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of Rwanda

NISR
NATIONAL INSTITUTE OF
STATISTICS OF RWANDA

Rwanda Vital Statistics Report

2023

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Additional information about this report may be obtained from NISR
P.O. Box 6139, Kigali, Rwanda;
Telephone: +250 788 383103;
E-mail: info@statistics.gov.rw
Website: http://www.statistics.gov.rw

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Finally, a word of appreciation goes to NISR's CRVS technical team members and technical staff from key stakeholder institutions who provided all they had in terms of technical skills to compile and produce this report.

Foreword

This report is produced based on data collected in 2023 to showcase the progress made by Rwanda in improving civil registration and vital statistics system and to assess how far we are toward attaining the targets set under the Sustainable Development Goals (SDGs). It will therefore be a useful tool to inform relevant policies and decisions and, guide strategic interventions aimed at improving the CRVS system in Rwanda. Ideally, vital statistics are used to derive the fundamental demographic and epidemiological measures that are needed in national planning across multiple sectors such as education, labour and health. They are also critical for a wide range of government activities (e.g. population registers and other administrative registers) and commercial enterprises (e.g. life insurance, marketing of products).

The data used in this report were generated from the National Centralized and Integrated Civil Registration and Vital Statistics (NCI-CRVS) System, a digitalized system used for official registration of all vital events legally accepted in Rwanda. Since August 2020, the NCI-CRVS system was operationalized to facilitate registration of vital events at all categories of registration points, namely: Health facility, Cell, Sector, District, and the Rwandan Embassy in a foreign country.

The NCI-CRVS system currently captures detailed information about all the nine events provided for by the law governing persons and family in Rwanda, namely: Births, Deaths, Marriages, Divorces, annulment of marriages, Adoptions, guardianship, child recognitions and child legitimization. To pinpoint the level of reliability of the results obtained, the outputs were compared with census and survey-based data including data from Rwanda Demographic and Health survey (RDHS) and Rwanda Population and Housing Census (RPHC).

The report compilation was mainly performed by the staffs of National Institute of Statistics of Rwanda (NISR) in charge of regular monitoring of CRVS data collection who worked with technical staff from National Identification Agency and Rwanda Biomedical Centre to provide the first draft. The draft report was thereafter shared with relevant key CRVS stakeholders for review, inputs and validation.

The 2023 Rwanda Vital Statistics Report showcases information regarding births, deaths, causes of deaths and marriages registered all over the country. It is the Rwanda's fifth vital statistics report, which is expected to be a resourceful information on the status of vital events registration in Rwanda and a reference source for future publications within the same scope.

MURANGWA Yusuf

Director General

Contents

Acronyms and abbreviations

APAI-CRVS	Africa Programme For Accelerated Improvement Of Civil Registration And Vital Statistics
ASBR	Age-Specific Birth Rate
ASFR	Age-Specific Fertility Rate
ASMR	Age-Specific Mortality Rate
CBR	Crude Birth Rate
CDR	Crude Death Rate
CoD	Cause of Death
CR	Civil Registrar
CRO	Civil Registration Officer
CRVS	Civil Registration and Vital Statistics
D4H	Data for Health
DHIS2	District Health Information Software 2
ENMR	Early Neonatal Mortality Rate
GFR	General Fertility Rate
HBCP	Home-Based Care Practitioner
HMIS	Health Management Information System
ICD-10	International Classification of Causes of Deaths, Version 10
IECMS	Integrated Electronic Case Management System
LNMR	Late Neonatal Mortality Rate
MAS2	Second Mortality Assessment Survey
MCCoD	Medical Certification of Cause of Death
MIGEPROF	Ministère du Gerne at de la Promotion de la Famille (Ministry of Gender and Family Promotion)
MINALOC	Ministère de L'Administration Locale (Ministry of Local Government)
MINIJUST	Ministry of Justice
MoH	Ministry of Health
NGO	Non-Governmental Organizations
NIDA	National Identification Agency
NISR	National Institute of Statistics of Rwanda
NMR	Neonatal Mortality Rate
NSDS	National Strategy for Development of Statistics
RBC	Rwanda Biomedical Centre
RPHC	Rwanda Population and Housing Census
TFR	Total Fertility Rate
UN	United Nations
UNECA	United Nations Economic Commission for Africa
UNICEF	United Nations Children's Fund
VS	Vital Statistics
VSR	Vital Statistics Report
WHO	World Health Organization
EICV	Enquête Intégrale sur les conditions de vie des ménages
RDHS	Rwanda Demographic and health survey
NCI-CRVS	National Centralized and Integrated Civil Registration and Vital statistics System
VA	Verbal Autopsy

Definitions of key concepts

Age-specific fertility rate (ASFR): The annual number of births to women of a specified age or age group per 1,000 women in that age group. Age-specific mortality rate (ASMR): A mortality rate limited to a particular age group. The numerator is the number of deaths in that age group; the denominator is the number of persons in that age group in the population.

Cause of death: All those diseases, morbid conditions or injuries which either resulted in or contributed to death and the circumstances of the accident or violence which produced any such injuries.

Child mortality rate: The probability (expressed as a rate per 1,000 live births) of dying between the first and the fifth birthday.

Civil Registration: UN defines civil registration as "the continuous, permanent, compulsory and universal recording of the occurrence and characteristics of vital events pertaining to the population as provided through decree or regulation in accordance with the legal requirements of a country. This process establishes and provides legal documentation for such events.

Completeness of registration: The proportion of vital events that are registered. It is the number of registered vital events divided by 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 in numbers of births per 1,000 population per year.

Crude marriage rate: The crude marriage rate is the ratio of the number of marriages in a population during a reference period over the person-years lived by the population during the same period. It is expressed as marriages per 1,000 population.

Crude Death Rate (CDR): The number of deaths relative to the size of the population during a given period, usually one year. It is expressed in numbers of deaths per 1,000 population per year.

Death: 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 foetal deaths, which are defined separately.

Delayed registration: is a registration that arrives too late for inclusion in the annual (or monthly or quarterly) statistics; after one year of occurrence of the event, according to the law of the country.

Ill-defined cause of death: Any code that cannot or should not be used for the underlying cause of death (generally referring to 'R codes' in the International Classification of Diseases). For instance, a 'mode of death' such as heart failure or kidney failure; symptoms such as back pain or depression; and risk factors such as high blood pressure, are all uninformative codes for public health purposes.

Infant Mortality Rate (IMR): Probability (expressed as a rate per 1,000 live births) of a child born in a specific year or period dying before reaching the age of one, if subject to age-specific mortality rates of that period.

Late registration: is vital events that are registered after the deadline for registration according to the law of the country, but before exceeding one year.

Life expectancy at birth: The average number of years that a newborn could expect to live if he or she were to pass through life exposed to the sex- and age-specific death rates prevailing at the time of his or her birth, for a specific year, in a given country, territory, or geographic area.

Live birth: The complete expulsion or extraction from the 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 live born (all live-born infants should be registered and counted as such, irrespective of gestational age or whether alive or dead at the time of registration, and if they die at any time following birth, they should also be registered and counted as deaths).

Low Birth Weight (LBW) refers to the weight at birth of fewer than 2,500 grams (5.5 lbs.) as per World Health Organization definition.

Marriage is a special contract of permanent union between a man and a woman entered into in accordance with law for the establishment of conjugal and family life.

Neonatal Mortality Rate (NMR): Number of deaths during the first 28 completed days of life per 1,000 live births in a given year or period.

Place of Occurrence refers to the place where the vital event took place,

Sex ratio at birth: The number of male births for a specific area and during a specified period divided by the number of female births for the same area and period.

The General Fertility Rate (GFR) is the number of resident live births for a specific area during a specified period divided by the female population age between 15 and 49 years (usually estimated at mid-year) for the same area and period multiplied by 1,000.

Timely registration: is the registration effected within the time stipulated by the law (30 days for births and death in Rwanda).

Total Fertility Rate (TFR): The sum of age-specific fertility rates for females aged between 15 and 49 years 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 child-bearing years experiencing the same age-specific fertility rates.

Under-five mortality rate (U5MR): Is the probability for a new-born to die before his/her fifth anniversary. Under-five mortality rate is the probability of dying between birth and exactly 5 years of age, expressed 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" (ibid., sect. 4.1.2).

Vital statistics system: A vital statistics system is defined as the total process of (a) collecting information by civil registration or enumeration on the frequency of occurrence of specified and defined vital events, as well as relevant characteristics of the events themselves and the person or persons concerned, and (b) compiling, processing, analyzing, evaluating, presenting, and disseminating theses data in statistical form.

The National Institute of Statistics of Rwanda (NISR) within the third National Strategy for Development of Statistics (NSDS3), which is being implemented from 2019/20 to 2023/24, committed to strengthen administrative data collection system including Civil Registration and Vital Statistics System (CRVS) in Rwanda to complement official statistics from surveys and censuses.

Executive summary

To ease registration service delivery and enable the digitalization of CRVS system, the National Centralized and Integrated CRVS system (NCI-CRVS) was initiated and started to be operational in August 2020. This system was, in December 2020, integrated with CRVS-web based system, an electronic web-based system initiated in 2015 to facilitate the collection, storage and use of vital statistics data. The compilation of this report made use of data from NCI-CRVS system.

The report is organized within 7 chapters namely: 1) Introduction and background 2) Rwanda's civil registration system 3) Data quality, timeliness and completeness of registration 4) Birth statistics 5) Death statistics 6) Cause of death statistics 7) Marriage statistics. To assess the reliability of results obtained, a comparative analysis involving data from other sources was performed. Only vital events that occurred in 2023 were considered for analysis in this report.

Birth statistics:

The comparison of registered births with estimated live births at national level shows a slight decrease of birth registration completeness rate, from 92.9% in 2022 to 90.0% in 2023. The proportion of births registered within 30 days of occurrence underwent an upward shift, from 95.9% in 2022 to 98.5% in 2023. The positive change in timely registration of birth may be attributed to the decentralization of registration services at health facilities and cells, strengthened awareness on birth registration and changes in registration processes, familiarity of civil registration staff with the use of NCI-CRVS system and enhanced monitoring of registration practices at all registration points.

The computation of fertility indicators in 2023 adopted the use of adjustment approach where the results show a crude birth rate (CBR) equivalent to 27.5‰, general fertility rate (GFR) equivalent to 104.9‰ and total fertility rate (TFR) equivalent to 3.6. The results are very close to the findings from 5-PHC projections by 2023 where TFR is 3.6; GFR is 104.9‰; and CBR is 27.5‰. Further analysis of CRVS data show an average weight at birth equivalent to 3,075 grams in 2023 slightly down from 3,081grams in 2022. The same data show a share of low-birth-weight equivalent to 7.8% in 2023 which is close to 7.7% obtained in 2022. The sex ratio at birth was found to be 102 male births per 100 female births, similar to the 2022 result.

Death statistics:

The report shows that a total of 32,853 deaths occurred in 2023 were registered in the same year, of which 53.8% occurred outside health facilities. The comparison of registered deaths with expected deaths gives 41.8% completeness rate of death registration in 2023, up from 31.1% in 2022.

Mortality statistics show a high number of registered deaths among males compared to females with a sex ratio at death equivalent to 121.1 males' deaths per 100 females' deaths in 2023, almost the same result as the 2022 result (122.2).

Causes of death:

CRVS system collects information on causes of death occurring at health facilities and deaths occurring in community. At health facilities, cause of death information is basically provided by medical doctors who certify death by filling a standard Medical Certificate of Cause of Death (MCCoD) while in community, cause of death information is obtained through Verbal Autopsy (VA) interview. ANACoD3 tool was used to perform analysis of cause of death occurring in health facilities while community cause of death data were analyzed using Computerized Diagnostic Algorithms.

The results from ANACoD3 show that only 64.8% of causes of death recorded by health facilities are usable for policies and decisions. Annual comparison of results shows a decrease in the proportion of usable causes of death from 67% in 2022 to 64.8% in 2023, highlighting the need to enhance quality improvement measures to raise the quality of cause of death recorded at health facilities. The results also show that 43% of usable cause of deaths recorded by health facilities were due to communicable diseases, 46% to non-communicable diseases while 11% were due to external causes (injuries).

With regard to community deaths, the results from Computerized Diagnostic Algorithm (Inter VA) show that 90% of community causes of death recorded are usable for policies and decisions. The results show that 28.6% of usable community causes of death recorded were due to communicable diseases, 61.2% to non-communicable diseases while 10.2% were due to injuries (external causes).

Marriage statistics:

Marriage statistics were computed based on legal marriages registered in 2023 where CRVS system generated data show a total of 57,880 marriages registered in 2023 up from 35,529 marriages registered in 2022 giving annual crude marriage rate equivalent to 4.3‰ in 2023. Further analysis shows that below age of 30, females are more frequently married than their counterpart males while at age of 30 and above, males predominate. The most frequently chosen matrimonial regime is "Community of property" representing 97.6% of the total marriages. This report did not manage to release divorce statistics as the system that could provide accurate information on divorces is under revision.

Chapter

1 Introduction And Background

1.1 Background

An effective civil registration and vital statistics system provides essential data, rates and other quantitative measures for the accurate planning of programmes designed to promote the wellbeing of the citizens. The data collected from vital events registration are essential to planning for social development, including the design and implementation of public health measures, maternal and childcare, family planning, social security, education, housing and economic development. Accurate information is essential for proper planning for the needs of the community, particularly for health and education facilities, as well as for housing and the labour market. Accurate and comprehensive vital statistics generated from civil registration provide for comparison and evaluation of differences among regions, between districts and wards within a region, and at the international level between countries. Death records are of particular importance in public health, for identifying the magnitude and distribution of major disease problems, epidemics and pandemics. Data from these records can be used for epidemiological studies. Cause of death information is essential for medical research for major causes of death such as cancer and heart diseases.

As a source of vital statistics, civil registration has important uses for individuals, societies, and the government. For individuals, copies of registration records can be used as legal documents for evidentiary purposes. Information compiled from registration records is needed for administrative applications such as national identity programmes and the electoral roll. It also serves as the starting point for several operational programmes, particularly in family planning, medical research, maternal and childcare programmes, historical demography, genetic studies and so forth. The establishment of the vital events registration system is in-line with the national development plan of Rwanda.

Civil registration has administrative and legal use on one hand, and statistical, demographic and epidemiological use on the other. Vital statistics are used to get precise and up-to-date measurements of demographic changes and for the study and analysis of trends. Vital statistics are also primary data sources for the health sector in the implementation, monitoring and evaluation of different health interventions and epidemiological studies.

Measuring the progress towards the realization of Sustainable Development Goals requires a sustained source of data that speaks to the outlined indicators. The global 2030 development agenda implicitly recognizes and underlines the importance of individual and aggregate records and data on birth and death in the realization of basic human and civil rights as well as in the monitoring of development. The Sustainable Development Goals (SDGs), anchored on the vision of eradicating extreme poverty from the face of the earth by the year 2030, have as the first of its five transformative shifts to “Leave no one behind.” They emphasize the need to ensure that no person is excluded or denied universal human rights and access to basic economic opportunities. Several SDGs indicators require data from civil registration to measure progress. The domestication of SDGs in Rwanda re-emphasized the crucial role of CRVS data in monitoring a successful implementation and measuring achievements.

The African Agenda 2063 similarly re-echoes social inclusiveness as a prerequisite to the continent's growth and development. A fundamental challenge to the realization of these visions remains the fact that civil registration systems are largely very weak in most of the developing world; hence a majority of the population remain legally "invisible" in the eyes of the state, denying them the right to be known and planned for by their governments, access to fundamental opportunities and services, as well as the ability to claim their rights or to participate in governance processes.

Individual identity records and documents generated from a CRVS system help to fulfill the first fundamental human right that every individual is entitled to upon birth i.e., the right to a name and an identity; from which other human and civil rights are founded. The recognition of the existence of persons by their governments, and the ability of individuals to transact with each other and with the state, through legal identity documents, are fundamental attributes good governance that can only be realized by states where complete civil registration systems exist. Records of birth, marriage, divorce, and death derived from civil registration systems also provide a permanent, continuous, universal and reliable source of vital statistics for accurate and timely planning, resource allocation and for good governance. Measurements and monitoring of many of the SDGs indicators require vital statistics data on a continuous and timely basis.

Civil registration and vital statistics system in Rwanda is still under development and as a result, like in many other African countries, some of our people have come into this world and left without leaving a trace on official records. However, efficient civil registration and vital statistics system is a precondition for enabling regular production of vital statistics reports that are essential for informing policies and programs for various purposes. In its place, the need for vital statistics was met by conducting expensive periodic surveys and decennial population censuses; something that produces reliable data but late compared to the CRVS system.

Despite that, an efficiently working CRVS system enables a continuous supply of reliable data on vital events to support informed policymaking, implementation and monitoring of development plans. Also, in the absence of reliable information on causes of death there is no solid basis to determine which diseases have major impacts on the population.

The production of this report adopted the vital statistics report production template, revision 1 jointly developed by Vital Strategies, United Nations Economic Commission for Africa, United Nations Economic and Social Commission for Asia and the Pacific, and Statistics Norway (2020). The template serves as a comprehensive document which provides detailed background information that is useful and recommended by the UN in the preparation of the Vital Statistics Reports.

Vital events that are covered in this report are births, deaths, and marriages that took place in 2021 and reported via the CRVS system. The annual vital statistics report presents a great opportunity to learn from experience in terms of registration of births, deaths and causes of death and evaluate the quality of the available data in the country. This report is also expected to be a benchmark for the next reports and a reference source for further publications in the same scope.

1.2. Objectives, Scope and organization of the report

1.2.1. General Objective

The main objective of producing this vital statistics report is to showcase the status of vital events registration for informing policies and decisions in this regard, identifying gaps and strengths within the system and to track the progress made toward achieving the target set under the Sustainable Development Goals (SDGs).

1.2.2. Specific objectives include:

- To assess the level of completeness of birth and death registration.
- To highlight limitations/challenges in the data in terms of coverage, quality and timeliness for registration of civil events.
- To assess the level of reliability of demographic indicators obtained from CRVS data through comparison with indicators from other sources.

1.2.3. Scope of the report

The United Nations recommends that countries should register and collect information on the following vital events for civil registration and vital statistics purposes: birth; death; foetal death; marriage; divorce; annulment; judicial separation; adoption; legitimization (acknowledgment); and recognition (judicial declarations of paternity) (UN, 2014). However, foetal deaths and judicial separation are not yet recorded in Rwanda as appearing in UN recommendations, although it remains to be the eventual goal. The African Ministers responsible for civil registration have also recommended the recording of the four vital events. In line with these recommendations, the scope of the CRVS improvement process has been set to address births, deaths, marriages and divorces. In this regard, the top priority vital events to be recorded are births, deaths, marriages, and divorces. Against this background and taking into consideration the relative weight attributed to vital events in terms of policy orientation for our country context, the content of this report is limited to the registration of birth; death and causes of deaths; and marriages that occurred in the year 2023.

1.2.4. Organization of the report

The report is organized in seven chapters namely (1) Introduction and background; (2) Rwanda's civil registration system; (3) Data quality, timeliness and completeness of registration (4) Births statistics (5) Deaths statistics (6) Cause of deaths statistics and (7) Marriages statistics. Descriptive narratives were made to clarify the results.

- Chapter 1 presents the introduction and the general overview of the role of vital statistics, objectives and scope of the report.
- Chapter 2 describes Rwanda's civil registration system including history, legal background, administrative structure; organizational structure, registration process and the flows of information; organization of vital statistics production and dissemination plan; incentives and disincentives for civil registration and plans for further improvement of CRVS.
- Chapter 3 describes the quality, coverage and completeness of civil registration data.

- Chapter 4 gives statistical data on births, disaggregated in accordance with various aspects and with explanatory narratives.
- Chapter 5 gives disaggregated statistics on deaths with explanatory narratives.
- Chapter 6 gives summary statistics on causes of deaths.
- Chapter 7 gives disaggregated statistics on marriages with explanatory narratives.
- Finally, the appendix showcases references and other informative attachments that are meaningful to the process of vital statistics data collection.

