4 in 2022.

The Total Fertility Rate (TFR) is a standard demographic indicator that is used internationally to estimate the average number of children born per woman in a population.

Table 1.2: Total Fertility Rate, 1989-2022

Year	TFR
1989	6.7
1993	5.4
1998	4.7
2003	4.9
2008	4.6
2014	3.9
2022	3.4

1.7 Population of selected age-groups

Table 1.3 presents population projections for older persons aged 60 years and above, women of reproductive age (15-49), youth aged 15-24 years and children under the age of 15 years for the period 2020 to 2045.The overall population is projected to grow from 48.8 million in 2020 to 70.2 million in 2045. The youth population is expected to grow from 10.4 million in 2020 to 12.3 million in 2045 while that of older persons is projected to grow from 2.7 million to 6.4 million over the same period. The population of women of reproductive age is projected to reach 19.2 million in 2045 up from 12.9 million in 2020.

The youth population is expected to grow from 10.4 million in 2020 to 12.3 million in 2045 while that of older persons is projected to grow from 2.7 million to 6.4 million over the same period.

Table 1.3: Projected Population of Selected Age-groups, 2020-2045

Selected Age-group	2020	2025	2030	2035	2040	2045
Total population (million)	48.8	53.3	57.8	62.2	66.3	70.2
Youth- 15-24 (million)	10.4	11.1	11.6	11.9	12.1	12.3
Children under age 15 (million)	18.1	18.5	18.8	19	19	19
Women of reproductive age 15-49 (million)	12.9	14.5	16	17.3	18.4	19.2
Older Persons - 60 and above (million)	2.7	3	3.4	4.2	5.2	6.4

Source: KNBS...Analytical report on population projections 2019.

1.8 Childhood mortality

Table 1.4 presents neonatal, infant and under-five mortality rates for the period 2003 to 2022. There has been a slow decline in neonatal mortality rate from 33 per 1,000 live births in 2003 to 21 per 1,000 live births in 2022. Over the same period, the infant mortality rate declined from 77 per 1,000 live births in 2003 to 32 per 1,000 live births in 2022. Similarly, under five mortality has been declining from 115 per 1,000 live births in 2003 to 41 per 1,000 live births in 2022.

There has been a slow decline in neonatal mortality rate from 33 per 1,000 live births in 2003 to 21 per 1,000 live births in 2022.

Table 1.4: Childhood Mortality Rates, 2003-2022

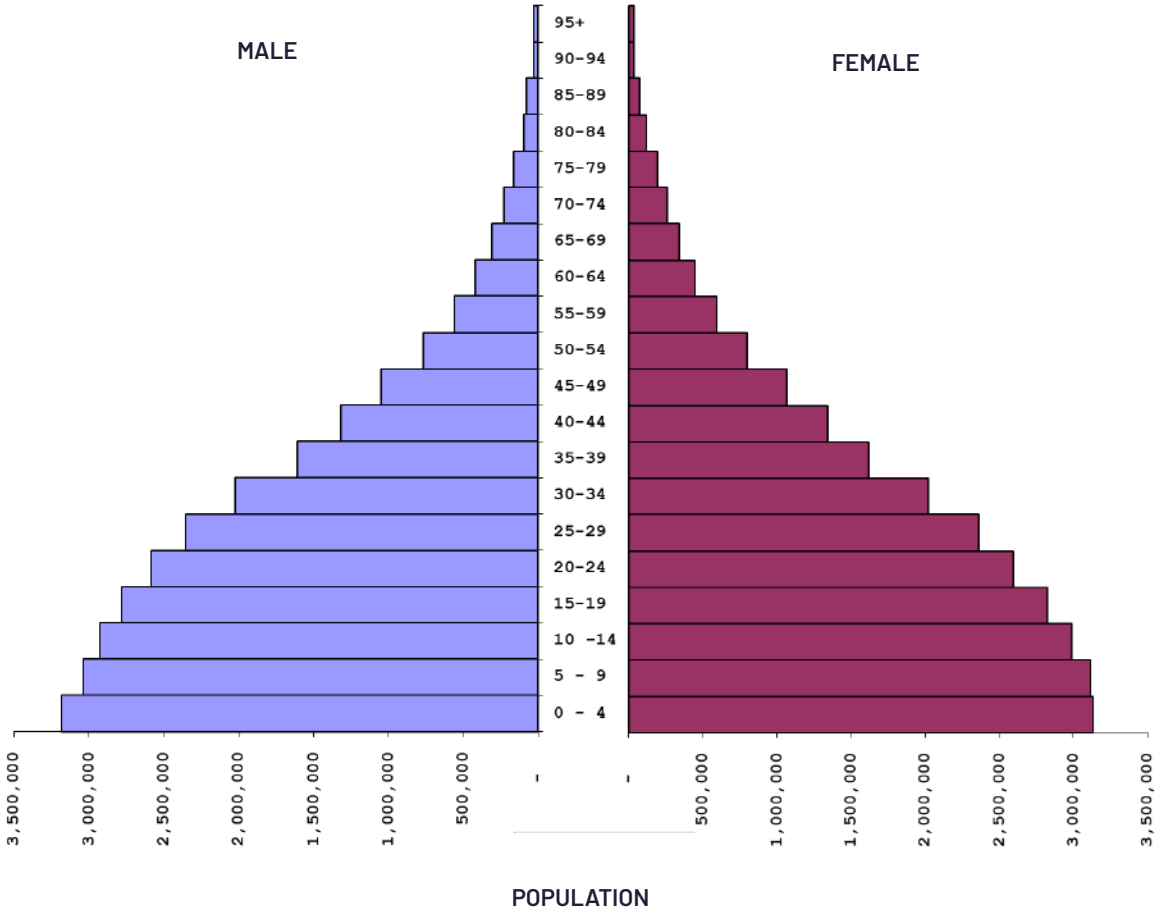
	2003 KDHS	2008/09 KDHS	2014 KDHS	2022 KDHS
Neonatal Mortality rate	33	31	22	21
Infant mortality rate	77	52	39	32
Under-five mortality rate	115	74	52	41

Source: KDHS, 2022

1.9 Population pyramid

The population of Kenya in 2023, as depicted in the pyramid in Figure 1.2. was projected to be 51.5 million comprising 25.5 million males and 26 million females.

Figure 1.3: Population Pyramid of Kenya, 2023



1.10 Data sources

The data on registered births and deaths used for development of this report was generated from the Civil Registration System. The expected births and deaths for 2023 were derived from the 2019 KPHC and the 2022 Kenya Demographic and Health Survey (KDHS).

The primary data for the production of this report was extracted from the following registration tools:

- **Form B1** which is a register of birth that captures comprehensive data about birth events (live and stillbirths in the community and health facilities) (refer to Appendix A1).
- **Form BDA1** which is a register of birth for Kenyan citizens born abroad. (Appendix A4)
- **Form D1** which is a register of death for collecting vital information on the death and medical certification of cause of death in health facilities and community deaths following post-mortem examination (Appendix A2).
- **Form D2** which is a register of death for collecting vital information on the death and nature of cause of death that occur in the community (Appendix A3).
- **Form BDA2** which is a register of death and cause of death for Kenyan citizens who have died abroad (Appendix A5).

CHAPTER TWO

2.1 Introduction

This chapter provides an outline of the history of CRS, the legal framework, administrative as well as the organizational structure. It also discusses the registration processes and information flows involved in the production and dissemination of vital statistics. In conclusion, the chapter highlights challenges faced by the department, available opportunities that can be harnessed to improve civil registration.

2.2 History of Civil Registration

The registration of births and deaths in the East African Protectorate, which corresponds to present day Kenya, started in 1904 and was restricted to Europeans and Americans residing in the territory. The 1902 East Africa Order in Council, which formalized colonial rule in the territory provided the legal basis for such registration. In 1928, the Births and Deaths Registration Ordinance No. 2 was enacted, which provided for compulsory registration of births and deaths of Europeans, Americans and Asians residing in Kenya. As for Africans, it merely made it mandatory to register deaths, and did not specifically deal with registration of births.

The compulsory registration of all births and deaths was progressively introduced in Kenya. It was first made mandatory in Nyeri District and Nairobi City on 12th March 1963, followed by Mombasa and Nakuru municipalities, as well as Bungoma and Kwale Districts by 1st July 1965. Thereafter, it was extended to more districts, and on 1st September 1971, all districts were declared compulsory registration areas.

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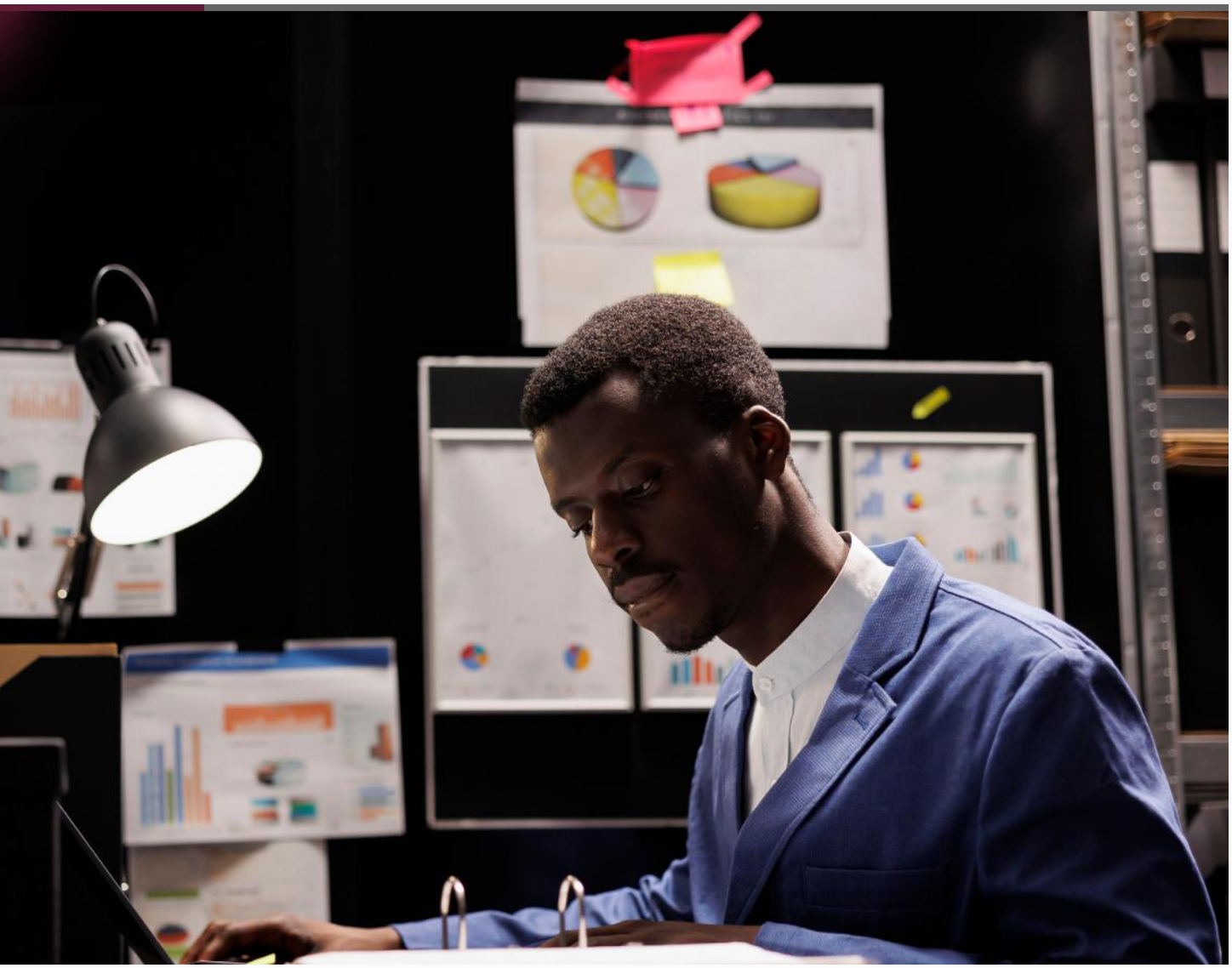

Initially, civil registration was conducted centrally with the Registrar General responsible for issuing certificates. There were deputy registrars who registered births and deaths occurring in the districts. The deputy registrars moved and registered events around their areas of operation and were paid honoraria based on the number of records filled. They then transmitted the records to the Registrar General, who issued the certificates.

However, the system was prone to abuse, as some deputy registrars would fill the forms for imaginary events just to earn the honoraria. In 1982, deputy registrars were replaced by assistant registrars who became fully in charge of the districts. A new system of registration involving registration agents was

In 1982, deputy registrars were replaced by assistant registrars who became fully in charge of the districts. A new system of registration involving registration agents was piloted in several districts in 1984

piloted in several districts in 1984. The rationale for the new system was provided by a pilot study called the Civil Registration Demonstration Project (CRDP) conducted between 1982 and 1985 by the Government in partnership with UNFPA. The CRDP initiative confirmed the need to shift from the bureaucracy-based registration system to an agent-based approach that embraced community-based reporting.

In the new system, registration agents were involved in registration of births and deaths occurring in their respective areas. The new system was piloted in several districts, with Phase I occurring in Murang'a, Nyeri, Kirinyaga and Lurambi Division in Kakamega District. Phase II of the pilot took place in Kisumu, Kakamega, Uasin Gishu and Embu Districts in 1984.

In the new system, Assistant chiefs were gazetted as registration agents to capture events that occurred within the community, while medical personnel captured events that occurred in health facilities.

Since 2018, the department has a Regional Coordinator who heads each region. The Regional Coordinator oversees operations within counties and sub counties in that region

The project was successful as it led to an exponential improvement in the number of births and deaths registered within the pilot districts.

The Government, therefore, fully adopted the CRDP and converted it to Civil Registration Program (CRP), which it rolled out progressively to other districts until 2009 when all districts were covered.

Before 1990, Civil Registration was a function carried out in the Registrar General's office located within the AG's Chambers in Sheria House. In 1990, a department responsible for the function, headed by a Principal Civil Registrar, was created, and moved to the Office of the President.

In the endeavor to improve civil registration and service delivery to citizens, a director was made to head the Department and, subsequently, a Secretary who is assisted by several Directors. The Department has its headquarters in Hass Plaza along Lower Hill Road in Nairobi City.

Since 2018, the department has a Regional Coordinator who heads each region. The Regional Coordinator oversees operations within counties and sub counties in that region.

By reason of Executive Order No. 1 of January 2023 on the Organization of Government of the Republic of Kenya, the department is currently domiciled in the Ministry of Interior and National Administration, State Department for Immigration and Citizen Services.

2.3 Legal and administrative issues

In Kenya, birth and death registration is governed by the Births and Deaths Registration Act, Cap 149 Laws of Kenya. The Act came into effect in 1928 as the Births and Deaths Registration Ordinance and progressively made it mandatory to register all births and deaths that occur in Kenya, regardless of nationality, and permits the optional registration of births and deaths of Kenyan citizens that occur abroad.

Appointment of registration areas and registrars is as follows;

(1) The Cabinet Secretary may, by notice in the Gazette, appoint any area to be a registration area for the purposes of this Act.

(2) The Cabinet Secretary may appoint fit and proper persons to be the registrars and deputy registrars for each registration area and a fit and proper person to be the registrar of births and deaths occurring outside Kenya.

The Act came into effect in 1928 as the Births and Deaths Registration Ordinance and progressively made it mandatory to register all births and deaths that occur in Kenya, regardless of nationality, and permits the optional registration of births and deaths of Kenyan citizens that occur abroad

The Act makes it punishable by law where a notice of a reportable birth or death is not given as required. Section 22 of CAP 149 provides that a "person who fails to give notice of a birth or death the registration of which is compulsory, or who refuses to furnish any of the prescribed particulars, or who contravenes Section 21 of this Act

Besides the Births and Deaths Registration Act, the CRS also administers part of the Legitimacy Act [CAP 145], which empowers it to re-register births of individuals who were born out of wedlock but were legitimized by their parents' subsequent marriage [GOK, 1931], recognition or custom.

Besides the Births and Deaths Registration Act, the CRS also administers part of the Legitimacy Act [CAP 145], which empowers it to re-register births of individuals who were born out of wedlock but were legitimized by their parents' subsequent marriage [GOK, 1931], recognition or custom.

Further, the Act makes it punishable by law where a notice of a reportable birth or death is not given as required. Section 22 of CAP 149 provides that a "person who fails to give notice of a birth or death the registration of which is compulsory, or who refuses to furnish any of the prescribed particulars, or who contravenes Section 21 of this Act, and any person who willfully gives any false information or particulars for the purpose of registration, shall be guilty of an offence and be liable to a fine not exceeding five hundred shillings or to imprisonment for a term not exceeding six months, or to both such fine and such imprisonment". As a result of

the coming into force of the Constitution 2010, sections 7 and 29 of the Act were amended in 2022 to allow for recognition of the intersex. This was meant to conform to Article 27 (4) of the Constitution which provides in part that, "the State shall not discriminate directly or indirectly against any person on any ground, including race, sex, pregnancy, marital status, health status, ethnic or social origin, color, age, disability, religion, conscience, belief, culture, dress, language or birth".

CRS also maintains an adoption register for adopted children and issues birth certificates to adopted children in accordance with the Children's Act, Cap 151 as amended in 2022. To achieve a sustainable and efficient registration process, the national population database should be connected to the foundational civil registration systems as recommended by international standards and the UN Legal Identity Agenda. The Government, therefore, seeks to automate the CRS system and issue a Unique Personal Identifier (UPI) at birth to be retired at death.

This move is aimed at realizing SDG target 16.9 which seeks to provide legal identity for all people including birth registration by 2030. Thus, it is essential to ensure the interoperability of all relevant systems and integration of data within the identity landscape to ensure successful use of the UPI which will establish a reliable and accurate "single source of truth".

2.4 Milestones towards improvement of KVSR production

CRS has over the years made significant improvements in the production of KVSR. This has been made possible through collaboration, cooperation and partnership with various stakeholders who have provided technical and financial support towards the realization of the same. The following are among the notable milestones that have been realized:

1) Mainstreamed KVSR production as an annual activity since 2013
2) Signed an MOU with Demographic Surveillance Sites for collaboration and data sharing in 2012.
3) Developed, launched, and disseminated 2022 KVSR.
4) Improvement of data capture /collection tools.
5) Improvement of data quality by cleaning data using STATA
6) Training the Statistics section on data analysis software.

To achieve a sustainable and efficient registration process, the national population database should be connected to the foundational civil registration systems as recommended by the UN Legal Identity Agenda

2.5 Organizational structure, registration processes and information flows

The structure of CRS and information flows during the registration process are presented in this section. It also describes the procedure involved in the issue of birth and death certificates, records transfer and offers an explanation on procedures involved in the registration of late events.

2.5.1 Organizational structure of civil registration

CRS is headed by a Secretary. It is divided into two divisions, Field Registration services and Statistics and research, with each division having several sections. The sections are; Registration and Field Services; National Registry; Statistics and Research. Details of the organizational structure are shown in Figure 2.1.

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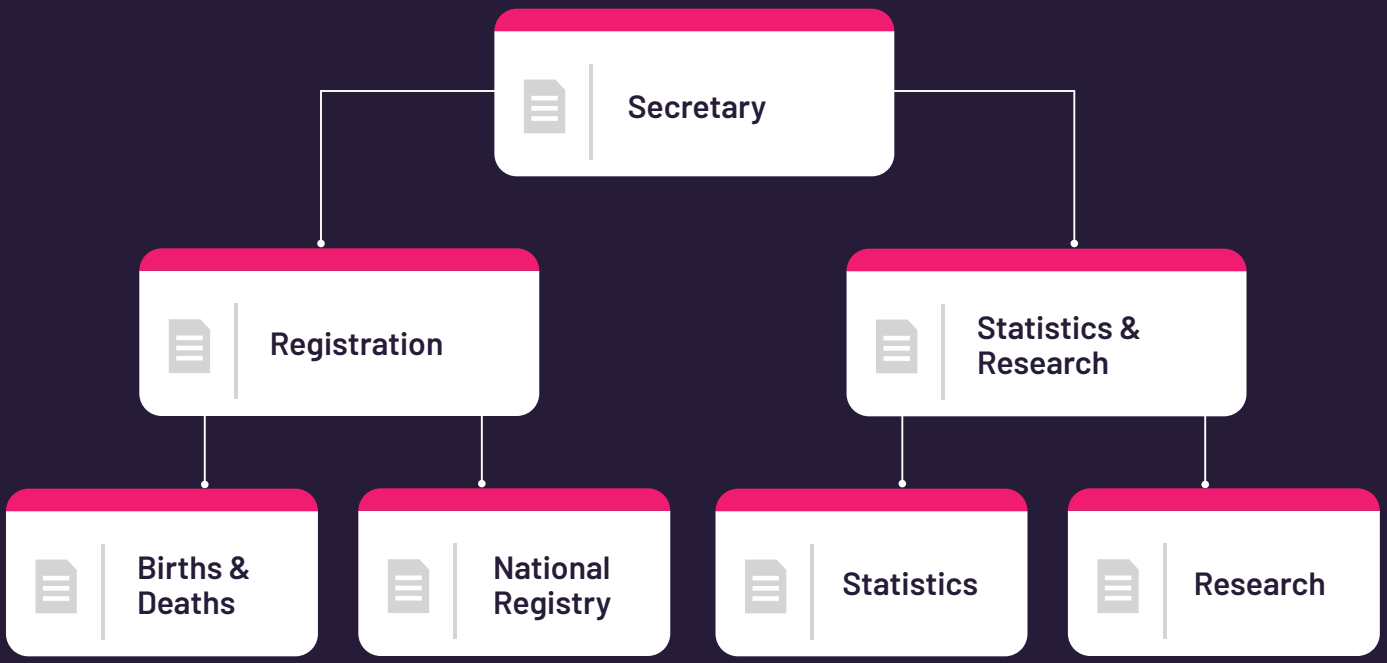
*Figure 2.1: **CRS Organization Structure in Kenya***



2.5.2 Registration processes and information flows

CRS in Kenya is agent based whereby vital events are captured by either the assistant chiefs for home events or by health records personnel for events that occur in health facilities. The registration process starts when an informant provides information to the registration agent (RA) concerning a vital event.

CRS in Kenya is agent based whereby vital events are captured by either the assistant chiefs for home events or by health records personnel for events that occur in health facilities

The informant can be an immediate relative, next of kin or any other person who may have information concerning the occurrence of such an event as required under Sections 11 and 13 of the Births and Deaths Registration Act. The RA is mandated to record the particulars of a birth event in a B1 form for both home and health facility births as provided

under Section 10 of the Act. For death events, the RA captures the particulars in a D1 or D2 form if the event occurred in a health facility or home respectively as required under Section 16 of the Act. In both cases, the RA issues a birth notification for birth or a burial permit for death to the informants, respectively.

The RA then transmits the filled forms in duplicate to the Sub-County Registrar for verification and registration. The Registrar upon verifying the accuracy and completeness of the forms submitted, signs the register, stamps on the register the date of registration and assigns a unique entry number. This process qualifies the forms as valid registers for birth or death. The Registrar then compiles vital statistics for the sub-counties under their jurisdiction in a prescribed birth or death template which is sent to the statistics section for preliminary cleaning, collation and further analysis.

Section 24 of the Act provides that it shall be the duty of every registrar, at the close of each week, to forward to the medical officer of health in whose area his registration area is situated, and to the Principal Registrar, a statement of the births and deaths registered by him during such a week.

Section 24 of the Act provides that it shall be the duty of every registrar, at the close of each week, to forward to the medical officer of health in whose area his registration area is situated, and to the Principal Registrar, a statement of the births and deaths registered by him during such a week.

Figure 2.2: Registration processes and information flows

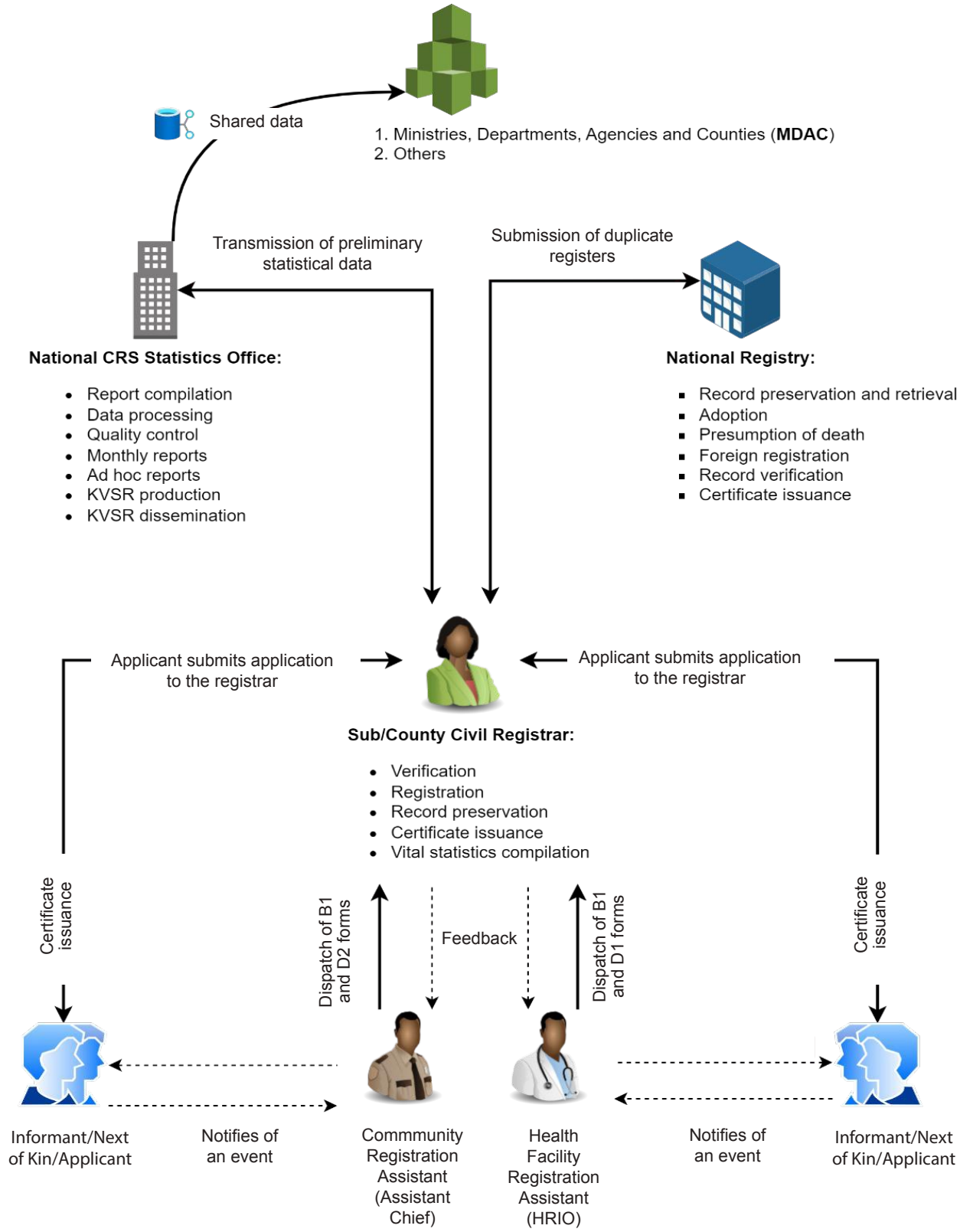


Figure 2.2 provides a summary of information flows during registration and other processes involved in the production of vital statistics, records preservation, and dissemination.

2.5.3 Late registration

Section 8 of the Cap 149 provides that, "A registrar shall not register a birth or death after the expiration of six months from the date of such birth or death, except upon receiving the written authority of the Principal Registrar issued in accordance with the rules, and upon payment of the prescribed fee".

In Kenya, births and deaths registrations are required to be done within six months from the date of occurrence; this is referred to as current registration. Events reported upon expiry of six months from the date of occurrence are considered as late registration

In Kenya, births and deaths registrations are required to be done within six months from the date of occurrence; this is referred to as current registration

For an applicant to obtain a birth or death certificate, a formal application to the Sub-County Registrar using forms B4 (Appendix A8) and D4 (Appendix A9) for birth and death respectively has to be made

Quality Control

Completed birth and death records from registration agents are submitted to the Sub-County Registrar who checks them for completeness and accuracy. At this stage, forms that are identified to have gaps or inconsistent data are returned to the agent for appropriate corrections and re-submitted to the Registrar

and attract a penalty of Ksh.100. The applicant for a late registration is expected to complete forms (GP138A & A1 [Appendix A10 & A11] for events that occurred before CRP & B3 [Appendix A12] for CRP events) as required under Section. The B3 form must be certified by both the Chief and Assistant Chief of the area where the event occurred. Late registration is done by the Sub-County Registrar at their own discretion and does not form part of vital statistics.

2.5.4 Issuance of documentation

For an applicant to obtain a birth or death certificate, a formal application to the Sub-County Registrar using forms B4 (Appendix A8) and D4 (Appendix A9) for birth and death respectively has to be made. The applicant is required to attach a birth notification or burial permit. A search is then done to retrieve the respective register, verification is done and the required amount to

be paid is indicated on the application form. Upon payment of the prescribed fee, a birth or death certificate is printed and issued to the applicant.

2.5.5 Transmission Of Data

The completed birth and death records from the registration agents are submitted to the Sub-County Registrar who checks them for completeness and accuracy. At this stage, forms that are identified to have gaps or inconsistent data are returned to the agent for appropriate corrections and re-submitted to the Registrar. The Sub-County Registrar assesses the forms and appends his/her signature, stamps a date of registration and a unique entry number qualifying the form into a valid register of birth or death.

The next step involves data extraction from the registers into a data compilation tool, an MS Excel template. The data from the Excel templates is used to populate CRP forms 5, 21, 24/25, and 34 (Appendix A15 to A18). These CRP forms are a summary of various aspects of registration such as by place of registration and type of registration as well as summaries on certification and registration materials consumption. The completed CRP forms are thereafter transmitted to the CRS Statistics section every month.

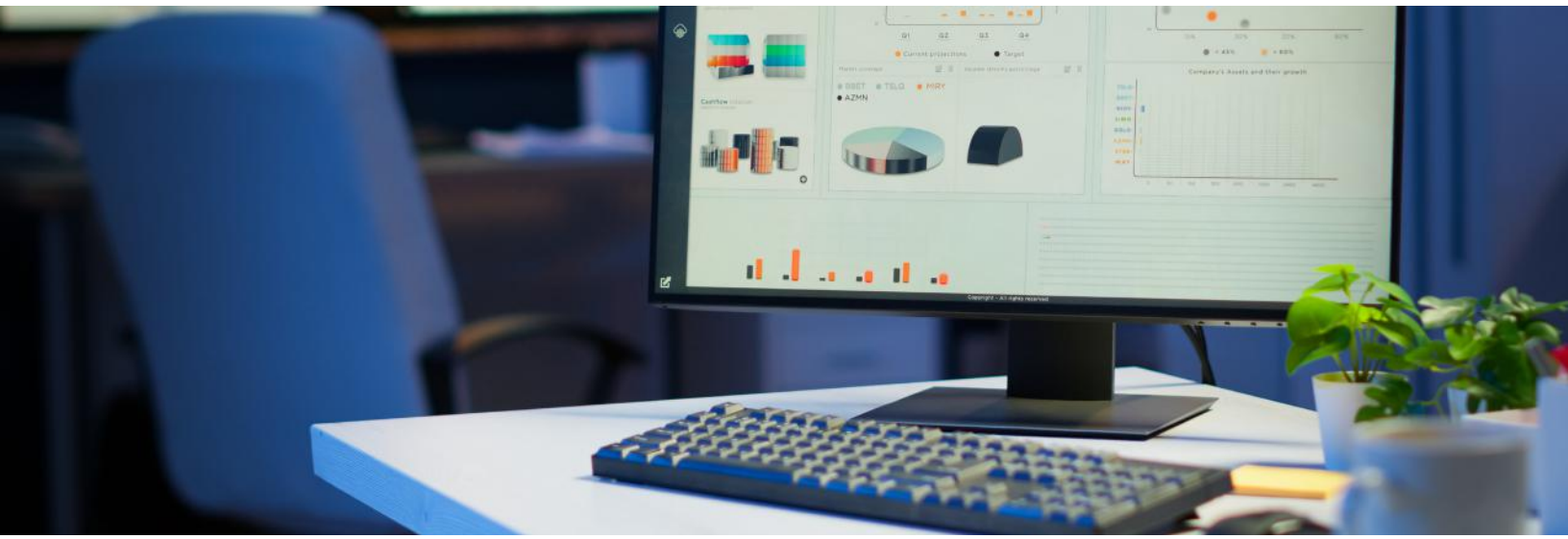
At the national level, the statistics section verifies and validates the Excel templates together with the CRP forms and gives necessary feedback to the Sub-County Registrars for any variance and inconsistency. Finally, preliminary data cleaning is done after which the data is merged into counties, regions, and a national database that is used for analysis and production of the annual KVSR.