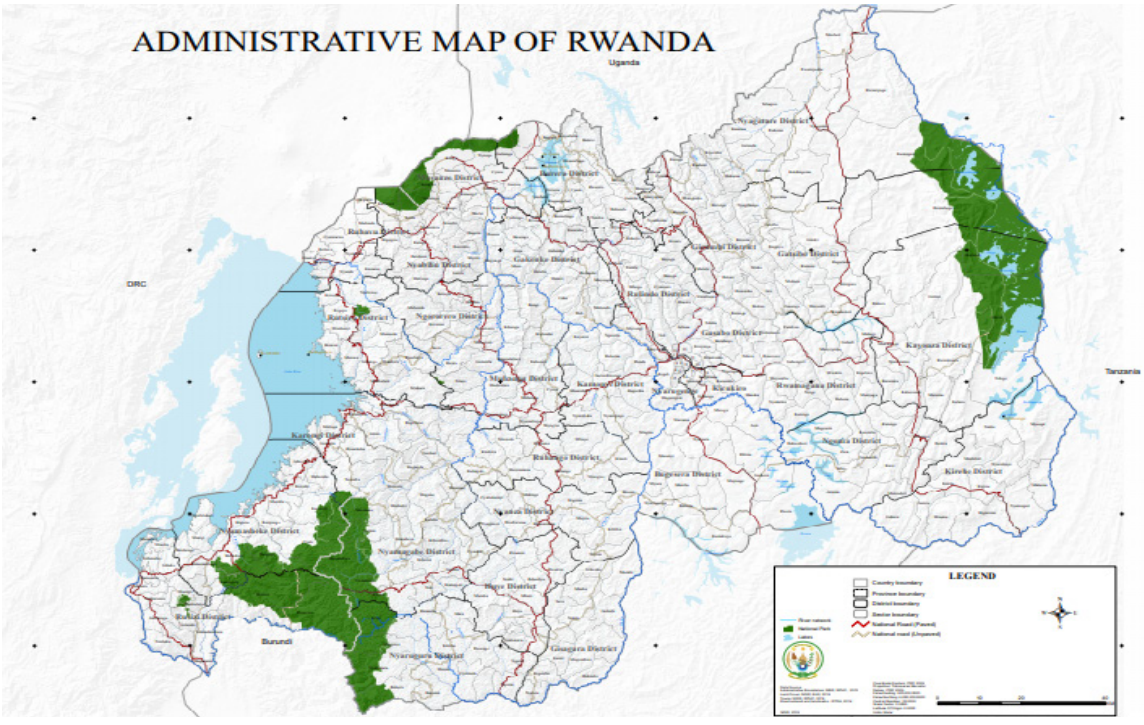
1.3. Country profile

1.3.1. Geography

Rwanda is located in central Africa, immediately in south of the equator between latitude 1°4' and 2°51' S and longitude 28°63' and 30°54' E. The country lies 75 miles South of the Equator in the Tropic of Capricorn, 880 miles 'as the crow flies' west of the Indian Ocean and 1,250 miles East of the Atlantic Ocean - literally in the heart of Africa.

Rwanda is a mountainous country with the lowest point about 950 meters above sea level and the highest point about 4,507 m. The terrain is hilly, and the country is often referred to as "the land of a thousand hills". Rwanda has a surface area of 26,338 square kilometers. It is bordered by Uganda to the North, Tanzania to the East, the Democratic Republic of the Congo to the West, and Burundi to the South.

Figure 1: Map of Rwanda by administrative divisions



1.3.2. Economic performance

Rwanda's economy has tremendously recovered over the last two decades. Rwanda's Gross Domestic Product (GDP) has risen from $752 million in 1994 to $14.10 billion in 2023.

In 2023, GDP at current market prices was estimated at Frw 16,355 billion, up from Frw 13,720 billion in 2022. In this year, the services sector accounted for 44 percent of the GDP, the agriculture sector contributed 27 percent, and the industry sector contributed 22 percent while Net indirect taxes accounted for 7% (NISR, 2024).

The country registered an average GDP growth of around 8 percent per year over the last two decades. In 2022, the annual average growth rate was 8.2%. GDP per Head in current US Dollars was estimated at 1,040 up from 1,005 in the previous year of 2022.

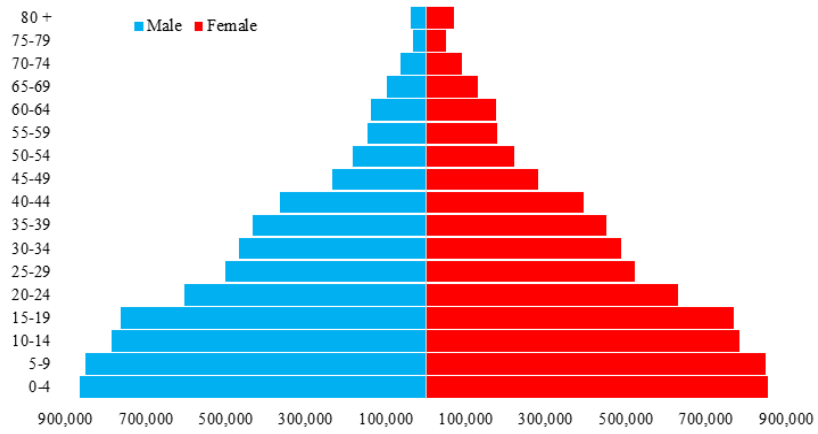
1.3.3. Country demographic and social profile

The fifth Rwanda Population and Housing Census population projection for 2023 indicates that Rwanda's population is 13,499,072 of which 48.6 percent are male and 51.4 percent are female. The 2022 Census results show that the Rwandan population is essentially young, with 45 percent of all Rwandans under-age of 18 and 27.1 percent are youth aged 16-30. The elderly population aged 60 and above represent 6.5% of the population. According to census estimates, the natural growth rate was 2.3 percent between 2012 and 2022 and 3.1 percent between 1978 and 1991. The low natural growth rate of 1.2 percent was observed between 1991 and 2002 due to the high number of deaths caused by the 1994 genocide committed against Tutsi.

The population is projected to increase from 13.2 million in 2022 to 23.6 million (medium scenario) by 2052. A direct consequence of this change is the increase in population density. The current population density is 513 inhabitants per square kilometer 2023 and is expected to increase to about 903 (medium scenario) at the end of the projection period, 2052. The population is largely rural. The ratio of Rwandan urban-rural population indicates that there are approximately three urban residents (i.e. 27.9%) for every seven rural residents (72.1%).

Agriculture is widely practiced by a big share of the population in Rwanda. According to the fifth Rwanda population and housing census, around 2.3 million Rwanda's households (69 percent of private households) practice agricultural activities while around 1.7 million households (50 percent of private households) own at least one livestock. Access to electricity by private households in Rwanda amounts to 61% (47% on grid and 14% solar panels).

Figure 2: 5-Years Age-group Population Pyramid, 2023



Source: NISR, 5th PHC population projection 2023

The illiteracy rate in Rwanda has significantly declined for the past years. Following the PHC5, 79% of the population aged 15 and above could read and write with understanding in any language. The same results show that 22.3% of the population have never been to school. The overall Net Attendance Rate (NAR) at primary was 89.3% in 2022 and was higher among females than the male population. Net Attendance Rate (NAR) at the secondary level of education was 22.3%. From a gender point of view, results show that females had the highest proportion in terms of NAR in secondary compared to males (25.8 and 18.8% respectively).

Nearly all Rwandans speak the same language, Kinyarwanda, which is the country's official first language, followed by English and French. Kiswahili, the third most common foreign language, is generally spoken in some areas of the districts bordering other countries where this language is widely spoken, such as the Democratic Republic of the Congo and Tanzania. The sixth RDHS has shown that maternal mortality ratio has declined significantly to 203 deaths per 100,000 live births in 2019/20 down from 1,071 in 2000 while under-five mortality dropped to 45 deaths per 1000 in 2019/20 from 196 deaths per 1000 in 2000.

Chapter 2

Rwanda's Civil Registration System

2.1. History and Legal Background

In Rwanda, as in most African countries, registration of vital events started during the colonial period. However, the registration laws were only for the nationals of the colonial powers. The laws which were regulating civil registration in Rwanda evolved in connection with the stages of its political and administrative history. During the colonial period, from 1931 up to the end of 1961, under the decree of May 4, 1895, on the civil code of persons-book one, all Rwandans aged 18 years and above were issued identity cards known as identity booklet or "Ibuku". This card was written in Dutch and Kinyarwanda languages. Information entered into the booklet was a set of characteristics such as names, approximate date of birth, parents' names, sex, and marital status, height, names of descendants, profession and ethnic or clan affiliation.

In the early days of independence, the registration of the civil status of the population in Rwanda was governed by the order issued by the Belgian Governor on the 25th of July 1961. This order continued to be used after independence in 1962 with few amendments such as assigning the civil registration responsibilities to the Ministry of Internal Security. From the 27th of October 1988, the order was repealed and replaced by Law Nº 42/1988 which instituted the Preliminary Title and Book One of the Civil Code. This law made registration of vital events compulsory on the Rwandan territory and was in place until the 28th of August 2016 when the new law No 32/2016 governing persons and family was enacted; the same law was amended on 17th February 2020. After the publication of the new law Nº 32/2016 governing persons and family, the mandate of civil registration was transferred from the Ministry of Justice to the Ministry of Local Government.

The law No 32/2016 of 28/08/2016 governing persons and family determines the following Presidential and Ministerial orders allowing its implementation namely: 1) Presidential Order No 092/01 of 21/09/2020 determining responsibilities of the Executive Secretary of Cell; 2) Ministerial Order No 002/07.01 of 27/07/2020 determining the number, types, formats and use of civil status registers 3) The Ministerial Order No 001/07.01 of 17/01/2017 determining modalities and procedures for change of name 4) The Ministerial Order No 001/MIGEPROF/2017 of 16/01/2017 determining conditions to be considered in intercountry adoption and the procedure thereof 5) The Ministerial Order No 002/MIGEPROF/2017 of 17/01/2017 determining procedures for guardianship of minors by the state 6) Ministerial Order N° 001/07.01 of 27/07/2020 determining the officer of the health facility with powers of civil registrar.

The mandate of civil registration was also transferred to the former National Identification Project which later became the National Identification Agency established by Law N°43/2011 and charged with population registration, civil registration, and issuance of the national identity card.

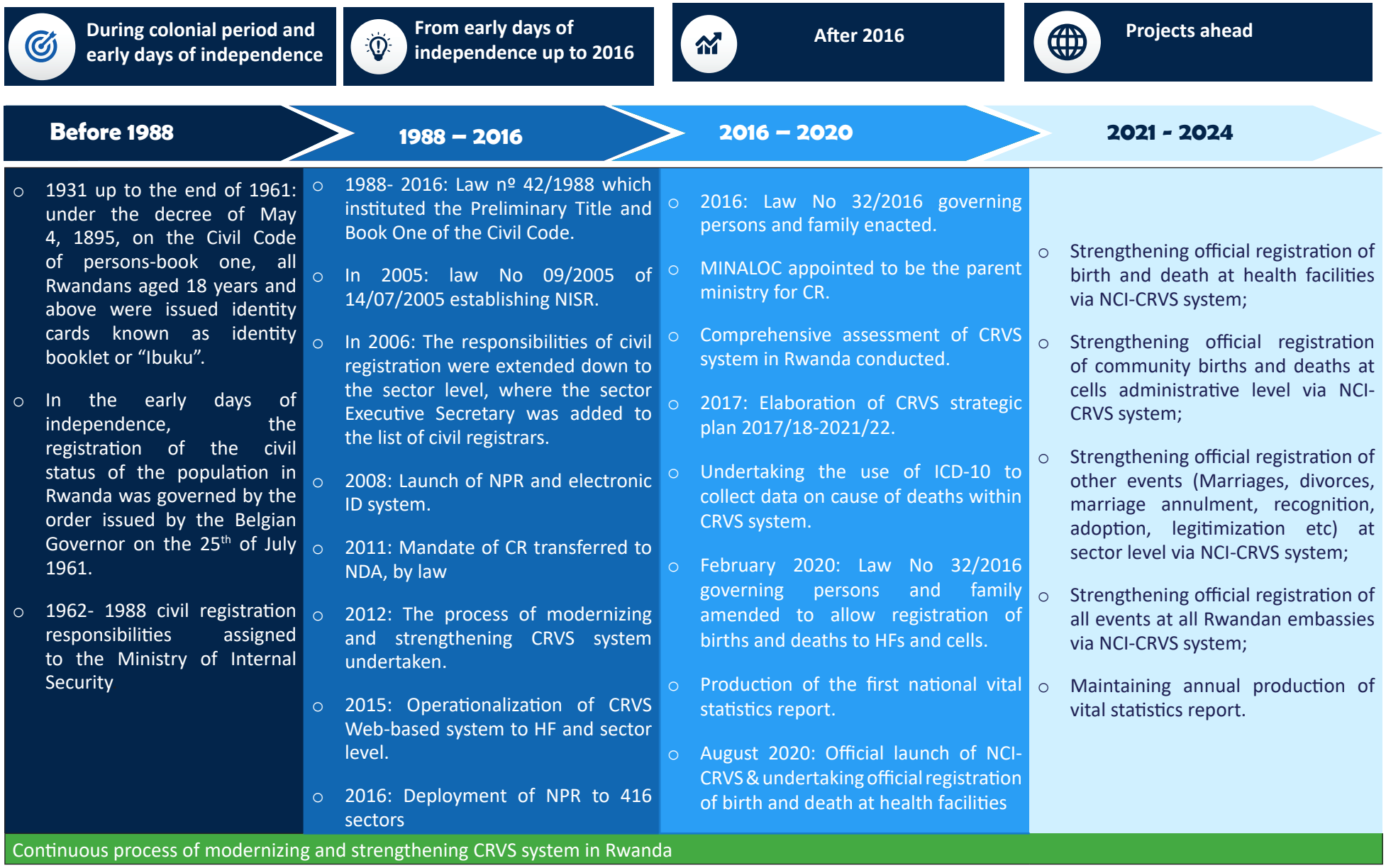
National Institute of Statistics of Rwanda has been established by law No 09/2005 of 14/07/2005 with the mandate of coordinating activities of the national statistical system among others. Concerning the process of strengthening vital statistics data production system, NIDA and NISR

have been working hand-in-hand to improve and strengthen the CRVS systems in Rwanda. Despite the progress achieved concerning civil registration, it is yet to be universal and able to produce reliable and continuous vital statistics. For instance, according to Rwanda vital statistics report 2022, about 7% of births were not registered and about 69 percent of deaths go unrecorded each year. Registration of other civil status is unacceptably low.

From independence until 2006 the lowest office for civil registration was District. With the second phase of the decentralization process in 2006, the responsibilities of civil registration were extended down to the sector level, where the sector Executive Secretary was added to the list of civil registrars in the country to bring most needed services closer to the population.

On 1st January 2015, NISR launched and deployed in all public and private Rwandan health facilities and all sectors and districts, the CRVS web-based application, a system used to collect vital statistics data and to facilitate the transfer of information from health facilities to sector offices under the form of vital event notification with the ultimate purpose of facilitating the regular production of vital statistics reports. In August 2020, NIDA launched NCI-CRVS system to all health facilities to permit official registration of births and deaths subsequent to the recommendation of the CRVS strategic plan elaborated in 2017.

Figure 3: CRVS improvement timeline and key actions



2.2. Legal and Administrative Issues

Rwanda has a decentralized system of governance with 4 provinces and the City of Kigali, 30 districts; 416 sectors; 2,148 cells and 14,837 villages. From independence until 2006 the lowest office for registration was District. With the second phase of the decentralization process in 2006, the responsibilities of civil registration were extended down to the sector level, where the sector Executive Secretary was added to the list of civil registrars in the country to bring most needed services closer to the population.

As described in the earlier sections, the United Nations recommends that countries should register and collect information for a number of events for civil registration and vital statistics purposes: birth; death; foetal death; marriage; divorce; annulment; judicial separation; adoption; legitimation (acknowledgment); and recognition (judicial declarations of paternity) (UN, 2014). However, though the amended law catered for some of the legal issues, one the of the persisting legal issues in 2022 is that the law No 32/2016 of 28/08/2016 governing persons and family (amended in 2020) did not provide for the registration of foetal deaths as recommended by UN as only nine events (birth, deaths, marriages, divorces, adoption, recognition, guardianship, legitimization and marriage annulment) are currently declared to the civil registrar (art. 62). Second, though the registration of vital events is free of charge, the certificate is paid for and is provided on demand; something that makes low the certification of registered events. Third, the law provides for 30 days for timely birth and death registration, but it lacks provisions for penalties in cases of non-compliance with the legally mandated registration timeline. However, it does require a court judgment to be presented for the registration of a death after 30 days of its occurrence, thereby discouraging the completeness of death registration.

2.3. Organizational structure, registration processes and information flows

2.3.1. Organization structure

The success of the CRVS system in a large measure would hinge on systematic and active coordination among all Ministries and organizations that directly or indirectly support or benefit from the system. Coordination of activities must be built into the CRVS systems from the start. While coordination at the national level is crucial for smooth management and operations of the CRVS system in a country, coordination at various other levels of administration is also important for efficient maintenance of the system.

In Rwanda, the National Identification Agency (NIDA) currently under the Ministry of ICT is mandated to supervise and coordinate the civil registration system at the national level while the National Institute of Statistics of Rwanda (NISR) is concerned with coordinating the collection of vital statistics data and is one of the major beneficiaries of the CRVS system.

Table 1 below shows the coordination mechanisms of the CRVS system at different administrative levels that provides details of the composition of the committees and their main functions.

Table 1: CRVS organization and coordination mechanism in Rwanda, 2023

Coordination committee	Composition of committee	Main functions
High-level Coordination Committee on Civil Registration and Vital Statistics To meet once a year	Chaired by Minister of Local Government Members: Minister of Health, Minister of Finance and Planning, Minister of Justice, Ministry of gender and family promotion	Provide oversight and policy guidance to the work of civil registration and vital statistics
National CRVS Steering Committee To meet once every Quarter	Chaired by Permanent Secretary of Local Government Members: PS Ministry of health, PS Ministry of justice, PS Ministry of gender and family promotion, DG/ NIDA, DG/NISR, DG/RBC, ES/NCDA and special invitees depending on the nature of the meeting	Resource mobilization, Organize and conduct annual development partners meeting and approve reports from CRVS Core Technical Team
CRVS Core Technical Team	Technicians in charge of civil registration and vital statistics from MINALOC, MINIJUST, MOH, MIGEPROF, DGIE, NIDA, NISR, RBC, NCDA, and special invitees depending on the nature of the meeting.	Coordinate the implementation of all policies related to CRVS and advise the CRVS steering committee on all matters related to CRVS.
National mortality technical committee	Chaired by Director General of Clinical and Public Health services in the MoH and Co-Chaired by Chairman of Rwanda Medical and Dental Council. Members: MoH, RBC Heads of programs, RBC Epidemiologists, NISR, NIDA, MINALOC, Senior clinicians from Referral hospitals, WHO, CDC, Epidemiologists from Universities, Rwanda National Police, National Forensic Laboratory of Rwanda.	Coordinate all mortality activities and review mortality reports and ensure high quality of causes of death statistics are reported in compliance with global standards.

Source: NISR, National strategic plan, 2017/18-2021/22

2.3.2. The state of CRVS system in Rwanda as is in 2023

The status of CRVS system in 2023 is characterized by an effort to strengthen operationalization of the NCI-CRVS system modules, smoothing integration of such system with other CRVS related systems and scaling up operationalization of verbal autopsy. By the time this report was being compiled, all the 9 modules of NCI CRVS system were operational at all relevant registration points. The 9 events currently registered through NCI-CRVS system are: births, deaths, marriages, divorces, annulment of marriage, recognition of a child born out of wedlock, adoption, guardianship and legitimization. The system development for all the modules was completed and, an effort is being made to strengthen their operationalization. It is important to mention here that each module relates to the electronic register of a particular event.

2.3.2.1. National Centralized and Integrated Civil Registration and Vital Statistics (NCI-CRVS) system

One of the major recommendations from the first National CRVS Strategic plan elaborated in 2017 was to develop a national centralized and integrated CRVS system that will respond to the needs of various institutions in CRVS data collection; to cater for existence of multiple systems working in silos and reduce a related duplication of effort. Thus, to enforce implementation of the strategic plan, a new system (NCI-CRVS) was developed and initiated. This system has indeed the benefit of capturing vital events information on real time and directly at the site of occurrence where official registration of event is done. It quite reduces the multiple recording of the same events into different systems as it provides for a single data entry point taking into consideration the requirements of

other existing systems. The same system is linked to other legacy systems including the national population registry (NPR) for back up of national identity production; CRVS web-based system for vital statistics production; HMIS for public health and epidemiological related needs; and Irembo for issuance of certificates. The operationalization of NCI-CRVS was officially launched on August 10th, 2020, where it started with all public and private hospitals with incremental scale up rollout plan. By end of 2023, the system was operational at all categories of registration points including hospitals, health centres, clinics, and polyclinics; both public and private, administrative cells and sectors and Rwandan embassies abroad.

2.3.2.2. CRVS paper-based system

During the transition toward a fully digitized Civil Registration and Vital Statistics (CRVS) system, a paper-based system was in operation for a period of six months following the launch of the module in the NCI-CRVS system. Altogether there are seven registers of civil status (Article 74 of the law Nº 32/2016 of 28/08/2016): 1) Register of birth records; 2) Register of death records; 3) Register of marriage records; 4) Register of guardianship records; 5) Register of acknowledgment of children born out of wedlock; 6) Register of adoption records; and 7) Register of divorces. After full digitalization of the system, papers are only used to provide proof of registration (registration certificates) through Irembo.

2.3.2.3. CRVS web-based application

In Rwanda, reliable vital statistics were mainly available from national census and other demographic and heath surveys that are periodically conducted. Recognizing importance of timely vital statistics and in line with the second National Strategy for the Development of Statistics (NSDS II), where strengthening the civil registration system as a source of vital statistics was one of its strategic objectives, the NISR initiated a web-based system since 2015 to ease the collection and storage of vital events registration data and enable the production of vital statistics reports. After full operationalization of all modules of NCI-CRVS system, the CRVS web-based system is no longer used for data entry. It rather pulls data from NCI-CRVS system through systems' integration.

2.3.2.4. Health Management Information System (HMIS)

The Health Management Information System (HMIS) operates countrywide under the management of the Ministry of Health (MoH) to collect routine health information for epidemiological and other health related use. With the introduction of NCI-CRVS, HMIS is expected to continue capture aggregated information on births and deaths to provide denominators for counter verification of NCI-CRVS registered births and deaths. This will facilitate the monitoring and improvement systems performance.

2.3.2.5. National Population Registry

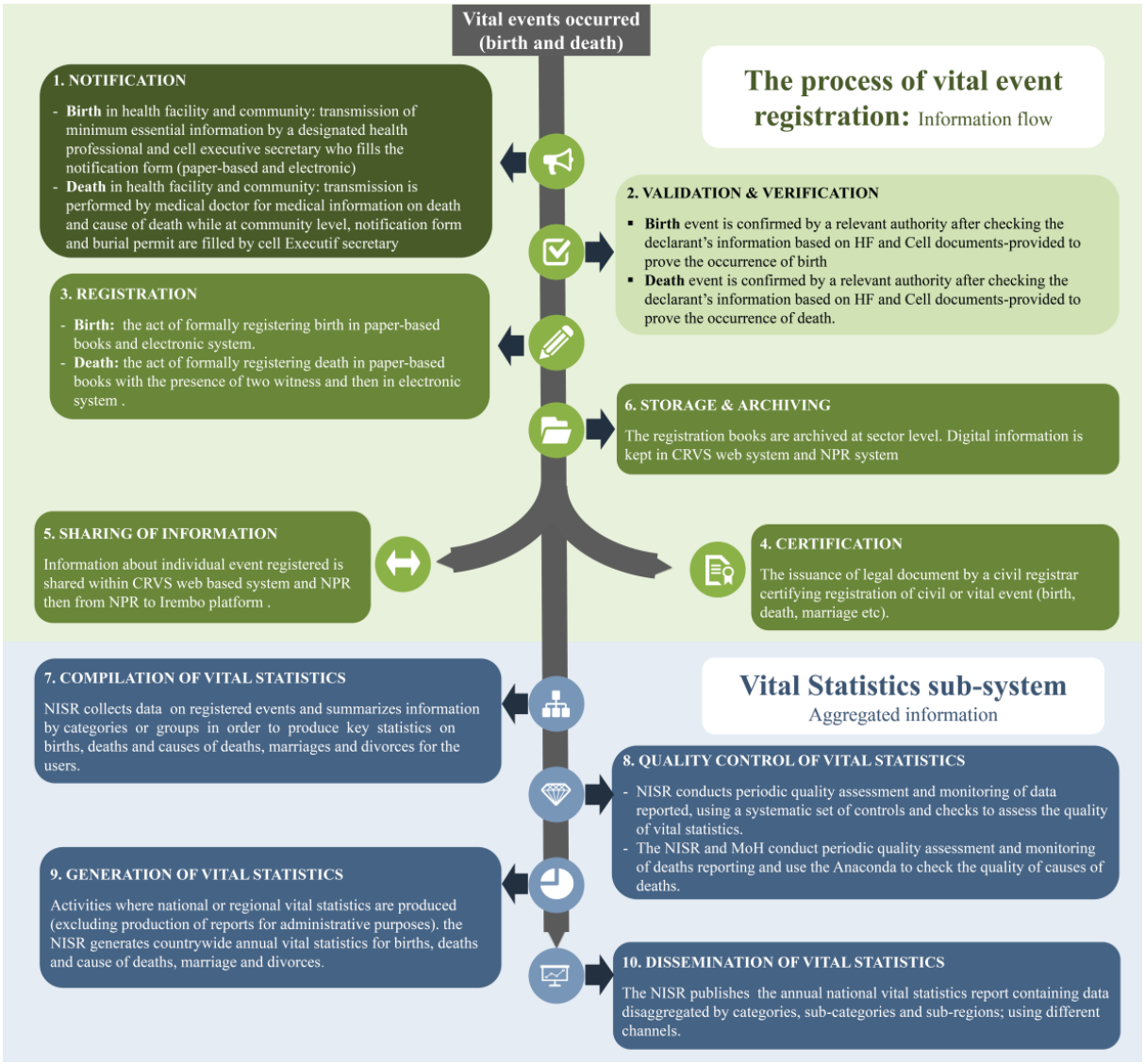
The national population registry (NPR) was developed by NIDA to facilitate the issuance of the national identity card with 2D technology to those aged 16 years and above as well as hosting electronic population registration forms: first registration, change of marital status, change of address and

death registration. Since 2015, the National Population Registry has been decentralized up to the Sector level where all 416 Civil Registration Officers (CROs) access and use it to serve people who need different population registration-related services and capture vital events mentioned above. This system also helps in validating and authenticating identification of recorded people. With the development of NCI-CRVS, NPR was linked to the civil registration system where each event registered is instantly captured in NPR.

2.3.3. Registration processes and information flows

Figure 4 below summarizes registration process and information flow, taking into consideration the 10 milestones[1]

Figure 4: Ten CRVS Milestones' framework with a working definition of each milestone



1 Refer to: https://gh.bmj.com/content/bmjgh/3/2/e000673.full.pdf for more information

2.3.4. Timeliness of Registration

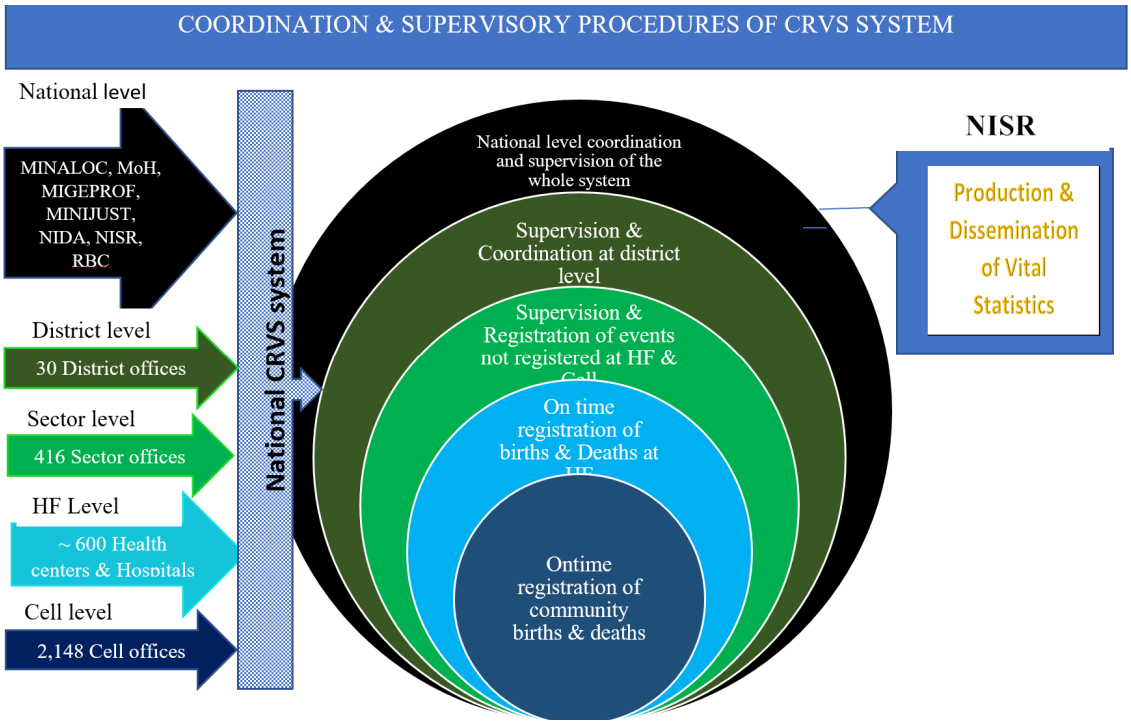
According to the law No 32/2016 of 28/08/2016 governing persons and family in Rwanda; that was amended in February 2020, registration of birth and death must be done within 30 days of occurrence (art, 100 and 106). The same law provides for a ministerial order determining modalities for late and delayed registration, but the order is not yet enacted. For reporting purposes, late registration was considered to be an event (birth or death) registered after 30 days of occurrence but without exceeding one year while delayed registration was considered to be an event (birth or death) registered after one year from its occurrence.

By current practice, marriage registration is mostly done at sector office after 20 days of notice made to the public. The consensual cohabitation (unions) and forms of marriages other than those solemnized by a civil registrar (monogamous) are not accepted by law and thus not registered. Nevertheless, such marriages are still taking place, though they are not within the scope of this report.

2.4. Organization of vital statistics production and dissemination

In Rwanda vital statistics are regularly collected via the recording of registered vital events (births, deaths, marriage etc) in a digitalized CRVS system. Each year (starting by 2019), countrywide vital statistics report is produced and disseminated through the NISR website and other platforms. More information on CRVS system coordination and implementation with involved stakeholders is displayed in Figure 5 below.

Figure 5: Organization of CRVS system and production of vital statistics, 2023



Source: NISR, 2023

Chapter 3

Data Quality, Timeliness And Completeness Of Registration

3.1. Data and methods

3.1.1. Data source

The vital events featured in this report uniquely originated from the National Centralized and Integrated Civil Registration and Vital Statistics (NCI-CRVS) system. The system was launched in August 2020 to facilitate the official registration of vital events through a digitalized platform. However, as a way of assessing the reliability of CRVS released data and to enable the computation of indicators requiring existence of denominators, systems'-generated data were triangulated with data from other sources including Rwanda Demographic and health Survey, Fifth Rwanda Population and Housing Census (5-RPHC) and other sources. Subsequent to the low number of deaths when compared to expected deaths, mortality data were adjusted to estimate country-representative statistics.

Regarding the timeframe, only events that occurred from January to December 2023 were considered for analysis at all the events. In this report, the term marriage only refers to legally celebrated marriage as provided for by the law N° 32/2016 of 28/08/2016 governing persons and family in Rwanda, amended in February 2020. The report does not therefore include other forms of unions not recognized by the law as marriage.

3.1.2. Data quality assessment

According to United Nations *Principles and Recommendations*, "The quality of vital statistics is measured according to completeness, correctness or accuracy, availability and timeliness" (UN, 2014). Therefore, quality control measures must be put in place in terms of the four quality dimensions mentioned above. In this report, data quality issues observed were mainly duplicates, typing errors on date of occurrence of an event when compared to the registration date, erroneous or missing information, especially on causes of death etc.

Duplicate entries on births were detected based on mother's ID number or child's unique ID. On all datasets, the respective unique identifier was used to check for duplicated entries. Some duplicates were obvious and easy to detect while some others were difficult to detect. All erroneous entries were dealt with in accordance with the nature of errors. For example, missing values were replaced with a word missing or not stated in order to run pivot tables in Excel. However, for the most complex cases to handle, respective records were removed from the datasets.

3.1.3. Desk review

The process of compiling this report was preceded by assembling the materials available regarding the setup and operations of the systems as well as vital statistics reports from other countries. Some of the reports consulted in this regard include but not limited to: Alaska Vital Statistics Annual report 2017, Namibia Vital Statistics Report for data collected from 2011-2015, Philippines Vital Statistics

report 2013-2014, Georgia Vital Statistics report 2015, Missouri Vital Statistics Report 2018, U.S National Vital Statistics Reports, Vol. 68, No. 13, November 27, 2019; Maryland Vital Statistics Annual Report 2018; etc. The compilation indeed conformed to the previous versions of Rwanda vital statistics reports and consulted the production of vital statistics report: template, revision 1 developed by Vital Strategies et al (2020).

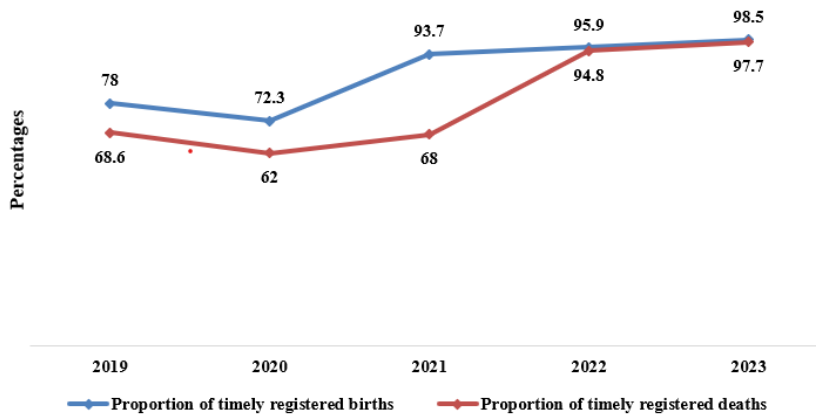
3.1.4. Dialogue with registration officers to ensure correctness of information.

Civil registration staff at all categories of registration points were contacted through phone calls to clarify on suspected erroneous records for providing clear information on them or otherwise make corrections whenever possible, based on the source documents of recorded information. The general observation was that most of errors were related to the mistyping of information during data entry and were therefore corrected before data analysis.

3.2. Timeliness of registration

As per the Law Nº**32/2016 of 28/08/2016** governing persons and family, a birth or death is said to be timely registered if its registration is done within 30 days of occurrence. The same law suggests a ministerial order for late and delayed registration, but it's not yet enacted to date. In reporting, a late registration pertained to a vital event (such as a birth or death) that was registered after 30 days from its occurrence but within one year, whereas delayed registration refers to a birth or death registered after one year of occurrence Findings from different versions of Rwanda vital statistics report show improvement in shares of timely registered births and deaths since 2019 up to 2023. This can likely be attributed to the decentralization of registration services aimed at bringing them closer to the population. Figure 6 illustrates the percentages of births and deaths registered within the legally prescribed time frames, compared to the overall number of registered events spanning from 2019 to 2023.

Figure 6: Proportions of timely registered births and deaths in %, 2019 to 2023



Source: Data from CRVS system, 2019-2023

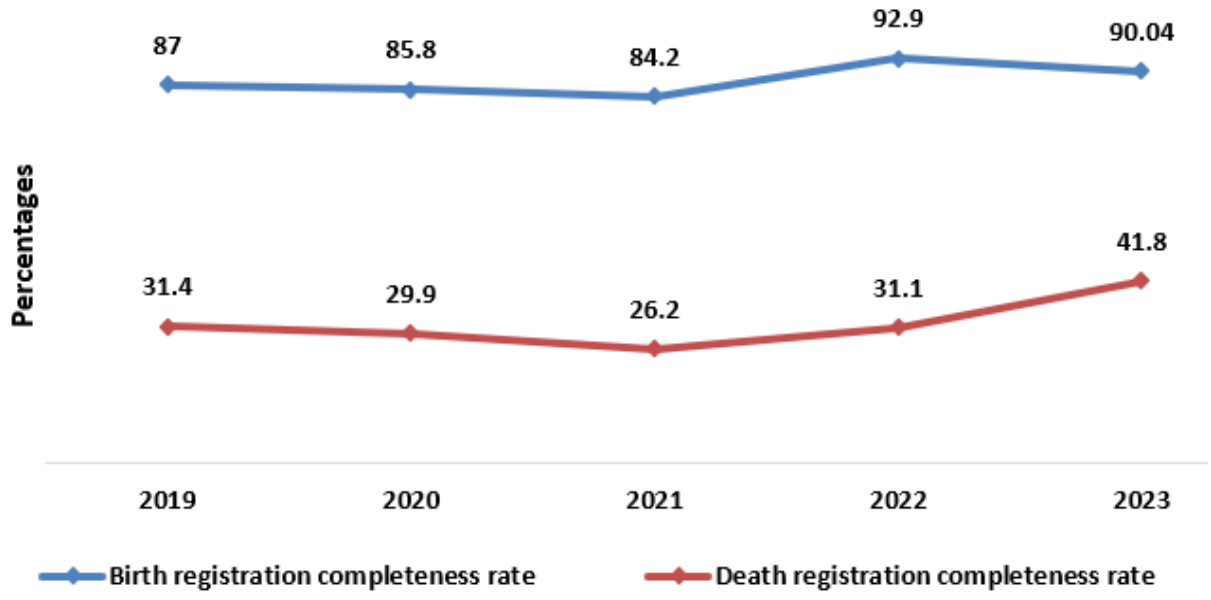
3.3. Data availability and completeness of registration

Calculating the completeness of registration can be used to monitor the performance of the CRVS system in capturing all vital events and allows for adjustment of incomplete data. Completeness is defined as the proportion of actual vital events in a population that are registered, divided by the estimated number of vital events that occurred in the same year.

$$Completeness = \frac{Number\ of\ vital\ events\ registered}{Estimated\ number\ of\ vital\ events} \times 100$$

To compute birth and death registration completeness, the denominators were sourced from the population and housing census reports while the numerators were generated by CRVS system. Figure 7 shows changes in birth and death registration completeness rates since 2019 to 2023. It is to be noted that, following the Sustainable Development Goals, indicator 17.19.2: "Proportion of countries that (a) have conducted at least one population and housing census in the last 10 years; and (b) have achieved 100 per cent birth registration and 80 per cent death registration", the fixed targets were to achieve 100% birth registration completeness rate and 80% death registration completeness rate.

Figure 7: Birth and death registration completeness rates (%), 2019 to 2023



Source: Data from CRVS system & 4-PHC and 5-PHC RPHC, 219-20223 (NISR)

3.4. Adjustment for incomplete registration

3.4.1. Fertility statistics

Achieving complete vital registration remains a challenge, especially for deaths. As indicated in Figure 7 above, birth registration completeness decreased to 90% in 2023 from 92.9% in 2022 at the national level. For the sake of minimizing the effect incompleteness of birth registration on the resulting fertility indicators, the numbers of registered births were first adjusted before computation of indicators such as ASFR, TFR, GFR and CBR. Based on denominators sourced from 5-PHC projections that helped in finding out birth registration completeness rate, adjusted birth numbers were obtained by dividing actual numbers by the completeness rate (0.9). The following table 3 demonstrates an example.

Table 2: Adjustment for fertility statistics

		Unadjusted numbers, 2022		Adjusted numbers, 2023	
Mothers' age groups	Female population, 2023	Number of registered births	ASFR per 1,000	Number of births	ASFR per 1,000
10-14	783,226	75	0.1	83	0.1
15-19	768,227	19,331	25.2	21,469	27.9
20-24	630,491	76,334	121.1	84,778	134.5
25-29	521,625	80,212	153.8	89,085	170.8
30-34	487,326	71,889	147.5	78,596	163.8
35-39	452,098	55,260	122.2	61,373	135.8
40-44	393,801	27,443	69.7	30,479	77.4
45-49	281,590	3,318	11.8	3,685	13.1
50-54	221,097	156	0.7	173	0.8

Source: CRVS system and 5-PHC, 2023

Taking into account the information provided in Table 2 above and having prior knowledge of denominators from the 5-PHC, where the total population number is 13,499,066; and given the available information on the number of females aged 15-49 by 5 years age groups; adjusted TFR and GFR becomes 3.6 and 104.9 respectively (up from 3.3 and 94.4 when unadjusted) while adjusted CBR becomes 27.5 (up from 24.7 when unadjusted).

3.4.2. Mortality statistics

There exist several methods used in determining total population estimates in the presence of under-reporting. When the number of registered events in a population is substantially underreported, mortality indicators may be inaccurate, leading to poor policies and decisions. Consequently, data adjustment may be necessary. However, there is no consensus among experts on the matter of when to adjust or not to adjust data. Some argue that data should not be adjusted if completeness is below 50 – 90 percent. Others are of the opinion that adjustment should always be performed. In our case, with death registration completeness rate equivalent to 41.8%, there is no doubt that mortality indicators computed directly from the system generated data can provide misleading results for policies and decision. The adjusted number of deaths is found by dividing the registered number of deaths. In this regard, the following formula was used to obtain reliable estimates of

mortality indicators:

$$Adjusted\ number\ of\ deaths = \frac{Registered\ deaths}{Completeness\ rate}$$

Table 3 demonstrated the use of above-mentioned formula through the computation of crude death rate.