2.6 Opportunities and challenges of CRVS

2.6.1 Opportunities

Various opportunities exist that CRS can tap into to improve the registration of births and deaths as well as the generation of vital statistics. Some of the opportunities are:

Various opportunities exist that CRS can tap into to improve the registration of births, deaths and generation of vital statistics

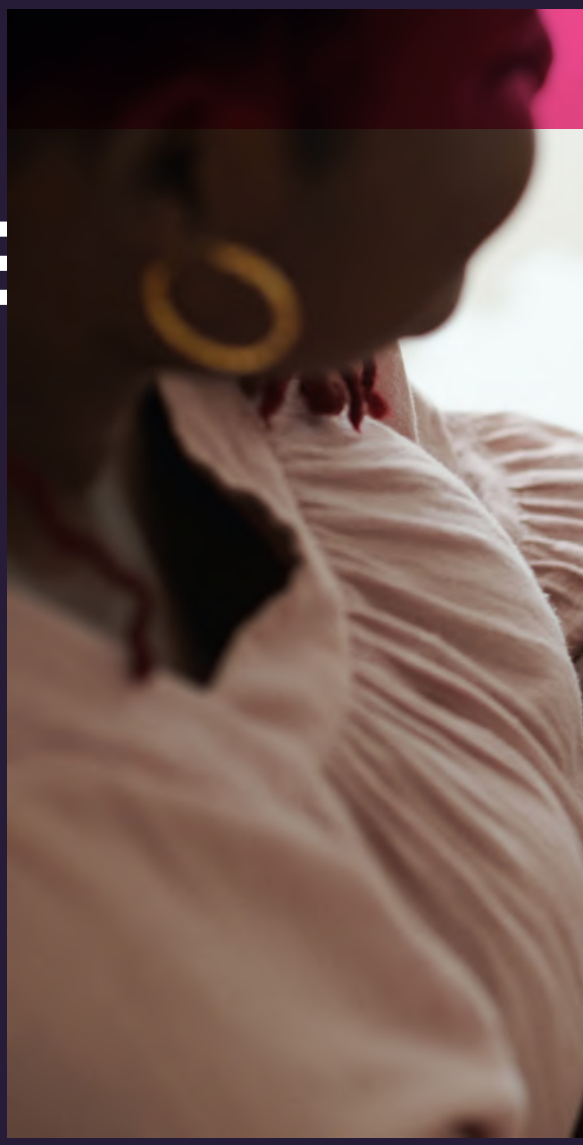


1) The Departments participate in international forums aimed at improving CRVS such as the UN Legal Identity, ID for Africa and Agenda 2063, and the African Conference for Ministers responsible for Civil Registration. These fora provide an opportunity for global dialogues where CRVS experts meet, share experiences, best practices and set priorities for CRVS improvement.
2) Demand for birth certificates by government agencies e.g. KEMIS (Kenya Education management information system), National Examination registration and National Health Insurance Fund (NHIF) for their process has improved birth registration and birth certificates uptake.
3) Increased demand for vital statistics by government agencies and the public to support policy formulation and decision making.
4) UPI program is expected to generate a unique personal identifier through CVRSS which is a key enabler to the National Government agenda of digitizing all services.
5) Ongoing legal review of the civil registration law, Cap 149 which will broaden the scope and mandate of CRS as envisioned in the UN Principles and recommendations for Vital statistics.
6) Linkage of Community health promoters and Assistant Chiefs will help improve birth and death registration quality completeness.

2.6.2 Challenges

1) Insufficient budgetary allocation affecting CRVS programs.
2) Inadequate capacity building across all levels of the CRVS ecosystem.
3) Low awareness of the existence of vital statistics data.
4) Low coverage of CRS service delivery points (Offices). CRS is operating in 153 sub-counties across the country against the 380 sub-counties in Kenya.

CHAPTER THREE



3.1 Introduction

This chapter outlines methods for estimating completeness of births and deaths that have been registered, in addition to computing the expected number of births and deaths in 2023. It also highlights the data quality controls employed in data generation for developing this report, data assurance mechanisms, timeliness and availability of the vital statistics, completeness of the registration process, accuracy, and adjustments of the data.

3.2 Methodology

The methodology applied in this report entails estimation of birth and death completeness. .

3.2.1 Estimation of birth registration completeness

Completeness of birth registration is the proportion of registered events to the expected number of events. The expected births were computed for women of reproductive age (15-49 years) at the national and county levels. The Age Specific Fertility Rates (ASFR) from the 2022 Kenya Demographic and Health Survey were multiplied by the corresponding 2023 projected female population, from the 2019 Kenya Population and Housing Census.
The expected births were obtained based on the following formula;

$$Expected\ Births = \sum_{i=1}^{n} Xi\pi i$$

The Age Specific Fertility Rates from the 2022 Kenya Demographic and Health Survey were multiplied by the corresponding 2023 projected female population, from the 2019 Kenya Population and Housing Census

Where ***Xi*** is the ASFR for the women in age group i;

πi is the population of the age group ***i*** as per the 2023 population projection and;

n is the number of the age groups among the population under consideration

Table 3.1: ***Expected Births by Age, 2023 – Based on 2022 KDHS ASFR***

Age Group	Projected Population 2023 (πi)	ASFR (Xi)	Expected Births 2023
15 -19	2,825,803	0.073	206,284
20 – 24	2,595,460	0.179	46,4587
25 – 29	2,359,466	0.172	405,828
30 – 34	2,023,473	0.137	277,216
35 – 39	1,621,476	0.087	141,068
40 – 44	1,340,998	0.035	46,935
45 – 49	1,068,400	0.005	5,342
TOTAL	**13,835,075**		**1,547,260**

Source: KNBS

Birth registration completeness is calculated using;

$$Birth\ registration\ completeness = \frac{Actual\ registered\ live\ births}{Expected\ births} \times 100$$

3.2.2 Estimation of death registration completeness

The estimation of deaths completeness was calculated using the 2023 population projections derived from the 2019 census and corresponding Age-Specific Mortality Rates (ASMRs). The ASMRs generated from the 2019 KPHC were assumed to remain constant during the period of this report. The expected deaths at the national and county are obtained using the following formula,

$$Expected\ Deaths = \sum_{i=1}^{n} Xi\pi i$$

Where: ***Xi*** is the ASMR in age group i;
πi is the population of the age group i as per the 2023 population projection and;
n is the number of the age groups among the population under consideration

Table 3.2: ***Expected deaths by age, 2023***

Age group	Projected population for Male 2023	Age Specific Mortality Rate Male	Expected deaths Male	Projected population for Female 2023	Age Specific Mortality Rate Female	Expected deaths Female
<1	642,225	0.0399	25,625	633,625	0.0333	21,100
1-4	2,540,244	0.0038	9,653	2,495,871	0.0044	10,982
5-9	3,034,364	0.001	3,034	3,112,470	0.001	3,112
10-14	2,926,360	0.0007	2,048	2,989,357	0.0006	1,794
15-19	2,778,344	0.0025	6,946	2,825,803	0.0016	4,521
20-24	2,581,961	0.0035	9,037	2,595,460	0.0022	5,710
25-29	2,355,120	0.004	9,420	2,359,466	0.0027	6,371
30-34	2,024,482	0.0048	9,718	2,023,473	0.0032	6,475
35-39	1,606,550	0.0062	9,961	1,621,476	0.0039	6,324
40-44	1,319,104	0.0084	11,080	1,340,998	0.0049	6,571
45-49	1,047,189	0.0119	12,462	1,068,400	0.0064	6,838
50-54	770,329	0.0171	13,173	797,425	0.0091	7,257
55-59	562,071	0.0247	13,883	593,646	0.0135	8,014
60-64	419,936	0.0362	15,202	449,090	0.0207	9,296
65-69	308,688	0.0525	16,206	339,693	0.0324	11,006
70-74	232,637	0.0743	17,285	264,059	0.0514	13,573
75-79	164,646	0.1031	16,975	196,459	0.0811	15,933
80-84	97,957	0.1419	13,900	119,991	0.1257	15,083
85-89	77,706	0.2027	15,751	75,080	0.1911	14,348
90-94	27,761	0.2853	7,920	37,897	0.2753	10,433
95+	31,610	0. 4552	15,906	36,578	0. 4759	17,845
TOTAL	**25,549,285**		**253,668**	**25,976,317**		**202,146**
Total Expected Deaths	**455,814**					

Source: KNBS

Death registration completeness for both the national and county levels were calculated using the following formula,

$$Death\ registration\ completeness = \frac{Actual\ registered\ deaths}{Expected\ number\ of\ deaths} \times 100$$

3.3 Data Quality

Quality vital statistics are expected to be complete, consistent, accurate, timely, relevant, reliable, and available in a user-friendly format. According to United Nations Principles and Recommendations for a vital statistics system, "The quality of vital statistics is measured according to completeness, correctness or accuracy, availability and timeliness" (UN, 2014).

3.3.1 Data quality assurance

Globally, the quality of vital statistics is determined by the effectiveness of the quality assurance mechanisms and the actual data collection in terms of coverage, completeness of registration and errors in data content. In efforts to ensure high data quality, the crs has put in place various data quality assurance mechanisms to ensure data collected from the field is complete and errors are minimized.

The Civil Registration System in Kenya has put in place standard operating procedures to guide registrars and registration assistants in data management. This is to ensure quality at every operational stage to avoid errors and missing values on some variables. Quality assurance is emphasized at the point of data capture where most of the errors are likely to be introduced.

3.3.2 Data quality control

Quality control (qc) refers to the application of methods or processes that determine whether data meets overall quality goals and defined quality criteria for individual values (rasmussen, et al. 2014). Vital statistics data collection systems use well-defined procedures and processes that apply to data control measures. In this report, data quality issues identified were mainly; duplicates, typing errors and erroneous or missing information. The development of this report adopted edit specifications during data cleaning and validation. Duplicate entries on events were identified based on unique entry numbers and erroneous entries were dealt with in accordance with the nature of the errors. For example, the missing values for age were replaced with digits 99 for births and 999 for deaths, while blank qualitative variables were replaced with "not stated".

3.3.3 Timeliness and availability

Timely registration and reporting of vital events are essential for effective planning, resource allocation, public health interventions and research. Timeliness is defined by the time taken to register a vital event and depends on the specified timelines.

In Kenya, timely registration refers to a birth or a death that is notified and registered within six months of occurrence (current registration). Late registration, on the other hand, refers to the registration of a birth or a death after six months of its occurrence.

The Civil Registration System in Kenya has put in place standard operating procedures to guide registrars and registration assistants in data management to ensure quality at every operational stage to avoid errors and missing values on some variables.

In Kenya, timely registration refers to a birth or a death that is notified and registered within six months of occurrence (current registration)

Management of timeliness and availability of data in civil registration services is done through the following steps: -

1) The registration assistants submit birth and death records to the registrars at the civil registration services office by the end of every month;
2) The registrar prepares the statistical summaries in a prescribed format and transmits them to the statistics unit at the headquarters by the 10th of every month;
3) CRS prepares monthly, quarterly, annual and ad hoc reports;
4) CRS develops and disseminates the kvsr by end of march of each year.

3.4 Completeness of registration

Data completeness in registration is the extent to which a dataset contains all the necessary elements and observations for analysis. This enhances the integrity and reliability of analysis, preventing

Data completeness in registration is the extent to which a dataset contains all the necessary elements and observations for analysis.This enhances the integrity and reliability of analysis, preventing gaps in understanding and supporting more robust decision-making processes

gaps in understanding and supporting more robust decision-making processes. CRS undertakes the following to ensure data completeness; integrating data from all the 47 counties, ensuring all relevant variables are available for analysis, imputing for any missing variables, incorrect or incomplete entries are refered back to the registrars for corrections.

3.5 Accuracy

In vital statistics, accuracy means that data items in the statistical report have been accurately filled in and no errors have been introduced during the transcription of data from vital records to the statistical report (if this is the case) or during the processing stages (coding, editing, imputation and tabulation) (who 2013).

The following checks to establish the accuracy of data were undertaken during the development of this report:

Clarification was sought from the registrars to verify the correctness of information captured in the reporting templates where errors or gaps were identified during data cleaning.

3.6 Data adjustment and redistribution

Data adjustment refers to a set of procedures which are employed to: improve coverage, classification, timing, and valuation of the data; conform to an accounting and recording basis; or address data quality differences in compiling specific data sets.

For this report, data adjustment and redistribution were not done.

3.7 Limitations

The following are the limitations faced with the preparation of this report:

1) Manual registration processes which are likely to introduce errors in the data collection process.
2) The community reported causes of death by the assistant chiefs are lay diagnosis affecting the quality of the cause of death.
3) Data collection tool for death does not conform to icd 11

The current use of excel sheets as data aggregation toolis prone to errors.

In vital statistics, accuracy means that data items in the statistical report have been accurately filled in and no errors have been introduced during the transcription of data from vital records to the statistical report or during the processing stages

CHAPTER FOUR

Key Findings

Birth registration completeness declined from **80.6 percent** in 2022 to **77.1 percent** in 2023

More male at **51 percent** live births were registered compared to female at **49 percent** live births.

About **99 percent** of the registered live births occurred in a health facility.

Thirty percent of live births occurred among females aged 20-24.

About **86 percent** of live births occurred among married women.

*Nairobi City County had the highest completeness at 131.6 percent while Wajir County had the lowest at **12.2 Percent.***

*Registered community births increased from **12,214** in 2022 to **16,166** in 2023.*

4.1 Introduction

This chapter presents information on live birth registration completeness, sex ratio and live birth registration by sex of child, place of occurrence, age of mother, marital status, and education level between 2019 and 2023.

The chapter also provides fertility measures based on live births registered in 2023. Birth registration is a key milestone towards acquiring personal rights and accessing government services. While birth registration does not in itself confer citizenship to a child, it is essential to ensure the right of every child to acquire a nationality, as it constitutes an important form of proof of the link between an individual and the State.

4.2 Birth registration completeness between 2019 and 2023

Table 4.1 presents birth registration trends in Kenya between 2019 and 2023. The expected births in 2023 were 1,547,260. The registered number of births during the same year was 1,192,884, representing a coverage of 77.1 percent. Most of the births in 2023 (99%) were registered in a health facility. Table 4.1 further shows that more males than females new borns were registered.

***Table 4.1:* Indicators in Birth registration from 2019 to 2023**

Indicator	2019	2020	2021	2022	2023
Expected	1,328,252	1,410,795	1,443,542	1,514,825	1,547,260
Expected Males	673,941	715,822	732,392	768,606	785,063
Expected Females	654,311	694,973	711,060	746,219	762,197
Registered	1,186,144	1,126,762	1,200,190	1,221,444	1,192,884
Completeness (%)	89.3**	80	83	81	77
Male	603,774	575,454	612,434	619,929	608,471
Female	582,774	551,308	587,756	601,515	584,242
Sex ratio at Birth	104	104	104	103	104
Community Births	52,309	25,728	26,316	12,598	16,166
Health Facility Births	1,133,835	1,101,034	1,173,874	1,208,846	1,176,714

**Note that there were 4 cases of intersex births and 167 cases where sex of the child was not indicated in 2023 included in total registered births*

***-Revised based on the 2019 KPHC figures*

4.3 Birth registration completeness

The analysis of birth registration focuses on live births that were registered within six months from the time of occurrence. Table 4.2 presents the results of live birth registration by national and County between 2019 and 2023.

Six counties that reported the highest birth registration completeness of 100 percent and above were; Nairobi City at 131.6 percent, Kericho at 127.5 percent, Nyamira at 123.2 percent, Kisii at 101.7 percent, Kiambu at 100.4 percent and Uasin Gishu at 100.2 percent. The high completeness in Nairobi, Kiambu, Kisii and Uasin Gishu could be attributed to better health facilities.

It is not clear from the data why Kericho and Nyamira have such a high completeness.

During the period under review, 12 counties attained 90 percent and above birth registration completeness while twenty-three (23) Counties had birth registration above national birth registration of 77.1 percent.

Counties that reported the lowest birth registration completeness were Wajir at 12.2 percent, Mandera at 13.9 percent, Samburu at 34.3 percent, Turkana at 35.8 percent, Tana River at 44.3 percent, and Marsabit at 46.8 percent.

The Counties with the lowest registration completeness are generally those within arid and semi-arid areas. This could be attributed to vastness, cultural and religious beliefs, nomadic lifestyle, and insecurity.

Table 4.2: Births Registration by County, 2019-2023

Number of expected, registered births and registration completeness by county, 2019-2023																
Code	National and County	Expected					Registered					Completeness				
		2019	2020	2021	2022	2023	2019	2020	2021	2022	2023	2019	2020	2021	2022	2023
	Kenya	1,556,157	1,410,795	1,443,452	1,514,825	1,547,260	1,186,144	1,126,762	1,200,190	1,221,444	1,192,884	76.2	79.9	83.1	80.6	77.1
001	Mombasa	39,978	36,110	36,491	34,418	34,923	35,994	30,459	32,680	34,166	33,642	90.0	84.4	89.6	99.3	96.3
002	Kwale	31,160	28,699	29,522	30,370	31,640	22,965	19,498	21,291	20,791	19,341	73.7	67.9	72.1	68.5	61.1
003	Kilifi	58,616	43,127	44,407	43,478	44,684	45,949	41,226	42,633	49,857	42,836	78.4	95.6	96.0	114.7	95.9
004	Tana River	12,982	11,301	11,699	12,725	13,235	5,380	4,889	6,305	5,603	5,862	41.4	43.3	53.9	44.0	44.3
005	Lamu	4,405	4,113	4,241	5,077	7,323	3,958	3,526	4,413	4,241	4,355	89.9	85.7	104.1	83.5	59.5
006	Taita Taveta	8,155	8,768	8,929	8,977	9,116	8,448	8,197	8,065	8,618	8,430	103.6	93.5	90.3	96.0	92.5
007	Garissa	36,095	27,099	28,144	32,331	33,341	12,983	10,432	15,201	16,321	17,507	36.0	38.5	54.0	50.5	52.5
008	Wajir	38,521	35,386	36,975	45,064	47,194	6,327	5,900	9,141	7,957	5,770	16.4	16.7	24.7	17.7	12.2
009	Mandera	28,465	43,885	46,331	60,178	63,104	12,342	8,224	10,167	8,057	8,762	43.4	18.7	21.9	13.4	13.9
010	Marsabit	14,466	20,924	21,792	27,115	28,335	8,346	7,894	10,185	10,404	13,264	57.7	37.7	46.7	38.4	46.8
011	Isiolo	9,453	7,636	7,878	9,847	10,173	5,816	5,301	5,657	5,894	5,745	61.5	69.4	71.8	59.9	56.5
012	Meru	37,742	36,556	37,129	39,625	40,225	31,883	34,584	33,684	34,048	32,642	84.5	94.6	90.7	85.9	81.1
013	Tharaka Nithi	9,938	8,681	8,866	9,734	9,842	7,363	8,341	10,074	9,730	9,222	74.1	96.1	113.6	100.0	93.7
014	Embu	14,562	13,874	14,057	15,157	15,283	14,042	13,392	12,501	12,203	13,740	96.4	96.5	88.9	80.5	89.9
015	Kitui	31,232	26,443	27,357	33,756	34,565	25,520	22,953	24,123	23,146	23,209	81.7	86.8	88.2	68.6	67.1
016	Machakos	40,008	32,160	32,624	34,600	34,863	27,656	25,141	27,828	25,276	26,849	69.1	78.2	85.3	73.1	77.0
017	Makueni	23,340	19,969	20,484	24,757	25,192	18,247	19,002	19,631	21,347	21,466	78.2	95.2	95.8	86.2	85.2
018	Nyandarua	15,757	15,467	15,899	19,765	20,175	11,196	11,918	12,058	10,945	11,431	71.1	77.1	75.8	55.4	56.7
019	Nyeri	15,066	16,183	16,333	19,061	19,259	15,788	16,689	16,316	16,251	15,552	104.8	103.1	99.9	85.3	80.8
020	Kirinyaga	10,986	13,124	13,207	14,221	14,322	11,506	13,220	13,811	12,951	12,865	104.7	100.7	104.6	91.1	89.8
021	Muranga	21,713	23,735	24,026	28,661	29,100	19,046	20,994	21,840	19,516	20,399	87.7	88.5	90.9	68.1	70.1
022	Kiambu	65,877	66,863	67,570	63,231	64,194	71,923	69,483	60,663	69,216	64,422	109.2	103.9	89.8	109.5	100.4

Table 4.2: ***Births Registration by County, 2019-2023 (Cont'd)***

023	Turkana	46,631	43,388	45,031	51,027	53,568	15,665	16,667	17,337	17,841	19,176	33.6	38.4	38.5	35.0	35.8
024	West Pokot	30,056	23,211	24,228	28,899	30,198	10,756	13,333	15,523	14,819	17,282	35.8	57.4	64.1	51.3	57.2
025	Samburu	13,428	10,495	10,915	12,237	12,863	4,952	4,012	5,178	4,817	4,418	36.9	38.2	47.4	39.4	34.3
026	Trans Nzoia	38,675	27,569	28,669	33,486	34,127	25,052	22,463	23,195	23,914	24,975	64.8	81.5	80.9	71.4	73.2
027	Uasin Gishu	36,919	31,423	32,397	32,641	33,253	29,080	33,911	34,809	33,975	33,313	78.8	107.9	107.4	104.1	100.2
028	Elgeyo Marakwet	13,876	12,519	12,915	14,608	15,032	10,564	11,026	12,494	12,157	10,882	76.1	88.1	96.7	83.2	72.4
029	Nandi	27,918	22,411	23,166	26,775	27,331	17,921	16,209	18,313	18,346	18,251	64.2	72.3	79.1	68.5	66.8
030	Baringo	22,564	18,694	19,333	22,927	23,735	12,487	12,731	14,336	13,627	14,612	55.3	68.1	74.2	59.4	61.6
031	Laikipia	14,466	14,862	15,227	17,137	17,650	16,932	14,283	16,897	16,894	15,145	117.0	96.1	111.0	98.6	85.8
032	Nakuru	67,455	62,007	63,587	68,061	69,835	68,156	57,507	62,019	63,622	59,945	101.0	92.7	97.5	93.5	85.8
033	Narok	49,300	38,932	40,608	46,179	48,572	18,838	20,765	25,468	23,775	25,625	38.2	53.3	62.7	51.5	52.8
034	Kajiado	45,689	34,746	35,566	36,910	37,746	25,084	27,354	30,312	35,282	33,607	54.9	78.7	85.2	95.6	89.0
035	Kericho	29,953	23,165	23,832	26,068	26,473	33,166	23,121	28,677	28,027	33,749	110.7	99.8	120.3	107.5	127.5
036	Bomet	30,039	23,490	24,263	27,208	27,685	27,420	24,570	30,601	23,478	21,292	91.3	104.6	126.1	86.3	76.9
037	Kakamega	61,302	47,741	49,516	57,360	58,662	48,519	43,944	46,835	48,967	48,760	79.1	92.0	94.6	85.4	83.1
038	Vihiga	18,003	13,808	14,223	17,550	17,789	13,872	12,256	12,219	14,416	12,839	77.1	88.8	85.9	82.1	72.2
039	Bungoma	60,900	45,186	47,031	54,145	55,022	46,058	46,905	50,966	51,966	40,836	75.6	103.8	108.4	96.0	74.2
040	Busia	31,656	24,518	25,424	28,521	29,352	30,515	21,025	20,613	21,603	20,496	96.4	85.8	81.1	75.7	69.8
041	Siaya	32,540	27,079	27,913	31,274	32,191	29,988	28,967	27,836	30,316	29,058	92.2	107.0	99.7	96.9	90.3
042	Kisumu	37,729	32,410	33,232	34,425	35,061	32,275	31,351	35,061	33,255	32,921	85.5	96.7	105.5	96.6	93.9
043	Homa Bay	47,527	32,795	34,016	37,713	39,253	29,174	27,868	31,052	30,897	30,631	61.4	85.0	91.3	81.9	78.0
044	Migori	47,636	35,211	36,708	39,854	41,310	33,278	32,648	32,981	35,292	35,587	69.9	92.7	89.8	88.6	86.1
045	Kisii	38,993	30,491	31,184	33,604	33,930	27,846	32,336	30,596	33,931	34,507	71.4	106.1	98.1	101.0	101.7
046	Nyamira	17,277	13,445	13,858	14,976	15,060	10,868	12,995	19,463	20,635	18,557	62.9	96.7	140.4	137.8	123.2
047	Nairobi	136,668	129,866	130,258	105,362	105,672	145,000	137,252	139,142	143,054	139,109	106.1	105.7	106.8	135.8	131.6

The Map 4.1 provides a complete pictorial presentation of live birth registration completeness by County in 2023.

***Map 4.1:** Birth registration completeness in Kenya, 2023*

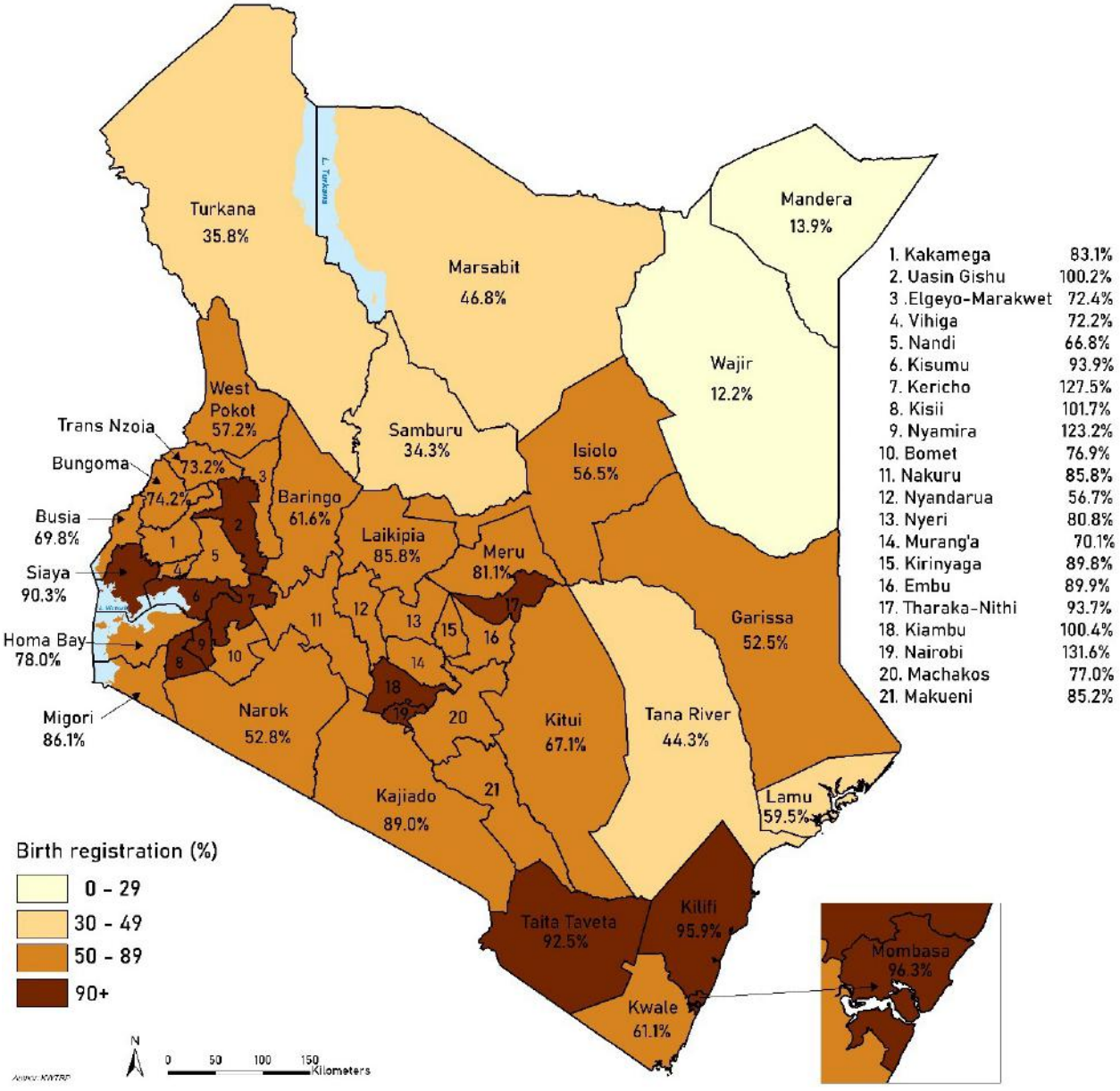


Figure 4.1: Birth registration completeness by County, 2023

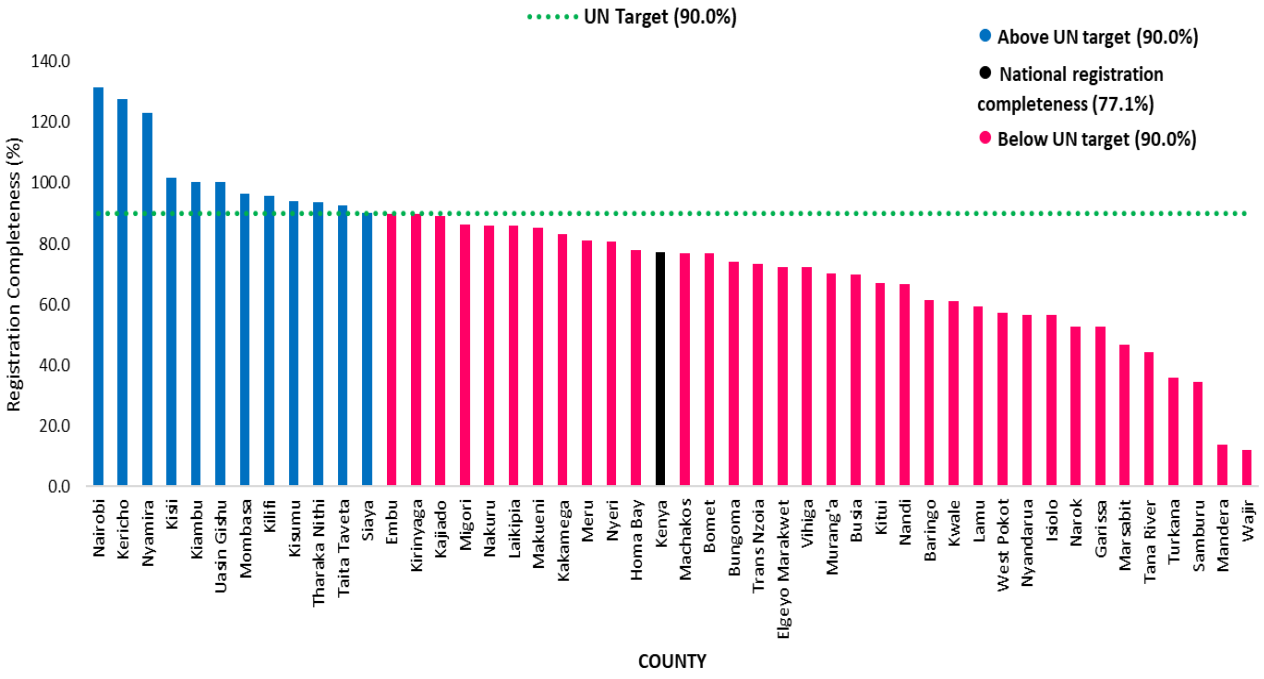
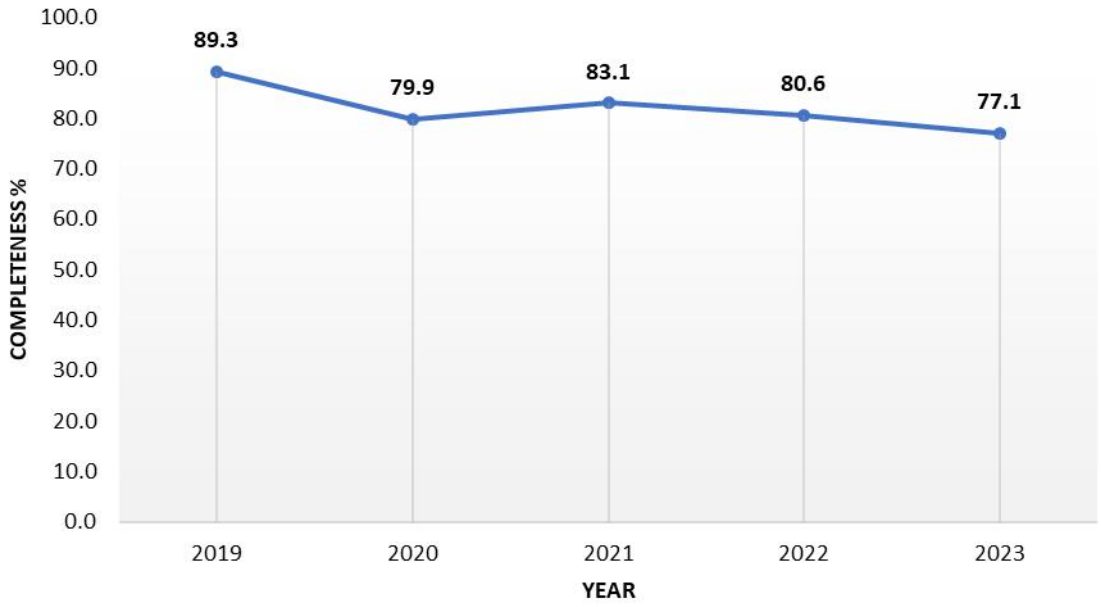


Figure 4.2 presents trends in birth registration completeness in the years 2019 to 2023. Nationally, the live birth registration completeness declined from 83.1percent in 2021 to 77.1 percent in 2023.



4.4 Sex ratio at birth

The sex ratio in a population refers to the number of males relative to the number of females. It is normally expressed as a percentage. At birth, the general sex ratio is considered to be 105 but could range from 103 to 107.

The National and County sex ratio results are presented in Table 4.3. The result shows the National sex ratio increased to 104.1 in 2023 from 103.1 in 2022 and was within the expected normal range. The County distribution shows that 29 Counties reported sex ratios within the expected range. However, Marsabit, Mandera, Garissa, Elgeyo/Marakwet, Baringo and Nyeri reported slightly higher sex ratios which could be attributed to over-reporting of male births. In addition, 12 Counties namely, Kiambu, Laikipia, Kitui, Machakos, Bungoma, Tharaka-Nithi, Wajir, Vihiga, Nyandarua, Siaya and Muranga reported slightly lower sex ratios with Kilifi recording the lowest at 94.4 which could be attributed to under-reporting of male births

The sex ratio in a population refers to the number of males relative to the number of females. It is normally expressed as a percentage. At birth, the general sex ratio is considered to be 105 but could range from 103 to 107

Table 4.3: ***National and County sex ratio, 2021-2023***

Code	National/ County	2021	2022	2023
	National	**104.2**	**103.1**	**104.1**
001	Mombasa	103.7	102.8	107.2
002	Kwale	103.7	107.3	107.4
003	Kilifi	99.6	97.5	94.4
004	Tana River	107.0	109.5	106.8
005	Lamu	108.3	108.4	102.6
006	Taita/Taveta	108.0	101.9	104.1
007	Garissa	110.7	109.1	111.6
008	Wajir	103.9	104.4	100.6
009	Mandera	109.9	116.8	118.1
010	Marsabit	116.1	119.8	122.8
011	Isiolo	105.6	101.9	103.4
012	Meru	103.6	107.1	104.9
013	Tharaka-Nithi	102.6	105.7	101.4
014	Embu	98.2	103.7	103.3
015	Kitui	103.4	104.1	102.2
016	Machakos	106.8	100.1	101.9
017	Makueni	107.2	102.4	105.2
018	Nyandarua	97.7	101.5	99.2
019	Nyeri	102.9	103.2	108.8
020	Kirinyaga	104.0	103.5	106.4
021	Muranga	106.3	103.2	98.3
022	Kiambu	102.4	103.7	102.4
023	Turkana	107.2	105.6	104.3
024	West Pokot	104.2	106.9	105.6
025	Samburu	111.8	106.9	104.8
026	Trans Nzoia	100.7	104.5	104.9
027	Uasin Gishu	105.2	102.1	104.0
028	Elgeyo/ Marakwet	107.0	106.3	110.9
029	Nandi	102.4	101.7	104.1
030	Baringo	109.6	108.6	109.5
031	Laikipia	102.5	104.5	102.4
032	Nakuru	101.1	104.2	104.6
033	Narok	104.7	106.2	104.0
034	Kajiado	87.2	99.7	105.8
035	Kericho	104.9	98.9	107.2
036	Bomet	108.2	106.1	105.5
037	Kakamega	101.8	100.8	103.4
038	Vihiga	106.6	102.1	99.9
039	Bungoma	104.3	100.0	101.8
040	Busia	105.6	101.0	103.5
041	Siaya	111.4	102.9	98.5
042	Kisumu	105.2	102.5	104.1
043	Homa Bay	100.6	102.3	102.8
044	Migori	106.7	104.7	104.4
045	Kisii	104.6	103.8	105.3
046	Nyamira	104.6	98.6	103.0
047	Nairobi City	107.2	102.0	105.1

4.5 Registered live births by background characteristics

This section provides information on registered live births by select background characteristics which include sex of child, place of occurrence, mother's age, marital status and education level.

4.5.1 Registered live births by sex

Information on the sex of a child is an important aspect of birth registration which provides demographic trends on population structure. Figure 4.3 shows that in the period 2019–2023, most of the registered live births in the country were for males at about 51 percent.

***Figure 4.3:* Registered live births by sex of child, 2019–2023**

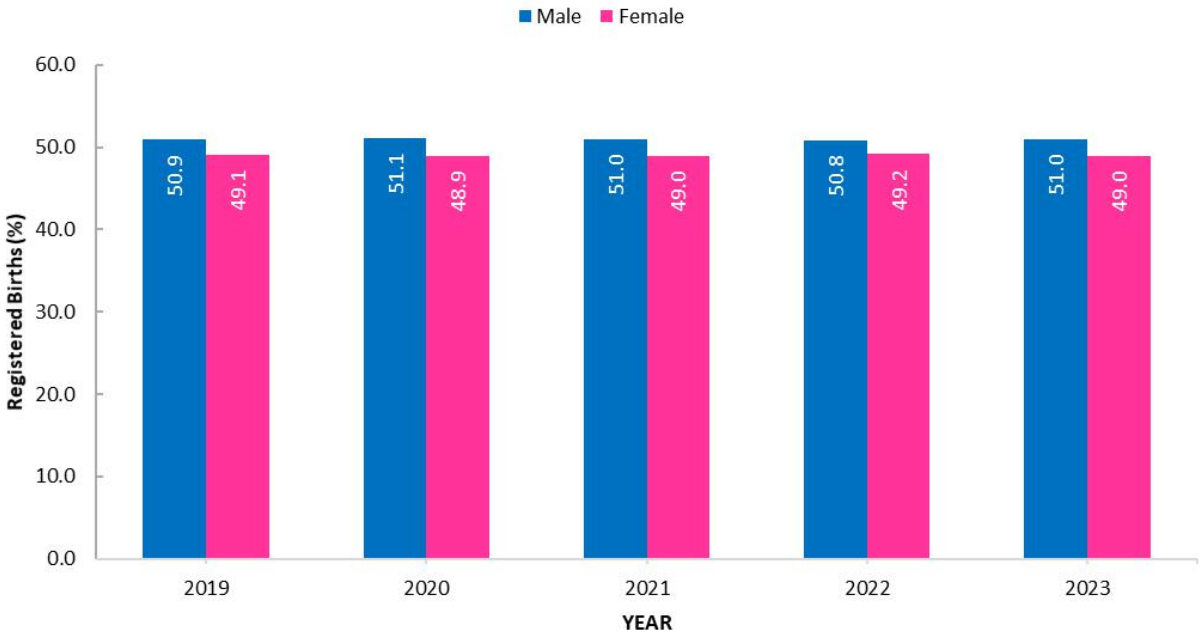
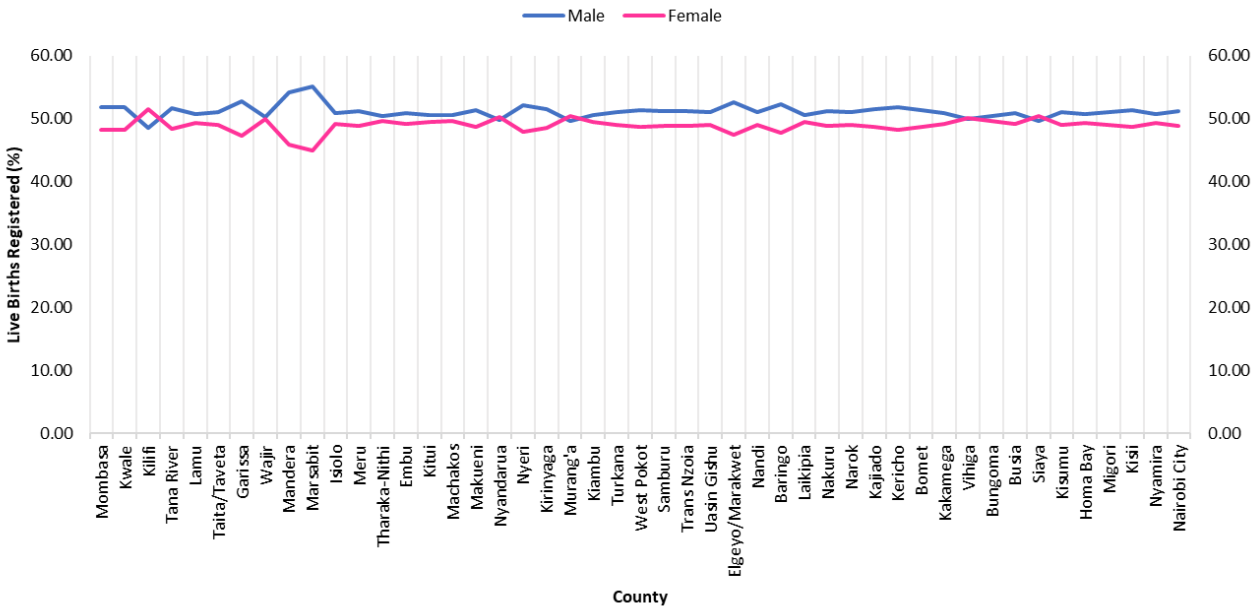


Figure 4.4 shows in 2023, all the counties except Kilifi registered more male than female live births. In Mandera and Marsabit, there is a huge disparity in registration of live births between males and females which could be an indication of over-reporting of male births.

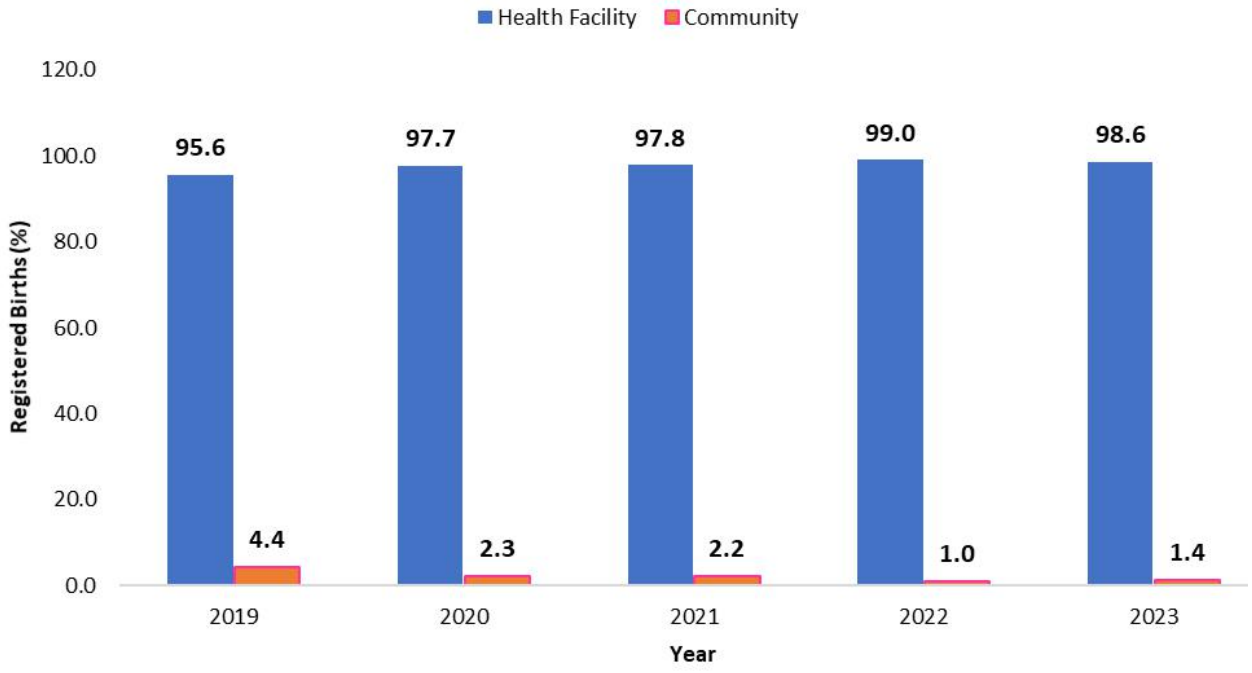
***Figure 4.4:* Registered live births by sex of child and by county of registration, 2023**



4.5.2 Registered live births by place of occurrence

The Government advocates for mothers to deliver in health facilities. This aims at reducing both maternal and neonatal mortality in the country. Figure 4.5 shows that the proportion of registered births that occurred in health facilities increased progressively from about 96 percent in 2019 to 99 percent in 2023. Over the same period, the proportion of registered live births occurring in the community reduced from 4 to 1 percent.

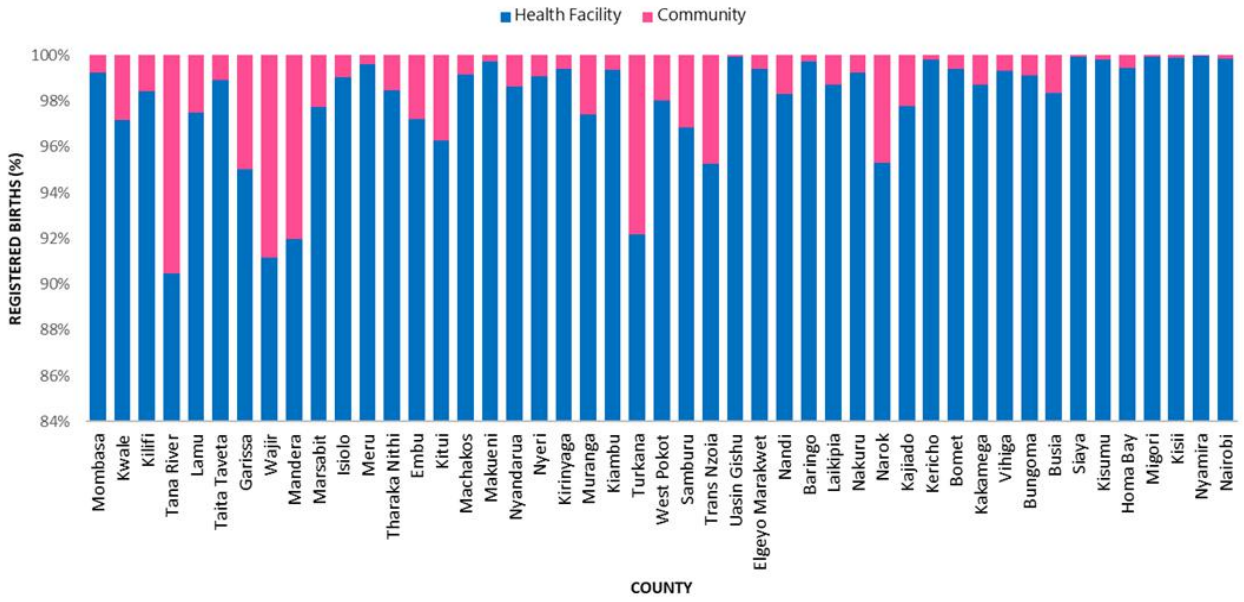
*Figure 4.5: **Registered live births by place of occurrence, 2019–2023***



In each of the forty-seven counties, over 90 percent of the registered live births occurred in health facilities as shown in Figure 4.6. Nyamira County had the highest proportion of registered births that occurred in health facilities at 100 percent while Wajir and Tana River counties had the lowest at about 91 percent.

Early childbearing is associated with higher risk of maternal and child morbidity and mortality. It is therefore the government's policy to eliminate pregnancies among adolescents (ICPD 25, 2019)

Figure 4.6: ***Registered live births by place of occurrence and by county of registration, 2023***



The scale starts at 84 percent since all the counties have registration coverage from the health facility of over 90 percent.

4.5.3. Registered live births by age of the women

Early childbearing is associated with higher risk of maternal and child morbidity and mortality. It is therefore the government's policy to eliminate pregnancies among adolescents (icpd 25, 2019). Data on registered live births provide information about the mother's age which can be used to monitor the progress toward elimination of pregnancies among adolescents.

Table 4.4 Shows that from 2019 to 2023, the highest proportion of registered births were consistently by women aged 20-24, who contributed to a third (30%) of total registered births while twelve percent of births were from women below 20 years. It is worth noting that 298 registered births were from women aged 50 years and above. However, women below age 20 in Wajir, Nairobi city and mandera counties accounted for less than six (6) percent of registered live births.

This contrasts with migori and nyamira counties where women below age 20 years accounted for 19 percent of the registered live births, which is the highest in the country. In seventeen (17) counties, at least 15 percent of the registered births were by mothers below age 20 years. (Appendix b3).

***Table 4.4:* Registered Live Births by the age of the women, 2019-2023**

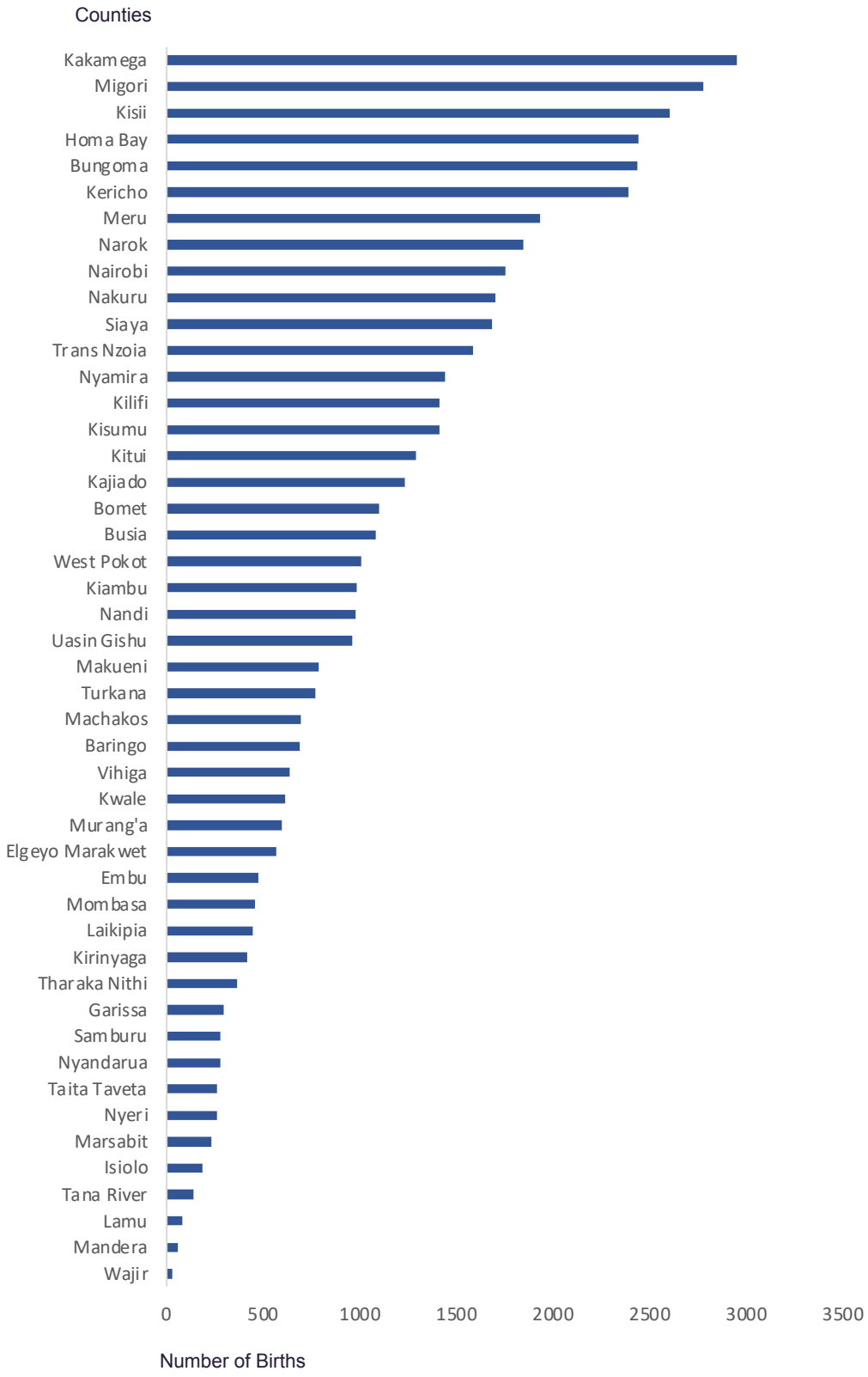
	2019	%	2020	%	2021	%	2022	%	2023	%
Under 15	2510	0.2	2116	0.2	3130	0.3	2390	0.2	2049	0.2
15-19	140468	11.8	123881	11.0	147812	12.3	137383	11.2	140774	11.8
20-24	354193	29.9	342807	30.4	352955	29.4	363493	29.8	361838	30.3
25-29	301563	25.4	285282	25.3	301393	25.1	315983	25.9	301184	25.2
30-34	215480	18.2	211212	18.7	210459	17.5	216766	17.7	206661	17.3
35-39	97771	8.2	97190	8.6	103083	8.6	112614	9.2	113363	9.5
40-44	27903	2.4	25821	2.3	25165	2.1	26207	2.1	26698	2.2
45-49	3112	0.3	2373	0.2	2333	0.2	2342	0.2	2739	0.2
50+	299	0.0	156	0.0	150	0.0	182	0.0	298	0.0
Not Stated	42845	3.6	35924	3.2	53710	4.5	44084	3.6	37280	3.1
Grand Total	**1186144**	**100.0**	**1126762**	**100.0**	**1200190**	**100**	**1221444**	**100**	**1192884**	**100.0**

4.5.4 Adolescent pregnancy

During the period under review, 48,633 registered births were from adolescent girls aged below 18 years. Six counties (kakamega, migori kisii, homabay, bungoma, and kericho) accounted for 32 percent of the total births registered among adolescents as shown in fig. 4.8.

Data on registered live births provide information about the mother's age which can be used to monitor the progress toward elimination of pregnancies among adolescents

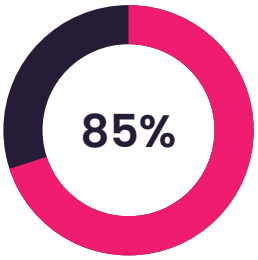
Figure 4.7: ***Registered adolescence deliveries by county, 2023***



4.5.5 Registered live births by mother's marital Status

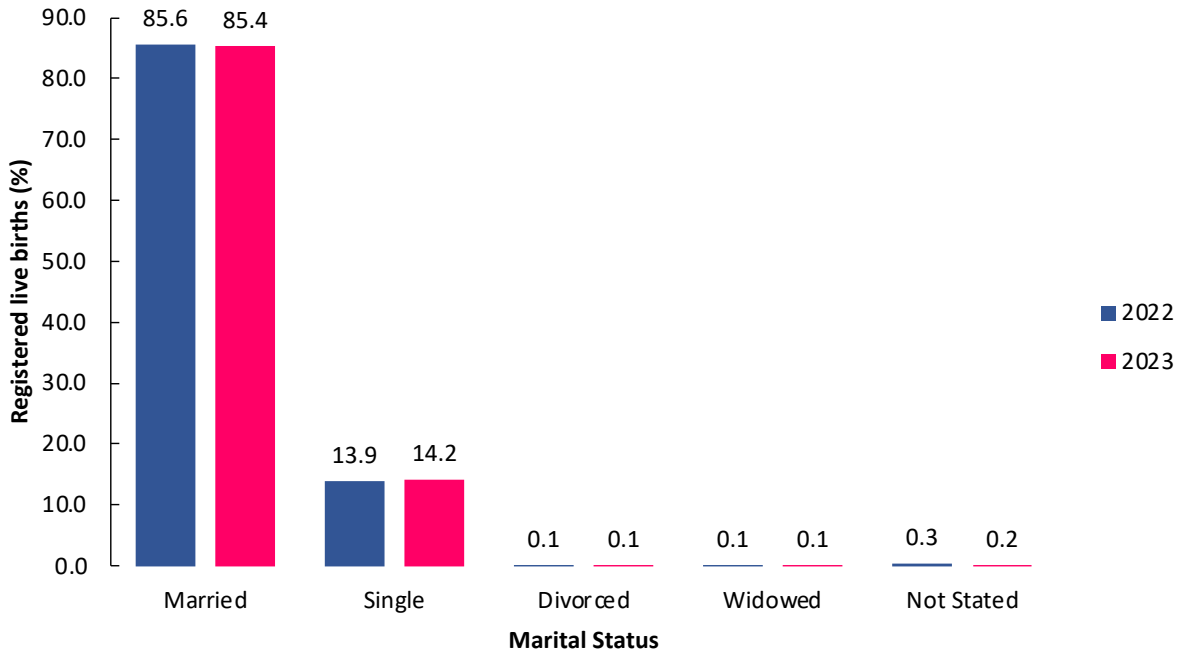
The marital status of a mother can significantly impact various aspects of maternal and child health, including birth outcomes (Prakesh et al., 2010). Figure 4.9 shows that 85 percent of the live births registered in 2023 were among married women.

Single women accounted for about 14 percent while the divorced or widowed women accounted for less than one (1) percent of the registered births.



Live births registered in 2023 which were among married women

Figure 4.8: ***Registered live births by women's marital status, 2022-2023***



In 2023, all the registered live births in Marsabit, Garissa, Wajir and Mandera counties were from married women. Counties with the lowest proportion of registered live births by married women were Kitui, Nandi, Makueni, Siaya, Elgeyo/ Marakwet, Vihiga, Kakamega, Nyamira, Kisumu, Kericho and Machakos. (Appendix B8)

4.5.6 Registered live births by women's levelof education

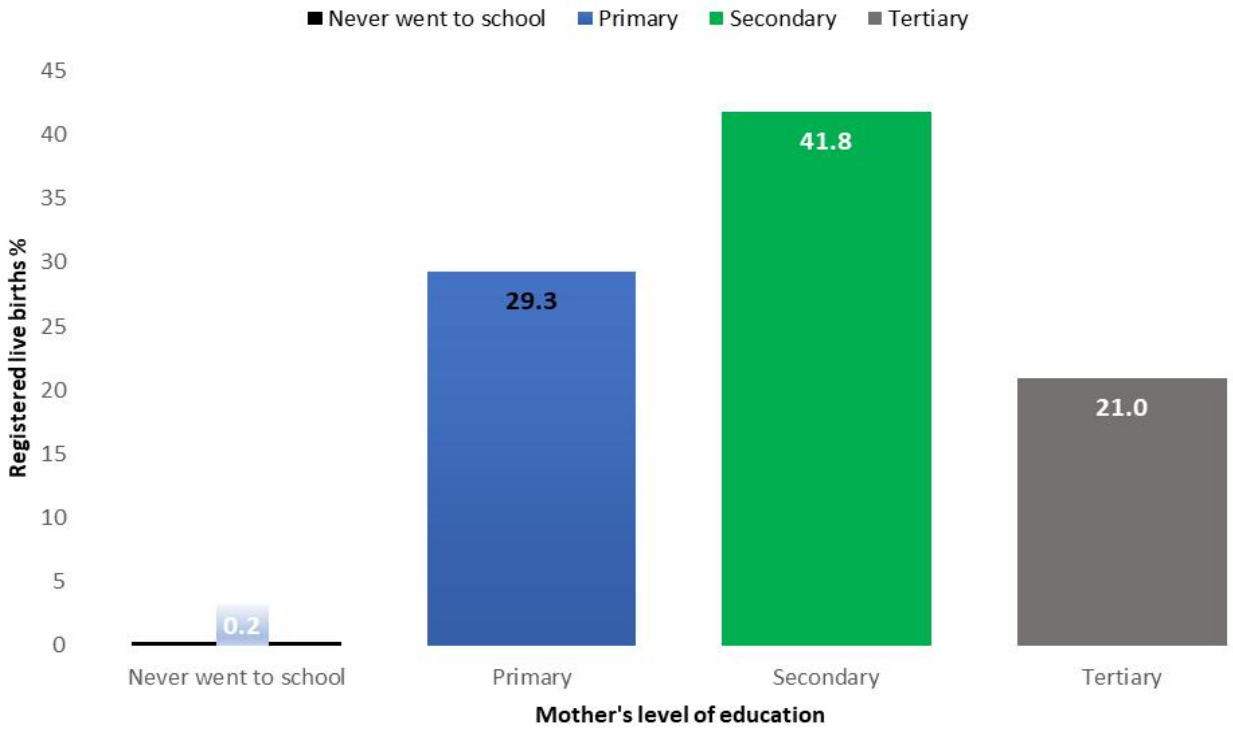
Education is an important developmental factor that contributes to population management and empowerment of women (Yue and Yang, 2023). Women with secondary level of education accounted for 42 percent of the live births that

were registered in 2023 as shown in Figure 4.8. This was followed by those with primary and tertiary level of education at 29 and 21 percent of the registered live births respectively. Those who never went to school accounted for less than one (1) percent of these live births. About 8 percent did not indicate the women's level of education

Turkana and Kwale County had the highest percentage of mothers who never went to school at 17.7 percent followed by Tana River (14.7), Narok (9.5) and Marsabit (8.2). (Appendix B9)

Those who never went to school accounted for less than one (1) percent of these live births. About 8 percent did not indicate the women's level of education

Figure 4.9: ***Registered live births by women's education level, 2023***



4.6 Registration of births of kenyans occurring abroad

Foreign registration of births refers to registration of children born outside the country by a Kenyan citizen upon request. In this case, one or both of the parents should have Kenyan citizenship.

Table 4.5 presents information on foreign births registered by sex in 2023. The total number of foreign births registered in the year 2023 was 4,954. Males constituted the highest proportion of these births compared to females, at 52 and 48 percent respectively. The three leading Countries in foreign births registration were United States of America at 28 percent, United Kingdom at 19 percent and United Arab Emirates at 6 percent.