Table 3: Adjusted and unadjusted values of CDR, 2019-2023

Indicator	2019	2020	2021	2022	2023
Population size	12,374,397	12,663,116	12,955,763	13,246,394	13,499,066
Registered deaths (number)	23,771	22,634	19,797	25,567	32,853
Adjusted number of deaths	70,518	75,570	75,561	76,545	79,075
Unadjusted CDR (per 1000)	1.9	1.8	1.5	1.9	2.4
Adjusted CDR (per 1000)	5.9	6	5.8	5.8	5.8

Source: CRVS system, 4th PHC Projections and 5-PHC, 2023

3.5. Comparison with data from other sources

As a way of assessing the reliability of CRVS data, the results were compared with indicators from other sources. Table 5 shows the comparisons for selected mortality indicators.

Table 4: Comparing CRVS death indicators (adjusted) with the results from other sources

Indicator	CRVS (adjusted)					RDHS 2019/20	RDHS 2014/15	MAS 2018	PHC 2023 (proj.)
	2023	2022	2021	2020	2019				
Crude death rate	5.8	5.8	5.8	6	5.9	-	-	3.2	5.8
Neonatal mortality rate	20.3	25.4	23.7	23	23.5	19	20	14.1	-
Infant mortality rate	30.0	34.3	31.6	30	31.5	33	32	23.3	28.7
Under five mortality rate	38.6	40.9	37.4	37.1	38.5	45	50	32.3	36.8

Source: CRVS system, MAS, RDHS and PHC

Following the law governing persons and family in Rwanda, all live-born infants should be registered and counted as such, irrespective of gestational age or whether alive or dead at the time of registration. This chapter gives an in-depth analysis of data on registered live births that occurred from January to December 2023. Table 5 gives a summary of statistics on births obtained. The same table shows a decline in the completeness of birth registration in 2023 compared to 2022.

Table 5: Summary statistics on births

Indicator	2019	2020	2021	2022	2023
Registered live births (number)	313,398	312,678	310,249	341,122	334018
Males	158,826	158,450	157,615	170,450	168750
Females	154,572	154,228	152,634	166,378	165268
Expected live births (number)	360,388	364,342	368,251	367,312	370,964
Males	182,857	184,863	186,847	187,873	188,851
Females	177,531	179,479	181,404	179,439	182,113
Registration completeness (%)	87	85.8	84.2	92.9	90.04
Males	86.9	85.7	84.4	90.7	89.4
Females	87.1	85.9	84.1	92.7	90.8
Sex ratio at birth	103	103	103	102	102
Adjusted Crude birth rate (per 1,000 population)	29.1	28.8	28.4	27.7	27.5
Total fertility rate (births per woman)	3.8	3.7	3.5	3.7	3.6

Source: CRVS system and 5-PHC Projections, 2023

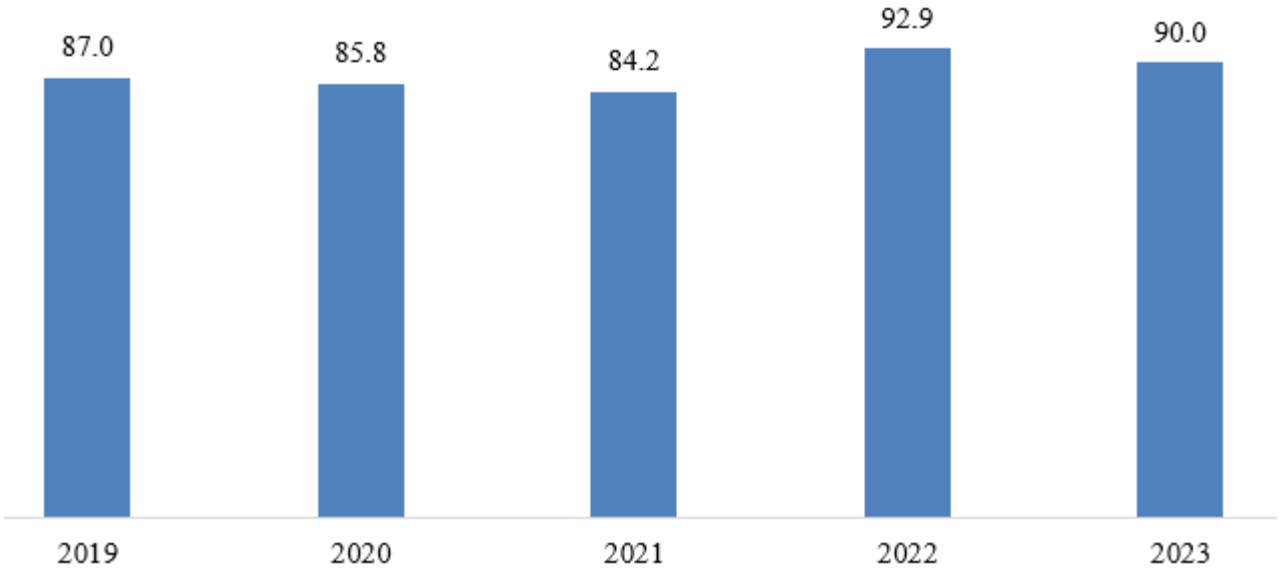
Chapter 4

Birth Statistics

4.1. Completeness of birth registration

The current report considers officially registered births (numerator) that are compared with the estimated number of live births sourced from the 5th Rwanda Population and Housing Census projections (denominator) to obtain the completeness. In 2023, the completeness rate of birth registration decreased to 90.0%, down from 92.9% in 2022 as shown in Figure 8. The downward shift may be attributed to the effect of turnover among civil registration staffs at decentralized levels (health facilities, cells and sectors) that induce temporally slowdowns in registration pace and secondly, the observed number of sectors that are still recording live births in NPR (National Population Registry) instead of registering them via NCI-CRVS which is the only digital system eligible for official registration of civil and vital events in Rwanda. In 2023, more than 5,000 live births occurred the same year were recorded in NPR and were therefore not considered for the computation of registration completeness rate in this report as, by law, such births could not be considered as officially registered.

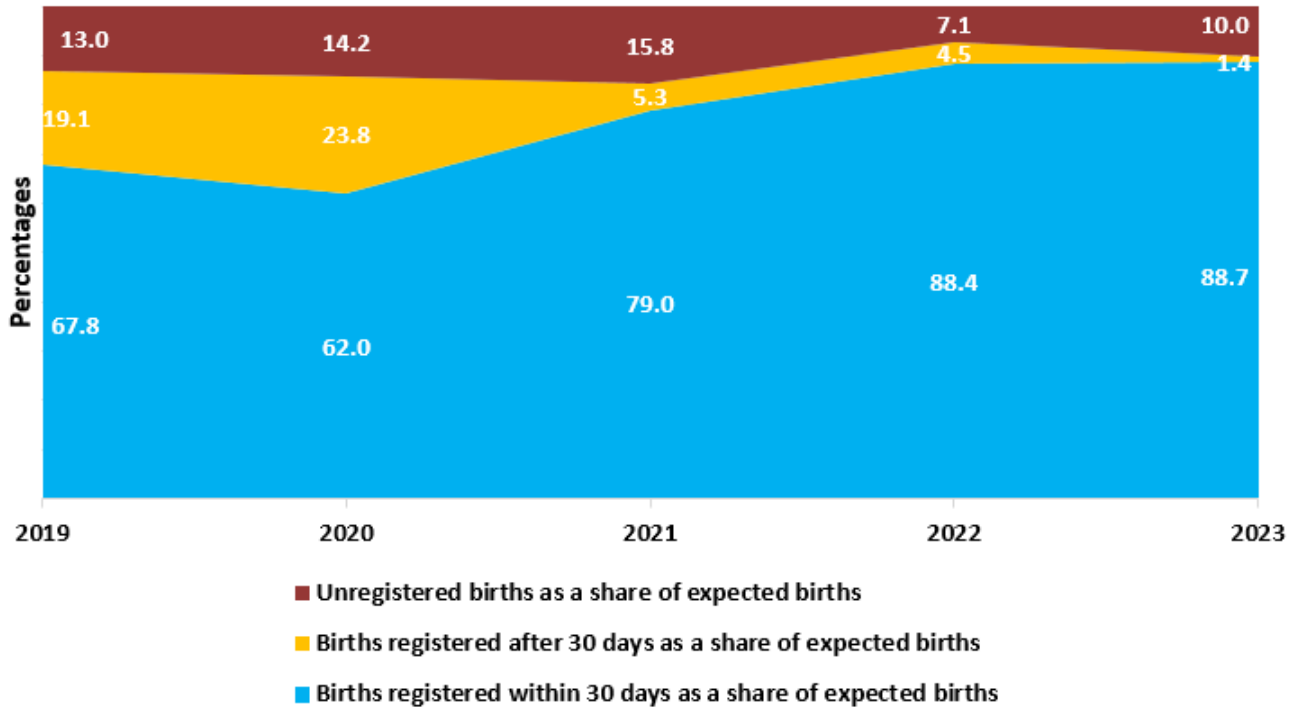
Figure 8: Change in birth registration completeness rate (%), 2019-2023



Source: CRVS system and population and housing census Projections, 2023

Above figure 8 shows overall completeness rates considering both timely and late registrations of birth. Effort is still required to achieve the SDGs 17.19.2.b "Proportion of countries that have achieved 100 per cent birth registration and 80 per cent death registration". Figure 9 below shows areas to focus on to achieve universal registration of births.

Figure 9: Registered and unregistered births as shares (%) of expected births, 2023

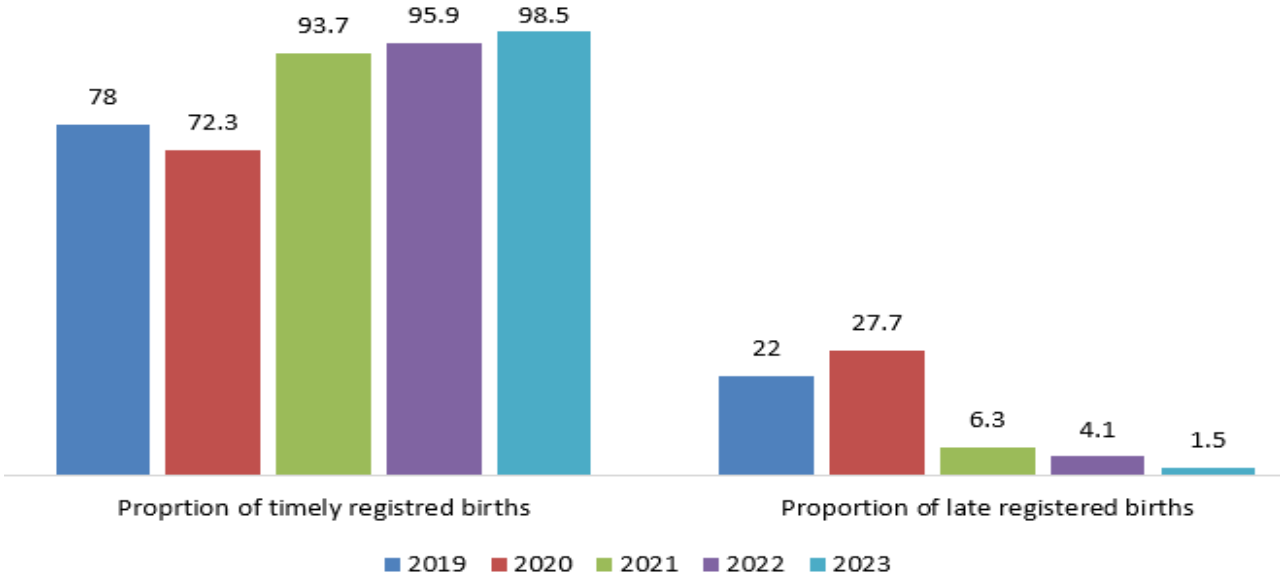


Source: CRVS system, 2023

4.2. Timeliness of birth registration

By the law currently in force, birth registration must be done within 30 days of occurrence and, this was timely registration in this report. However, the order determining late and delayed registration is not enacted. For reporting purpose, late registration was a birth registered after 30 days but before exceeding one year. As the report considers registered live births whose year of occurrence is 2023, delayed registrations were excluded from analysis. The comparison of registered births taking into consideration registration timeliness shows an increase in the shares of timely registered births in 2023 compared to 2022, from 95.9% to 98.5 %, something that may indicate a positive impact of decentralizing registration services to health facilities and cells. Figure 10 below depicts changes in proportions of timely registered births since 2019.

Figure 10: Proportions of timely registered births in %, 2019 to 2023

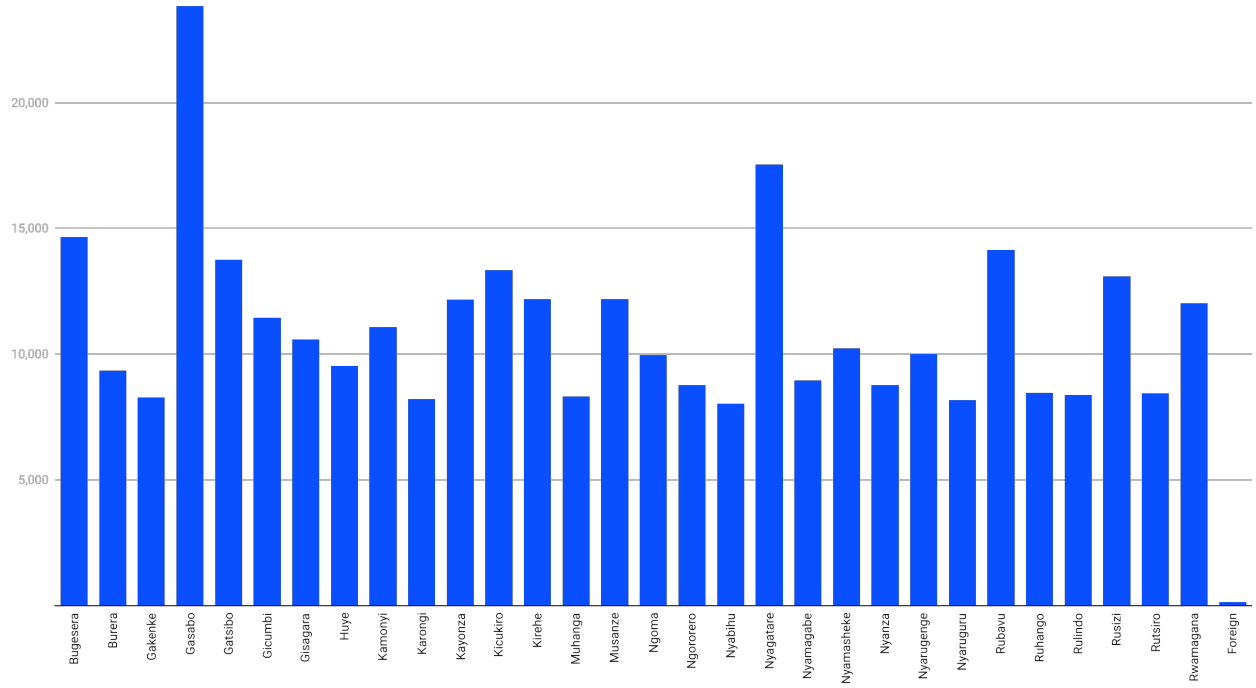


Source: CRVS system, 2023

4.3. Live births registered by residence of mothers

As presented in Table 6 below, there has been diversity in numbers of births registered taking into consideration their mothers' residence districts whereby a high number of births is observed in Gasabo (11,837), Nyagatare (8,616), and Bugesera (7,212) districts while low numbers are observed in Nyaruguru (4,070) and Karongi (4,030) districts.

Figure 10a Registered live births by mothers' residence districts use the attached figure



Source: CRVS system, 2023

Table 6: Registered live births by mothers' residence districts

	Number of live births			
District	Female	Male	Both sexes	Sex ratio at birth
Rwanda	165,268	168,750	334,018	102.1
Bugesera	7,212	7,441	14,653	103.2
Burera	4,651	4,700	9,351	101.1
Gakenke	4,086	4,183	8,269	102.4
Gasabo	11,837	12,008	23,845	101.4
Gatsibo	6,855	6,888	13,743	100.5
Gicumbi	5,699	5,754	11,453	101.0
Gisagara	5,257	5,321	10,578	101.2
Huye	4,797	4,728	9,525	98.6
Kamonyi	5,480	5,591	11,071	102.0
Karongi	4,030	4,180	8,210	103.7
Kayonza	5,897	6,279	12,176	106.5
Kicukiro	6,536	6,811	13,347	104.2
Kirehe	6,127	6,055	12,182	98.8
Muhanga	4,112	4,208	8,320	102.3
Musanze	6,008	6,181	12,189	102.9
Ngoma	4,772	5,197	9,969	108.9
Ngororero	4,381	4,393	8,774	100.3
Nyabihu	4,080	3,940	8,020	96.6
Nyagatare	8,616	8,929	17,545	103.6
Nyamagabe	4,420	4,529	8,949	102.5
Nyamasheke	5,104	5,132	10,236	100.5
Nyanza	4,331	4,427	8,758	102.2
Nyarugenge	4,882	5,121	10,003	104.9
Nyaruguru	4,070	4,099	8,169	100.7
Rubavu	7,034	7,100	14,134	100.9
Ruhango	4,174	4,295	8,469	102.9
Rulindo	4,099	4,276	8,375	104.3
Rusizi	6,522	6,574	13,096	100.8
Rutsiro	4,175	4,268	8,443	102.2
Rwamagana	5,948	6,071	12,019	102.1
Foreign	76	71	147	93.4

Source: CRVS system, 2023

4.4. Registered births by place of occurrence and by the usual residence of mothers

Table 7 shows the level of variations between the place of birth occurrence and the usual residence of mothers across districts where the results show that 85.5% of all registered births occurred in the same districts as mothers' usual place of residence. Across districts, high shares of births that occurred in places other than their mothers' usual residence districts are observed in Nyarugenge and Kicukiro districts (51.7% and 47.1% respectively) while the low shares are observed in Nyaruguru and Rusizi districts (0.75%; 0.6%). The following table displays more details.

Table 7: Registered live births by place of occurrence and by place of usual residence of mothers, 2023

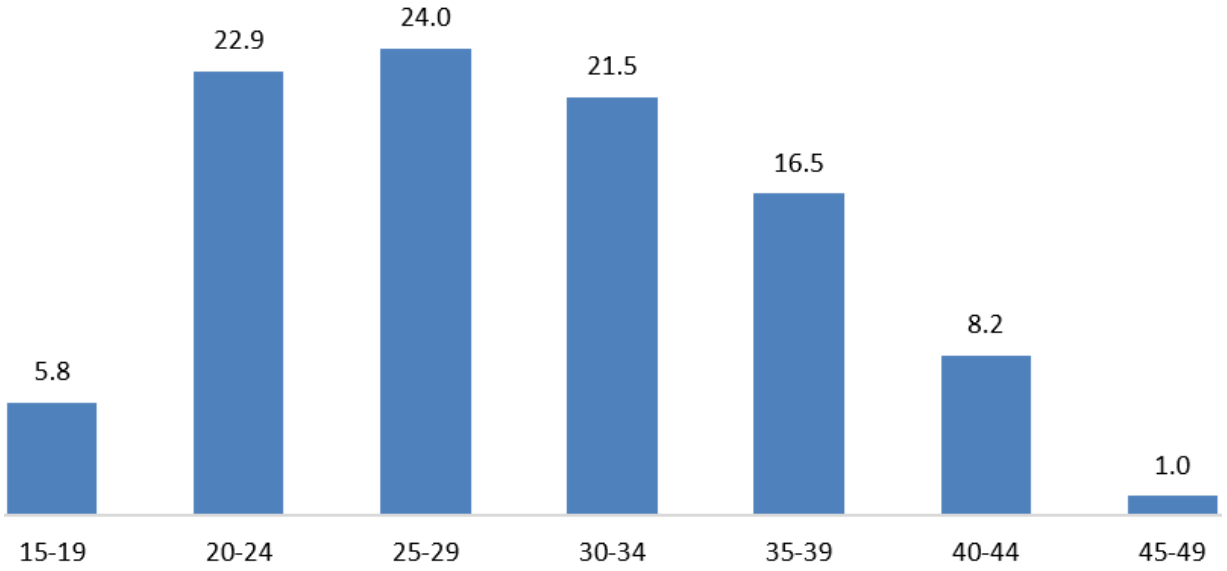
	Counts			Percentages		
	Same as place of usual residence	Other places	Total	Same as place of usual residence	Other places	Total
Rwanda	285,506	48,512	334,018	85.5	14.5	100.0
Bugesera	13,382	556	13,938	96.0	4.0	100.0
Burera	7,279	243	7,522	96.8	3.2	100.0
Gakenke	7,535	1,174	8,709	86.5	13.5	100.0
Gasabo	16,129	7,380	23,509	68.6	31.4	100.0
Gatsibo	13,084	1,058	14,142	92.5	7.5	100.0
Gicumbi	10,875	999	11,874	91.6	8.4	100.0
Gisagara	9,522	392	9,914	96.0	4.0	100.0
Huye	8,497	2,419	10,916	77.8	22.2	100.0
Kamonyi	7,204	81	7,285	98.9	1.1	100.0
Karongi	7,990	1,635	9,625	83.0	17.0	100.0
Kayonza	11,265	722	11,987	94.0	6.0	100.0
Kicukiro	7,280	6,491	13,771	52.9	47.1	100.0
Kirehe	11,694	332	12,026	97.2	2.8	100.0
Muhanga	7,280	2,240	9,520	76.5	23.5	100.0
Musanze	11,204	2,094	13,298	84.3	15.7	100.0
Ngoma	9,479	406	9,885	95.9	4.1	100.0
Ngororero	8,037	1,382	9,419	85.3	14.7	100.0
Nyabihu	6,061	2,722	8,783	69.0	31.0	100.0
Nyagatare	16,236	206	16,442	98.7	1.3	100.0
Nyamagabe	8,393	393	8,786	95.5	4.5	100.0
Nyamasheke	9,588	559	10,147	94.5	5.5	100.0
Nyanza	7,389	986	8,375	88.2	11.8	100.0
Nyarugenge	8,514	9,114	17,628	48.3	51.7	100.0
Nyaruguru	7,291	55	7,346	99.3	0.7	100.0
Rubavu	12,363	1,264	13,627	90.7	9.3	100.0
Ruhango	7,071	1,484	8,555	82.7	17.3	100.0
Rulindo	6,517	1,286	7,803	83.5	16.5	100.0
Rusizi	12,465	75	12,540	99.4	0.6	100.0
Rutsiro	6,950	227	7,177	96.8	3.2	100.0
Rwamagana	8,857	537	9,394	94.3	5.7	100.0
Foreign	75	-	75	100.0	0.0	100.0

Source: Data CRVS system, 2023

4.5. Registered live births by age group of mothers

CRVS system generated data show variations in the number of births registered per age groups of mothers. The number of registered births has been high among females aged 25-29 compared to the remaining ages and low among females aged below 19 and females aged 45 and above. More details are displayed in Figure 11.