Foreign registration of births refers to registration of children born outside the country by a Kenyan citizen upon request. In this case, one or both of the parents should have Kenyan citizenship

Table 4.5: ***Foreign Births Registration By Sex, 2022-2023***

2022				2023			
Country Of Birth	**Male**	**Female**	**Both Sexes**	**Country Of Birth**	**Male**	**Female**	**Both Sexes**
	N=2144	**N=2047**	**N=4191**		**N=2585**	**N=2369**	**N=4954**
United States Of America	584	558	1142	United States Of America	725	670	1395
United Kingdom	372	354	726	United Kingdom	465	469	934
United Arab Emirates	107	115	222	United Arab Emirates	156	155	311
Uganda	96	85	181	Saudi Arabia	134	117	251
Canada	79	74	153	Australia	91	86	177
Saudi Arabia	74	79	153	Canada	87	76	163
Tanzania	74	77	151	Uganda	81	76	157
South Africa	65	65	130	Tanzania	87	69	156
Australia	59	58	117	South Africa	52	63	115
Botswana	56	48	104	Germany	63	47	110
Sweden	52	37	89	Sweden	48	40	88
Germany	42	45	87	Yemen	57	24	81
Yemen	36	28	64	Switzerland	36	36	72
India	33	30	63	Qatar	28	39	67
Switzerland	33	25	58	Botswana	35	30	65
Other Countries	382	369	751	Other Countries	440	372	812

4.7 Fertility Measures

This section highlights various fertility indicators derived from birth registration in 2023.These include; Crude Birth Rate (CBR), General Fertility Rate (GFR), Age Specific Fertility Rate (ASFR) and Total Fertility Rate (TFR).

The results presented in Table 4.6 show that the CBR was 23.2 per 1000 population which is lower than 27.7 reported in the 2022 KDHS. GFR was 88.3 per 1000 women compared with 122 per 1000 women reported in the 2022 KDHS. The ASFR is highest for women of age 20-24 after which it starts to decline. ASFR for women within age (20-24) is 139per thousand female population while it was 179 per 1000 in 2022 KDHS report. Fertility among adolescents (15-19) was 50 live births per 1000 compared with 73 births per 1000 women reported in 2022 KDHS. TFR was 2.6 births per woman compared to3.4 in 2022 KDHS.

Generally, fertility indicators generated from CRS data are lower than those computed in 2022 KDHS and 2019 KPHC. The differences could be attributed to incompleteness in birth registration.

Generally, fertility indicators generated from CRS data are lower than those computed in 2022 KDHS and 2019 KPHC. The differences could be attributed to incompleteness in birth registration

Table 4.6: ***Fertility measures, 2023***

Age group	ASFR-2019 KPHC	ASFR-2022 KDHS	ASFR- 2022 CRS	ASFR- 2023 CRS
15-19	53	73	51	50
20-24	169	179	147	139
25-29	175	172	141	128
30-34	141	137	115	102
35-39	98	87	74	70
40-44	41	35	21	20
45-49	8	5	2	3
TFR	3.4	3.4	2.8	2.6
GFR	112	122	98	88.3
CBR	27.9	27.7	24	23.2

Source KPHC,KDHS and CRS

CHAPTER FIVE

Key Findings

Death registration completeness declined from **47.6 percent** in 2022 to **45.1 percent** in 2023.

The Proportion of deaths registered in Health Facilities increased from **53 percent** in 2022 to **54.9 percent** in 2023.

Counties with the highest proportion of community death registration were Mandera (88.8%), Wajir **(85.2%)** and Vihiga (76.3%), while counties with the lowest proportion of community registered death were Uasin Gishu **(19.9%**), Kericho **(22.0%)** and Nairobi **(23.3%).**

There were more male than female registered deaths in all the years from 2019 to 2023.

Among adolescents aged 15-19, 329 deaths were registered among the married, 137 among the divorced and 20 among the widowed category.

The ASALS recorded low registration of neonatal deaths.

Death records provide the basis for compilation of mortality statistics, which are primary inputs for health policy and planning, monitoring and evaluation of health programs, and for identifying and prioritizing health research

5.1 Introduction

Death registration is an important legal and administrative function and is essential for accurate, complete, and timely vital statistics. Death and causes of death records provide the basis for the compilation of mortality statistics, which are primary inputs for health policy and planning, monitoring and evaluation of health programs, and for identifying and prioritizing health research.

This chapter highlights the death registration completeness, sex ratio, age and sex, registration by background characteristics such as marital status and place of occurrence. It also looks at adult and neonatal deaths, crude death rate and foreign death registration.

Routine measurement of death registration completeness provides timely and relevant feedback for intervention to strengthen and improve system performance

***Table 5.1:** Summary Statistics on deaths 2019-2023*

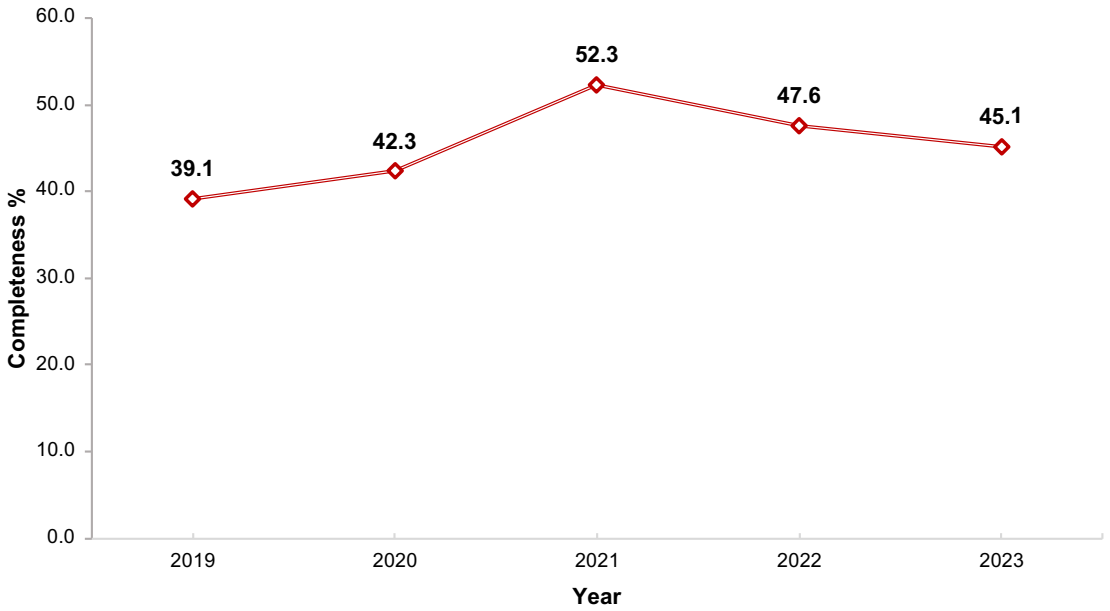
Indicator	2019	2020	2021	2022	2023
Expected	489,492	438,095	443,252	448,250	455,814
Registered	191,495	185,385	231,944	213,210	205,731
Completeness (%)	39.1	42	52.3	47.6	45.1
Male	106,215	104,832	131,599	120,357	115,507
Female	85,280	80,553	100,345	92,853	90,224
Sex Ratio	124.5	130.1	131.1	129.6	128.0
Community Deaths	81,960	86,019	110,174	100,209	92,880
Health Institution Deaths	109,535	99,366	121,770	113,001	112,851

5.2 Death registration completeness

Death registration completeness is computed using the number of deaths registered out of the total deaths expected to have occurred in the same period. Routine measurement of death registration completeness provides timely and relevant feedback for intervention to strengthen and improve system performance. Such interventions lead to strengthened and improved CRVS performance over time. Incomplete death registration results in underestimation of the number of deaths, hence the information being inadequate for planning, policy interventions, programming, and research.

Figure 5.1 shows death registration completeness from 2019 to 2023. There was a decline in death completeness from 52.3 percent in 2021 to 45.1 percent in 2023.

***Figure 5.1:** Trend in death registration completeness, 2019-2023*



Registration completeness among ASAL counties; Mandera (7.0%), Wajir (13.9%), Garissa (14.1%) was the lowest largely affected by geographical vastness, insecurity, and cultural beliefs where the deceased are buried almost immediately and are likely to go without notification (Table 5.2).

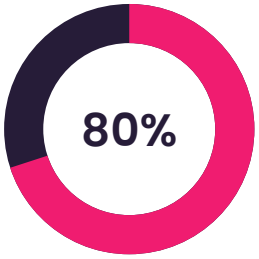
Table 5.2: ***Expected deaths, registered deaths, and completeness of death registration by counties, 2019-2023***

Code	Region/ County	Expected					Registered					Completeness				
		2019	2020	2021	2022	2023	2019	2020	2021	2022	2023	2019	2020	2021	2022	2023
	Kenya	489,492	438,095	443,252	448,250	455,814	191,495	185,385	231,944	213,210	205,731	39.1	42.3	52.3	47.6	45.1
001	Mombasa	11,733	12,007	12,435	6,898	7,173	6,158	5,819	6,636	6,081	5,961	52.5	48.5	53.4	88.2	83.1
002	Kwale	9,498	9,719	8,953	8,874	9,179	2,980	2,965	3,491	3,393	2,931	31.4	30.5	39.0	38.2	31.9
003	Kilifi	14,226	14,555	15,713	19,553	20,279	5,341	5,180	6,202	6,651	5,687	37.5	35.6	39.5	34.0	28.0
004	Tana River	3,509	3,674	3,418	3,556	3,667	502	528	606	548	687	14.3	14.4	17.7	15.4	18.7
005	Lamu	1,620	1,686	1,128	1,215	1,732	444	478	627	561	573	27.4	28.3	55.6	46.2	33.1
006	Taita/ Taveta	5,969	6,107	3,609	4,108	4,121	1,743	1,666	2,337	2,063	1,888	29.2	27.3	64.7	50.2	45.8
007	Garissa	7,038	7,203	6,820	8,091	8,335	717	626	637	753	1,175	10.2	8.7	9.3	9.3	14.1
008	Wajir	8,534	8,734	6,022	6,313	6,495	720	333	567	613	906	8.4	3.8	9.4	9.7	13.9
009	Mandera	12,389	12,677	6,641	6,716	6,896	438	315	495	387	482	3.5	2.5	7.5	5.8	7.0
010	Marsabit	3,411	3,489	4,286	4,236	4,300	799	679	791	925	1,817	23.4	19.5	18.5	21.8	42.3
011	Isiolo	1,754	1,795	2,589	2,846	2,883	570	581	715	801	795	32.5	32.4	27.6	28.1	27.6
012	Meru	13,848	14,250	15,815	18,137	17,938	6,565	6,243	7,782	8,046	7,584	47.4	43.8	49.2	44.4	42.3
013	Tharaka-Nithi	3,736	3,821	4,620	4,733	4,714	1,535	2,072	2,669	2,368	2,071	41.1	54.2	57.8	50.0	43.9
014	Embu	5,458	5,583	7,605	8,078	8,021	3,608	3,438	3,860	3,832	3,684	66.1	61.6	50.8	47.4	45.9
015	Kitui	12,904	13,199	14,592	14,016	13,953	4,177	4,900	5,970	6,070	5,419	32.4	37.1	40.9	43.3	38.8
016	Machakos	18,346	18,764	18,898	18,118	18,194	10,200	6,533	9,306	7,969	7,811	55.6	34.8	49.2	44.0	42.9
017	Makueni	13,533	13,841	14,361	13,961	13,948	4,272	4,276	5,865	5,541	5,420	31.6	30.9	40.8	39.7	38.9
018	Nyandarua	7,804	7,984	8,376	8,428	8,611	2,553	2,332	2,950	2,646	2,499	32.7	29.2	35.2	31.4	29.0
019	Nyeri	11,450	11,713	7,744	9,359	9,204	4,774	5,318	6,662	5,814	5,130	41.7	45.4	86.0	62.1	55.7
020	Kirinyaga	6,501	6,651	7,473	8,800	8,532	2,970	3,457	4,370	3,872	3,761	45.7	52.0	58.5	44.0	44.1
021	Muranga	13,332	13,638	17,342	17,934	17,879	7,652	6,197	8,169	6,884	6,515	57.4	45.4	47.1	38.4	36.4
022	Kiambu	20,760	21,240	19,601	21,418	21,456	10,373	10,281	12,702	11,915	10,793	50.0	48.4	64.8	55.6	50.3

Table 4.2: ***Births Registration by County, 2019-2023 (Cont'd)***

023	Turkana	11,610	11,882	8,762	9,019	9,229	2,041	1,923	2,041	2,134	2,509	17.6	16.2	23.3	23.7	27.2
024	West Pokot	6,857	7,017	5,618	6,276	6,307	789	1,171	1,356	1,179	1,452	11.5	16.7	24.1	18.8	23.0
025	Samburu	2,862	2,929	2,516	2,608	2,665	328	320	440	556	579	11.5	10.9	17.5	21.3	21.7
026	Trans Nzoia	10,735	10,985	7,374	7,386	7,514	4,378	3,957	4,819	4,753	4,239	40.8	36.0	65.3	64.4	56.4
027	Uasin Gishu	13,560	13,874	7,960	8,598	8,630	7,005	6,493	8,155	6,866	7,579	51.7	46.8	102.4	79.9	87.8
028	Elgeyo/ Marakwet	4,906	5,019	4,800	5,198	5,194	1,132	1,186	1,600	1,310	1,375	23.1	23.6	33.3	25.2	26.5
029	Nandi	11,152	11,409	7,949	7,852	7,908	2,691	2,365	3,403	2,682	2,596	24.1	20.7	42.8	34.2	32.8
030	Baringo	7,843	8,024	5,012	4,922	4,989	1,224	1,105	1,533	1,363	1,371	15.6	13.8	30.6	27.7	27.5
031	Laikipia	7,130	7,295	5,011	5,001	5,090	2,315	2,301	3,167	2,718	2,481	32.5	31.5	63.2	54.4	48.7
032	Nakuru	27,613	28,254	19,164	19,407	19,804	9,009	9,697	12,476	10,668	10,754	32.6	34.3	65.1	55.0	54.3
033	Narok	8,175	8,365	10,371	10,001	10,233	1,557	1,499	2,081	1,936	1,907	19.0	17.9	20.1	19.4	18.6
034	Kajiado	8,836	9,042	9,755	10,067	10,383	1,692	2,213	3,026	2,829	2,714	19.1	24.5	31.0	28.1	26.1
035	Kericho	10,427	10,669	9,082	9,655	9,715	3,494	3,441	4,233	3,888	3,952	33.5	32.3	46.6	40.3	40.7
036	Bomet	9,153	9,365	8,599	9,815	9,799	2,729	2,545	3,206	2,854	2,758	29.8	27.2	37.3	29.1	28.1
037	Kakamega	24,136	24,696	16,302	15,780	16,103	9,720	8,900	11,265	10,671	9,694	40.3	36.0	69.1	67.6	60.2
038	Vihiga	11,703	11,973	7,905	9,015	9,013	4,024	3,911	5,038	4,650	4,340	34.4	32.7	63.7	51.6	48.2
039	Bungoma	18,164	18,586	11,914	11,733	11,940	7,265	6,446	8,398	8,242	7,649	40.0	34.7	70.5	70.2	64.1
040	Busia	11,960	12,238	7,937	7,757	7,880	4,498	3,837	4,476	4,426	3,906	37.6	31.4	56.4	57.1	49.6
041	Siaya	20,281	20,752	13,333	13,197	13,337	6,028	5,627	7,180	6,278	6,231	29.7	27.1	53.9	47.6	46.7
042	Kisumu	16,787	17,178	12,600	12,580	12,853	6,431	6,567	7,579	6,362	6,638	38.3	38.2	60.1	50.6	51.6
043	Homa Bay	15,584	15,947	14,565	14,910	15,041	3,077	3,154	3,861	3,615	3,345	19.7	19.8	26.5	24.2	22.2
044	Migori	14,485	14,823	13,378	13,463	13,746	2,800	2,820	3,548	3,207	3,669	19.3	19.0	26.5	23.8	26.7
045	Kisii	13,804	14,123	13,229	14,728	14,725	7,065	6,283	8,118	7,388	7,218	51.2	44.5	61.4	50.2	49.0
046	Nyamira	7,153	7,318	6,948	9,406	9,229	1,417	1,740	2,439	2,447	2,500	19.8	23.8	35.1	26.0	27.1
047	Nairobi City	31,357	32,091	28,484	30,173	31,030	19,695	21,667	25,097	22,455	20,686	62.8	67.5	88.1	74.4	66.7

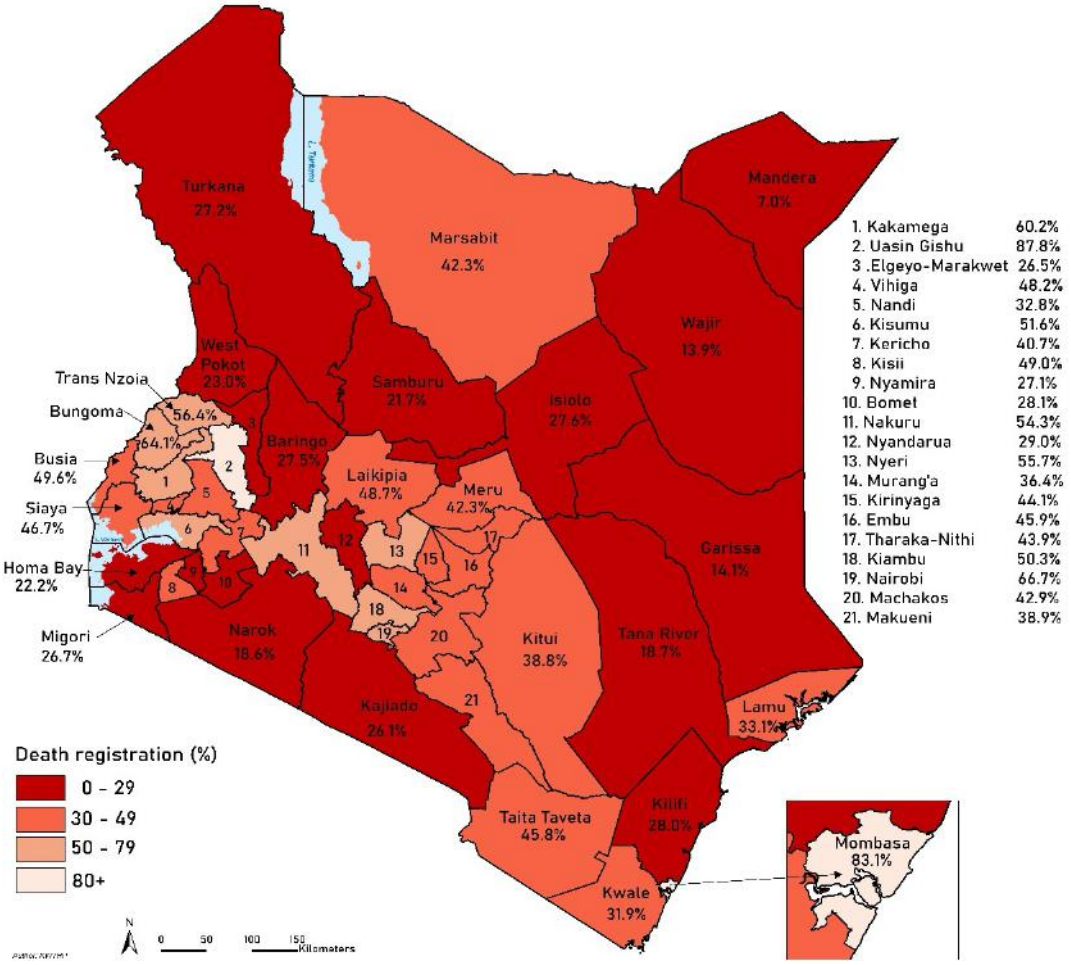
Only two counties (Mombasa and Uasin Gishu) registered over 80 percent of deaths while 30 counties had registration below the national average of 45.1 percent. Ten counties had registration coverage of over 50 percent in 2023 (Map 5.1).



Death registration in Mombasa and Uasin Gishu, while 30 counties had registration below the national average of 45.1%

The death registration completeness in Mombasa could be attributed to its urban nature and the predominance of the Muslim community which has designated communal burial sites where regulations are enforced requiring a burial permit for disposal of the dead. The high coverage recorded in Uasin Gishu County can be attributed to patient inflows from neighboring counties (in the North Rift and Western Regions) to the comparatively better referral facilities and modern private facilities in Eldoret.

***Map 5.1:* Death registration completeness in Kenya, 2023**

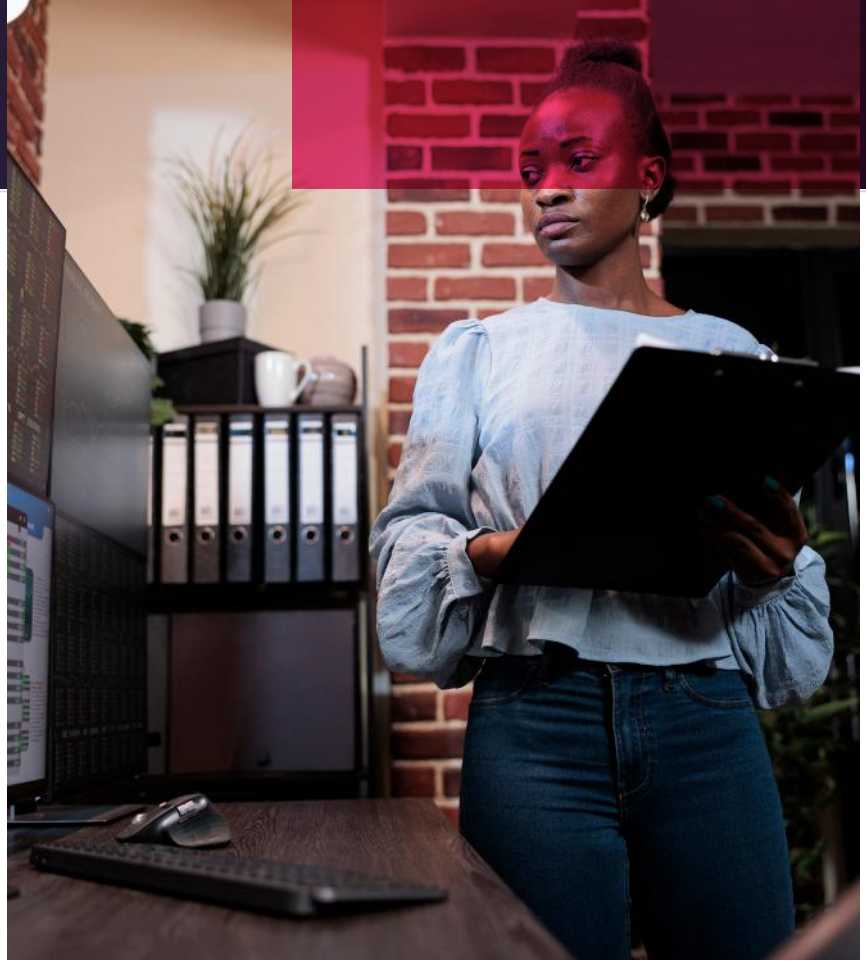


5.3 Sex Ratios for registered deaths

In 2023, the national sex ratio at death was 128, a slight decline from 129.6 in 2022, showing that there were more registered deaths among males than females. Age-specific sex ratios for death registrations were above 100 with exception of the 80+ age group, which had a sex ratio of 78.9.

In 2023, the highest sex ratios were recorded in age groups 40-44 (185.8), 25-29 (184.6), and 20-24 (181.7) and the lowest sex ratios in age groups above 80+ years (78.9), under 1 (102.6), and 1-4 (118.4). It will be important to link this results with the causes of death particularly among males age group 25-29 and 40-44 for policy interventions.

In 2023, the national sex ratio at death was 128, a slight decline from 129.6 in 2022, showing that there were more registered deaths among males than females.



Among the counties, Mandera County (223.5) had the highest registered death sex ratio

Table 5.3: ***Death registration by Age group and sex, 2023***

Age	Female	Male	Sex Ratio
Under 1	10341	10614	102.6
1-4	3491	4132	118.4
5-9	1442	1899	131.7
10-14	1261	1689	133.9
15-19	1678	2674	159.4
20-24	2123	3858	181.7
25-29	2665	4919	184.6
30-34	3541	5586	157.8
35-39	4612	6812	147.7
40-44	3447	6406	185.8
45-49	4375	6966	159.2
50-54	4174	6542	156.7
55-59	3405	5809	170.6
60-64	5033	7238	143.8
65-69	5020	7161	142.6
70-74	6396	8281	129.5
75-79	6001	7373	122.9
80+	19550	15431	78.9
Not Stated	1666	2116	127.0
Total	**90221**	**115506**	**128.0**

In 2023, the highest sex ratios were recorded in age groups 40-44 (185.8), 25-29 (184.6), and 20-24 (181.7) and the lowest sex ratios in age groups above 80+ years (78.9), under 1 (102.6), and 1-4 (118.4).

Among the counties, Mandera County (223.5) had the highest registered death sex ratio. Other Counties with high registered death sex ratios were Wajir (177.9), Isiolo (167.7), Garissa (160.0) and Marsabit (159.2) all of from the ASAL areas, an indication that female deaths are likely to be underreported in these areas.

The counties that had the lowest registered death sex ratio include Nandi (115.6), Busia (115.6), Kericho (115.1), Siaya (111.2) and Turkana (110.1) as Shown in Table 5.4.

Table 5.4: ***Death Registration by Sex Ratio, National and County, 2021-2023***

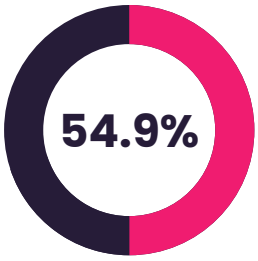
Code	National/County	2021	2022	2023
	National	131.1	129.6	128.0
001	Mombasa	134.3	123.9	126.3
002	Kwale	133.2	127.4	147.6
003	Kilifi	118.0	118.8	121.2
004	Tana River	144.4	170.0	150.7
005	Lamu	173.8	164.6	144.9
006	Taita/Taveta	125.4	139.3	126.1
007	Garissa	220.1	178.9	160.0
008	Wajir	186.4	187.8	177.9
009	Mandera	184.5	214.6	223.5
010	Marsabit	153.5	154.1	159.2
011	Isiolo	168.8	167.0	167.7
012	Meru	154.1	150.7	151.3
013	Tharaka-Nithi	153.0	149.0	125.8
014	Embu	130.6	136.3	135.4
015	Kitui	128.0	126.2	120.5
016	Machakos	144.0	135.3	118.9
017	Makueni	128.1	123.0	126.9
018	Nyandarua	125.5	136.9	136.9
019	Nyeri	130.8	121.1	131.5
020	Kirinyaga	133.7	122.4	133.4
021	Muranga	136.9	141.3	130.1
022	Kiambu	131.0	129.9	127.1
023	Turkana	105.1	105.4	110.1
024	West Pokot	127.1	131.6	138.8
025	Samburu	168.3	130.7	151.7
026	Trans Nzoia	121.5	122.8	121.2
027	Uasin Gishu	129.7	129.5	129.7
028	Elgeyo/Marakwet	124.4	130.2	134.2
029	Nandi	124.0	132.8	115.6
030	Baringo	142.6	143.4	145.3
031	Laikipia	124.1	140.5	126.8
032	Nakuru	133.0	125.5	129.2
033	Narok	144.8	140.2	141.7
034	Kajiado	131.5	124.3	136.4
035	Kericho	131.1	125.7	115.1
036	Bomet	121.7	126.7	131.0
037	Kakamega	127.1	127.3	120.4
038	Vihiga	145.5	146.6	138.9
039	Bungoma	125.1	125.7	116.1
040	Busia	111.8	119.5	115.6
041	Siaya	113.9	109.0	111.2
042	Kisumu	119.7	123.1	117.3
043	Homa Bay	112.3	113.3	117.5
044	Migori	128.5	140.2	134.1
045	Kisii	123.3	130.9	125.8
046	Nyamira	134.3	140.4	137.6
047	Nairobi City	140.3	130.5	132.2

5.4 Deaths by background characteristics

5.4.1 Registered deaths by place of occurrence

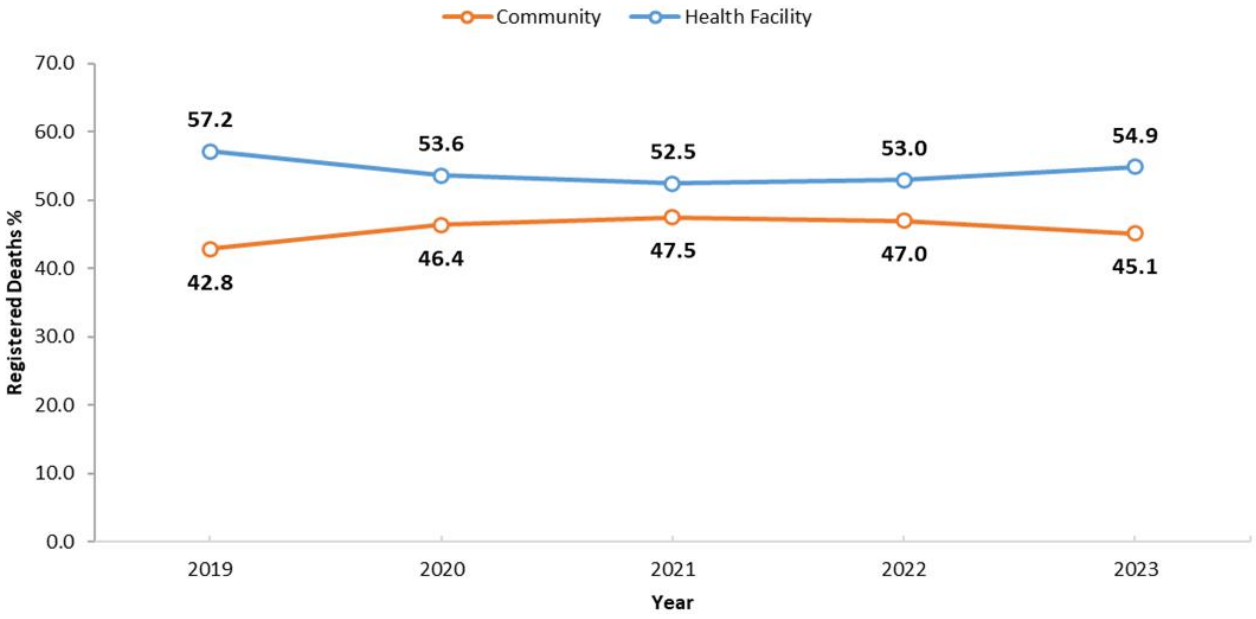
Figure 5.2 presents the proportion of registered deaths by place of occurrence. The proportion of registered deaths in health facilities increased from 53.0 percent in 2022 to 54.9 percent in 2023.

Conversely, the proportion of registered deaths occurring in the community declined from 47.0 percent in 2022 to 45.1 percent in 2023.This decline could be attributed to operation challenges such as prolonged lack of registration materials' that was witnessed across the country during the period under review.



Proportion of registered deaths in health facilities in 2023, up from 53.0 percent in 2022

Figure 5.2: ***Proportion of Registered Deaths by Place of Occurrence, 2019-2023***



The counties with highest proportion of deaths registered in health facilities in 2023 were Uasin Gishu (80.1%), Kericho (78.0%) and Nairobi City (76.7%) while those with highest proportion of community death registration were Mandera (88.8%), Wajir (85.2%) and Vihiga (76.3%) as shown in Appendix C1.

5.4.2 Registered deaths by age and sex

Figure 5.3 presents the trends of registered deaths for males and females from 2019 to 2023. It is noted that the number of registered deaths has been decreasing since the year 2021. During the year under review, the number of male deaths registered decreased by 4.0 percent from 120,357 in 2022 to 115,506 in 2023 while female deaths registered decreased from 92,853 in 2022 to 90,221 in 2023. More male than female deaths were registered in all the years.

During the year under review, the number of male deaths registered decreased by 4.0 percent from 120,357 in 2022 to 115,506 in 2023 while female deaths registered decreased from 92,853 in 2022 to 90,221 in 2023

Figure 5.3: ***Trends in registered deaths by sex, 2019-2023***

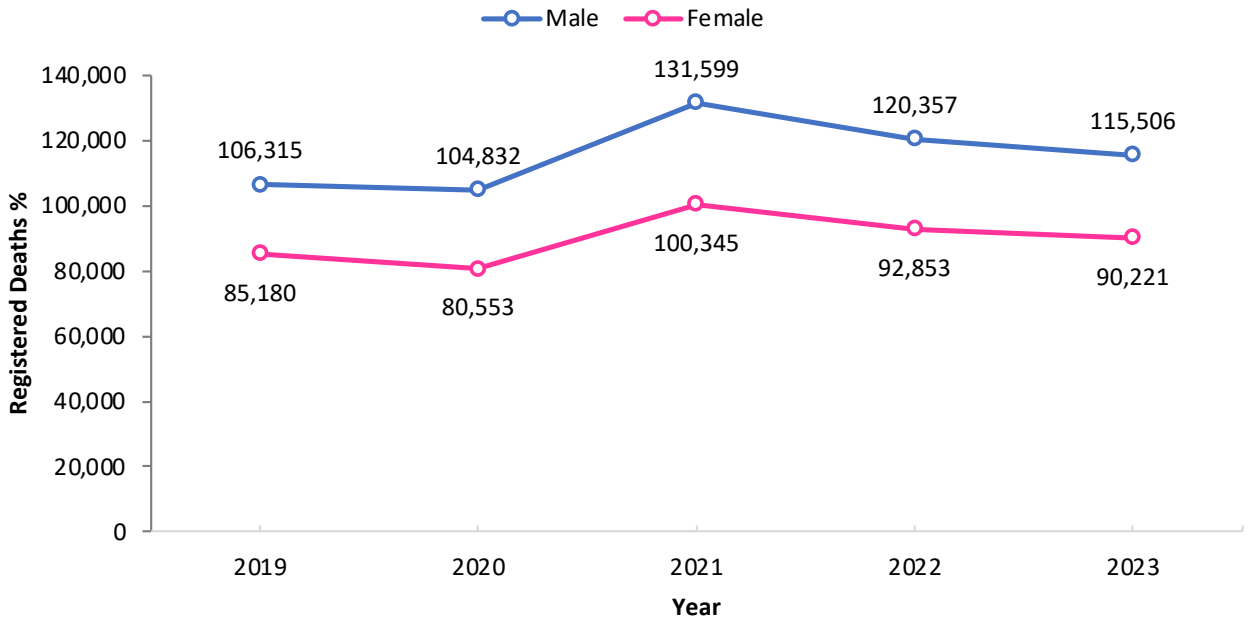
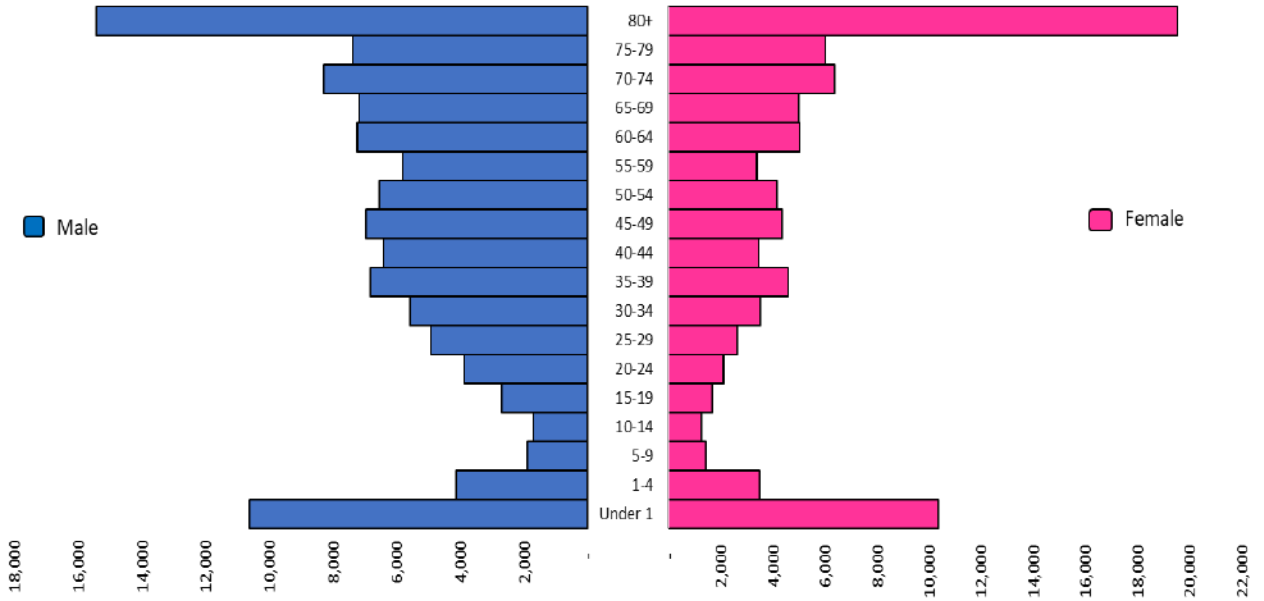


Figure 5.4 shows the age and sex distribution of registered deaths in 2023. Notably, more deaths occurred in the age group 80+ and under 1 year. This could be attributed to the high risk of death at an early and old age. A low percentage of registered deaths is observed in the age group of 5-9 Years and 10-14 years after which registered deaths start to increase.

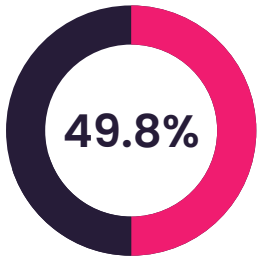
Figure 5.4: ***Age-Sex structure, 2023***



5.4.3 Registered deaths by marital status

Figure 5.5 presents mortality by marital status for deaths registered in 2023. Almost half (49.8%) of all registered deaths were married persons while 43.3 percent were people who were single, widowed, or divorced. This pattern of registered death by marital status for 2023 is similar to that recorded in 2022. The registered deaths across the counties shows that 20 counties were below the national average of 49.8 percent of registered deaths among those who had been married. The following counties had the highest proportion of deaths registered among those who had been married (Wajir 95.9%, Mandera 92.0% , and Marsabit 84.8 % of deaths .

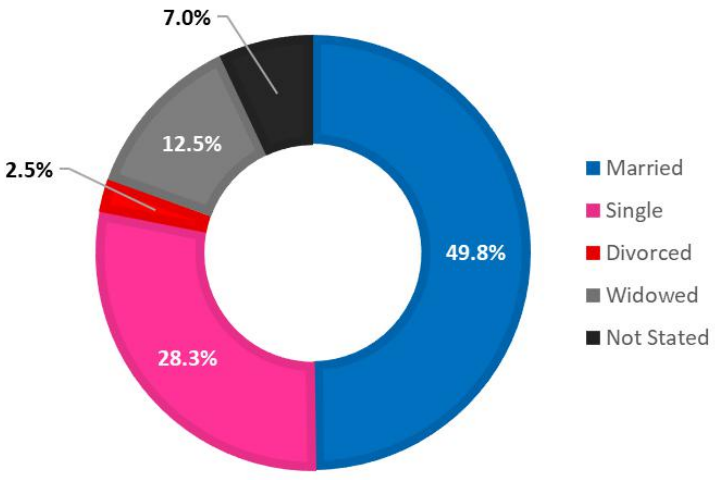
The analysis shows a sizeable number (7 percent) of registered deaths for which marital status was not stated. More than 1 in every 3 registered deaths in ten counties was from a person who was single with Turkana at (47.2 percent), West Pokot (43.6 percent) and Uasin gishu (37.2 percent). On the other hand Mandera (1.2 percent), Wajir (3.3 percent) and Marsabit (3.8 percent) registered the lowest percentage of registered deaths among single persons as shown in appendix C2.



Registered deaths that were married persons, while 43.3 percent were single, widowed, or divorced

The registered deaths across the counties shows that 20 counties were below the national average of 49.8 percent of registered deaths among those who had been married

Figure 5.5: ***Registered deaths by marital status, 2023***

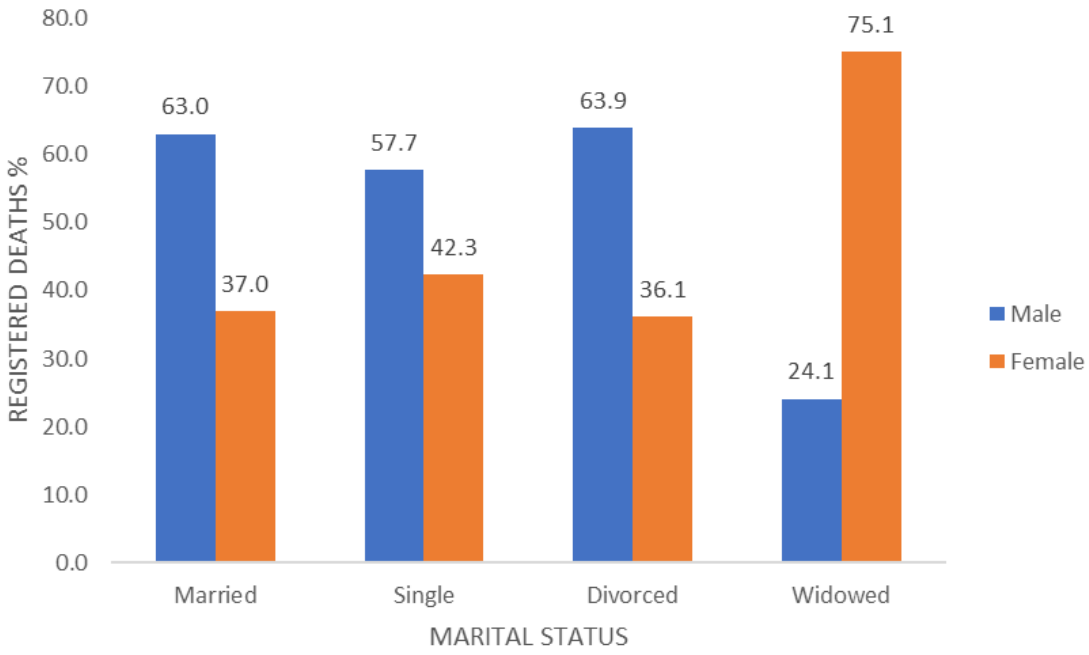


Mandera, Wajir and Marsabit had the lowest percentage of registered deaths among persons who were single

5.4.3.1 Registered deaths by marital status and sex, 15 years and above.

Males comprised the highest proportion of registered deaths across all marital status categories except among the widowed where the proportion registered deaths among females was higher (75.9 percent) compared to males (24.1 percent) (Figure 5.6).

*Figure 5.6: **Registered Deaths by Marital Status and Sex, 15 Years and above***



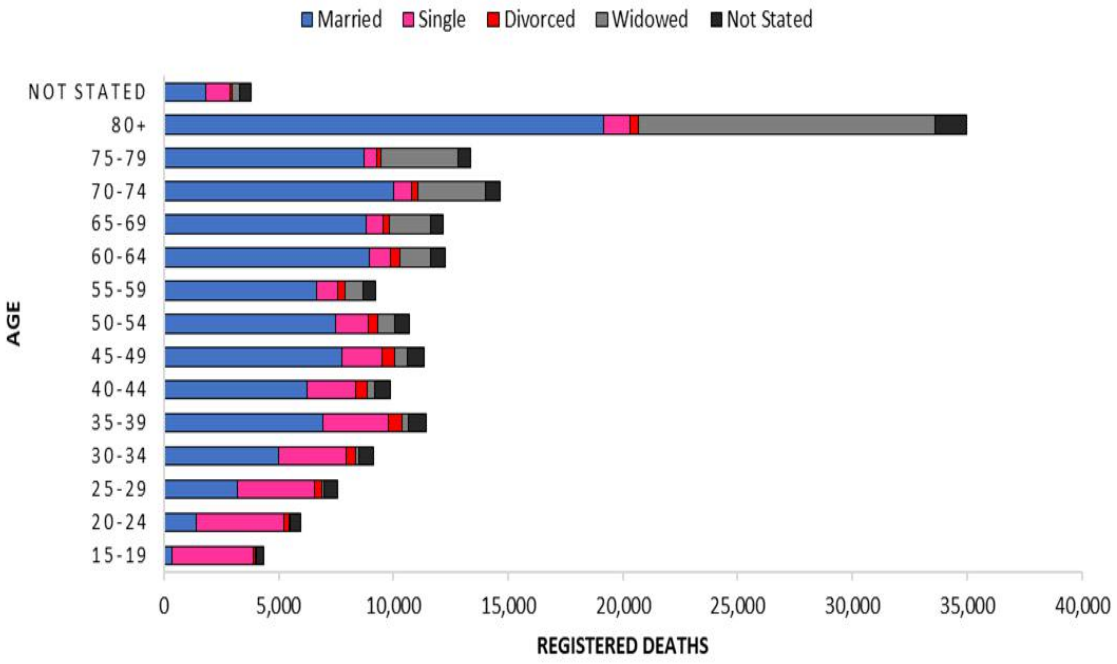
5.4.3.2 Registered deaths by marital status and age group

In the reference period, 205,731 deaths were registered. Among adolescents aged 15-19, 329 deaths were registered among the married and one hundred and thirty-seven deaths (137) in the divorced and twenty (20) among the widowed category.

This may be an indication of child marriage despite the existence of policies that prohibit child marriage

Males comprised the highest proportion of registered deaths across all marital status categories except among the widowed where the proportion registered deaths among females was higher (75.9 percent) compared to males

Figure 5.7: ***Registered Deaths by Marital Status and Age Group***



5.4.4 Neonatal Deaths

Neonatal death is defined as deaths among live births during the first 28 completed days of life. It is usually subdivided into early neonatal deaths (deaths between 0 and 7 completed days of birth) and late neonatal deaths (deaths after 7 days to 28 completed days of birth). It is a common measure of healthcare quality and the safety of maternity services. It is expected that by 2030, end preventable deaths of newborns, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births.

5.4.4.1 Registered neonatal deaths by sex

Table 5.5 presents the number of neonatal deaths registered by sex. There was a slight decrease in the number of neonatal deaths registered from 12,219 in 2022 to 12,175 in 2023. In 2023, the number of neonatal deaths registered for females was higher compared to the number of neonatal deaths registered for females in 2022. Conversely, the number of neonatal deaths registered for males declined marginally in 2023 compared to the number of neonatal deaths registered for males in 2022. These results resonate with the results from Kenya Health Information system (11979). This excludes community registered neonatal deaths captured by CRS.

***Table 5.5:** Registered neonatal deaths by sex, 2019 - 2023*

Sex	2019	2020	2021	2022	2023
Female	4971	5785	6069	5919	6050
Male	5044	6123	6329	6300	6125
Total	**10015**	**11908**	**12398**	**12219**	**12175**

**There were three cases of intersex and one case not stated under neonatal deaths in 2023*

5.4.4.2 Registered neonatal deaths by place of occurrence

The proportion of registered neonatal deaths in health facilities increased slightly from 83.7 percent in 2022 to 84.4 percent in 2023. Community neonatal deaths registration declined slightly from 16.3 percent in 2022 to 15.6 percent in 2023 as shown in Figure 5.8.

***Figure 5.8:** Registered Neonatal Deaths by Place of Occurrence, 2019-2023*

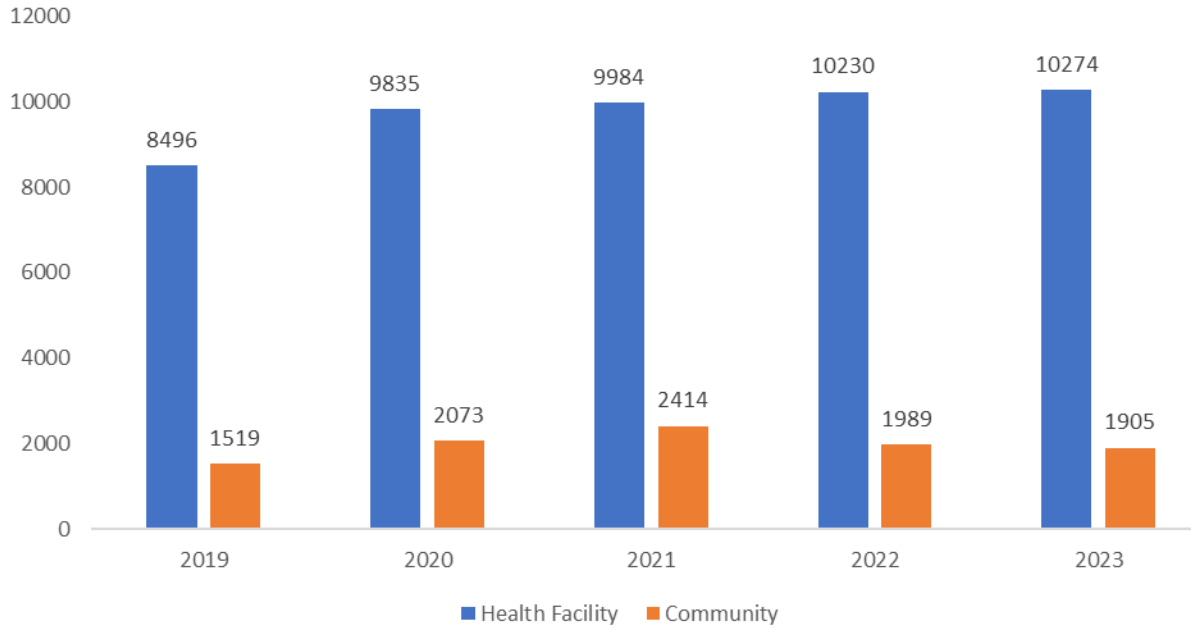


Table 5.6 shows the distribution of registered neonatal deaths by county in 2023. Eight counties, namely; Nairobi City, Nakuru, Kiambu, Mombasa, Kakamega, Bungoma, Kilifi, and Machakos accounted for over half (51.7%) of the registered neonatal deaths in the country. Twenty counties each accounted for less than one percent of the registered neonatal deaths, with Wajir, Samburu, and Mandera counties only registering 7, 4, and 2 neonatal deaths, respectively.

***Table 5. 6** Registered Neonatal Deaths by County, 2023*

Code	National/ County	Registered Neonatal Deaths	Proportion %	Code	National/ County	Registered Neonatal Deaths	Proportion %
	National	12,179	100.00	024	West Pokot	255	2.09
001	Mombasa	665	5.46	025	Samburu	4	0.03
002	Kwale	243	2.00	026	Trans Nzoia	389	3.19
003	Kilifi	546	4.48	027	Uasin Gishu	271	2.23
004	Tana River	32	0.26	028	Elgeyo/Marakwet	83	0.68
005	Lamu	53	0.44	029	Nandi	206	1.69
006	Taita/Taveta	103	0.85	030	Baringo	77	0.63
007	Garissa	31	0.25	031	Laikipia	77	0.63
008	Wajir	7	0.06	032	Nakuru	1,095	8.99
009	Mandera	2	0.02	033	Narok	112	0.92
010	Marsabit	15	0.12	034	Kajiado	275	2.26
011	Isiolo	37	0.30	035	Kericho	395	3.24
012	Meru	94	0.77	036	Bomet	88	0.72
013	Tharaka-Nithi	35	0.29	037	Kakamega	561	4.61
014	Embu	236	1.94	038	Vihiga	40	0.33
015	Kitui	410	3.37	039	Bungoma	565	4.64
016	Machakos	505	4.15	040	Busia	229	1.88
017	Makueni	391	3.21	041	Siaya	153	1.26
018	Nyandarua	148	1.22	042	Kisumu	131	1.08
019	Nyeri	159	1.31	043	Homa Bay	25	0.21
020	Kirinyaga	112	0.92	044	Migori	227	1.86
021	Murang'a	135	1.11	045	Kisii	382	3.14
022	Kiambu	827	6.79	046	Nyamira	27	0.22
023	Turkana	190	1.56	047	Nairobi City	1,536	12.61

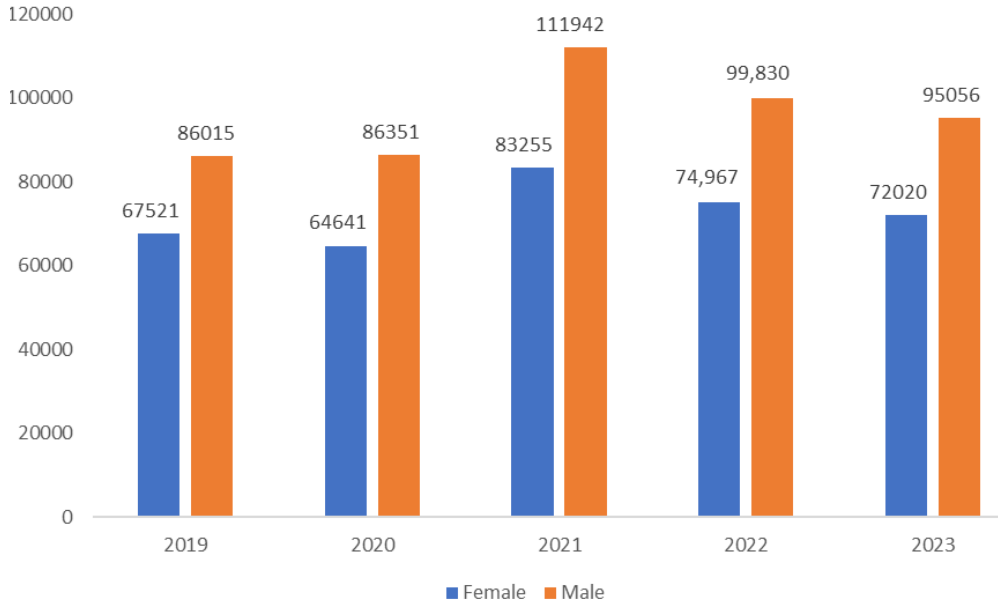
5.4.5 Registered adult deaths 18 years and above

Sustainable Development Goal 3 aims at ensuring healthy lives and promotion of wellbeing for all at all ages. Adult deaths threaten the livelihood of entire families and seriously affect the children's development, limit support on elderly people and economic activities of households. Adult mortality is associated with different demographic and behavioral risks. Adult mortality rate significantly reflects the effectiveness of public health-related programs and interventions (Yamin et al., 2015). There was a general decline in the number of registered adult deaths in Kenya from 172,187 in 2022 to 167,072 in 2023.

5.4.5.1 Registered adult deaths by sex

There was a decline of registered adult deaths for both males and females from 98,271 in 2022 to 95,056 in 2023 among males and 73,916 to 72,020 among females in the same period.

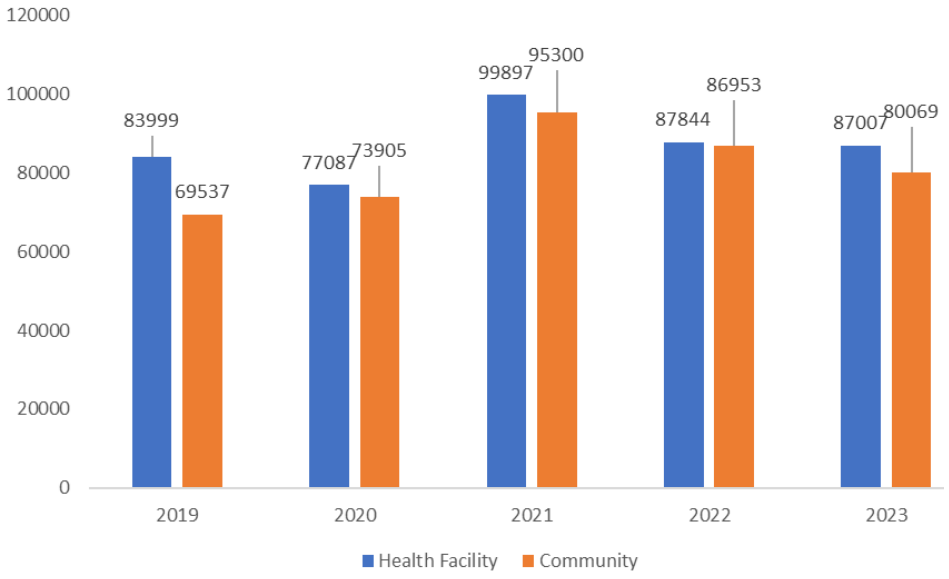
Figure 5.9: ***Registered Adult Deaths by Sex, 2019 and 2023***



5.4.5.2 Registered adult deaths by place of occurrence

The proportion of deaths registered in health facilities increased slightly from 50.1 percent in 2022 to 52.1 percent in 2023 while community deaths declined from 49.7 percent to 47.9 Percent in 2023 as shown in Figure 5.10.

Figure 5.10: ***Registered adult deaths by place of occurrence, 2019-2023***



5.5 Crude death rate

Crude Death Rate (CDR) is the number of registered deaths within the population per 1,000 mid-year population in a given year.

$$CDR = \frac{Number\ of\ registered\ deaths}{Total\ midyear\ population} \times 1{,}000$$

There was a decline in the CDR based on the registered deaths from 4.2 per 1,000 population in 2022 to 4.0 deaths per 1,000 population in 2023.

The proportion of deaths registered in health facilities increased slightly from 50.1 percent in 2022 to 52.1 percent in 2023 while community deaths declined from 49.7 percent to 47.9 Percent in 2023

5.6 Registered deaths of kenyans occuring abroad

Registration of deaths occurring abroad refers to the registration of Kenyan citizen who die and are registered abroad, and whose foreign death certificates were presented to CRS for registration in order to get Kenyan death certificates. There was a 10.3 percent decrease in the number of registered deaths of Kenyans occurring abroad from 301 in 2022 to 270 in 2023 as shown in Table 5.7.

The United States, India and Saudi Arabia accounted for most 52.2 percent of the registered deaths of Kenyans occurring abroad at 65, 47 and 29 respectively, equivalent to the total. In the East African region, 20 registered deaths of Kenyans occurred in Tanzania while 13 occurred in Uganda.

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Registered deaths of Kenyans in Saudi Arabia more than doubled from 13 in 2022 to 29 in 2023 while those registered deaths of Kenyans from Tanzania increased from 8 in 2022 to 20 in 2023. Registered deaths of Kenyans from the USA increased by 12.1 percent from 58 in 2022 to 65 in 2023.

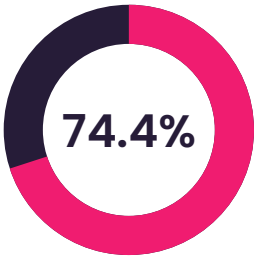
Table 5.7: ***Registered foreign deaths, 2022-2023***

2022				2023			
Country Of Death	Male	Female	Both Sexes	Country Of Death	Male	Female	Both Sexes
	N=182	N=89	N=271		N=168	N=102	N=270
United State of America	34	24	58	United State of America	32	33	65
India	23	25	48	India	33	14	47
United Kingdom	19	7	26	Saudi Arabia	12	17	29
Somalia	22	0	22	Tanzania	17	3	20
Qatar	11	3	14	Qatar	12	6	18
Saudi Arabia	7	6	13	United Kingdom	10	8	18
Uganda	12	1	13	Uganda	9	4	13
Tanzania	9	3	12	South Sudan	6	2	8
South Africa	5	3	8	United Arab Emirates	6	2	8
United Arab Emirates	5	3	8	Somalia	5	0	5
South Sudan	4	1	5	South Africa	5	0	5
Australia	2	2	4	Rwanda	3	1	4
Canada	3	1	4	Kuwait	3	0	3
Rwanda	4	0	4	Congo	2	0	2
Botswana	1	1	2	Egypt	0	2	2
Ethiopia	1	1	2	Greece	1	1	2
Yemen	1	1	2	Italy	0	2	2
Other Countries	19	7	26	Other Countries	12	7	19

5.7 Registered deaths of kenyans occuring abroad by age and sex

Table 5.8 shows the registered deaths of Kenyans occurring abroad by age group and sex. Most of the registered foreign deaths were from the age group 25-64 years which accounted for 74.4 percent.

It was also notable that there was no death of Kenyans under 5 years of age that was registered by CRS in 2023. During the same period, more male deaths (168) compared to female deaths (102) were registered.



Proportion of most of the registered foreign deaths were from the age group 25-64 years

Table 5.8: ***Registered deaths of Kenyans occurring abroad by age group and sex, 2023***

National/Age	Male	Female	Total
Kenya	168	102	270
5-9	1	1	2
15-19	0	1	1
20-24	2	0	2
25-29	13	6	19
30-34	15	7	22
35-39	21	12	33
40-44	14	10	24
45-49	14	9	23
50-54	13	9	22
55-59	17	9	26
60-64	17	15	32
65-69	8	4	12
70-74	14	7	21
Over 75	18	12	30
Not Stated	1	0	1

There was no death of Kenyans under 5 years of age that was registered by CRS in 2023. During the same period, more male deaths (168) compared to female deaths (102) were registered

CHAPTER SIX

Key Findings

- Pneumonia was the leading cause of death for the medically certified causes of death in 2019, 2021, 2022 and 2023. It was also the leading cause of death in age group 5-14 years from 2021 to 2023.
- Sudden death, was the leading cause of registered deaths among males and females in the community.
- Cancer has been on the rise from fifth position in 2021 to the second leading cause of death in 2023 for the medically certified causes.
- The leading causes of death for persons aged 15-49 years, 50-59 years and 60+ were injuries, cancer and cardiovascular respectively for the medically certified causes.
- Prematurity and birth asphyxia were the leading cause of death for the neonates.
- Pneumonia was the leading cause of death in twenty-seven (27) counties followed by Cancer in six (6) counties, Sepsis in four (4) counties and cardiovascular diseases in four (4) counties.

In order to understand the mortality patterns of any nation, it is critical that a comprehensive analysis is done on the causes of death.

Introduction

In order to understand the mortality patterns of any nation, it is critical that a comprehensive analysis is done on the causes of death. The quality of evidence-based decision-making in health surveillance structure depends on how well the mortality patterns are understood in a country and how these patterns are applied in formulating targeted interventions. This chapter presents the mortality patterns disaggregated by age and place of occurrence, the medically certified causes of death and those within communities and causes of death from foreign registration.

The quality of evidence-based decision-making in health surveillance structure depends on how well the mortality patterns are understood in a country

During the period under review, Pneumonia was the leading cause of death in twenty-seven (27) counties followed by Cancer in six (6)

counties, Sepsis in four (4) counties and cardiovascular diseases in four (4) counties. This was followed by Anemia in three (3) counties, prematurity and asphyxia in two (2) counties and Injuries in one (1) county.

Refer to table C18 in the appendix

6.2 Medically certified causes of registered deaths

6.2.1 Ten leading medically certified causes of registered deaths, 2019-2023

Table 6.1 presents the trend analysis of ten leading medically certified causes of deaths from 2019 to 2023. The four major leading causes of death within the reporting period 2019-2023 are pneumonia, cardiopulmonary and cardiorespiratory arrest, respiratory infections and cancer.