Figure 11: Percentages of registered live births by age of mothers



Source: CRVS system, 2023

4.6. Registered live births by type of pregnancy

CRVS system-generated data were analyzed to find out the rate of multiple births and the results revealed that out of 334,018 live births registered only 8,901 (2.7%) were multiple births (twins, triplet, etc) while the remaining share was single births. Across age groups, the rate of multiple births is high to females aged 30-34 while the rate of single birth is high to females aged 25-29.

Table 8: % of Registered live births by age of mothers and type of pregnancy

Age	Single births	Multiple births	Total
All	97.3	2.7	100.0
15-19	98.9	1.1	100.0
20-24	98.4	1.6	100.0
25-29	97.4	2.6	100.0
30-34	96.8	3.2	100.0
35-39	96.3	3.7	100.0
40-44	96.8	3.2	100.0
45-49	97.4	2.6	100.0
50-54	93.6	6.4	100.0

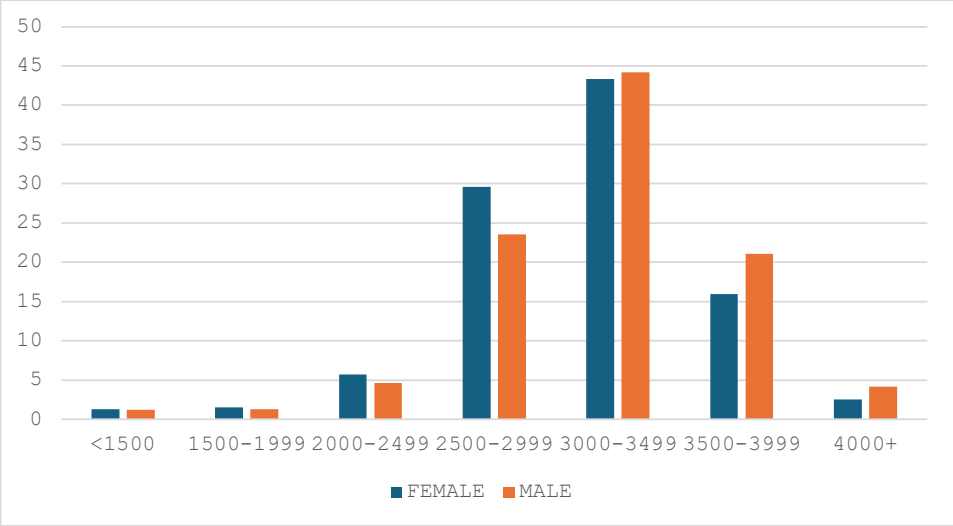
Source: CRVS system, 2023

4.7. Registered live births by weight at birth

4.7.1. Live births by weight ranges

Weight at birth is a meaningful indicator on the health status of live-born infant. Figure 12 shows variations in the weights of the newborns by weight ranges where in 2023, the weight range with a high number of births was 3000- 3499 grams. The same range contains an average (3,075 grams for both sexes). Analysis shows that in 2023, females' average weight at birth was slightly less than males' average (3,030 grams for females Vs 3,120 grams for males). The percentage of low birth weight (<2500 grams) and very low birth weight (<1500 grams) were relatively small (7.8% and 1.3%, respectively), though slightly increased compared to the 2021 results (7.7% and 1.1%, respectively). By sex, females are predominant in the weight ranges that are below 3000-3499 grams while males are predominant in the weight ranges that are greater or equal to 3000-3499.

Figure 12: Live births registered at health facilities by weight at birth and sex



Source: CRVS system, 2023

4.7.2. Average weight at birth

Average weight at birth is a meaningful indicator of the life conditions of a newborn and her mother. CRVS system generated data were used to compute the average weight at birth following age of mothers. Table 9 shows the average weight at birth equivalent to 3,075 grams with males' average slightly greater than females' average weight (3,119 Vs 3,03; respectively). Average weight at birth is low among live births from females aged 14-19 and females aged 50-54 and slightly high among females aged 40-44.

Table 9: Average weight at birth by mothers' age groups and child' sex

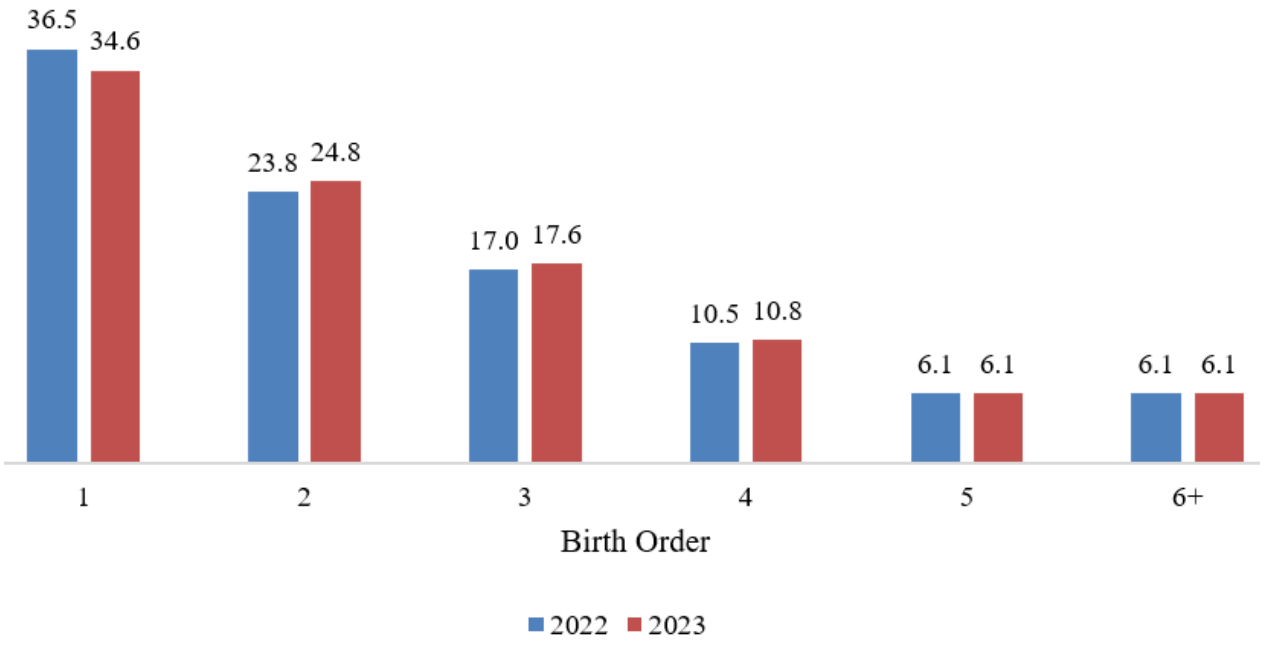
Mother' age	Both sexes	Female	Male
All	3,075	3,030	3,119
15-19	2,975	2,937	3,013
20-24	3,025	2,982	3,066
25-29	3,088	3,043	3,133
30-34	3,113	3,063	3,162
35-39	3,103	3,057	3,148
40-44	3,090	3,043	3,136
45-49	3,086	3,045	3,127
50-54	2,992	2,983	3,001

Source: CRVS system, 2023

4.8. Registered live births by birth order

Birth order refers to the order a child is born in the family; first-born and second-born are examples. Birth order is often believed to have a profound and lasting effect on psychological development. To some extent, it may play an impactful role in orientation and initiation of family planning related policies and laws. CRVS system generated data show insignificant differences in birth order among live births registered in 2023 compared to 2022 as shown in Figure 13 below.

Figure 13: Frequency of birth order (%) in 2023 compared to 2022



Source: CRVS system, 2023

4.9. Key fertility indicators

This section shows fertility indicators computed using CRVS system-generated data in 2023 including: crude birth rate (CBR), sex ratio at birth, general fertility rate (GFR) and total fertility rate (TFR). Some indicators like CBR, TFR and GFR were computed based on adjusted data as the completeness of birth registration in 2023 is not good enough to produce reliable indicators. Moreover, in order to assess the reliability of indicators computed from CRVS data, a comparison with data from other sources was performed. Table 10 provides a summarized situation.

Table 10: Summary comparison of fertility indicators from CRVS with other sources

Indicator[2]	CRVS					MAS 2018	RDHS 2019/20	5-PHC 2022
	2019	2020	2021	2022	2023			
TFR	3.7	3.7	3.5	3.7	3.6			
GFR	110.8	108.7	106	106.6	104.9	108.7	134	105.5
CBR	29.1	28.8	28.4	27.7	27.5	27.6	31.8	27.8
Sex ratio at Birth	103	103	103	102	102	102	-	104.7
Average weight at birth in grams	3,100	3,108	3,112	3,081	3,075	-	-	-
Low birth weight (%)	7.4	7.1	6.5	7.7	7.8	-	-	-

Source: CRVS system, 2023

[2]*Indicators in table 10 are based on adjusted data except sex ratio, average weight at birth and low birth weight*

4.9.1. Sex ratio at birth

The sex ratio at birth is the number of male live births for a specific area during a specified period divided by the number of resident female live births for that area and period multiplied by 100. In the human species the ratio between males and females at birth is slightly biased towards the male sex. The natural “sex ratio at birth” is often considered to be around 105. This means that at birth on average, there are 105 males for every 100 females. A sex ratio that is less than 100 means that male births are less than female births something that doesn’t often happen. CRVS system-generated data show the sex ratio at birth equivalent to 102 in 2023 something implying 102 new males born for every 100 new females born. Details regarding sex ratio by districts are displayed in Table 6.

4.9.2. Crude birth rate (CBR)

The crude birth rate is the number of live births occurring among the population of a given geographical area during a given year, per 1,000 mid-year total population of the given geographical area during the same year. The crude birth rate is called "crude" because it does not take into account age or sex differences among the population. However, the indicator is widely used to indicate the overall effect of fertility and that it could be estimated easily with minimum data requirements. When combined with the crude death rate and net migration, crude birth rates can tell us how much our population is increasing or decreasing. They can also help with planning and resource allocation by providing important information such as how many infants will require vaccinations and child health care, how many will be entering school in the coming years, or how many adults will be entering the workforce. The calculation of crude birth rate requires having both the number of live births within

a specific period and the total population located in the area under consideration for a period under consideration. Usually, the mid-year population is used as an estimate of the total population. CRVS system-generated data show adjusted CBR of 27.5% in 2023 (24.7% if unadjusted) implying 27.5 live births per 1,000 populations annually, regardless of age and sex differentials. More details are displayed below in Table 11.

Table 11: Unadjusted and Adjusted crude birth rate, 2019-2023

Year	Unadjusted		Adjusted	
	Total registered live births	CBR (Per 1,000 population)	Total estimated live births	CBR (Per 1,000 population)
2023	334,018	24.7	370964	27.5
2022	341,122	25.8	367,312	27.7
2021	310,249	23.9	368,251	28.4
2020	312,678	24.7	364,427	28.8
2019	313,398	25.3	360,228	28.4

Source: CRVS system & 5th RPHC, 2023

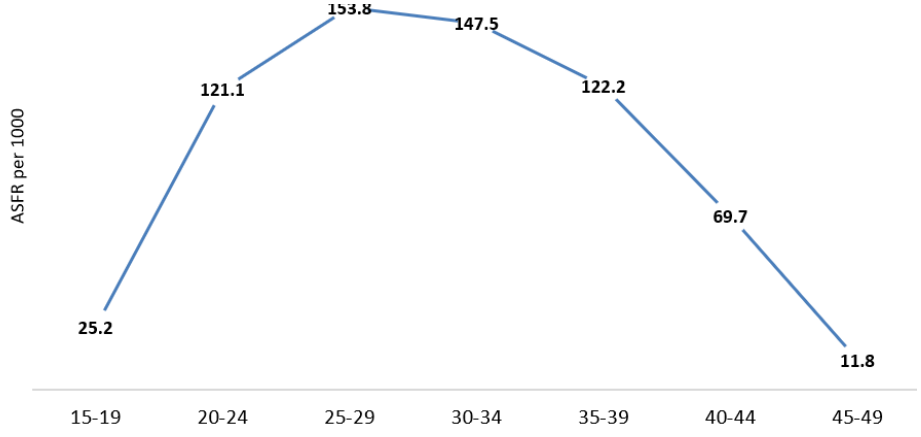
4.9.3. General fertility rate

The general fertility rate is the number of live births for a specific area during a specified period divided by the female population aged between 15 and 49 years (usually estimated at mid-year) for the same area and period multiplied by 1,000. CRVS system-generated data show that the adjusted value of GFR was 104.9 in 2023, something implying 104.9 live births for every 1,000 women in childbearing age (15-49) annually.

4.9.4. Age-specific birth rate (ASFR)

The age-specific birth rate is the number of live births to women in a specific age group for a specific area during a specified period divided by the total population of women in the same age group for that area and period multiplied by 1,000. As shown in figure 14, ASFRs is high to mothers aged 25-39 at the national level. Shares of births occurring from females aged under 15 and females aged 50 and above are relatively small.

Figure 14: Age Specific Fertility Rate per 1,000 women



Note: Female population data were sourced from the 5th RPHC projections, 2023

4.9.5. Total fertility rate (TFR)

TFR represents the number of children who would be born per woman (or per 1,000 women) if she/they were to pass through the childbearing years bearing children according to a current schedule of age-specific fertility rates. The computation of TFR is the sum of the age-specific birth rates (usually for 5-year age groups between 15 and 49) for female residents of a specific area during a specified period multiplied by 5 (where the age-specific birth rates are 5-year birth rates). It can also be calculated as the sum of a 1-year age-specific birth rate for females aged between 15 and 49. TFR is also interpreted as the average number of children a hypothetical cohort of women would have at the end of their reproductive period during their lifetime if they were subject to experiencing the ASFRs of a given period. CRVS system generated data (adjusted) in 2023, show TFR equivalent to 3.6. Details on computation of TFR are displayed in Table 2.

Chapter

5

Deaths Statistics

5.1. Background

Rwanda adopted the United Nations Sustainable Development Goals (SDGs) that are also founded on leaving no one behind in health. Goal three of the SDGs aims to improve maternal and child health outcomes, end infectious diseases, reduce premature mortality from non-communicable diseases and injuries and ensure universal health coverage by 2030. The Africa Agenda 2063 envisages a continent characterized by universal access to healthcare, zero communicable deaths, zero maternal deaths, zero child deaths and countries capable of mobilizing domestic funding for preventing, detecting and responding to public health threats such as non-communicable diseases, health needs of the youth population and malnutrition by 2063.

Information on the number of deaths and their causes is of invaluable role in evaluating and tracking progress towards the national, regional and international goals. Information on the mortality levels, trends and differentials is important for the identification of emerging diseases and conditions, formulation of evidence-based health policies and tracking of the population health status.

Mortality data are generated from the civil registration system that permits the production of mortality statistics continuously and contribute to the understanding of the burden of diseases at national and sub national levels.

This vital statistics report contains registration of both community deaths and institutional deaths registered at various registration offices, and the cause of death that were reported in the CRVS system. Due to under reporting of deaths, mortality statistics produced in this report must be used with caution. Only 32,853 deaths were registered in the civil registration system, the sole source of vital statistics data, and this figure was utilized for the analysis of mortality data in this report. It is important to mention that Health facility deaths are electronically notified and registered in presence of declarant at the place of occurrence. Since August 2020, all health facilities adopted the use of a digital registration system known as National Centralized and Integrated CRVS system (NCI-CRVS) for official registration of births and deaths at place of occurrence to improve registration completeness and service delivery.

5.2. Death registration

5.2.1. Completeness of death registration

As noted in section 3.3 of this report, knowing about the completeness of death registration is essential for several reasons. From a civil registration perspective, knowing completeness of death registration is important for improvement of the health system. From a statistical perspective, estimating registration completeness enables adjustments to be made when calculating mortality rates and computing demographic indicators such as population projections, age-and-sex-specific

mortality rates and population dynamics.

As shown in Table 14, death registration completeness is 41.8% in 2023 at national level. The computation is based on the number of deaths registered (32,853 deaths, excluding delayed registrations) divided by expected deaths from the recent Rwanda population and housing census projection which gives a total of 78,561 deaths expected to have occurred in 2023. Given the relatively low death registration completeness, it would be close to worthless to use registration data directly to calculate key mortality indicators and therefore, adjustments were made to estimate the key indicators. Adjustment for incomplete registration is a common practice and a guidance from the UN Principles and Recommendations for a Vital Statistics System (2014) as described in section 3.4. Table 12 gives a summary of registered deaths and adjusted values for key mortality indicators. For further information on adjusted mortality indicators see chapter 3; section 3.4.

Table 12: Summary mortality statistics, 2019 to 2023

Indicator	2019	2020	2021	2022	2023[3]
Registered deaths (number)	23,791	22,634	19,797	25,567	32,853
Male	13,188	12,659	10,792	14,041	17,996
Female	10,603	9,975	9,005	11,495	14,857
Expected number of deaths (number)	75,712	75,624	75,653	82,242	78,561
Male	38,760	38,803	38,774	39,291	38,213
Female	36,952	36,821	36,879	42,950	40,348
Death registration completeness (%)	31.4	29.9	26.2	31.1	41.8
Male	34.0	32.6	27.8	35.7	47.1
Female	28.7	27.1	24.4	26.8	36.8
Crude death rate per 1,000 (Adjusted)	5.9	6	5.8	5.8	5.8
Under-5 mortality rate per 1,000 live births (Adjusted)	38.5	37.1	39.8	43.9	37.9
Sex ratio at death	124	124.1	119.8	122.1	121.1

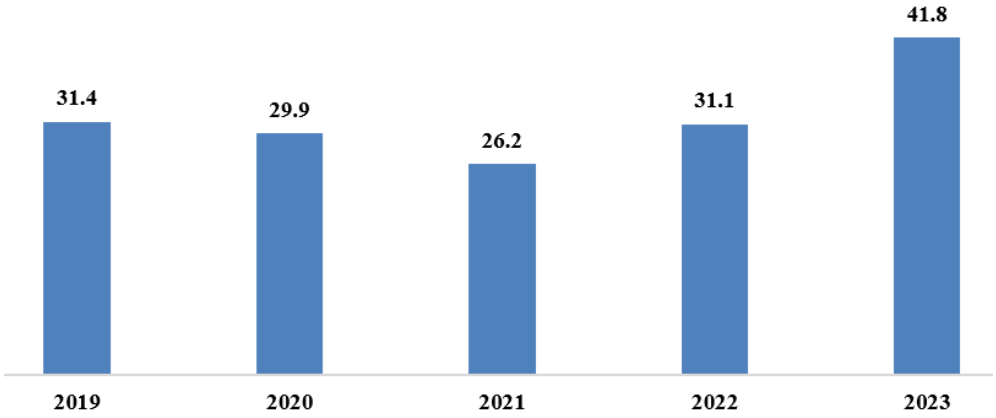
Source: CRVS system and 5th PHC (NISR), 2023

5.2.2. Completeness of death registration

The current report considers officially registered deaths (numerator) that are compared with the number of expected deaths sourced from the 5th population and housing census projections (denominator) to obtain the completeness. The completeness of death registration was found to be 41.8% at national, significantly up 31.1% in 2022. Figure 15 shows trends of death registration completeness rates since 2019.