Table 6.1: ***Ten leading causes of medically certified registered deaths, 2019-2023***

Rank	2019		2020		2021		2022		2023	
	Cause of Death	N=109535	Cause of Death	N=99355	Cause of Death	N=121727	Cause of Death	N =112,967	Cause of Death	N=112845
1	Pneumonia	8090	Cardiorespiratory failure/Cardiopulmonary arrest	9332	Pneumonia	15,468	Pneumonia	11,453	Pneumonia	9966
2	Cancer	5869	Pneumonia	9061	Cardiopulmonary and Cardiorespiratory Arrest	9,862	Cardiopulmonary and Cardiorespiratory Arrest	11,176	Cancer	7699
3	Cardio Pulmonary and Respiratory diseases	5127	Cancer	6078	Respiratory Infections	7,434	Respiratory Infections	7,340	Cardiovascular Diseases	7494
4	Respiratory Infections	5104	Respiratory infections	5749	Covid 19	5,987	Cancer	5,653	Sepsis	6171
5	Hypertension	4486	Hypertension	5456	Cancer	5,743	Injuries	4,296	Hypertension	4842
6	Prematurity and Birth Asphxia	3582	Prematurity &birth asphyxia	4368	Heart Diseases	4,869	Hypertension	4,212	Injuries	4559
7	Anaemia	3286	Anaemia	3557	Hypertension	4,734	Anaemia	4,108	Prematurity and Asphyxia	4134
8	Tuberculosis	2716	Diabetes	3040	Prematurity & Birth asphyxia	4,239	Prematurity & Birth Asphyxia	3,641	Anaemia	3939
9	Injuries	2661	Kidney and urinary tract infections	2585	Anaemia	3,766	Sepsis	3,158	Renal Diseases	3322
10	Traffic Accidents	2646	Road traffic accidents	2453	Diabetes	3,692	Diarrhea	2,997	Tuberculosis	2798

6.2.2 Leading causes of medically certified registered death by sex

Results from table 6.2 and 6.3 indicate that Pneumonia is the leading cause of death for both sexes for 2019, 2021 and 2023. In addition, Cancer has remained among the leading causes of death for both sexes from 2019 to 2023. While injuries is among the ten leading causes of death for males, it is not among the ten leading causes of death for females.HIV/AIDS is among the top leading causes of death for females, but not among males.

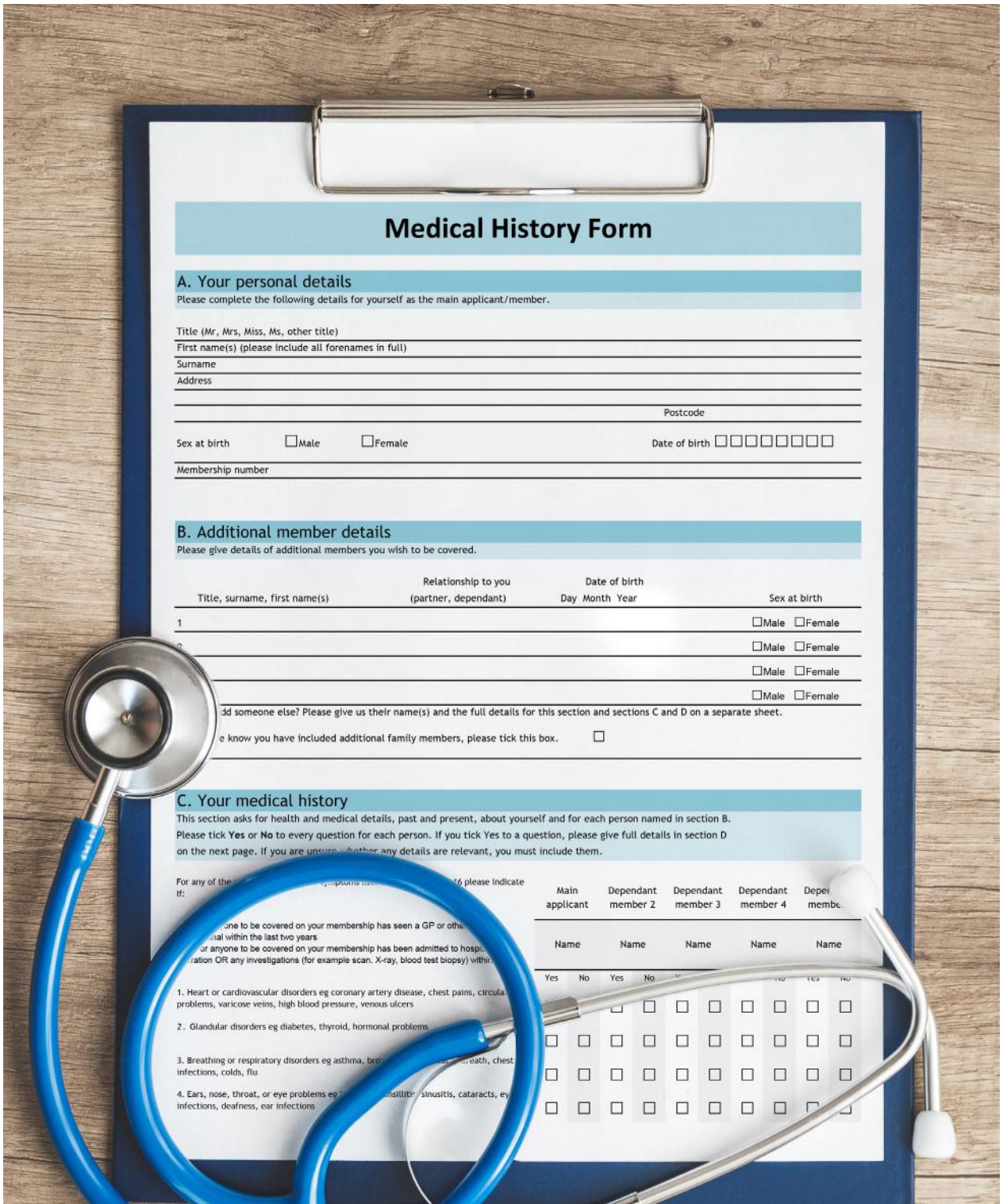


Table 6.2: ***Ten leading causes of medically certified registered deaths for males, 2019-2023***

Rank	2019		2020		2021		2022		2023	
	Cause of Death	N=60225	Cause of Death	N=55484	Cause of Death	N=68400	Cause of Death	N =62,679	Cause of Death	N=62221
1	Pneumonia	4346	Cardiorespiratory failure/Cardiopulmonary arrest	5045	Pneumonia	8,643	Pneumonia	6,294	Pneumonia	5404
2	Cancer	3094	Pneumonia	5019	Cardiopulmonary and Cardiorespiratory Arrest	5,367	Cardiopulmonary and Cardiorespiratory Arrest	5,907	Cancer	3758
3	Respiratory Infections	2724	Respiratory infections	3053	Respiratory Infections	4,148	Respiratory Infections	3,905	Injuries	3728
4	Cardio Pulmonary and Respiratory diseases	2711	Cancer	3049	Covid 19	3,544	Injuries	3,278	Cardiovascular Diseases	3656
5	Hypertension	2235	Hypertension	2738	Cancer	2,899	Cancer	2,679	Sepsis	3170
6	Injuries	2001	Prematurity & birth asphyxia	2283	Heart Diseases	2,479	Prematurity & Birth Asphyxia	2,102	Hypertension	2309
7	Traffic Accidents	1955	Road traffic accidents	2028	Hypertension	2,281	Anaemia	1,995	Anaemia	2109
8	Prematurity and Birth Asphyxia	1738	Anaemia	1741	Injuries	2,223	Hypertension	1,892	Prematurity and Asphyxia	1962
9	Tuberculosis	1655	Injuries	1733	Prematurity & Birth asphyxia	2,116	Road Traffic Accident	1,786	Renal Diseases	1875
10	Anaemia	1619.0	Diabetes	1598	Road Traffic Accidents	2,036	Diarrhea	1,625	Tuberculosis	1757

Table 6.3: ***Ten leading causes of medically certified registered deaths for females, 2019-2023***

Rank	2019		2020		2021		2022		2023	
	Cause of Death	**N=49310**	**Cause of Death**	**43871**	**Cause of Death**	**N=53327**	**Cause of Death**	**N = 50,286**	**Cause of Death**	**N=50617**
1	Pneumonia	3744	Cardiorespiratory failure/Cardiopulmonary arrest	4287	Pneumonia	6,825	Cardiopulmonary and Cardiorespiratory Arrest	5,269	Pneumonia	4562
2	Cancer	2775	Pneumonia	4042	Cardiopulmonary and Cardiorespiratory Arrest	4,495	Pneumonia	5,159	Cancer	3940
3	Cardio Pulmonary and Respiratory diseases	2416	Cancer	3029	Respiratory Infections	3,286	Respiratory Infections	3,435	Cardiovascular Diseases	3838
4	Respiratory Infections	2380	Hypertension	2718	Cancer	2,844	Cancer	2,974	Sepsis	3001
5	Hypertension	2251	Respiratory infections	2696	Hypertension	2,453	Hypertension	2,217	Hypertension	2533
6	Prematurity and Birth ASPHYXIA	1844	Prematurity & birth asphyxia	2085	Covid 19	2,443	Anaemia	2,006	Prematurity and Asphyxia	2025
7	Anaemia	1667	Anaemia	1816	Heart Diseases	2,390	Prematurity & Birth Asphyxia	1,749	Anaemia	1974
8	HIV	1430	Diabetes	1442	Prematurity & Birth asphyxia	2,123	Sepsis	1,575	Diabetes	1525
9	Meningitis	1253	HIV/AIDS	1227	Anaemia	1,855	Diabetes	1,436	Renal Diseases	1447
10	Diabetes	1200	Meningitis	1105	Diabetes	1,854	Diarrhea	1,372	HIV/AIDS	1118

6.2.3 Leading causes of medically certified registered deaths for neonates

The first 28 days of life are the most delicate period of life for the newborn child. Globally, neonatal mortality constitutes about 47 percent of child mortality. Most neonatal deaths occur during the first week of life.

Children who die within the first 28 days of birth suffer from conditions and diseases associated with a lack of quality care at or immediately after birth and in the first days of life (UNICEF, 2014).

Preterm birth, childbirth-related complications (birth asphyxia or lack of breathing at birth), infections, and birth defects cause most neonatal deaths. This section presents the top 10 causes of death for neonates disaggregated by sex. Table 6.4 shows Prematurity birth asphyxia and respiratory infections remain the leading cause of death among neonates during the reporting period. However, in 2023 neonatal sepsis was in the second position.

Table 6.4: ***Leading causes medically certified causes of registered deaths for neonates, 2019-2023***

Rank	2019		2020		2021		2022		2023	
	Cause of Death	**N=8496**	**Cause of Death**	**N=9456**	**Cause of Death**	**N=9984**	**Disease**	**N = 10,230**	**Cause of Death**	**N=10273**
1	Prematurity and Birth Asphyxia	3294	Prematurity & birth asphyxia	3920	Prematurity & Birth asphyxia	3,922	Prematurity & Birth Asphyxia	3,489	Prematurity and Asphyxia	4225
2	Respiratory Infections	950	Respiratory infections	1427	Respiratory Infections	1,447	Respiratory Infections	1,918	Neonatal Sepsis	1141
3	Cardio Pulmonary and Respiratory diseases	467	Cardiorespiratory failure/Cardiopulmonary arrest	871	Cardiopulmonary and Cardiorespiratory Arrest	773	Sepsis	1,014	Pneumonia	431
4	Neonatal Conditions	341	Neonatal Conditions	599	Neonatal Conditions	695	Cardiopulmonary and Cardiorespiratory Arrest	634	Cardiovascular Diseases	215
5	Sepsis	325	Pneumonia	313	Pneumonia	496	Pneumonia	581	Respiratory Infections	174
6	Pneumonia	316	Asphyxia	202	Sepsis	217	Diarrhea	280	Renal Diseases	131
7	Heart Diseases	99	Sepsis	185	Heart Diseases	194	Jaundice	133	Complications Leading to Hypoxia	81
8	Meningitis	50	Maternal conditions	121	Kidney & urinary tract infections	102	Injuries	120	Anaemia	77
9	Anaemia	46	Heart diseases	107	Neonatal Sepsis	80	Heart Disease	84	Diarrhoea	76
10	Malaria	44.0	Kidney and urinary tract infections	91	Meningitis	67	Meningitis	81	Meningitis	74

From table 6.5 and 6.6 prematurity and birth asphyxia were the leading cause of death for both male and female neonates from 2019 to 2023.

Table 6.5: ***Leading causes medically certified causes of registered neonatal deaths for males, 2019-2023***

Rank	2019		2020		2021		2022		2023	
	Cause of Death	N=4277	Cause of Death	N=4813	Cause of Death	N=5045	Disease	N =5,267	Cause of Death	N=5091
1	Prematurity and Birth Asphyxia	1622	Prematurity & birth asphyxia	2068	Prematurity & Birth asphyxia	1,950	Prematurity & Birth Asphyxia	1,832	Prematurity and Asphyxia	2087
2	Respiratory Infections	490	Respiratory infections	651	Respiratory Infections	740	Respiratory Infections	942	Neonatal Sepsis	604
3	Cardio Pulmonary and Respiratory diseases	241	Cardiorespiratory failure/Cardiopulmonary arrest	439	Cardiopulmonary and Cardiorespiratory Arrest	400	Sepsis	482	Pneumonia	225
4	Neonatal Conditions	181	Neonatal Conditions	300	Neonatal Conditions	363	Cardiopulmonary and Cardiorespiratory Arrest	326	Cardiovascular Diseases	83
5	Pneumonia	177	Pneumonia	170	Pneumonia	247	Pneumonia	310	Respiratory Infections	75
6	Sepsis	163	Asphyxia	104	Sepsis	110	Diarrhea	125	Renal Diseases	65
7	Heart Diseases	44	Sepsis	89	Heart Diseases	104	Jaundice	81	Anaemia	42
8	Meningitis	23	Maternal conditions	59	Kidney & urinary tract infections	53	Injuries	66	Diarrhoea	39
9	Anaemia	20	Heart diseases	57	Cerebral Vascular Diseases	39	Heart Disease	56	Complications Leading to Hypoxia	37
10	Jaundice	19.0	Kidney and urinary tract infections	57	Neonatal Sepsis	38	Meningitis	43	Meningitis	37

Table 6.6: ***Leading causes medically certified causes of registered neonatal deaths for females, 2019-2023***

Rank	2019		2020		2021		2022		2023	
	Cause of Death	**N=4219**	**Cause of Death**	**N=4643**	**Cause of Death**	**N=4939**	**Disease**	**N = 4,962**	**Cause of Death**	**N=5178**
1	Birth As-phyxiA	1672	Prematurity & birth asphyxia	1852	Prematurity & Birth asphyxia	1,972	Prematurity & Birth Asphyxia	1,657	Prematurity and Asphyxia	2136
2	Respiratory Infections	460	Respiratory infections	776	Respiratory Infections	707	Pneumonia	976	Neonatal Sepsis	537
3	Cardio Pul-monary and Respiratory diseases	226	Cardiorespirato-ry failure/Cardio-pulmonary arrest	432	Cardiopulmo-nary and Car-diorespiratory Arrest	373	Respiratory Infections	532	Pneumonia	206
4	Sepsis	162	Neonatal Condi-tions	299	Neonatal Con-ditions	332	Sepsis	308	Cardiovascular Diseases	132
5	Neonatal Conditions	160	Pneumonia	143	Pneumonia	249	Cardiopulmo-nary and Car-diorespiratory Arrest	271	Respiratory Infections	99
6	Pneumonia	139	Asphyxia	98	Sepsis	107	Diarrhea	155	Renal Diseases	66
7	Heart Dis-eases	55	Sepsis	96	Heart Diseases	90	Gastroenteritis	54	Complications Leading to Hypoxia	44
8	Malaria	28	Maternal condi-tions	62	Kidney & urinary tract infections	49	Anaemia	52	Diarrhoea	37
9	Meningitis	27	Heart diseases	50	Neonatal Sepsis	42	Meningitis	38	Meningitis	37
10	Anaemia	26.0	Anaemia	38	Anaemia	32	Malaria	28	Anaemia	35

6.2.4 Leading Causes Of Registered Deaths Among Children Under 1 Year

This section, analyses the leading causes of death for children aged below one year (Infant mortality). Prematurity and birth asphyxia was the leading cause of death from 2019 to 2023. Respiratory infections and Pneumonia, were the second leading cause of death in the same period as presented in Table 6.7.

Table 6.7: ***Ten Leading causes of medically certified causes of registered deaths for under 1 year, 2019-2023***

Rank	2019		2020		2021		2022		2023	
	Cuase of death	N=14985	Cause of Death	N=13601	Cause of Death	N=14735	Cause of Death	N = 15,204	Cause of Death	N=15847
1	Prematurity and Birth Asyphxia	3481	Prematurity &birth asphyxia	4047	Prematurity & Birth asphyxia	4,239	Prematurity & Birth Asphyxia	3,641	Prematurity and Asphyxia	3827
2	Pneumonia	1905	Respiratory infections	1661	Pneumonia	1,963	Respiratory Infections	2,211	Pneumonia	1937
3	Respiratory Infections	1347	Pneumonia	1589	Respiratory Infections	1,703	Pneumonia	2,039	Sepsis	964
4	Cardio Pulmonary and Respiratory diseases	805	Cardiorespiratory failure/Cardiopulmonary arrest	1244	Cardiopulmonary and Cardiorespiratory Arrest	1,121	Sepsis	1,194	Neonatal Sepsis	704
5	Sepsis	458	Neonatal Conditions	663	Neonatal Conditions	762	Cardiopulmonary and Cardiorespiratory Arrest	995	Diarrhoea	530
6	Neonatal Conditions	353	Sepsis	287	Heart Diseases	330	Diarrhea	481	Asphyxia	438
7	Meningitis	263	Asphyxia	222	Sepsis	328	Gastroenteritis	320	Cardio Vascular Diseases	281
8	Malaria	259	Meningitis	214	Meningitis	231	Meningitis	246	Meningitis	255
9	Anaemia	226	Anaemia	209	Anaemia	205	Anaemia	225	Anaemia	228
10	Gastroenteritis	220	Heart diseases	200	Gastroenteritis	201	Heart Disease	166	Respiratory Infections	210

Results from table 6.8 and 6.9 shows that prematurity and birth asphyxia was the leading cause of death for both males and females followed by pneumonia for the period 2019, 2021and 2023 whereas respiratory infection was the second leading cause of death in 2020 and 2022.

Table 6.8: ***Ten Leading causes of medically certified causes of registered deaths for under 1-year males, 2019-2023***

Rank	2019		2020		2021		2022		2023	
	Cause of Death	**N=7714**	**Cause of Death**	**N=6935**	**Cause of Death**	**N=7476**	**Cause of Death**	**N =7,765**	**Cause of Death**	**N=7892**
1	Prematurity and Birth Asphyxia	1689	Prematurity & birth asphyxia	2126	Prematurity & Birth asphyxia	2,116	Prematurity & Birth Asphyxia	1,892	Prematurity and Asphyxia	1902
2	Pneumonia	995	Pneumonia	826	Pneumonia	979	Respiratory Infections	1,092	Pneumonia	933
3	Respiratory Infections	699	Respiratory infections	764	Respiratory Infections	875	Pneumonia	1,047	Sepsis	502
4	Cardio Pulmonary and Respiratory diseases	415	Cardiorespiratory failure/Cardiopulmonary arrest	647	Cardiopulmonary and Cardiorespiratory Arrest	584	Sepsis	564	Neonatal Sepsis	378
5	Sepsis	223	Neonatal Conditions	327	Neonatal Conditions	397	Cardiopulmonary and Cardiorespiratory Arrest	519	Diarrhoea	258
6	Neonatal Conditions	196	Sepsis	140	Heart Diseases	173	Diarrhea	218	Asphyxia	208
7	Malaria	137	Asphyxia	116	Sepsis	167	Gastroenteritis	159	Meningitis	143
8	Meningitis	127	Meningitis	116	Meningitis	120	Meningitis	124	Anaemia	124
9	Anaemia	121	Heart diseases	110	Anaemia	95	Anaemia	119	Cardiovascular Diseases	120
10	Gastroenteritis	103	Anaemia	107	Malaria	92	Heart Disease	92	Malaria	95

Table 6.9: Ten Leading causes of medically certified causes of registered deaths for under 1-year females, 2019-2023

Rank	2019		2020		2021		2022		2023	
	N=7271		Cause of Death	N=6666	Cause of Death	N=7259	Disease	N = 7,439	Cause of Death	N=7951
1	Prematurity and Birth Asphyxia	1792	Prematurity & birth asphyxia	1921	Prematurity & Birth asphyxia	2,123	Prematurity & Birth Asphyxia	1,749	Prematurity and Asphyxia	1923
2	Pneumonia	910	Respiratory infections	897	Pneumonia	984	Pneumonia	1,119	Pneumonia	1004
3	Respiratory Infections	648	Pneumonia	763	Respiratory Infections	828	Respiratory Infections	992	Sepsis	462
4	Cardio Pulmonary and Respiratory diseases	390	Cardiorespiratory failure/Cardiopulmonary arrest	597	Cardiopulmonary and Cardiorespiratory Arrest	537	Sepsis	630	Neonatal Sepsis	326
5	Sepsis	235	Neonatal Conditions	336	Neonatal Conditions	365	Cardiopulmonary and Cardiorespiratory Arrest	476	Diarrhoea	272
6	Neonatal Conditions	157	Sepsis	147	Sepsis	161	Diarrhea	263	Asphyxia	230
7	Meningitis	136	Asphyxia	106	Heart Diseases	157	Gastroenteritis	161	Cardiovascular Diseases	161
8	Malaria	122	Anaemia	102	Gastroenteritis	115	Anaemia	122	Respiratory Infections	119
9	Gastroenteritis	117	Meningitis	98	Meningitis	111	Meningitis	106	Meningitis	112
10	Anaemia	105	Gastroentritis	94	Anaemia	110	Malaria	75	Anaemia	104

6.2.5 Ten Leading Medically Certified Causes Of Registered Deaths Among Children Under 5 Years

Mortality in children under five years is an important indicator for SDG 3.2.1 which aims at promoting healthy lives and well-being for all children by ending preventable deaths of children Under 5 by 2030. Table 6.10 shows that prematurity and birth asphyxia, Pneumonia and respiratory infections were the top leading causes of death for the period under review apart from sepsis which was the third leading cause of death in 2023.

Table 6.10: Ten Leading causes of medically certified causes of registered deaths for under 5 years, 2019-2023

Rank	2019		2020		2021		2022		2023	
	Cause of Death	N=20438	Cause of Death	N=17124	Cause of Death	N=18432	Disease	N = 19688	Cause of Death	N=20321
1	Prematuri-ty & Birth asphyxia	3481	Prematurity & birth asphyxia	4148	Prematurity & Birth asphyxia	4,239	Prematurity & Birth Asphyxia	3,641	Prematurity and Asphyxia	3827
2	Pneumonia	2604	Pneumonia	2250	Pneumonia	2,778	Pneumonia	2,897	Pneumonia	2710
3	Respiratory Infections	1710	Respiratory infections	1837	Respiratory Infections	1,903	Respiratory Infections	2,475	Sepsis	1276
4	Cardio Pul-monary and Respiratory diseases	1043	Cardiorespirato-ry failure/Cardio-pulmonary arrest	1515	Cardiopulmo-nary and Car-diorespiratory Arrest	1,408	Sepsis	1,310	Diarrhoea	808
5	Malaria	637	Neonatal Condi-tions	683	Neonatal Con-ditions	762	Cardiopulmo-nary and Car-diorespiratory Arrest	1,287	Neonatal Sepsis	704
6	Sepsis	526	Malaria	490	Sepsis	421	Diarrhea	634	Asphyxia	481
7	Anaemia	467	Anaemia	440	Heart Diseases	417	Anaemia	508	Anaemia	472
8	Neonatal Conditions	410	Meningitis	360	Anaemia	415	Gastroenteritis	468	Malaria	423
9	Meningitis	401	Sepsis	341	Malaria	412	Malaria	406	Cardiovascular Diseases	398
10	Gastro-enteritis	347.0	Gastroenteritis	267	Meningitis	338	Meningitis	401	Meningitis	387

Table 6.11 and 6.12 indicate that prematurity and birth asphyxia and pneumonia remained the leading cause of death for both male and female in the period 2019 to 2023

Table 6.11: ***Ten Leading causes of medically certified causes of registered deaths for under 5 years males, 2019-2023***

Rank	2019		2020		2021		2022		2023	
	Cause of Death	**N=10700**	**Cause of Death**	**N=8795**	**Cause of Death**	**N=9486**	**Disease**	**N =10,199**	**Cause of Death**	**N=10324**
1	Prematuri-ty & Birth asphyxia	1689	Prematurity & birth asphyxia	2173	Prematurity & Birth asphyxia	2,116	Prematurity & Birth Asphyxia	1,892	Prematurity and Asphyxia	1902
2	Pneumonia	1358	Pneumonia	1170	Pneumonia	1,410	Pneumonia	1,520	Pneumonia	1319
3	Respiratory Infections	907	Respiratory infections	851	Respiratory Infections	982	Respiratory Infections	1,240	Sepsis	683
4	Cardio Pul-monary and Respiratory diseases	539	Cardiorespirato-ry failure/Cardio-pulmonary arrest	805	Cardiopulmo-nary and Car-diorespiratory Arrest	734	Cardiopulmo-nary and Car-diorespiratory Arrest	687	Diarrhoea	401
5	Malaria	342	Neonatal Condi-tions	339	Neonatal Con-ditions	397	Sepsis	626	Neonatal Sepsis	378
6	Anaemia	255	Malaria	238	Malaria	220	Diarrhea	304	Anaemia	244
7	Sepsis	254	Anaemia	235	Anaemia	219	Anaemia	279	Malaria	233
8	Neonatal Conditions	233	Meningitis	190	Heart Diseases	215	Gastroenteritis	238	Asphyxia	229
9	Meningitis	196	Sepsis	173	Sepsis	205	Malaria	233	Meningitis	224
10	Gastro-enteritis	172	Asphyxia	133	Meningitis	167	Meningitis	215	Cardiovascular Diseases	185

Table 6.12: Ten Leading causes of medically certified causes of registered deaths for under 5 years females, 2019-2023

Rank	2019		2020		2021		2022		2023	
	Cause of Death	N=9738	Cause of Death	N=8329	Cause of Death	N=8946	Disease	N =9489	Cause of Death	N=9993
1	Prematuri-ty & Birth asphyxia	1792	Prematurity & birth asphyxia	1975	Prematurity & Birth asphyxia	2,123	Prematurity & Birth Asphyxia	1,749	Prematurity and Asphyxia	1923
2	Pneumonia	1246	Pneumonia	1080	Pneumonia	1,368	Pneumonia	1,377	Pneumonia	1391
3	Respiratory Infections	803	Respiratory infections	986	Respiratory Infections	921	Respiratory Infections	1,235	Sepsis	593
4	Cardio Pul-monary and Respiratory diseases	504	Cardiorespirato-ry failure/Cardio-pulmonary arrest	710	Cardiopulmo-nary and Car-diorespiratory Arrest	674	Sepsis	684	Diarrhoea	407
5	Malaria	295	Neonatal Condi-tions	344	Neonatal Con-ditions	365	Cardiopulmo-nary and Car-diorespiratory Arrest	600	Neonatal Sepsis	326
6	Sepsis	272	Malaria	252	Sepsis	216	Diarrhea	330	Asphyxia	252
7	Anaemia	212	Anaemia	205	Heart Diseases	202	Gastroenteritis	230	Anaemia	228
8	Meningitis	205	Meningitis	170	Anaemia	196	Anaemia	229	Cardiovascular Diseases	213
9	Neonatal Conditions	177	Sepsis	168	Malaria	192	Meningitis	186	Malaria	190
10	Gastro-enteritis	175	Gastroenteritis	138	Meningitis	171	Malaria	173	Meningitis	163

6.2.6 Ten leading causes of registered deaths among children age 5-14 years

The leading causes of death for ages 5-14 shows a mixed pattern from 2019 to 2023. Malaria, pneumonia, anaemia and cardiopulmonary and cardio respiratory arrest was among the leading causes of death as presented in table 6.13.

Table 6.13: ***Ten Leading causes of medically certified causes of registered deaths for 5-14 years, 2019-2023***

Rank	2019		2020		2021		2022		2023	
	Cause of Death	N = 4033	Cause of Death	N=3247	Cause of Death	N=3398	Disease	N = 3447	Cause of Death	N=3459
1	Malaria	355	Anaemia	339	Pneumonia	362	Pneumonia	355	Pneumonia	306
2	Pneumonia	308	Malaria	329	Anaemia	311	Anaemia	321	Anaemia	297
3	Anaemia	284	Pneumonia	275	Cardiopulmonary and Cardiorespiratory Arrest	233	Cardiopulmonary and Cardiorespiratory Arrest	286	Malaria	212
4	Cardio Pulmonary and Respiratory diseases	209	Cardiorespiratory failure/Cardiopulmonary arrest	248	Malaria	195	Malaria	200	Cardiovascular Diseases	197
5	Respiratory Infections	195	Respiratory infections	150	Heart Diseases	142	Respiratory Infections	161	Sepsis	178
6	Meningitis	152	Road traffic accidents	125	Respiratory Infections	141	Injuries	132	Injuries	177
7	Cancer	99	Cancer	117	Meningitis	129	Diarrhea	116	Cancer	128
8	Injuries	98	Meningitis	114	Kidney & urinary tract infections	103	Meningitis	113	Meningitis	96
9	Heart Diseases	83	Injuries	96	Injuries	97	Road Traffic Accident	89	Road Traffic Accidents	72
10	Traffic Accidents	79.0	Heart diseases	78	Cancer	87	Cancer	81	Diarrhoea	67

From table 6.14 and 6.15, Malaria, Anemia and Pneumonia were the leading causes of death for this age group for both male and female with an interchanging pattern. However, Cardiopulmonary and cardiorespiratory arrest was the third leading cause of death in 2021 and 2022. Although road traffic accident was among the ten leading causes of death for males, in 2021 to 2023, it did not feature among the females

Table 6.14: Ten Leading causes of medically certified causes of registered deaths for 5-14 years males, 2019-2023

Rank	2019		2020		2021		2022		2023	
	Cause of Death	N = 2218	Cause of Death	N=1815	Cause of Death	N=1871	Disease	N =1923	Cause of Death	N=1970
1	Malaria	190	Anaemia	184	Pneumonia	193	Pneumonia	188	Pneumonia	172
2	Anaemia	165	Malaria	172	Anaemia	182	Anaemia	177	Anaemia	167
3	Pneumonia	164	Pneumonia	142	Cardiopulmonary and Cardiorespiratory Arrest	132	Cardiopulmonary and Cardiorespiratory Arrest	145	Malaria	117
4	Cardio Pulmonary and Respiratory diseases	115	Cardiorespiratory failure/Cardiopulmonary arrest	135	Malaria	100	Malaria	113	Injuries	111
5	Respiratory Infections	115	Respiratory infections	75	Respiratory Infections	80	Respiratory Infections	86	Cardiovascular Diseases	105
6	Meningitis	90	Road traffic accidents	73	Heart Diseases	72	Injuries	79	Sepsis	100
7	Injuries	61	Cancer	72	Meningitis	66	Diarrhea	68	Cancer	80
8	Cancer	50	Injuries	66	Injuries	60	Meningitis	57	Meningitis	64
9	Traffic Accidents	46	Meningitis	64	Kidney & urinary tract infections	57	Road Traffic Accident	51	Road Traffic Accidents	42
10	Heart Diseases	37.0	Kidney and urinary tract infections	47	Road Traffic Accidents	53	Cancer	43	Tuberculosis	37

Table 6.15: Ten Leading causes of medically certified causes of registered deaths for 5-14 years females, 2019-2023

Rank	2019		2020		2021		2022		2023	
	Cause of Death	N = 1815	Cause of Death	N=1432	Cause of Death	N=1527	Disease	N = 1524	Cause of Death	N=1849
1	Malaria	165	Malaria	157	Pneumonia	169	Anaemia	144	Pneumonia	134
2	Pneumonia	144	Anaemia	155	Anaemia	129	Pneumonia	167	Anaemia	130
3	Anaemia	119	Pneumonia	133	Cardiopulmonary and Cardiorespiratory Arrest	101	Cardiopulmonary and Cardiorespiratory Arrest	141	Malaria	95
4	Cardio Pulmonary and Respiratory diseases	94	Cardiorespiratory failure/Cardiopulmonary arrest	113	Malaria	95	Malaria	87	Cardiovascular Diseases	92
5	Respiratory Infections	80	Respiratory infections	75	Heart Diseases	70	Respiratory Infections	75	Sepsis	78
6	Meningitis	62	Road traffic accidents	52	Meningitis	63	Meningitis	56	Injuries	66
7	Cancer	49	Meningitis	50	Respiratory Infections	61	Injuries	53	Cancer	48
8	Heart Diseases	46	Cancer	45	Kidney & urinary tract infections	46	Diarrhea	48	Meningitis	32
9	Injuries	37	Heart diseases	39	Injuries	37	Heart Disease	40	Diarrhoea	31
10	Traffic Accidents	33.0	Injuries	30	Cancer	35	Sepsis	40	Liver Diseases	31

6.2.7 Ten leading causes of medically registered deaths among Age 15-49 Years

Age 15-49 years is the most productive age group in the human cycle. Analyzing the causes of death in this age group is therefore critical for specific interventions so as to improve their health, thereby reducing premature mortality. Men in this age group are more exposed to injuries and accidents due to the nature of their occupations hence more likely to die as a result of complications associated with such incidents. On the other hand, this being the childbearing age, women are more likely to die as a result of maternal and reproductive health-related complications. The information derived from such analysis is important in informing various interventions for programming for this population age set. Table 6.16 shows deaths from injuries and cancer has been on a rising trend from 2021 where they ranked position three (3) to position one (1) and position six (6) to position two (2) in 2023 respectively.

Table 6.16: ***Top leading causes of medically certified registered deaths for 15-49 years, 2019-2023***

Rank	2019		2020		2021		2022		2023	
	Cause of Death	N = 35586	Cause of Death	N=32037	Cause of Death	N=35980	Cause of Death	N = 35263	Cause of Death	N=34317
1	HIV/AIDS	1822	Cardiorespiratory failure/Cardiopulmonary arrest	2672	Pneumonia	3,043	Cardiopulmonary and Cardiorespiratory Arrest	3,109	Injuries	3039
2	Pneumonia	1738	Pneumonia	2118	Cardiopulmonary and Cardiorespiratory Arrest	2,639	Injuries	2,466	Cancer	2090
3	Injuries	1677	Cancer	1668	Injuries	1,841	Pneumonia	2,404	Pneumonia	2059
4	Tuberculosis	1573	Road traffic accidents	1661	Road Traffic Accidents	1,736	Respiratory Infections	1,595	Cardiovascular Diseases	1831
5	Traffic Accidents	1526	HIV/AIDS	1571	Respiratory Infections	1,597	Cancer	1,581	Sepsis	1460
6	Cancer	1451	Injuries	1406	Cancer	1,514	Road Traffic Accident	1,499	Tuberculosis	1454
7	Cardio Pulmonary and Respiratory diseases	1445	Respiratory infections	1335	Anaemia	1,397	Tuberculosis	1,457	Anaemia	1453
8	Meningitis	1406	Anaemia	1328	HIV/AIDS	1,281	Anaemia	1,421	Road Traffic Accidents	1364
9	Respiratory Infections	1236	Tuberculosis	1288	Heart Diseases	1,128	Meningitis	1,236	HIV/AIDS	1320
10	Anaemia	1198.0	Meningitis	1225	Meningitis	1,123	HIV/AIDS	1,147	Meningitis	938

Tables 6.17 and 6.18 show that deaths among males 15-49 years for the period under review are majorly caused by injuries, road traffic accidents, pneumonia and cardiopulmonary and cardiorespiratory arrest., Similarly the causes of death among females of the same age group are cardiopulmonary and cardiorespiratory arrest, pneumonia and cancer.

Table 6.17: Top leading causes of medically certified registered deaths for 15-49 years males, 2019-2023

Rank	2019		2020		2021		2022		2023	
	Cause of Death	N = 20442	Cause of Death	N=18618	Cause of Death	N=21283	Cause of Death	N =20804	Cause of Death	N=20326
1	Injuries	1339	Road traffic accidents	1469	Pneumonia	1,745	Injuries	2,055	Injuries	2673
2	Traffic Accidents	1274	Cardiorespiratory failure/Cardiopulmonary arrest	1430	Injuries	1,629	Cardiopulmonary and Cardiorespiratory Arrest	1,636	Pneumonia	1209
3	Pneumonia	968	Injuries	1228	Road Traffic Accidents	1,496	Pneumonia	1,373	Road Traffic Accidents	1151
4	Tuberculosis	935	Pneumonia	1158	Cardiopulmonary and Cardiorespiratory Arrest	1,414	Road Traffic Accident	1,265	Cardiovascular Diseases	941
5	HIV	773	Tuberculosis	793	Respiratory Infections	905	Respiratory Infections	882	Tuberculosis	874
6	Cardio Pulmonary and Respiratory diseases	754	Respiratory infections	725	Tuberculosis	696	Tuberculosis	880	Cancer	821
7	Meningitis	688	HIV/AIDS	707	Anaemia	612	Meningitis	636	Sepsis	747
8	Respiratory Infections	662	Cancer	648	Covid 19	597	Anaemia	619	Anaemia	662
9	Cancer	601	Meningitis	575	Heart Diseases	592	Cancer	562	Liver Diseases	594
10	Anaemia	512.0	Anaemia	562	Cancer	588	HIV/AIDS	462	HIV/AIDS	579

Table 6.18: ***Top leading causes of medically certified registered deaths for 15-49 years females, 2019-2023***

Rank	2019		2020		2021		2022		2023	
	Cause of Death	N = 15144	Cause of Death	N=13419	Cause of Death	N=14697	Cause of Death	N = 14459	Cause of Death	13991
1	HIV	1049	Cardiorespiratory failure/Cardiopulmonary arrest	1242	Pneumonia	1,298	Cardiopulmonary and Cardiorespiratory Arrest	1,473	Cancer	1269
2	Cancer	850	Cancer	1020	Cardiopulmonary and Cardiorespiratory Arrest	1,225	Pneumonia	1,031	Cardiovascular Diseases	890
3	Pneumonia	770	Pneumonia	960	Cancer	926	Cancer	1,019	Pneumonia	850
4	Meningitis	718	HIV/AIDS	864	Anaemia	785	Anaemia	802	Anaemia	791
5	Cardio Pulmonary and Respiratory diseases	691	Anaemia	766	HIV/AIDS	708	Respiratory Infections	713	HIV/AIDS	741
6	Anaemia	686	Meningitis	650	Respiratory Infections	692	HIV/AIDS	685	Sepsis	713
7	Tuberculosis	638	Respiratory infections	610	Meningitis	552	Meningitis	600	Tuberculosis	580
8	Respiratory Infections	574	Tuberculosis	495	Heart Diseases	536	Tuberculosis	577	Renal Diseases	437
9	Hypertension	426	Hypertension	481	Covid 19	471	Injuries	411	Meningitis	430
10	Injuries	338.0	Kidney and urinary tract infections	319	Tuberculosis	404	Hypertension	374	Hypertension	407

6.2.8 Ten leading medically certified causes of registered deaths among 50-59 Years

Table 6.19 shows that majority of the top ten causes of death in this age group are due to non-communicable causes: cancer, Hypertension, Diabetes, Cardiovascular diseases, and Kidney failure. Cancer was the leading cause of death in 2019 and 2023, while it was second in 2020 and 2022 and the third in 2021.Pneumonia has for the last four years maintained the top three position within the same age group for the period under review.

Table 6.19: ***Ten leading medically certified causes of registered deaths for 50-59 years***

Rank	2019		2020		2021		2022		2023	
	Cause of Death	N = 10668	Cause of Death	N=10406	Cause of Death	N=12698	Disease	N =11024	Cause of Death	N=11384
1	Cancer	978	Cardiorespiratory failure/Cardiopulmonary arrest	1093	Pneumonia	1,407	Cardiopulmonary and Cardiorespiratory Arrest	1,210	Cancer	1278
2	Hypertension	591	Cancer	1040	Cardiopulmonary and Cardiorespiratory Arrest	1,143	Cancer	1,008	Cardiovascular Diseases	770
3	Cardio Pulmonary and Respiratory diseases	568	Pneumonia	810	Cancer	922	Pneumonia	781	Pneumonia	709
4	Pneumonia	556	Hypertension	631	Covid 19	898	Respiratory Infections	560	Hypertension	614
5	Respiratory Infections	413	Respiratory infections	482	Respiratory Infections	751	Hypertension	484	Sepsis	542
6	Tuberculosis	354	Diabetes	456	Hypertension	574	Injuries	400	Tuberculosis	420
7	Diabetes	353	Kidney and urinary tract infections	358	Diabetes	502	Anaemia	360	Anaemia	406
8	HIV	341	Anaemia	357	Heart Diseases	497	Tuberculosis	360	Renal Diseases	405
9	Anaemia	333	HIV/AIDS	355	Kidney & urinary tract infections	386	Diabetes	340	Injuries	395
10	Traffic Accidents	256.0	Tuberculosis	328	Anaemia	357	Diarrhea	339	Diabetes	351

Cancer was the leading cause of death in 2019, 2020, 2022 and 2023 among females, while for the males it was leading in 2019 and 2023. Pneumonia remained the top five cause of death among both sexes during the period under review.

Table 6.20: ***Ten leading medically certified causes of registered deaths for 50-59 years males 2019-2023***

Rank	2019		2020		2021		2022		2023	
	Cause of Death	N = 6228	Cause of Death		Cause of Death	N=7539	Disease	N =6539	Cause of Death	N=6703
1	Cancer	484	Cardiorespiratory failure/Cardiopulmonary arrest	601	Pneumonia	870	Cardiopulmonary and Cardiorespiratory Arrest	726	Cancer	570
2	Pneumonia	345	Pneumonia	529	Cardiopulmonary and Cardiorespiratory Arrest	658	Pneumonia	499	Pneumonia	457
3	Hypertension	337	Cancer	459	Covid 19	562	Cancer	451	Cardiovascular Diseases	428
4	Cardio Pulmonary and Respiratory diseases	303	Hypertension	361	Respiratory Infections	457	Injuries	319	Hypertension	338
5	Tuberculosis	242	Respiratory infections	291	Cancer	419	Respiratory Infections	314	Sepsis	318
6	Respiratory Infections	199	Diabetes	274	Hypertension	299	Hypertension	249	Injuries	313
7	HIV	193	Tuberculosis	231	Heart Diseases	273	Tuberculosis	246	Tuberculosis	278
8	Traffic Accidents	190	Kidney and urinary tract infections	212	Diabetes	264	Diarrhea	200	Renal Diseases	248
9	Diabetes	177	HIV/AIDS	184	Kidney & urinary tract infections	235	Diabetes	186	Liver Diseases	228
10	Injuries	168.0	Covid 19	182	Tuberculosis	211	Anaemia	179	Anaemia	218
11			Road traffic accidents	182						

Table 6.21: ***Ten leading medically certified causes of registered deaths for 50-59 years females, 2019-2023***

Rank	2019		2020		2021		2022		2023	
	Cause of Death	N = 4440	Cause of Death	N=4194	Cause of Death	N=5159	Disease	N =4485	Cause of Death	N=4680
1	Cancer	494	Cancer	581	Pneumonia	537	Cancer	557	Cancer	708
2	Cardio Pulmonary and Respiratory diseases	265	Cardiorespiratory failure/Cardiopulmonary arrest	492	Cancer	503	Cardiopulmonary and Cardiorespiratory Arrest	484	Cardiovascular Diseases	342
3	Hypertension	254	Pneumonia	281	Cardiopulmonary and Cardiorespiratory Arrest	485	Pneumonia	282	Hypertension	276
4	Respiratory Infections	214	Hypertension	270	Covid 19	336	Respiratory Infections	246	Pneumonia	252
5	Pneumonia	211	Respiratory infections	191	Respiratory Infections	294	Hypertension	235	Sepsis	224
6	Diabetes	176	Anaemia	185	Hypertension	275	Anaemia	181	Diabetes	189
7	Anaemia	169	Diabetes	182	Diabetes	238	Diabetes	154	Anaemia	188
8	HIV	148	HIV/AIDS	171	Heart Diseases	224	HIV/AIDS	151	HIV/AIDS	163
9	Tuberculosis	112	Kidney and urinary tract infections	146	Anaemia	169	Diarrhea	139	Renal Diseases	157
10	Meningitis	101.0	Tuberculosis	97	HIV/AIDS	155	Tuberculosis	114	Tuberculosis	142

6.2.9 Ten Leading Medically Certified Causes Of Registered Deaths Among 60 Years And Above

This section represents the leading causes of death for people aged 60 years and above. This age group is prone to non-communicable diseases and there is need to strengthen the health system to cater for their health needs. Cancer, Hypertension and Cardiovascular disease take prominence interchangeably as the leading cause of death for this age group during the reference period. Communicable diseases, Pneumonia, Tuberculosis, Respiratory infections also feature among the top ten causes of death within this age group as shown in Table 6.22.

Table 6.22: ***Ten leading medically certified causes of registered deaths for 60 years and above***

Rank	2019		2020		2021		2022		2023	
	Cause of Death	N=37745	Cause of Death	N=34644	Cause of Death	N=51219	Cause of Death	N = 41557	Cause of Death	N=41306
1	Cancer	3203	Hypertension	3615	Pneumonia	7,878	Cardiopulmonary and Cardiorespiratory Arrest	5,087	Cardiovascular Diseases	4054
2	Pneumonia	2871	Cardiorespiratory failure/Cardiopulmonary arrest	3575	Cardiopulmonary and Cardiorespiratory Arrest	4,439	Pneumonia	4,807	Cancer	4051
3	Hypertension	2861	Pneumonia	3452	Covid 19	3,957	Cancer	2,867	Pneumonia	4022
4	Cardio Pulmonary and Respiratory diseases	1810	Cancer	3081	Hypertension	3,420	Hypertension	2,826	Hypertension	3321
5	Diabetes	1517	Diabetes	1849	Cancer	3,125	Respiratory Infections	2,409	Sepsis	2613
6	Respiratory Infections	1503	Respiratory infections	1800	Respiratory Infections	3,042	Diabetes	1,796	Diabetes	1698
7	Anaemia	1162	Kidney and urinary tract infections	1246	Heart Diseases	2,685	Anaemia	1,418	Renal Diseases	1657
8	Heart Diseases	1091	Heart diseases	1114	Diabetes	2,376	Heart Disease	1,125	Anaemia	1451
9	Stroke	684	Anaemia	1038	Kidney & urinary tract infections	1,492	Diarrhea	1,068	Tuberculosis	715
10	Traffic Accidents	674	Cerebrovascular diseases	775	Anaemia	1,286	Sepsis	993	Injuries	679

Table 6.23 and 6.24 shows that, Cancer, pneumonia and cardiopulmonary and cardiorespiratory arrest remained among the leading causes of death among both females and males. Hypertension is prominent among females under the reference period. While injuries feature among the top ten causes in 2022 and 2023 for males.

Table 6.23: Ten leading medically certified causes of registered deaths for 60+ years males

Rank	2019		2020		2021		2022		2023	
	Cause of Death	N=20146	Cause of Death	N=18955	Cause of Death	N=28221	Cause of Death	N =22067	Cause of Death	21779
1	Cancer	1883	Cardiorespiratory failure/Cardiopulmonary arrest	1942	Pneumonia	4,425	Cardiopulmonary and Cardiorespiratory Arrest	2,606	Cancer	2204
2	Pneumonia	1502	Pneumonia	1931	Cardiopulmonary and Cardiorespiratory Arrest	2,429	Pneumonia	2,597	Pneumonia	2152
3	Hypertension	1368	Cancer	1789	Covid 19	2,352	Cancer	1,572	Cardiovascular Diseases	1884
4	Cardio Pulmonary and Respiratory diseases	987	Hypertension	1754	Cancer	1,795	Respiratory Infections	1,309	Hypertension	1505
5	Respiratory Infections	825	Respiratory infections	1036	Respiratory Infections	1,724	Hypertension	1,283	Sepsis	1275
6	Diabetes	743	Diabetes	946	Hypertension	1,608	Diabetes	862	Renal Diseases	956
7	Anaemia	614	Kidney and urinary tract infections	811	Heart Diseases	1,327	Anaemia	804	Anaemia	789
8	Heart Diseases	542	Anaemia	558	Diabetes	1,175	Injuries	633	Diabetes	775
9	Traffic Accidents	385	Heart diseases	546	Kidney & urinary tract infections	915	Diarrhea	585	Tuberculosis	486
10	Tuberculosis	378	Tuberculosis	356	Anaemia	710	Kidney Diseases	525	Injuries	461

Table 6.24: ***Ten leading medically certified causes of registered deaths for 60+ years females***

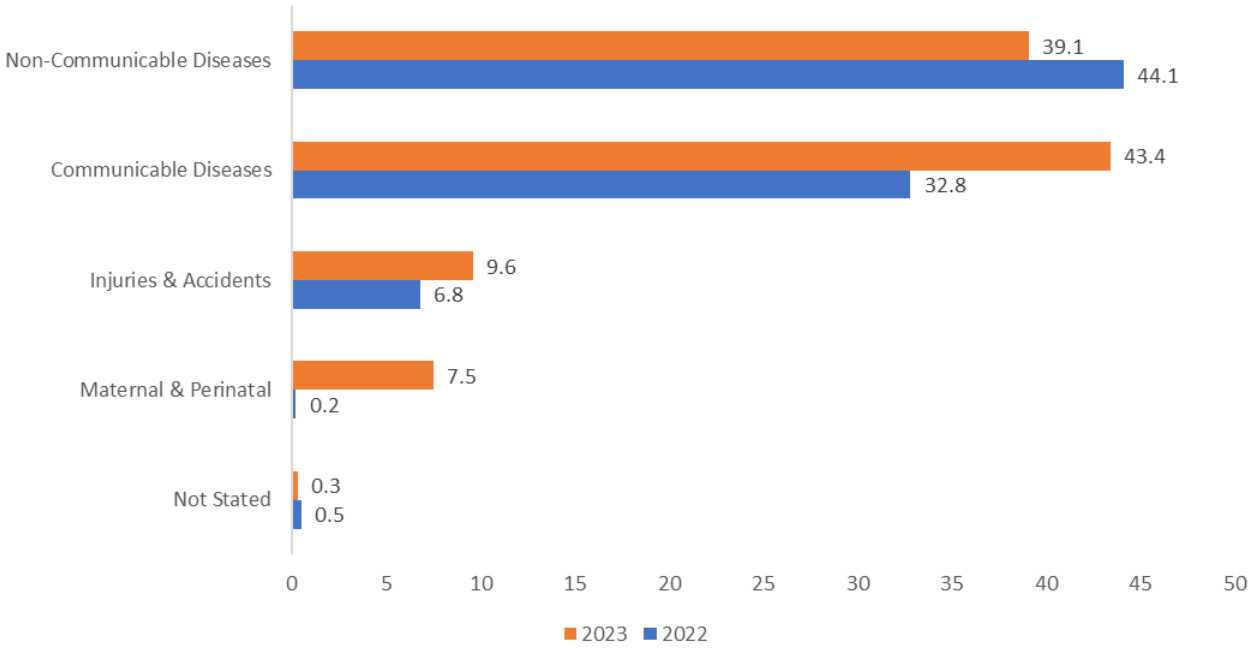
Rank	2019		2020		2021		2022		2023	
	Cause of Death	**N=17599**	**Cause of Death**	**N=15689**	**Cause of Death**	**N=22998**	**Cause of Death**	**N =19490**	**Cause of Death**	**N=19527**
1	Hyperten-sion	1493	Hypertension	1861	Pneumonia	3,453	Cardiopulmo-nary and Car-diorespiratory Arrest	2,481	Cardiovascular Diseases	2170
2	Pneumonia	1369	Cardiorespirato-ry failure/Cardio-pulmonary arrest	1633	Cardiopulmo-nary and Car-diorespiratory Arrest	2,010	Pneumonia	2,210	Pneumonia	1870
3	Cancer	1320	Pneumonia	1521	Hypertension	1,812	Hypertension	1,543	Cancer	1846
4	Cardio Pul-monary and Respiratory diseases	823	Cancer	1292	Covid 19	1,605	Cancer	1,295	Hypertension	1816
5	Diabetes	774	Diabetes	903	Heart Diseases	1,358	Respiratory Infections	1,100	Sepsis	1338
6	Respiratory Infections	678	Respiratory infections	764	Cancer	1,330	Diabetes	934	Diabetes	923
7	Heart Dis-eases	549	Heart diseases	568	Respiratory Infections	1,318	Heart Disease	618	Renal Diseases	701
8	Anaemia	548	Anaemia	480	Diabetes	1,201	Anaemia	614	Anaemia	662
9	Stroke	391	Kidney and urinary tract infections	435	Kidney & urinary tract infections	577	Diarrhea	483	Diarrhoea	275
10	Traffic Acci-dents	289	Cerebrovascular diseases	427	Anaemia	576	Sepsis	474	Liver Diseases	234

6.3 Causes Of Death According To Global Burden Of Disease Groups, All Ages 2022-2023

The Global Burden of Disease (GBD) study provides comprehensive data on the causes of death worldwide. GBD provides a comprehensive picture of mortality and disability across countries, time, age, and sex. The causes of death are categorized as communicable, non-communicable, maternal/ perinatal, external injuries and nutritional deficiencies. The causes of death vary over time due to various factors such as advancements in healthcare, changes in lifestyle, and the emergence of new diseases. Figure 6.1 shows non-communicable diseases dropped to 39.1% from 44.1% in 2022. On the other hand, communicable diseases increased to 43.4% in 2023 from 32.8% in 2022. Injuries and accidents increased from 6.8% in 2022 to 9.6% in 2023.In addition, maternal and perinatal causes increased from 0.2% in 2022 to 7.5% in 2023.

The causes of death are categorized as communicable, non-communicable, maternal/ perinatal, external injuries and nutritional deficiencies. The causes of death vary over time due to various factors such as advancements in healthcare, changes in lifestyle, and the emergence of new diseases.

***Figure 6.1:** Global burden of disease groups, 2022 - 2023*



6.4 Causes Of Registered Death With Special Programmes By Age, 2022 and 2023

The section presents causes of death under special programs in Kenya. These include Pneumonia, Asthma, Malaria, Tuberculosis, HIV/AIDS, Cancer, and Road traffic accidents (RTA).

Table 6.25 shows that causes of death due to HIV/AIDS and malaria increased among all the age groups while pneumonia, tuberculosis and RTAdeclined among all the age groups over the reference period.

***Table 6.25:* Causes of registered deaths with special programs by age and sex, 2022 and 2023**

Cause of Death	Asthma		HIV/AIDS		Malaria		Pneumonia		Tuberculosis		Road Traffic Accident	
Age	**2022**	**2023**	**2022**	**2023**	**2022**	**2023**	**2022**	**2023**	**2022**	**2023**	**2022**	**2023**
Neonatal	11	11	15	18	45	46	556	431	27	0	10	5
Under 1	6	7	7	7	142	144	1535	1506	69	44	8	8
Under 5	10	8	18	19	229	233	803	773	87	66	54	44
5-14	7	8	20	21	206	212	329	306	75	59	83	72
15-49	103	103	1223	1320	425	442	2291	2059	1730	1454	1610	1364
50-59	60	56	324	341	87	90	807	709	502	420	314	185
60+	212	217	325	351	335	339	4294	4022	916	715	949	251
Not Stated	7	7	24	25	27	30	170	160	45	40	43	31
Total	**416**	**417**	**1956**	**2102**	**1496**	**1536**	**10785**	**9966**	**3451**	**2798**	**3071**	**1960**

6.5 Causes Of Death From Foreign Deaths Registration

Table 6.26 presents registration of causes of death of Kenyan nationals who died abroad. In 2023, cancer, Pneumonia, Injuries, Respiratory infections, and Road Traffic Accidents were the leading top five causes of death, accounting for more than a quarter of the all deaths. Out of 13 deaths occurring from Road Traffic accidents, 12 were among males. This pattern is also reflected in injuries, respiratory infections and hypertension where more male deaths were registered. However, more cancer deaths were registered among females than in males.

Out of 13 deaths occurring from Road Traffic accidents, 12 were among males. This pattern is also reflected in injuries, respiratory infections and hypertension where more male deaths were registered

Table 6.26: ***Leading causes of foreign registered deaths, 2023***

Rank	Cause of Death	Male		Female		Both Sexes	
		N = 168	%	N = 102	%	N = 270	%
1	Cancer	8	42.1	11	57.9	19	7.0
2	Pneumonia	8	57.1	6	42.9	14	5.2
3	Injuries	10	76.9	3	23.1	13	4.8
4	Respiratory Infections	9	69.2	4	30.8	13	4.8
5	Road Traffic Accident	12	92.3	1	7.7	13	4.8
6	Heart Disease	8	66.7	4	33.3	12	4.4
7	Hypertension	7	70.0	3	30.0	10	3.7
8	Tuberculosis	4	57.1	3	42.9	7	2.6
9	Hemorrhage	4	66.7	2	33.3	6	2.2
10	Sepsis	2	33.3	4	66.7	6	2.2
11	Diabetes	2	50.0	2	50.0	4	1.5
12	Kidney Diseases	1	25.0	3	75.0	4	1.5
13	Stroke	3	75.0	1	25.0	4	1.5
14	Other Causes	90	62	55	37.9	145.0	53.7

6.6 Causes Of Registered Deaths In The Community

This section presents analysis of causes of death registered within the community by background characteristics. The data on community deaths are mainly sourced from lay reporting by Assistant Chiefs who are required to register deaths occurring within their communities. In this section, data regarding the ten leading causes of death by age and sex which occur outside medical facilities are presented.

The data on community deaths are mainly sourced from lay reporting by Assistant Chiefs who are required to register deaths occurring within their communities.

6.5.1 Ten leading causes of registered deaths from the community, 2023

Table 6.27 shows that the three leading causes of death were sudden death at 17.2 percent, pneumonia 15 percent and cancer 10.2 percent accounting for over 40 percent. among both males and females.

***Table 6.27:* Ten Leading causes of registered deaths in the community, 2023**

Male				Female			Both Sexes		
Rank	**Cause of Death**	**N = 53,280**	**%**	**Cause of death**	**N = 39,600**	**%**	**Cause of Death**	**N = 92,880**	**%**
1	Sudden Death	9,141	17.2	Sudden Death	6,813	17.2	Sudden Death	15,954	17.2
2	Pneumonia	7,703	14.5	Pneumonia	6,206	15.7	Pneumonia	13,909	15.0
3	Cancer	4,961	9.3	Cancer	4,540	11.5	Cancer	9,501	10.2
4	Malaria	4,666	8.8	Malaria	4,067	10.3	Malaria	8,733	9.4
5	Tuberculosis	2,711	5.1	Hypertension	2,841	7.2	Hypertension	4,705	5.1
6	Injuries	2,039	3.8	Anaemia	1,283	3.2	Tuberculosis	3,809	4.1
7	Hyperten-sion	1,864	3.5	Diabetes	1,229	3.1	Asthma	2,771	3.0
8	Asthma	1,552	2.9	Asthma	1,219	3.1	Anaemia	2,626	2.8
9	Anaemia	1,343	2.5	Tuberculosis	1,098	2.8	Diabetes*	2,424	2.6
10	Suicide	1,333	2.5	Stroke	1,025	2.6	Injuries *	2385	2.6

** Cause of death identified among top ten (10) in both sexes but not appearing as top 10 in one of the individual sex*

6.5.2 Leading Causes Of Registered Deaths For Neonates In The Community

Table 6.28 shows the leading causes of death among neonates was pneumonia at 45.2 percent, sudden death at 20.1 percent and malaria at 11.7 percent

***Table 6.28:* Ten leading causes of registered deaths in the community for neonates, 2023**

Male				Female			Both Sexes		
Rank	**Cause of death**	**N = 1,033**	**%**	**Cause of death**	**N = 872**	**%**	**Cause of death**	**N = 1,905**	**%**
1	Pneumonia	469	45.4	Sudden Death	6,813	17.2	Sudden Death	15,954	17.2
2	Sudden Death	207	20.0	Pneumonia	6,206	15.7	Pneumonia	13,909	15.0
3	Malaria	127	12.3	Cancer	4,540	11.5	Cancer	9,501	10.2
4	Prematurity and Asphyxia	42	4.1	Malaria	4,067	10.3	Malaria	8,733	9.4
5	Pregnancy/ Birth Complications	17	1.6	Pregnancy/ Birth Complications	15	1.7	Pregnancy/ Birth Complica-tions	32	1.7
6	Anaemia	14	1.4	Anaemia	14	1.6	Anaemia	28	1.5
7	Jaundice	14	1.4	Neonatal Sepsis	11	1.3	Jaundice	22	1.2
8	Asthma	14	1.4	Jaundice	8	0.9	Neonatal Sepsis	21	1.1
9	Neonatal Sepsis	10	1.0	Sepsis	7	0.8	Asthma	18	0.9
10	Tetanus	5	0.5	Asthma	4	0.5	Sepsis*	10	0.5

** Cause of death identified among top ten (10) in both sexes but not appearing as top 10 in one of the individual sex.*

6.5.3 Leading causes of registered deaths for under 1 year in the community

Table 6.29 shows the leading causes of death for under 1 year was Pneumonia (43.9%), Malaria (17.5%), and Sudden Death (15.7%).

***Table 6.29:** Ten leading causes of registered deaths for under 1 in the community, 2023*

Male				Female			Both Sexes		
Rank	Cause of death	N=2722	%	Cause of death	N=2390	%	Cause of death	N=5112	%
1	Pneumonia	1,208	44.4	Pneumonia	1,037	43.4	Pneumonia	2,245	43.9
2	Malaria	493	18.1	Malaria	402	16.8	Malaria	895	17.5
3	Sudden Death	408	15.0	Sudden Death	396	16.6	Sudden Death	804	15.7
4	Anaemia	56	2.1	Anaemia	46	1.9	Anaemia	102	2.0
5	Prematurity and Asphyxia	42	1.5	Prematurity and Asphyxia	32	1.3	Prematurity and Asphyxia	74	1.4
6	Diarrhoea	33	1.2	Asthma	27	1.1	Diarrhoea	58	1.1
7	Asthma	31	1.1	Diarrhoea	25	1.0	Asthma	58	1.1
8	Jaundice	26	1.0	Jaundice	21	0.9	Jaundice	47	0.9
9	Heart Disease	22	0.8	Sepsis	21	0.9	Sepsis	41	0.8
10	Sepsis	20	0.7	Pregnancy Birth Complications	19	0.8	Pregnancy/ Birth Complica-tions	36	0.7

** Cause of death identified among top ten (10) in both sexes but not appearing as top 10 in one of the individual sex.*

6.5.4 Ten Leading causes of registered deaths in the community for under 5 Years

Pneumonia (37.9%), Malaria (20.6%), sudden death (14.8%), are the top leading causes of death among under 5 years in the community and accounts for more than 70% of registered deaths in this age group as presented in Table 6.30.

***Table 6.30:* Ten leading causes of registered deaths in the community for under 5 years, 2023**

Male				Female			Both Sexes		
Rank	Cause of death	N=4431	%	Cause of death	N=3847	%	Cause of death	N=8278	%
1	Pneumonia	1,691	38.2	Pneumonia	1,445	37.6	Pneumonia	3,136	37.9
2	Malaria	930	21.0	Malaria	778	20.2	Malaria	1,708	20.6
3	Sudden Death	634	14.3	Sudden Death	589	15.3	Sudden Death	1,223	14.8
4	Anaemia	119	2.7	Anaemia	121	3.1	Anaemia	240	2.9
5	Drowning	68	1.5	Drowning	43	1.1	Drowning	111	1.3
6	Asthma	52	1.2	Asthma	43	1.1	Asthma	95	1.1
7	Diarrhoea	50	1.1	Diarrhoea	35	0.9	Diarrhoea	85	1.0
8	Injuries	45	1.0	Prematurity and Asphyxia	32	0.8	Prematurity and Asphyxia	74	0.9
9	Prematurity and Asphyxia	42	0.9	Jaundice	30	0.8	Injuries	71	0.9
10	Jaundice	35	0.8	Sepsis	27	0.7	Jaundice	65	0.8

6.5.5 Ten Leading causes of registered deaths in the community for age 5-14 Years

Table 6.31 presents the top three leading causes of death among age 5-14 years were Malaria (19,7%), Pneumonia (17.1%) and Sudden Death (14.0%) accounting for more than 50% of registered deaths in this age group. Additionally, asthma was among top ten leading cause in males and not among females while tuberculosis was among the top leading cause of death among females and not among males.