[3]The completeness rate is obtained by dividing actual number of registered events by the number of expected events. Expected events are usually sourced from population and housing census results.

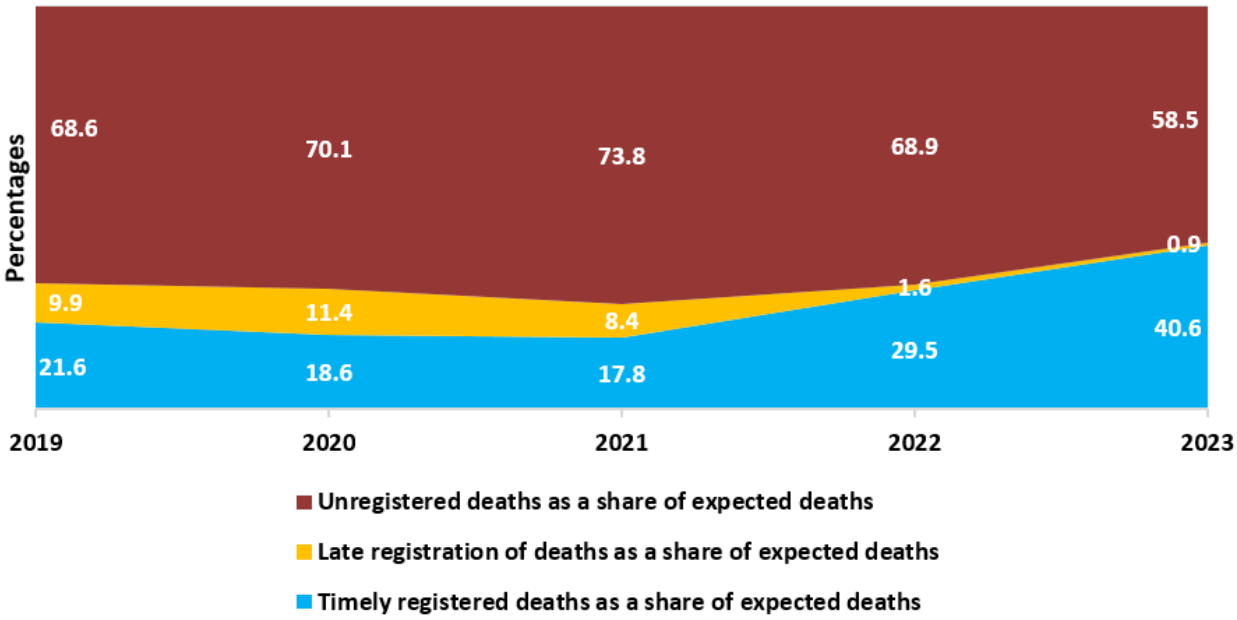
Figure 15: Change in death registration completeness rate (%), 2019-2023



Source: CRVS system and population and housing census Projections, 2023

Above figure 15 shows overall completeness rates considering both timely and late registrations of birth. Effort is still required to achieve the SDGs 17.19.2.b "Proportion of countries that have achieved 100 per cent birth registration and 80 per cent death registration". Figure 16 below shows areas to focus on to achieve the 80% death registration rate, a target set under SDGs.

Figure 16: Registered and unregistered deaths as shares (%) of expected deaths, 2023

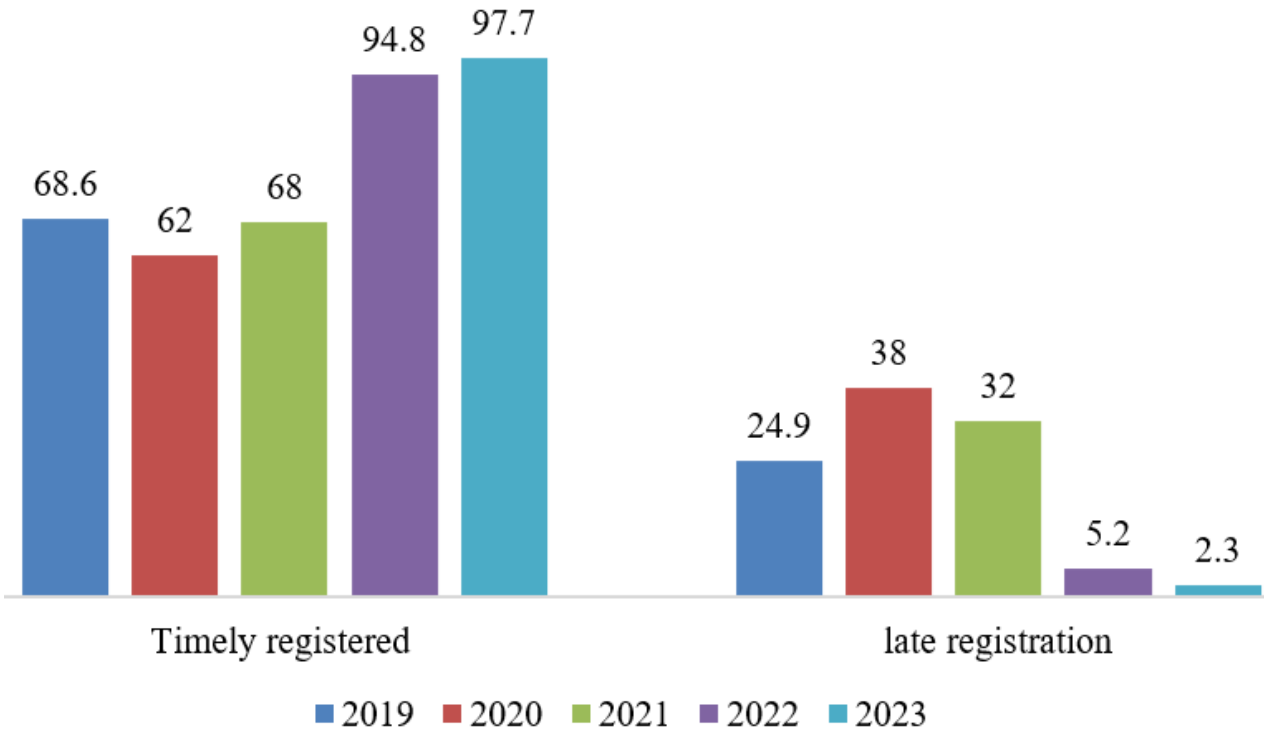


Source: CRVS system, 2023

5.2.3. Timeliness of death registration

By the law currently in force, death registration must be done within 30 days of occurrence, and this was timely registration in this report. As the current report considers deaths whose year of occurrence is 2023, delayed registrations of deaths are not included in this section. For reporting purposes, late registration was a death registered after 30 days but before exceeding one year. Figure 17 below shows that 97.7% of the total number of deaths registered in 2023 were registered within 30 days of occurrence (timely registration). The same figure indicates an increase in the proportion of timely registered deaths by 2.9 percentage points, from 94.8% in 2022 to 97.7% in 2023.

Figure 17: Proportion of timely registered deaths in %, 2019 to 2023



Source: CRVS system, 2023

5.2.4. Registered Deaths by place of usual residence

Table 13 shows the numbers of deaths registered in civil registration system by province of usual residence in comparison with estimated total number of populations residing in that province. The highest numbers of registered deaths are observed in the Eastern Province followed by Southern Province whereas the lowest were found in the City of Kigali. Given the low completeness of death registration, information regarding the numbers of registered deaths is to be used with caution as many efforts are still being invested to raise up the completeness.

Table 13: Registered deaths by provinces with estimated population and by sex of decedent

Province of residence	Estimated Populations	Number of registered deaths			Sex ratio at death
		Both sexes	Female	Male	
Rwanda	13,499,066	32,853	14,857	17,996	121.1
Eastern Province	3,631,129	6,135	2,850	3,285	115.3
Kigali city	1,778,860	7,818	3,532	4,286	121.3
Northern Province	2,077,406	8,271	3,586	4,685	130.6
Southern Province	3,059,990	6,819	3,172	3,647	115.0
Western Province	2,951,749	3,509	1,610	1,899	118.0
Not sated		301	107	194	-

Source: CRVS system, 2023

5.2.5. Registered deaths by place of occurrence and by residence district

The CRVS system generated data show a high proportion of community deaths registered (17,996) compared to health facility deaths (14,857) in 2023. The share of community deaths occupies 53.8% of the total deaths registered in 2023 while health facilities' deaths represent 46.2%. This a result of decentralizing community death registration to cell level via NCI-CRVS that still need more effort to increase the completeness by strengthening operationalization of community deaths registration at cells. The disaggregation of registered deaths based on place of occurrence and place of residence shows that in Gasabo district there are more deaths recorded at health facilities (1,035) while a great number of community deaths is observed in Gicumbi district (885). Table 14 gives details.

Table 14: Distribution of registered deaths by place of occurrence and residence districts.

District name	Counts			Percent distribution		
	Community	Health facility	Total	Community	Health facility	Total
Rwanda	17,677	15,176	32,853	53.8	46.2	100.0
Bugesera	694	623	1,305	53.2	47.7	100.0
Burera	656	392	1,040	63.1	37.7	100.0
Gakenke	738	514	1,242	59.5	41.4	100.0
Gasabo	649	1,051	1,682	38.6	62.5	100.0
Gatsibo	665	558	1,212	54.9	46.0	100.0
Gicumbi	888	538	1,415	62.8	38.1	100.0
Gisagara	364	423	779	46.8	54.2	100.0
Huye	546	423	960	56.9	44.0	100.0
Kamonyi	689	524	1,203	57.3	43.6	100.0
Karongi	416	360	769	54.1	46.8	100.0
Kayonza	551	488	1,029	53.5	47.4	100.0
Kicukiro	244	664	897	27.2	74.1	100.0
Kirehe	641	450	1,082	59.3	41.6	100.0
Muhanga	769	435	1,194	64.4	36.4	100.0
Musanze	766	623	1,376	55.6	45.3	100.0
Ngoma	571	409	972	58.7	42.1	100.0
Ngororero	478	326	797	59.9	40.9	100.0

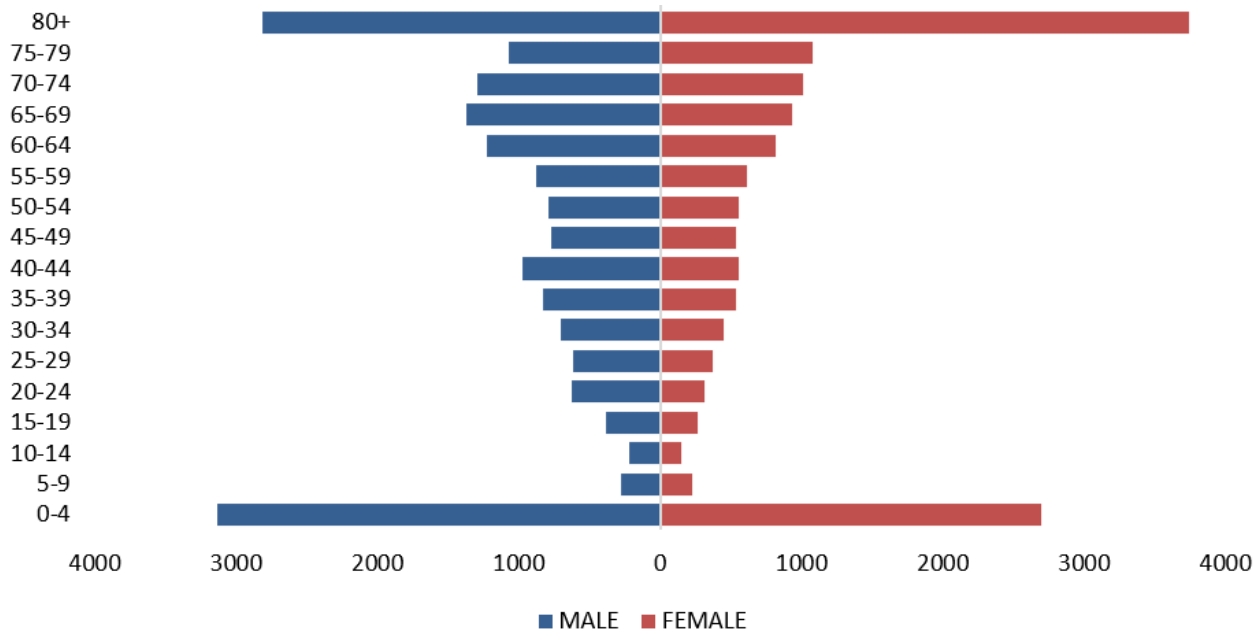
District name	Counts			Percent distribution		
	Community	Health facility	Total	Community	Health facility	Total
Nyabihu	550	332	875	62.8	38.0	100.0
Nyagatare	713	854	1,552	46.0	55.0	100.0
Nyamagabe	565	431	987	57.2	43.6	100.0
Nyamasheke	698	409	1,099	63.5	37.3	100.0
Nyanza	392	370	755	52.0	49.0	100.0
Nyarugenge	308	633	930	33.1	68.1	100.0
Nyaruguru	693	364	1,049	66.1	34.7	100.0
Rubavu	764	715	1,465	52.1	48.8	100.0
Ruhango	457	443	891	51.2	49.7	100.0
Rulindo	671	399	1,062	63.2	37.6	100.0
Rusizi	502	492	984	51.0	50.0	100.0
Rutsiro	457	381	830	55.0	45.9	100.0
Rwamagana	581	549	1,119	51.9	49.0	100.0

Source: CRVS system, 2023

5.2.6. Deaths registered by age and sex

Figure 18 shows the distribution of registered deaths (counts) by sex and age groups. Given the great proportion of young children in Rwanda's population and high risk of death at early ages of birth, it is not surprising that most deaths occur within the under 5-year-old age group. The number of registered deaths is high among males compared to females across all age groups except at too old ages (80+). It is important also to mention here that a high number of infant male deaths compared to female deaths was observed. Despite low completeness of reporting, the figures indicated here below portray the mortality structure with respect to age and sex.

Figure 18: Age-Sex structure of all registered deaths (counts), 2023

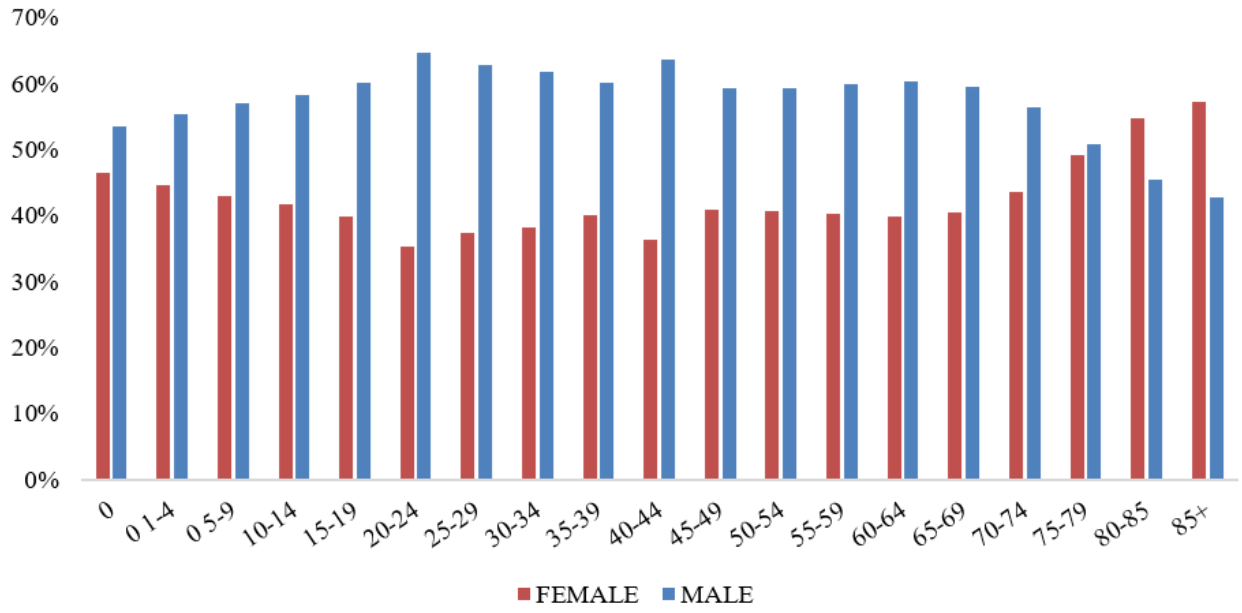


Source: CRVS system, 2023

5.2.6 Age-sex distribution of registered deaths by place of residence

The patterns of age-sex distribution across age groups differ slightly in urban areas compared to rural areas as displayed on figure 19 and 20. The small difference is observed at old ages where the share of males' deaths is smaller than females' deaths in rural areas.

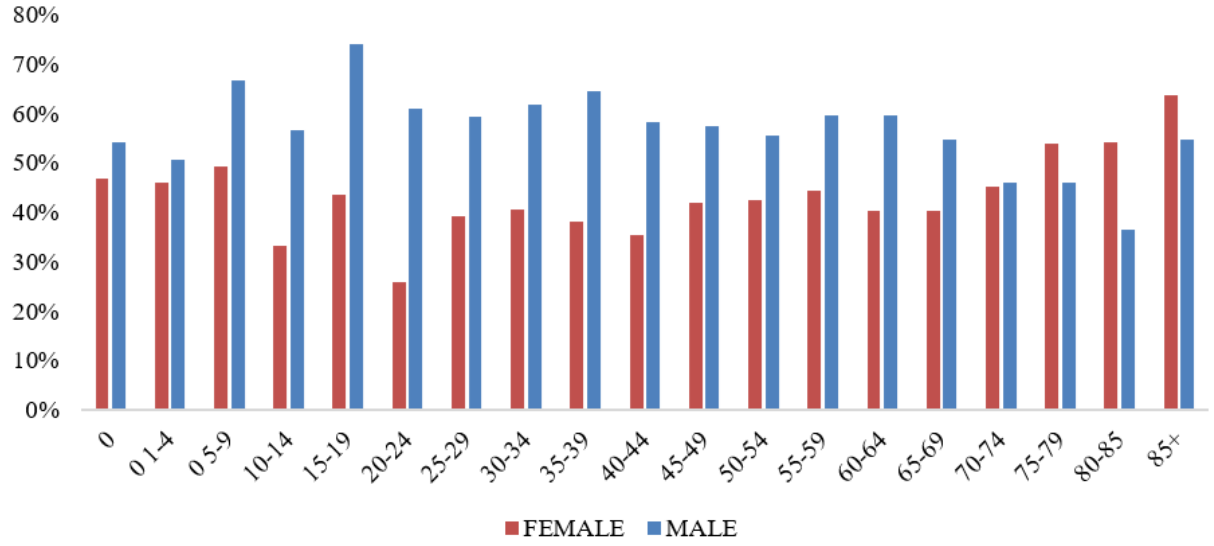
Figure 19: Age-sex distribution of registered deaths in rural areas



Source: CRVS system, 2023

The same graph in urban areas shows almost the same distribution as in rural areas except the difference observed in the very old age where in urban areas females' deaths are higher than males deaths.

Figure 20: Age-sex distribution of registered deaths in urban areas

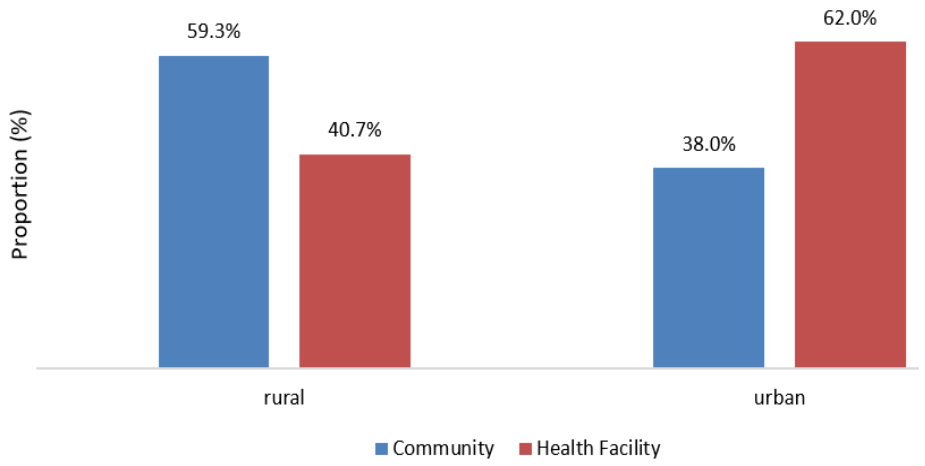


Source: CRVS system, 2023

5.2.8. Registered deaths by place of death and place of usual residence

The CRVS system generated data in 2023 that show among registered deaths, a high proportion occurred at community level in Rural areas (59.3%) compared to facilities deaths (40.7%) while in urban areas, health facilities deaths represent 62% compared to the 38% at community level. This sis a result of decentralizing death registration to health facilities via NCI-CRVS and calls for more effort to cater for community death registration completeness by strengthening operationalization of community deaths registration at cells. Figure 21 shows details.

Figure 21: Deaths registered by place of residence (urban and rural) and place of occurrence.



Source: CRVS system, 2023

Chapter

6

Cause of Deaths Statistics

6.1. Background

Prior to October 2017, medical doctors in Rwanda were not trained on certifying causes of death according to international standards. The 2016 World Health Organization's (WHO) International Medical Certificate of Cause of Death (MCCoD) was not used in health facilities and the quality of cause of death data was poor with many deaths attributed to ill-defined causes which are of little utility for public health decision making.

In response, the Ministry of Health issued a ministerial order to all health facilities requesting them to correctly certify and report deaths using the MCCoD form, in line with the International Classification of Diseases (ICD), 10th Revision. Since 1st January 2018, this has been the standard reporting of diseases and health conditions that enables the comparison and sharing of health and mortality information. The WHO recommended the countries to use the standardized tools in District Health Information System (DHIS2) mortality module that has been linked to the CRVS system for better reporting and comparability with other mortality statistics.

Recording cause of death is the subset of mortality module in the civil registration system in Rwanda. According to the amended law N° 001/2020 of 02/02/2020 amending law N° 32/2016 governing persons and family, the registration of death is done at sector office, at health facility, at Cell administration level and other designated registration points upon presentation of death notification form known as MCCoD. The National Centralized and Integrated Civil Registration and Vital Statistics (NCI-CRVS) system is used to collect, transmit and store death and causes of death information to be used in the routine production of annual vital statistics.

The use of the ICD coding facilitates storage, retrieval and analysis of data and enables the systematic and standardized recording, analysis, interpretation comparison and sharing of morbidity and mortality data within a population and across countries.

ICD-10 causes of death are organized into 21 chapters covering three broad groups of causes:

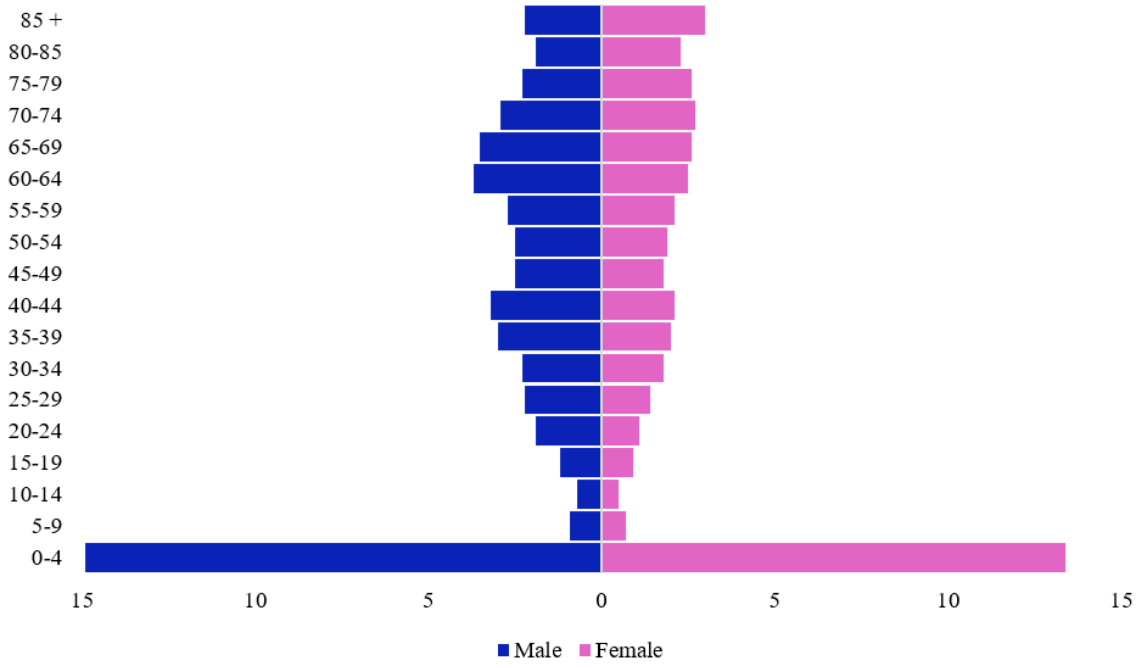
- Group 1: Infectious and parasitic diseases (i.e. tuberculosis, pneumonia, diarrhoea, malaria, measles); maternal/perinatal causes (i.e. maternal haemorrhage, birth trauma); and malnutrition.
- Group 2: Non communicable diseases (i.e. cancer, diabetes, heart disease, stroke); and mental health conditions (i.e. schizophrenia).
- Group 3: Injuries (i.e. road accidents, homicide, and suicide).

6.2. Medical certification of cause of death

To improve the quality of causes of death statistics in Rwanda, the government initiated two major interventions namely: the integration of Medical Certification of Causes of Death (MCCoD) and International Classification of Disease (ICD 10) 2016 Edition into Health care settings to determine underlying causes of death that occur in Health facilities; and the introduction of verbal autopsy to gain a better understanding of the patterns of causes of death when people die out side health facility where there is no physician to certify death (see section 6.3).

In this report, cause-of-death statistics are compiled from the civil registration system that uses the ICD-10 full list to record the underlying cause of death (UCOD) as reported by trained physicians on medical certification of causes of death (MCCoD) for deaths occurring in Health facilities. Currently, all hospitals and clinics certify causes of death using the standardized MCCoD form and statistical coding according to the ICD-10 mortality coding system. A total of 15,176 deaths were reported by relevant health facilities in CRVS system, of which 14,166 deaths were certified using standardized MCCoD form. Essentially, each death ideally requires a medically determined cause of death. However, deaths recorded in healthcare centers often lack medical certification cause of death due to insufficient medical doctors available to certify deaths in accordance with WHO guidelines. However, when the quality of medical certification is imperfect, some deaths will be assigned to ill-defined causes of death of limited value for public health purposes (sometimes designated as “unusable” or “garbage” codes). For this report, ANACoD version 3.0 (Analyzing mortality levels and causes of death) tool were used to perform a comprehensive and systematic analysis of mortality and cause of death data. Figure 22 shows age sex distribution of the proportions (%) death recorded at health facilities where deaths among children aged under 5 occupy the greatest shares for both females and males.

Figure 22: Age sex distribution (%) of deaths certified by health facilities using MCCoD

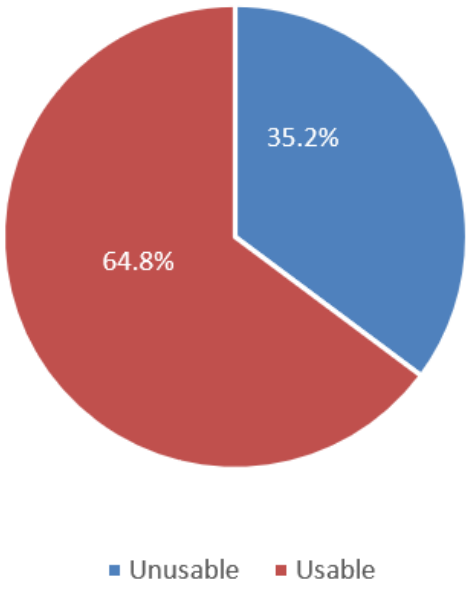


Source: CRVS system, 2023

6.2.1. Data quality and usability

The ongoing need for quality enhancements remains evident in the field of medical certification of the cause of death, in accordance with WHO standards. It is important to continue the capacity building of certifiers using WHO standardized tools and quarterly MCCoD quality assessment on individual death certificate using the death certificate quality assessment tool to improve the quality of causes of death reported. To improve the quality of causes of death, the Ministry of health, Rwanda Biomedical centre, Rwanda Medical and Dental Council and other concerned stakeholders need to join hands to reinforce strategic measures tailored to quality improvement including MCCoD eLearning course for in-service medical doctors as a part of Continuous Professional Development (CPD) credits required for annual licensure.

Figure 23: Distribution of institutional cause of death by usability, 2023.



Source: Data from CRVS system, 2023

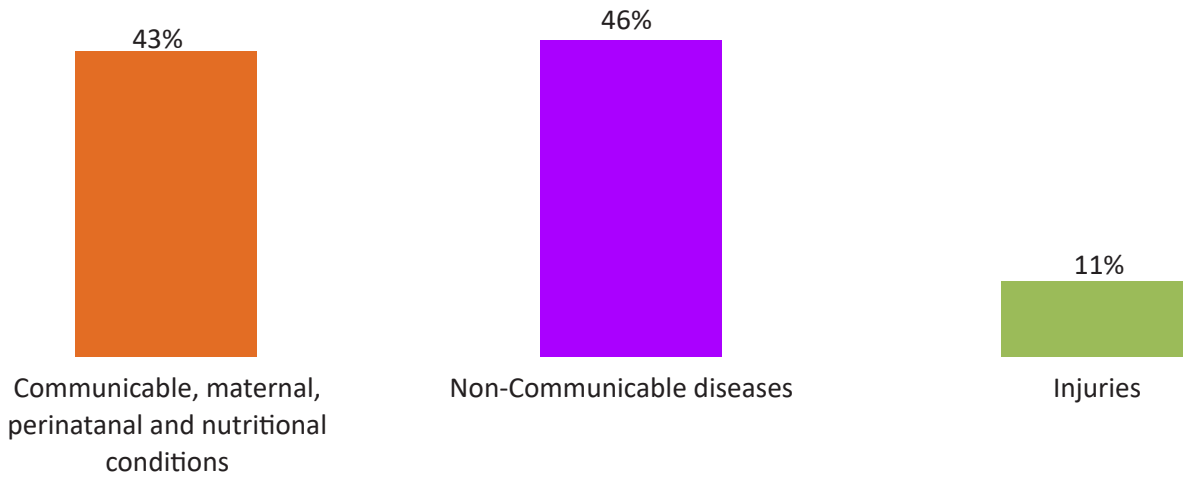
In 2020, WHO launched ANACoD3 (The Analysing Mortality and Causes of Death 3) tool for facilitating the analysis of mortality data. ANACoD3 is an online tool for monitoring quality and trends using cause-of-death data. It helps you to perform a comprehensive and systematic analysis of mortality and cause-of-death data. The tool automatically tabulates data and presents basic mortality measures in tables and figures. It highlights potential inconsistencies and errors in the data and estimates the completeness of reporting.

ANACoD3 tool generates indicators that reveal potential data-quality issues, as well as an array of comparable indicators including sex- and age-specific mortality rates, crude death rates, life expectancy at birth, causes of death distributed by global burden of disease categories, the top 20 causes of death, and the percentage of ill-defined causes of death etc. Using this tool for the 2023 CRVS data, it is found that the proportion of causes of death assigned to usable causes of death decreased from 67% in 2022 to 64.8% in 2023, and ill-defined causes of death increased from 33% in 2022 to 35.2% in 2023 (see Figure 23).

6.2.2. Distribution of usable death causes by three broad groups

Considering the distribution of usable codes in three broad groups as shown in figure 24, the causes of death are dominated by non-communicable diseases with 46%, up from 45% in 2022, followed by communicable diseases representing 43% in 2023, down from 46% in 2022. The share of injuries and external causes stands at 11% in 2023, up from 8% in 2022.

Figure 24: Distribution of usable death causes at health facilities by three main Broad Groups

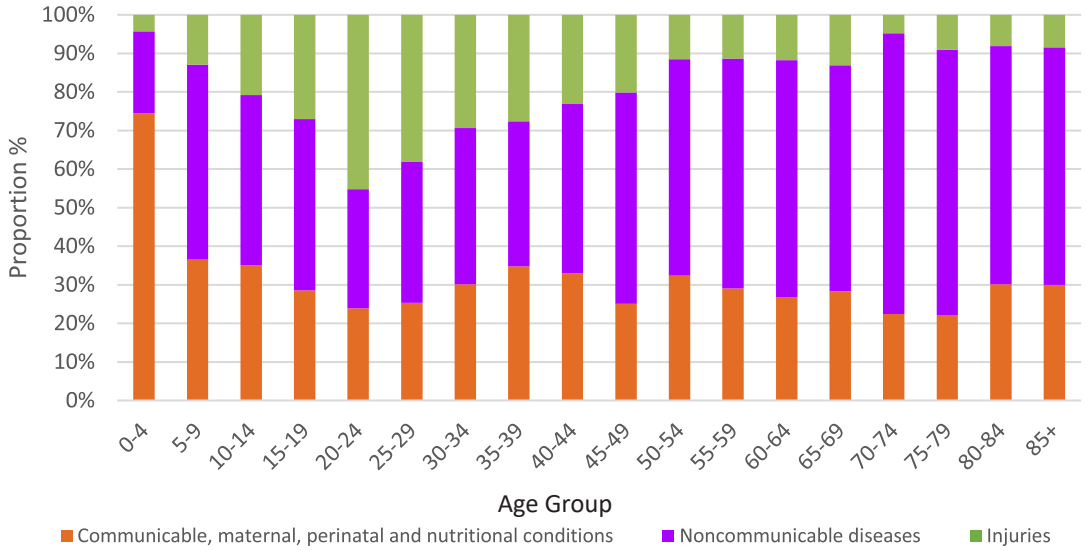


Source: CRVS system, 2023

6.2.3 Deaths with defined causes in three broad groups by age and sex

Mortality attributed to the 3 broad groups was tracked across various age categories for both males and females. The breakdown of cause of death within the three main broad groups reveals a trend among males where the proportion of deaths due to communicable diseases is decreasing while those from non-communicable diseases are rising across all age categories. Additionally, external causes and injuries were notably prevalent among males aged 20 to 29 compared to other groups.

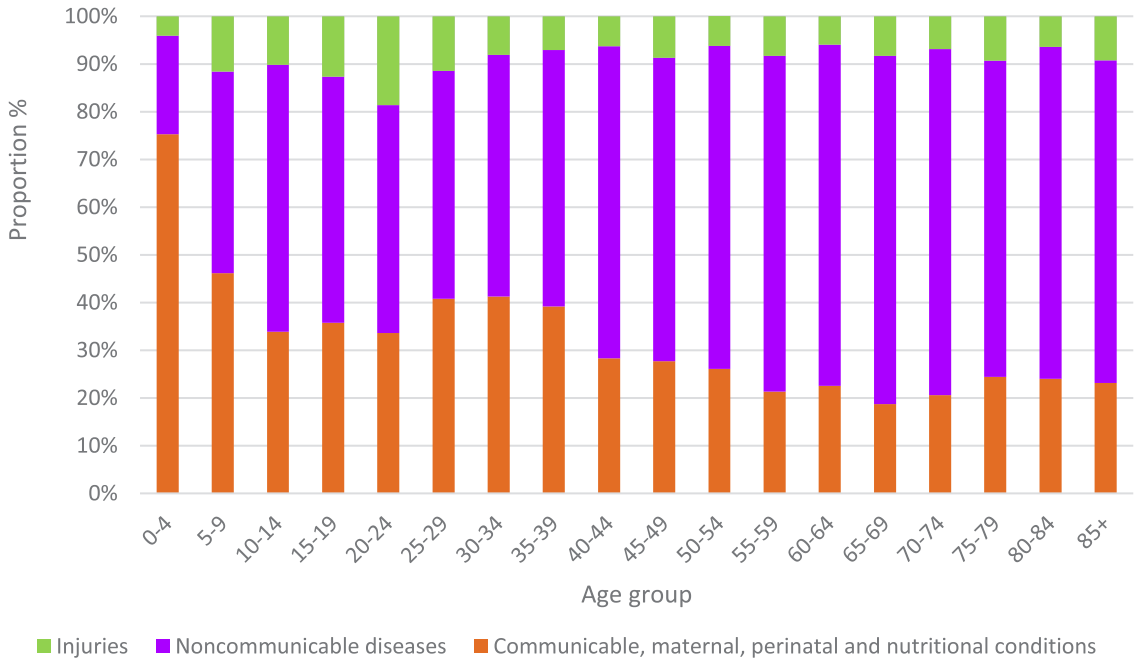
Figure 25: Death causes recorded by health facilities in broad groups by age of Males



Source: Data from CRVS system, 2023

Among females as shown in Figure 26; the group of communicable diseases, perinatal and nutritional conditions is high among females aged under 5 and low thereafter. Non communicable diseases are remarkably high among females aged 40 and above while external causes are more frequent among females aged 20-24.

Figure 26: Death causes recorded by health facilities in broad groups by age of females



Source: Data from CRVS system, 2023

Mortality data in 2023 also show that the leading cause of death for health facility data both sexes and all ages combined were prematurity and low birth weight (10%), followed by birth asphyxia and birth trauma (4%), cerebrovascular diseases (3%) and others respectively. Details on top leading cause of death at health facilities can be found in annex 2 and 3.

6.3. Verbal autopsy for deaths occurring outside health facilities.

Understanding the underlying causes of mortality can provide valuable insights into lifestyle patterns, enabling the enhancement of healthcare services and the reduction of preventable deaths across the country. This understanding facilitates an effective response to evolving epidemiological conditions.

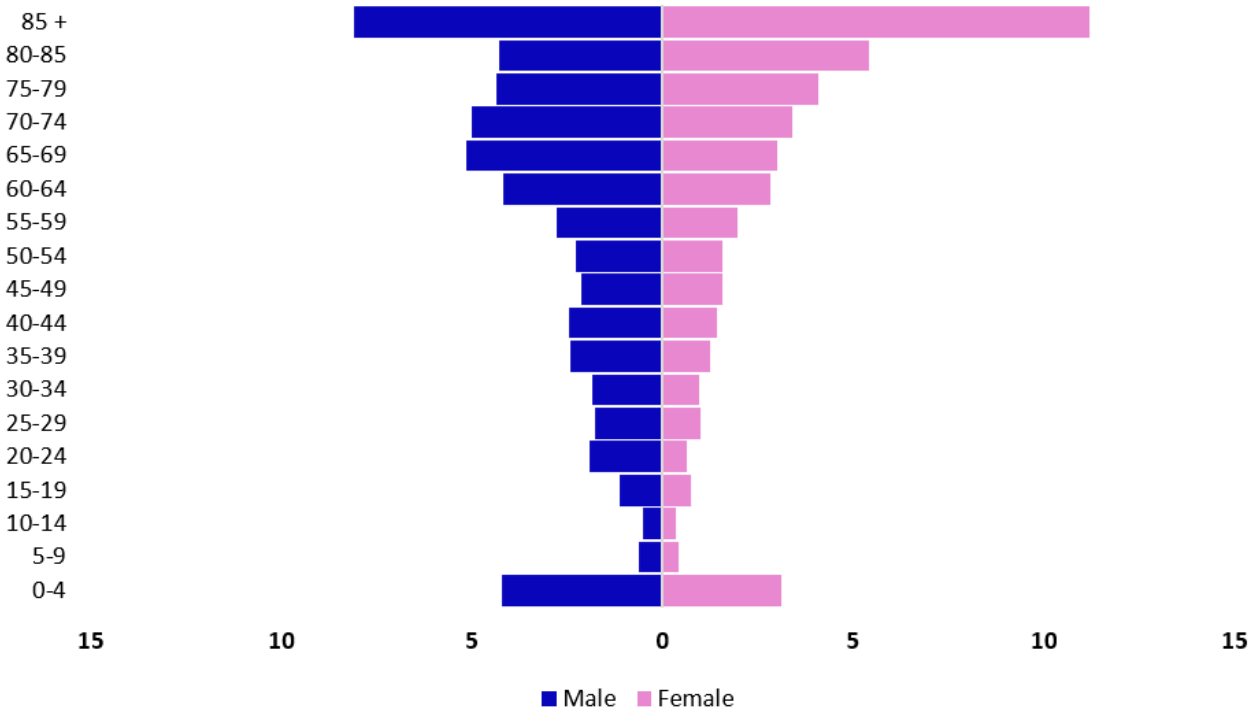
The causes of death from the community settings in the report is the first publication since the introduction of the collection of mortality data from communities using Verbal Autopsy (VA) since the national roll out of verbal autopsy in June 2022. VA is a WHO-recommended method for collecting mortality data and providing a cause of death for the deaths that have not been medically certified by medical doctors. VA interviews are conducted by trained Cell executive secretaries from the Cell level using WHO 2026 VA questionnaire with a series of questions that will later enable algorithms to provide a cause of death for evidence-based decisions.