***Table 6.31:* Ten leading causes of registered deaths in the community for 5-14 years, 2023**

Male				Female			Both Sexes		
Rank	Cause of death	N = 1,609	%	Cause of death	N = 1,206	%	Cause of death	N = 2,815	%
1	Malaria	312	19.4	Malaria	242	20.1	Malaria	554	19.7
2	Pneumonia	243	15.1	Pneumonia	238	19.7	Pneumonia	481	17.1
3	Sudden Death	235	14.6	Sudden Death	158	13.1	Sudden Death	393	14.0
4	Anaemia	109	6.8	Anaemia	92	7.6	Anaemia	201	7.1
5	Drowning	77	4.8	Cancer	36	3.0	Drowning	110	3.9
6	Injuries	56	3.5	Drowning	33	2.7	Injuries	78	2.8
7	Suicide	48	3.0	Tuberculosis	26	2.2	Cancer	73	2.6
8	Cancer	37	2.3	Epilepsy	23	1.9	Suicide	66	2.3
9	Epilepsy	27	1.7	Injuries	22	1.8	Epilepsy	50	1.8
10	Asthma	25	1.6	Suicide	18	1.5	Tuberculosis*	48	1.7

**The total includes both sexes although it doesn't appear among males as top 10.*

6.5.6 Ten leading causes of registered deaths in the community for age 15-49 years

Table 6.32 shows sudden death (16.3%), Pneumonia (10.5%), Malaria (8.0%) Cancer (7.7%) accounts for more than 40% of all deaths registered in the community among this age group. Suicide, Road traffic accidents and alcoholism are among the top ten causes of death among males but not among the females in this age category. On the other hand, HIV/AIDS, Hypertension and Asthma are among the top ten causes of death among females, but not among males in this age group.

Sudden death, Pneumonia, Malaria and Cancer account for more than 40% of all deaths registered in the community among the 15-49 Years age group

***Table 6.32:** Ten leading causes of registered deaths in the community for age 15-49 years, 2023*

Male				Female			Both Sexes		
Rank	Cause of death	N = 16,894	%	Cause of death	N = 8,449	%	Cause of death	N = 25,343	%
1	Sudden Death	2,790	16.5	Sudden Death	1,329	15.7	Sudden Death	4,119	16.3
2	Pneumonia	1,716	10.2	Cancer	1,075	12.7	Pneumonia	2,668	10.5
3	Injuries	1,568	9.3	Pneumonia	952	11.3	Malaria	2,026	8.0
4	Malaria	1,227	7.3	Malaria	799	9.5	Cancer	1,949	7.7
5	Tuberculosis	1,150	6.8	Tuberculosis	429	5.1	Injuries	1,751	6.9
6	Suicide	971	5.7	Anaemia	348	4.1	Tuberculosis	1,579	6.2
7	Cancer	874	5.2	Hypertension	326	3.9	Suicide *	1,127	4.4
8	Road Traffic Accidents	565	3.3	Asthma	255	3.0	Anaemia	726	2.9
9	Anaemia	378	2.2	HIV/AIDS	238	2.8	Road Traffic Accidents*	659	2.6
10	Alcoholism	339	2.0	Injuries	183	2.2	Asthma*	589	2.3

** Causes of death identified among top ten in both sexes but not appearing as top ten 10 in one of the individual sex*

6.5.7 Ten leading causes of registered deaths in the community among 50-59 Years

Table 6.33 shows Sudden Death (17.6%), Cancer (15.6%), Pneumonia (11.2%) accounts for more than 40% of the total deaths in this age category.

***Table 6.33:** Ten leading causes of registered deaths in the community for age 50-59 years, 2023*

Male				Female			Both Sexes		
Rank	Cause of death	N = 5,647	%	Cause of death	N = 2,899	%	Cause of death	N = 8,546	%
1	Sudden Death	1,060	18.8	Cancer	634	21.9	Sudden Death	1,505	17.6
2	Cancer	696	12.3	Sudden Death	445	15.4	Cancer	1,330	15.6
3	Pneumonia	675	12.0	Pneumonia	286	9.9	Pneumonia	961	11.2
4	Tuberculosis	465	8.2	Hypertension	228	7.9	Malaria	587	6.9
5	Malaria	403	7.1	Malaria	184	6.3	Tuberculosis	574	6.7
6	Hypertension	222	3.9	Tuberculosis	109	3.8	Hypertension	450	5.3
7	Asthma	194	3.4	Diabetes	107	3.7	Asthma	285	3.3
8	Injuries	155	2.7	Asthma	91	3.1	Diabetes	240	2.8
9	Diabetes	133	2.4	Anaemia	81	2.8	Injuries*	184	2.2
10	Suicide	122	2.2	HIV/AIDS	70	2.4	Anaemia*	177	2.1

** Causes of death identified among top ten in both sexes but not appearing as top ten 10 in one of the individual sex*

6.5.8 Ten Leading causes of registered deaths in the community among 60 years and above

Table 6.34 presents the ten leading causes of registered death in the community for age 60 years and above. Sudden Death (18.1%), Pneumonia (14.0%), Cancer (12.9%), account for 45% of all the deaths registered in this age category for both sexes

***Table 6.34:* Ten leading causes of registered deaths in the community for age 60+ years, 2023**

Male				Female			Both Sexes		
Rank	**Cause of death**	**N = 23,705**	**%**	**Cause of death**	**N = 22,473**	**%**	**Cause of death**	**N = 46,178**	**%**
1	Sudden Death	4,199	17.7	Sudden Death	4,154	18.5	Sudden Death	8,353	18.1
2	Pneumonia	3,257	13.7	Pneumonia	3,188	14.2	Pneumonia	6,445	14.0
3	Cancer	3,252	13.7	Cancer	2,706	12.0	Cancer	5,958	12.9
4	Malaria	1,693	7.1	Hypertension	2,245	10.0	Malaria	3,661	7.9
5	Hypertension	1,398	5.9	Malaria	1,968	8.8	Hypertension	3,643	7.9
6	Tuberculosis	1,008	4.3	Diabetes	981	4.4	Diabetes	1,810	3.9
7	Asthma	925	3.9	Stroke	887	3.9	Asthma	1,712	3.7
8	Urinary Obstruction	887	3.7	Asthma	787	3.5	Stroke	1,558	3.4
9	Diabetes	829	3.5	Anaemia	618	2.7	Tuberculosis*	1,505	3.3
10	Stroke	671	2.8	Complications of Old Age	555	2.5	Anaemia*	1,232	2.7

** Causes of death identified among top ten in both sexes but not appearing as top ten 10 in one of the individual sex*


Medical History
A. Your
ails
Please complete the
details for yourself as the main applicant/member.
Ms, other title)
clude all forenames in full)
Male
Female
B. Additional member details
Please give details of additional members you wish to be covered.
Title, surname, first name(s)
Relationship to you
(partner, dependant)
Dat
Day Mon
1
2
3
give us their name(s) and the full details for this section ar
have included additional family members, please tick this box.
C. Your medical history
This section asks for health and medical details, past and present, about yourself and for eac
Please tick Yes or No to every question for each person. If you tick Yes to a question, please
on the next page. If you are unsure whether any details are relevant, you must include them.
For any of the medical conditions or symptoms listed in questions 1 to 16 please indicate
If:
~ you or anyone to be covered on your membership has seen a GP or other healthcare professional within the last two years
~ you or anyone to be covered on your membership has been admitted to hospital, had an operation OR any investigations (for example scan. X-ray, blood test biopsy) within the last
Main applicant
Name
Yes
No
1. Heart or cardiovascular disorders eg coronary artery disease, chest pains, circulation problems, varicose veins, high blood pressure, venous ulcers
2. Glandular disorders eg diabetes, thyroid, hormonal problems

CHAPTER SEVEN

Conclusion and Recommendations

7.1 Introduction

This chapter presents conclusion and recommendations on the findings on civil registration and vital statistics based on KVSR 2023. The findings are useful for planning and improving the civil registration and vital statistics systems in the country.

7.2 Conclusion

7.2.1 Birth Registration

Kenya has made a lot of efforts to increase Birth registration coverage in the country through various strategies. Despite these efforts, in 2023 the national birth registration completeness declined to 77.1 percent from 83.1 and 80.6 percent in 2021 and 2022 respectively. County disparities in birth registration were also evident in 2023 with only 12 counties attaining a registration completeness above 90 percent while twenty-three (23) counties attained completeness above the national registration completeness (77.1 percent).

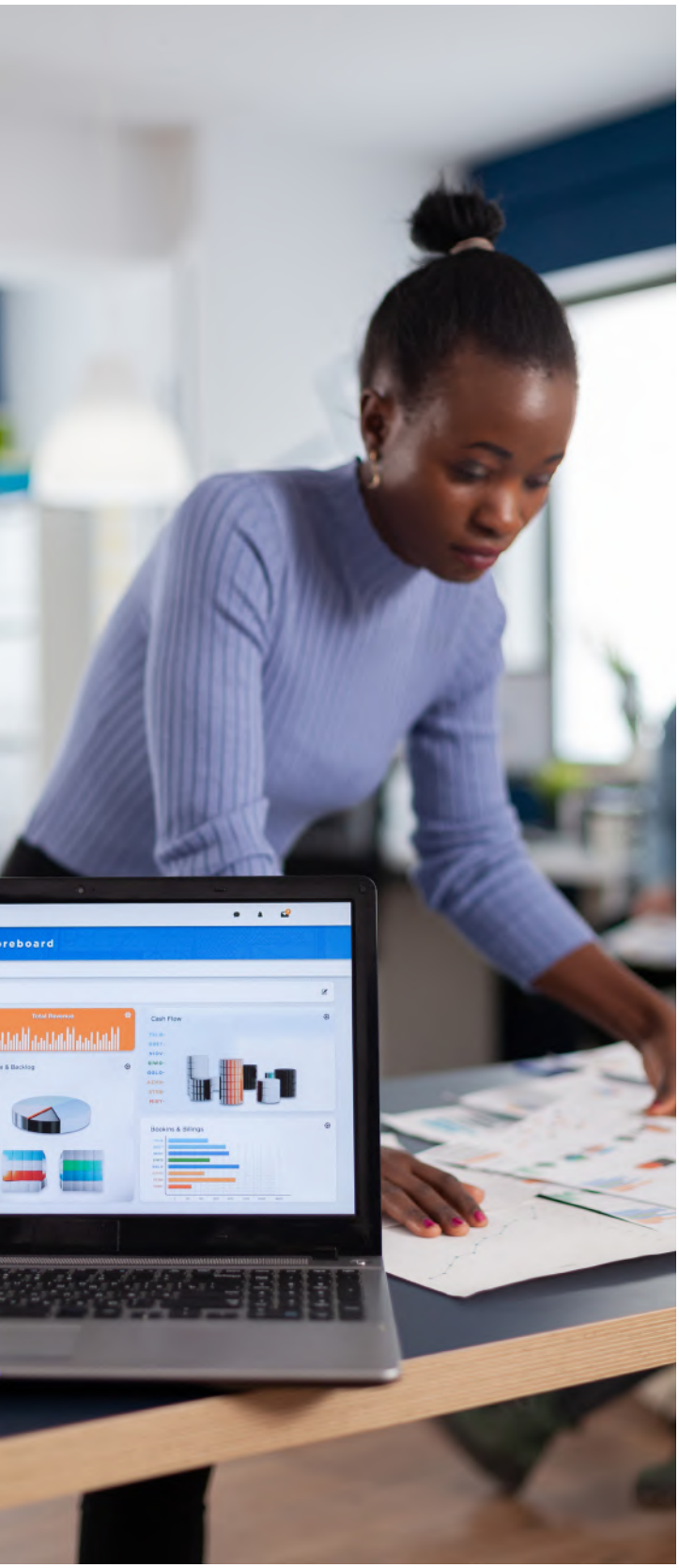
The report shows a national sex ratio of 104 where 29 counties are in the expected normal sex ratio levels. However, some counties have lower or higher than the

Some counties have lower or higher than the normal range which is an indication of over-reporting or under-reporting of male births

normal range which is an indication of over-reporting or under-reporting of male births. Registration of Health facility Births have continued to increase while community births have been on a decline which can be attributed to government policy in ensuring that women access skilled delivery in the health facilities.

Majority of registered births were from women aged 20-24 which resonates to KDHS and KPHC. Women with secondary level of education contributed the largest number of registered births at 42%.

Registration of Health facility Births have continued to increase while community births have been on a decline which can be attributed to government policy in ensuring that women access skilled delivery in the health facilities



7.2.2 Death Registration

Death registration completeness declined from 47.6 in 2022 to 45.1 in 2023. Most of the counties recorded a decline in death registration completeness. Only Mombasa and Uasin Gishu counties recorded completeness above 80 percent at 83.1 and 87.8 percent respectively. Deaths occurring at health facilities increased from 53.0 percent in 2022 to 54.9 percent in 2023. Counties with relatively high deaths from the community were Mandera (88.8%), Wajir (85.2%) and Vihiga (76.3%). Death registration across the counties indicates that more male than female deaths were registered, with an average national sex ratio of 128 at death.

7.2.3 Causes Of Death

Pneumonia was the leading cause of death for the medically certified causes of death while Sudden death was the leading cause of registered deaths in the community in the year 2022 and 2023. Cancer and cardiovascular diseases contributed to the highest percentage of non- communicable diseases. Causes of death according to the global burden of diseases accounted for the highest proportion of deaths, with communicable diseases contributing 43.4% and non-communicable diseases accounting for 39.1%.

7.3 Recommendations

Based on the issues observed in the process of developing the 2023 KVSR as well as the results from the analysis of the 2023 data, the following recommendations are made;

1. Automation of CRS business process;
2. Provide a continuous capacity building to all the relevant personnel involved in the registration process (data capture, reporting, analysis and ICD 11 coding)
3. Migrate from the current MS Excel data entry software to an advanced software such as CSPro or Survey Solution.
4. Build capacity of CRS staff at the field and national levels on data management using SPSS, R or Stata;
5. Increase budgetary allocation to the department (development and recurrent)
6. CRS to make provision for compilation of marriage statistics in the annual summary and report (KVSR)
7. Undertake further analysis or studies using the 2023 KVSR report in order to interrogate the trends on counties with extreme disparities in completeness and various characteristics.
8. There is a need for Community engagement and sensitization on the importance of registration.
9. The 2023 KVSR report, informational products (Factsheets, policy briefs) to be disseminated to policy makers and other stakeholders at National and counties to promote evidence-based decision making.
10. Implement verbal autopsy to improve the quality of community causes of death.
11. Conduct quarterly data reviews and harmonization forums between CRS, NGA, KNBS and MOH at National and counties
12. Conduct supportive monitoring on implementation of the newly introduced data collection software (CSpro).

Death registration across the counties indicates that more male than female deaths were registered, with an average national sex ratio of 128 at death

Pneumonia was the leading cause of death for the medically certified causes of death while Sudden death was the leading cause of registered deaths in the community in the year 2022 and 2023

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Appendices

A. Birth And Death Registration Forms

Appendix A1: Form B1

FORM B1

REPUBLIC OF KENYA
THE BIRTHS AND DEATHS REGISTRATION ACT
(Cap. 149)

ORIGINAL

ACKNOWLEDGEMENT OF BIRTH NOTIFICATION (FOR PARENTS)

Serial

1. NAME OF CHILD: ……
First name Other name Father's *(surname or tribal) name*

2. DATE OF BIRTH : ..... 3. SEX:* Male □ Female □
Day month year

5. NATURE OF BIRTH: Born alive □ Born dead □

7. NAME OF MOTHER ……
First name Maiden name Father's *(surname or tribal) name*

I certify that the above information has been notified and recorded.

17. DATE ..... 18. REGISTRATION ASSISTANT FOR: 19. NAME AND SIGNATURE
Day month year (state sub-location or health institution)

……. ……

See Instruction III (b) on the cover.
Note.-To obtain a birth certificate, present this notification to the District Registrar of Births where this birth occurred.

FORM B1

REPUBLIC OF KENYA
3E BIRTHS AND DEATHS REGISTRATION ACT
(Cap. 149)
REGISTER OF BIRTH

ORIGINAL

Serial

1. NAME ……
First name Other name Father's (surname or tribal) name

2. DATE OF BIRTH ……
Day Month Year

CHILD

3. SEX: 1 Male □ 2 Female □ 4. TYPE OF BIRTH 1 Single □ 2 Twin □ Other, specify ……. 5. NATURE OF BIRTH 1 Born alive □ 2 Born dead □

6. PLACE OF BIRTH ……/……
Sub-location or Estate and town or health institution District

MOTHER

7. NAME …… 8. AGE ... ……
First name Maiden name Father's *(surname or tribal) name*

9. IS MOTHER MARRIED TO FATHER?*
Yes □ No □

10. RESIDENCE …… ……..
Sub-location or Estate or town District

11. PREVIOUS BIRTHS TO MOTHER: No. born alive ..... No. dead ……..
(excluding current one)

FATHER

12. NAME ……..
First name Other name Father's *(surname or tribal) name*

INFORMANT

13. NAME .....
First name Other name Father's *(surname or tribal) name*

14. CAPACITY OF INFORMANT'
1 Parent □ 2 T.B.A. □ 3 Midwife □ 4 Medical Attendant □ 5 Other, specify ……□

REGISTRATION ASSISTANT

I certify that to the best of my knowledge the information given above is correct. 15. DATE ..... 16. SIGNATURE
Day month year
……..

17. DATE .....
Day month year

18. REGISTRATION ASSISTANT FOR
(state sub-location or health institution)
……

19. NAME AND SIGNATURE
……

REGISTRAR

20. DISTRICT .... 21 REGISTRATION NO. ……

22. DATE ..... 23. NAME ..... 24. SIGNATURE ……

* Cross the appropriate box, thus (x).
If mother is not married to father, do not insert the name of father

GPK(L)
Pg 1 of 2

Appendix A2: Form D1

FORM D1

REPUBLIC OF KENYA

THE BIRTHS AND DEATHS REGISTRATION ACT
(*Cap*. 149)

PERMIT FOR BURIAL

IP Number .....

1. NAME OF DECEASED .....
First Name Middle Name Father's or husband's name

2. IDENTIFICATION /PASSPORT NUMBER .....

4. SEX: Male ☐ Female ☐ 5. AGE .....6. DATE OF DEATH .....
Years /Months/ Days Day /Month /Year

9. USUAL RESIDENCE .....
Sub-location or estate and town Sub-county

After making due inquiry as to cause of the death of the above named deceased person, I hereby authorize the interment of the body.

18. DATE..... 19. REGISTRATION ASSISTANT FOR: 20. SIGNATURE
Day /Month/ Year
....

PERMIT ISSUED TO (NAME): ..... ID No. ..... SIGNATURE .....

Note.— To obtain death certificate, present this permit to the Sub-county Registrar of Deaths in the Sub-county where this death occurred

FORM DI

REGISTER OF DEATH

(for use in health institutions and by Medical Practitioners)

Serial No. DA 0958801 **IP Number** .....

1. NAME OF DECEASED .....
First Name Middle Name Father's or husband's name

2. IDENTIFICATION /PASSPORT NUMBER ..... 3. NATIONALITY .....

4. †SEX: Male ☐ Female ☐ ..... 5. AGE .....6. DATE OF DEATH
Years /Months /Days Day /Month /Year

7. MARITAL STATUS: (a) Married ☐ (b) Divorced ☐ (c) Single ☐ (d) Widowed ☐

8. PLACE OF DEATH...../.....
Health Institution/Sub-location or estate and town. Sub-county

9. USUAL RESIDENCE ...../.....
Sub-location or estate and town Sub-county

10. LEVEL OF EDUCATION ..... 11. OCCUPATION .....

12. CAUSE OF DEATH (PRINT IN BLOCK LETTERS, DO NOT ABBREVIATE) .....

MEDICAL CERTIFICATION

IMMEDIATE CAUSE: disease or condition directly leading to death (a) .....
Due to
ANTECEDENT CAUSES: Morbid conditions, if any, which gave rise to immediate cause (a)
(b) .....
Due to (stating the underlying condition last)
(c) .....
OTHER SIGNIFICANT CONDITIONS: Contributing to death but not related to (a) .....

13. CERTIFICATE: I certify that:

Tick as Appropriate
(a) I attended the deceased before death or
(b) I examined the body after death; or
(c) I conducted a post-mortem examination of the body, and that the above information is correct to the best of my knowledge.

REGISTRATION ASSISTANT

14. NAME ..... 15. TITLE .....
16. DATE ..... 17. SIGNATURE .....

18. DATE .....19. REGISTRATION ASSISTANT FOR: 20. SIGNATURE.....
Day/ Month/Year (Name of health institution)
.....

REGISTRAR

21. SUB-COUNTY ..... 22. REGISTRATION No. .....
23. DATE .....24. NAME .....25. SIGNATURE .....

*If the deceased was a married woman, husband's name can be written, +cross the appropriate box, thus [x]

GPK (SP) 7106—80m Bks. —8/14

Appendix A3: Form D2:

FORM D2

REPUBLIC OF KENYA

THE BIRTHS AND DEATHS REGISTRATION ACT
(*Cap*. 149)

PERMIT FOR BURIAL

Serial No. _____

1. NAME OF DECEASED ..... (First Name / Middle Name / *Father's or husband's name)

2. IDENTIFICATION /PASSPORT NUMBER .....

4. SEX: Male ☐ Female ☐ 5. AGE ..... (Years/Months/Days) 6. DATE OF DEATH ..... (Day Month Year)

9. USUAL RESIDENCE ..... (Sub-location or estate and town / Sub-county)

After making due inquiry as to cause of the death of the above named deceased person, I hereby authorize the interment of the body

17. DATE..... (Day/Month/ Year) 18. REGISTRATION ASSISTANT FOR: (Name of Sub-location) 18. SIGNATURE

PERMIT ISSUED TO (NAME): ..... ID No. ..... SIGNATURE .....

Note.— To obtain death certificate, present this permit to the Sub-county Registrar of Deaths in the Sub-county where this death occurred

---

FORM D2

REPUBLIC OF KENYA

THE BIRTHS AND DEATHS REGISTRATION ACT
(*Cap*. 149)

REGISTER OF DEATH

(for use by Registration Assistants for home death)

Serial No. 0798926

1. NAME OF DECEASED ..... (First Name / Middle Name / *Father's or husband's name)

2. IDENTIFICATION /PASSPORT NO. ..... 3. NATIONALITY ..... (*ID to be surrendered*)

4. †SEX: Male ☐ Female ☐ 5. AGE...../...../..... (Years Months Days) 6. DATE OF DEATH...../...../..... (Day Month Year)

7. MARITAL STATUS: (*a*) Married ☐ (*b*) Divorced ☐ (*c*) Single ☐ (*d*) Widowed ☐

8. PLACE OF DEATH. ..... / ..... (Sub-location or estate and town. / Sub-county)

9. USUAL RESIDENCE ..... / ..... (Sub-location or estate and town / Sub-county)

10. LEVEL OF EDUCATION..... 11. OCCUPATION .....

12A. NATURAL CAUSES*

Malaria	☐	Anaemia	☐	Cancer	☐
Pneumonia	☐	Jaundice	☐	Urinary Obstruction	☐
Measles	☐	Child/pregnancy/birth	☐	AIDS	☐
Tetanus	☐	Sudden death	☐	Malnutrition	☐
Tuberculosis	☐	Alcoholism	☐	Asthma	☐

Other known cause, specify .....

I am satisfied after the above-mentioned death is not one to which section 386 or 387 of the Criminal Procedure Code (*Cap*.75) apply. An external examination of the body has/has not been made by a medical practitioner.

12B. UNNATURAL CAUSES*

Accident	☐	Motor Vehicle	☐	House fire	☐
Poisoning	☐	Attacked by animal or snake	☐		
Suicide	☐	Drowning	☐	Other known cause, specify	

I certify that provisions of *Cap*. 75 have been observed.

Name ..... Date ..... Signature .....
(Police Officer or Magistrate)

CAUSE OF DEATH

13. NAME ..... (First Name / Middle Name / *Father's or husband's name)

14. CAPACITY OF INFORMANT
RELATIVE ☐ VILLAGE ELDER ☐ Other, specify.....

INFORMANT

15. DATE ..... 16. SIGNATURE OF INFORMANT .....

17. DATE ..... (Day/Month/Year) 18. REGISTRATION ASSISTANT FOR: *(Name of Sub-location)* 19. SIGNATURE

REGISTRATION ASSISTANT

20. SUB-COUNTY ..... 21. REGISTRATION No. .....

22. DATE ..... 23. NAME ..... 24. SIGNATURE .....

REGISTRAR

*If the deceased was a married woman, husband's name can be written, +cross the appropriate box, thus [x]

GPK (SP) 7105—80m Bks.—8/14

Appendix A4: Form BDA1 - Application For Registration Of Birth Of A Citizen Of Kenya Occurring Abroad

FORM BDA 1

REPUBLIC OF KENYA

THE REGISTRATION OF BIRTHS AND DEATHS ACT

(Cap. 149)

APPLICATION FOR REGISTRATION OF BIRTH OF A CITIZEN OF KENYA OCCURRING ABROAD

The following information concerning the birth must be supplied:-

1. FULL NAME OF CHILD	Baptismal or given Name (s)	Middle or tribal Name	Son Of Daughter of	Surname or Tribal Name of Father of Child
2. DATE OF BIRTH	Date of Month :	Month : Year	3. SEX OF CHILD	Male .. I Female .. 2
4. FULL NAME FATHER OF CHILD	Baptismal or given Name (s)	Middle or tribal name	Son of	Surname or Tribal Name of his Father
5. FULL NAME MOTHER OF CHILD	Baptismal or given Name (s)	Middle or tribal name	Daughter of	Maiden Surname or Tribal Name of her Father
6. EXACT PLACE AND COUNTRY OF BIRTH				
7. NORMAL RESIDENCE IN KENYA OF MOTHER				

08. CERTIFICATES

A—*Informant*

I certify that I am (State relationship to child or capacity in which information given) .....

.....

and that the above information is correct to the best of my knowledge.

Signature .....Full Name.....

Address .....Date …….

B.-By member of Kenya Mission abroad.

I am satisfied from evidence produced to me and inquiries which I have made that the above information is correct to the best of my knowledge.

Signature .....

Designation and Address…….

……

……..

Appendix A5: Form Bda2 - Application For Registration Of A Death Of A Citizen Of Kenya Occurring Abroad

REPUBLIC OF KENYA

FORM BDA 2

APPLICATION FOR REGISTRATION OF DEATH OF A CITIZEN OF KENYA OCCURRING ABROAD

THE FOLLOWING INFORMATION CONCERNING THE DECEASED MUST BE SUPPLIED

1.Full Name of Deceased	Baptismal or Given Name(s) Middle or Tribal Name  Surname, or Tribal Name Son of of Father Daughter of	
2. Date of Death	Date of Month Month Year	3. Sex of Deceased Male 1 ☐ Female 2 ☐
4. Age of Deceased	Years (If under one year state in Months ..... or Days).....)	5. Occupation of Deceased
6. Exact Place and Country of Death		
7. Deceased's Normal Residence in Kenya		

8. If Death certified by Medical Practitioner
A. Cause of Death-Enter one cause per line

		Interval between onset and death.
1. Immediate cause	(a).....	.....
Due to	(b)	.....
Due to	(c)	.....

II. Other significant conditions.

B. Name and Address of certifying Doctor .....

.....

9. If death not certified by Medical Practitioner state apparent cause of death .....

.....

.....

.....

10. CERTIFICATES

(a) Informant.

I certify that I am *(State relationship to deceased or capacity in which information given)*.....

.....

and that the above information is correct to the best of my knowledge.

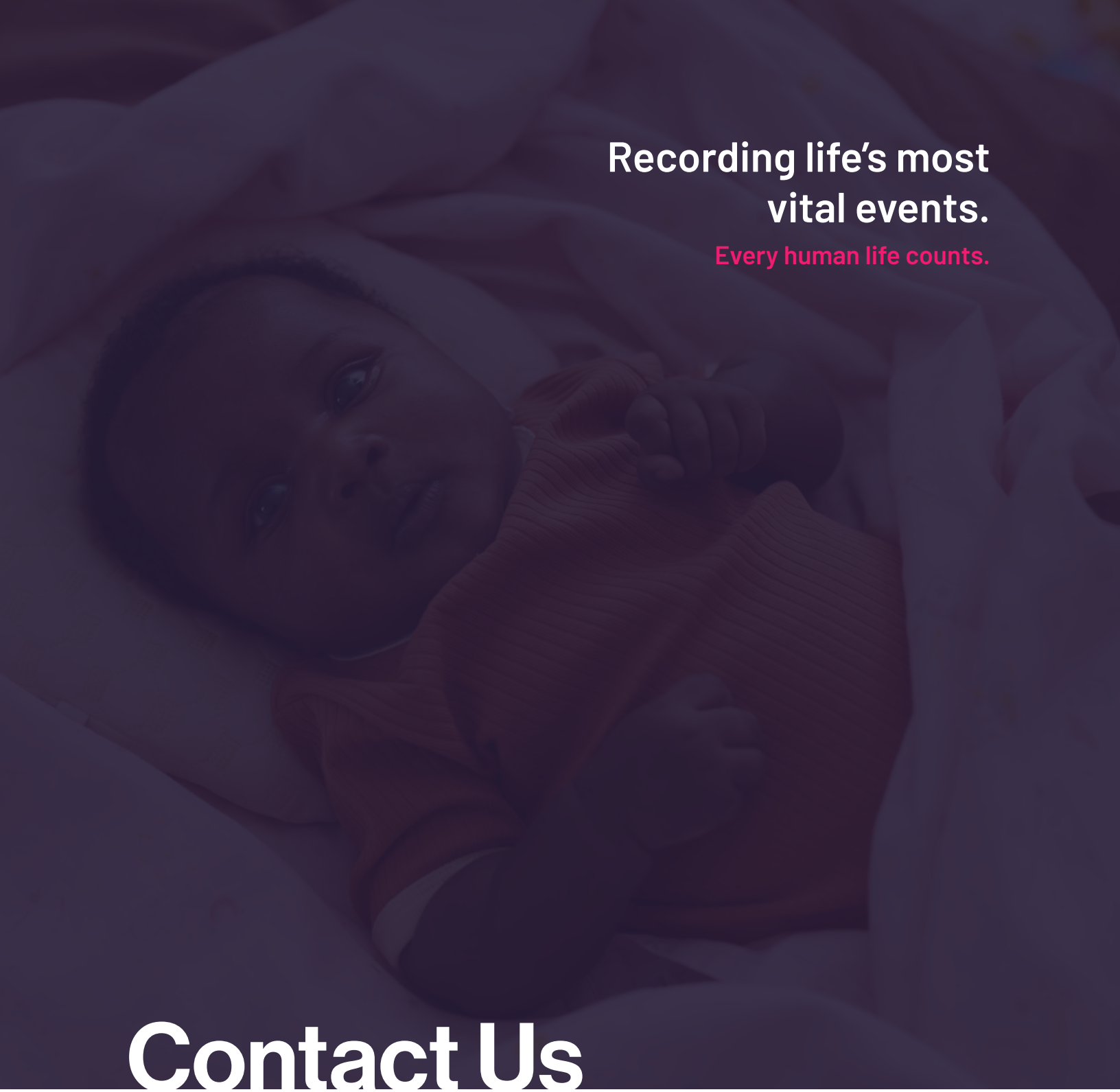
Signature ....Full Name ....

Address .....Date .....

(b) By member of Kenya Mission abroad.
I am satified from evidence produced to me and inquiries which I have made that the above information is correct 'to the best of my knowledge

Partners


KNBS
KENYA NATIONAL BUREAU OF STATISTICS
Keeping you informed
REPUBLIC OF KENYA
NCPD
REPUBLIC OF KENYA
MINISTRY OF HEALTH
THE WORLD BANK
UNFPA
UN WOMEN
KEMRI
Wellcome Trust
Vital Strategies



Recording life's most vital events.

Every human life counts.

Contact Us

REPUBLIC OF KENYA

Department of Civil Registration
Hass Plaza 4th Floor,
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