Recognizing that a significant portion of deaths (approximately 70%) occur outside of healthcare

facilities, a regulatory measure has been implemented. This regulation permits Cell Executive Secretaries to register community deaths and perform verbal autopsies for cases occurring outside of healthcare facilities where medical professionals are unavailable to certify deaths using MCCoD form. The integration of verbal autopsy with the civil registration system and national identification system has resulted in notable enhancements in both the quality and quantity of verbal autopsies conducted at the national level. The incremental national scale-up of verbal autopsies commenced in June 2022 following the training of 1,510 Cell executive secretaries, and in December 2022, additional 131 cell executive secretaries were trained to conduct verbal autopsies for community deaths and were equipped with android tablets to facilitate the process. In March 2023, 638 more Cell executive secretaries were trained and consequently, by the end of 2023, a total of 15,406 verbal autopsies were conducted.

The verbal autopsy results were analyzed using computerized diagnostic algorithms, presenting a summary of mortality information from the community narrating the leading causes of mortality, major and specific causes of mortality, neonatal causes of mortality, external causes of mortality (injuries), and principal leading causes of mortality disaggregated by gender and other subcategories. Figure 27 shows age sex structure of community deaths for which verbal autopsy was conducted, where females are more than males at old ages while at low age range, males are more than females.

Figure 27: Age sex distribution (%) of community deaths recorded in 2023

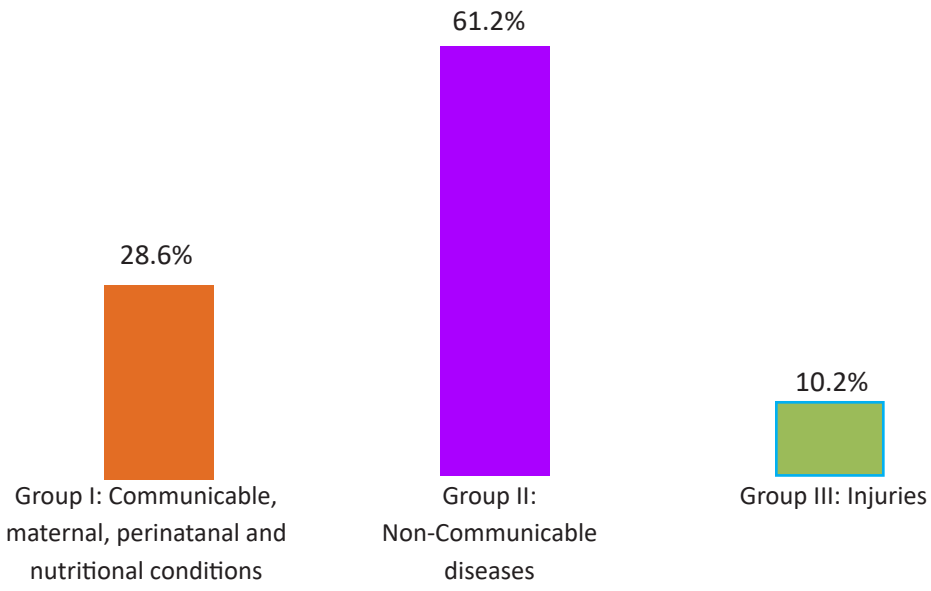


Source: CRVS system, 2023

The distribution of community cause of deaths following major broad GBD groups shows that among community causes of death captured through verbal autopsy shows that more than a half of community deaths registered were due to non-communicable diseases representing 61.2% of total community causes of deaths registered. The shares of communicable diseases and injuries are relatively low (28.6% and 10.2%, respectively). Details on broad group compositions, amount of

usable and unusable death causes and top list of leading cause of community deaths are found in the annex.

Figure 28: Distribution of usable community causes of death by broad groups



The community death data provides the leading individual causes of death for all ages. Annexes 4 and 5 display the top 20 leading causes of death contributing to the burden of disease in community ranked by their cause-specific mortality fractions. This analysis of community deaths was performed through computerized diagnostic algorithms used for analyzing verbal autopsy data.

Chapter 7

Marriage Statistics

This section contains details on marriages officially registered from January to December 2023, sourced from the NCI-CRVS system. Apart from legal marriages, other forms of consensual unions are not registered in Rwandan CRVS system and are therefore not included in this section. Due to ongoing revision of IECMS, statistics on divorces are not part of this report.

7.1. Legal marriages registered

Marriage is the act, ceremony, and process by which the legal relationship between spouses is formed. The legality of the union may be established by civil, religious, or other means recognized by the laws of each country. According to the current law in force in Rwanda, marriage is officiated by a civil registrar at a sector office, district office, or Rwandan embassy.

Data sourced from the NCI-CRVS shows a significant increase in the number of marriages registered in 2023 compared to 2022, rising from 35,529 to 57,880 marriages, marking a 62.9% increase. This abnormal changes in marriages registered can likely be attributed to the sensitization of couples living in consensual unions to officialize their marriages. The comparison of registered marriages with the resident population size gives a crude marriage rate equivalent to 4.3%. Further details are provided in Table 15.

Table 15: Registered marriages, 2019-2023

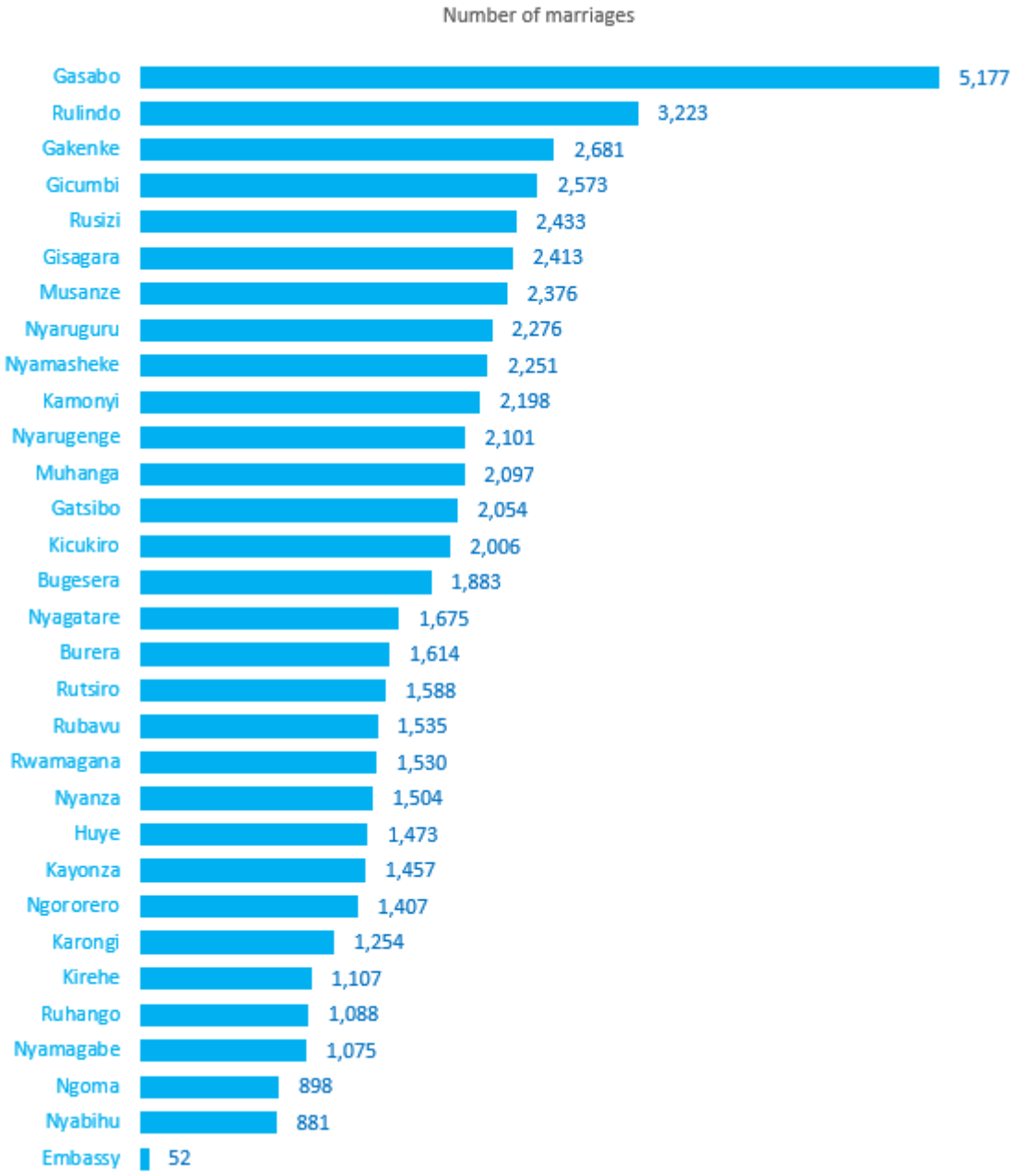
Year	Number of marriages	Population size	Crude marriage rate (/000)
2019	48,526	12,374,398	3.9
2020	30,859	12,663,116	2.4
2021	33,809	12,955,763	2.6
2022	35,529	13,246,394	2.7
2023	57,880	13,499,066	4.3

Source: data from CRVS system, 2023.

7.1.1. Marriages registered by location of registration office

The NCI-CRVS system generated data show a total of 57,880 marriages registered in 2023. The same data reveal high numbers of marriages celebrated in Gasabo (5,177) and Rulindo (3,223) districts, while low numbers were observed in Nyabihu district (881) and Embassy (52).

Figure 29: Registered Marriages by location of registration office

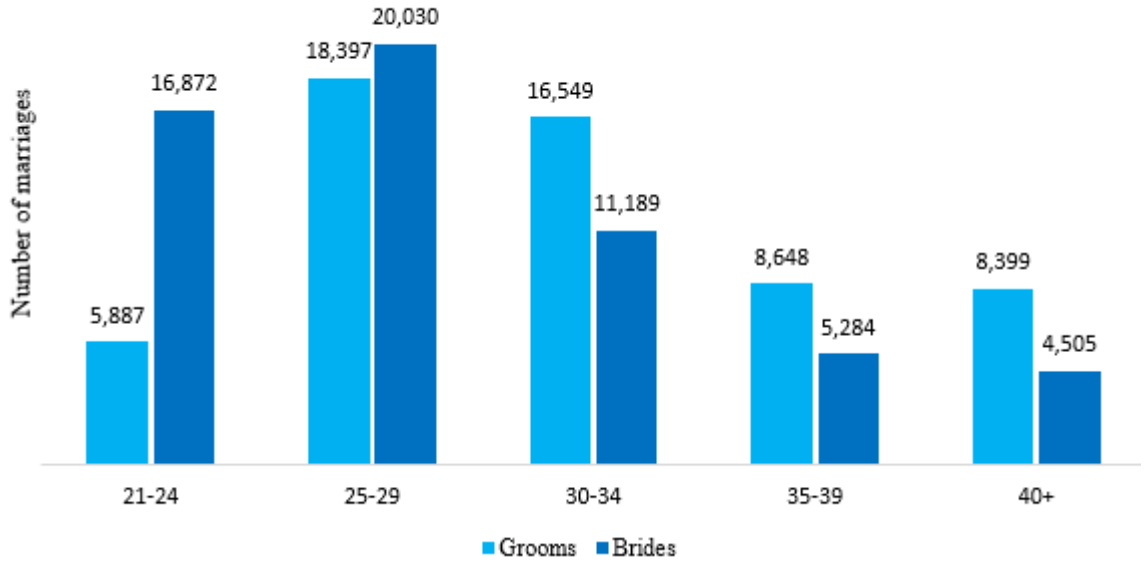


Source: CRVS system, 2023

7.1.2. Marriages registered by age of bride and groom

CRVS web-based system-generated data show variations in marriage registrations across ages of brides and grooms at marriage date. In the age interval of 21–29 years, the number of brides is higher than the number of grooms, while data show a reversed situation at age of 30 and above. The following Figure 30 gives the picture.

Figure 30: Marriages registered in 2023 by age of bride and groom



Source: Data from CRVS system, 2023.

The CRVS system-generated data were also used to correlate the ages of brides and grooms for depicting age differences among married partners. The resulting matrix shows that the age range with the highest number of marriages for both females and males is the 25-29 age group. Additionally, there are high numbers of marriages between males aged 25-29 and females aged 21-24, and between males aged 30-34 and females aged 25-29. Generally, there are high numbers of marriages among males aged 25-34 and females aged 21-29. Generally, the number of marriages is high among females compared to men at less 30 years old while above 30 years old, the number of marriages becomes high among males compared to females.

Table 16: Groom and Bride age relationship at marriage date

	Age of brides						
	Age	21-24	25-29	30-34	35-39	40+	Total
Age of grooms	21-24	4,061	1,414	311	79	22	5,887
	25-29	8,113	7,957	1,882	350	95	18,397
	30-34	3,618	7,427	4,336	972	196	16,549
	35-39	838	2,345	3,099	1,832	534	8,648
	40+	242	887	1,561	2,051	3,658	8,399
	Total	16,872	20,030	11,189	5,284	4,505	57,880

Source: Data from CRVS system, 2023.

7.1.3. Registered Marriages by matrimonial regime

By the law currently in force, there are three types of matrimonial regimes in Rwanda. The ***community of property***: a contract by which the spouses opt for marriage settlement based onjoint ownership of all their property-movable as well as immovable and their present and theirfuture charges; it is also a primary-default-regime. The ***limited community of property***: a contract by which spouses agree to pool their respective properties owned on the day of marriage celebration, to constitute the basis of the acquests as well as the property acquired during marriage by a common or separate activity, donation, legacy or succession. The ***separation of property*** which is a contract by which spouses agree to contribute to the expensesof the household in proportion to their respective abilities while retaining the right of enjoyment, administration, and free disposal of their personal property.

The CRVS web-based system and NCI-CRVS-generated data indicate that "community of property" was the chosen matrimonial regime for the majority of couples in Rwanda, constituting 97.6% of marriages registered in 2023. Refer to the following Table 17 for more details.

Table 17: Registered marriages by matrimonial regime

Regime of marriage	Count	Percentage
Community of property regime	56,486	97.6
Limited Community of property regime	1,182	2.0
Separation of property regime	212	0.4
Grand Total	57,880	100.0

Source: Data from CRVS system, 2023.

7.1.4. Groom and bride's education by marriage date

Table 18 reveals that the numbers of marriages are generally high between females and males with the same levels of education. Apart from intersection between similar education levels among couple members, the table shows that females with no education get more often married with males with primary education (388 cases) while they get rarely married with males with university level of education (1 case only). Females with primary level of education are more likely to get married with males having similar education (24,524) or males with post-primary and lowers secondary education (1,286 and 1,223 cases, respectively). Females with upper secondary are more likely to get married with males having similar level of education (4,682 cases) or those who attended university (1,747 cases) while they are less likely to get married with males who never attended school (36 cases) or who attended preschool (52 cases). Females who attended university are more likely to get married with males having the same level of education (2,743 cases) or those with upper secondary (760) while they are less likely to get married with those who never attended or only attended the preschool (5 and 2 cases, respectively).

Table 18: Husband's and wife' s education at marriage date

		Husband's education level							
		None/ never attended	Preschool	Primary	Post-primary	Lower secondary	Upper Secondary	University or higher	Total
Wife's education level	None/ never attended	666	123	388	36	43	20	1	1,277
	Preschool	157	974	899	97	55	26	6	2,214
	Primary	718	895	24,524	1,286	1,223	702	111	29,459
	Post-primary	80	135	1,359	1,788	617	215	56	4,250
	Lower secondary	78	136	2,072	709	2,551	1,347	353	7,246
	Upper Secondary	36	52	1,347	318	1,347	4,682	1,747	9,529
	University or higher	5	2	130	46	219	760	2,743	3,905
	Total	1,740	2,317	30,719	4,280	6,055	7,752	5,017	57,880

Source: CRVS system, 2023

7.1.5. Marriage regime and Levels of education

Table 19 shows that generally, community of property is the most frequently chosen marriage regime across all husbands' education levels. Across education levels, the table shows that community of property regime is most frequent among males who attended lower and upper secondary (98.3% and 98.2%, respectively) and less frequent among those who never attended school (95.7%). Limited community of property is most frequent among males who never attended school (3.7%) and less frequent among those who attended lower secondary (1.3%). The same table shows that separation of property is more frequent among males who attended university (1.1%) and less frequent among those who attended preschool (0.2%).

Table 19: Marriage regime and husband's education

Marriage Regime	Husbands' education level (counts)							
	None/ never attended	Preschool	Primary	Post-primary	Lower secondary	Upper Secondary	University or higher	Total
Community of property regime	1,666	2,260	30,002	4,179	5951	7,610	4,818	56,486
Limited Community of property regime	64	52	638	87	79	120	142	1,182
Separation of property regime	10	5	79	14	25	22	57	212
Total	**1,740**	**2,317**	**30,719**	**4,280**	**6,055**	**7,752**	**5,017**	**57,880**
Husbands' education level (percentages)								
Community of property regime	95.7	97.5	97.7	97.6	98.3	98.2	96.0	97.6
Limited Community of property regime	3.7	2.2	2.1	2.0	1.3	1.5	2.8	2.0
Separation of property regime	0.6	0.2	0.3	0.3	0.4	0.3	1.1	0.4
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Source: CRVS system, 2023

With regard to females, Table 20 shows that generally, community of property is the most frequently chosen marriage regime by all wives regardless of education levels. Across education levels, the table shows that community of property regime is most frequent among females who attended lower secondary (98.4%) and less frequent among those who never attended school (95.5%). Limited community of property is most frequent among females who never attended school (4.2%) and less frequent among those who attended lower secondary (1.2%). The same table shows that separation of property is more frequent among females who attended university (1.1%) and less frequent among those who attended preschool or primary (0.3%).

Table 20: Marriage regime and wife's education

Marriage Regime	Wife's education level (counts)							
	None/ never attended	Preschool	Primary	Post-primary	Lower secondary	Upper Secondary	University or higher	Total
Community of property regime	1,219	2,141	28,746	4,164	7,133	9,342	3,741	56,486
Limited Community of property regime	53	66	635	71	90	147	120	1,182
Separation of property regime	5	7	78	15	23	40	44	212
Total	1,277	2,214	29,459	4,250	7,246	9,529	3,905	57,880
Wife's education level (percentages)								
Community of property regime	95.5	96.7	97.6	98.0	98.4	98.0	95.8	97.6
Limited Community of property regime	4.2	3.0	2.2	1.7	1.2	1.5	3.1	2.0
Separation of property regime	0.4	0.3	0.3	0.4	0.3	0.4	1.1	0.4
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: CRVS system, 2023

7.2. Crude marriage rate

The crude marriage rate is the number of marriages occurring among the population of a given geographical area during a given year, per 1,000 mid-year total population of the given geographical area during the same year. The crude marriage rate was 4.3 ‰ in 2023 moderately up from 2.7‰ in 2022.

Conclusion

Births statistics:

The findings show a decrease of birth registration completeness rate from 92.9% in 2022 to 90.0% in 2023 while, on the other side, the proportion of timely registered births increased from 95.9% in 2022 to 98.5% in 2023. This calls for putting in place the measures to sustain the achievements realized in birth registration while still working on raising the completeness and timeliness of all vital events registration. In this regard, there is a need for enhancing continuous awareness, strengthening operationalization of registration services at decentralized levels, raising demand creation, etc.

Death statistics:

The findings show an upward shift in completeness rate of death registration (from 31.1% to 41.5%) though it is still low. The proportion of timely registered deaths also underwent an upward shift from 94.8% in 2022 to 97.7% in 2023. Further analysis of registered deaths shows an increase in the percentage of community deaths registered from 47.2% in 2022 to 53.8% in 2023. This informs on two important things. First, there is a need for actionable innovative approaches to keep boosting the completeness of death registration focusing more on community deaths. Strengthening implementation of Verbal Autopsy and enhancing the monitoring of community deaths registration at cells offices and creating more demand for death registration may play a vital role. Second, there is a need to remove barriers hampering the completeness of death registration such as easing the process for late and delayed registration of death etc.

Cause-of-death statistics:

Analysis of causes of death data highlights the need to focus more on data quality improvement among institutional deaths as many of them are ascribed to vague and ill-defined causes and only 64.8% of reported cases have a cause of death that is sufficiently informative to be used to guide health policies and decisions. Cause of death reported by health facilities also show that only 92.8% of deaths registered at health facilities were reported with respective causes while in community, Verbal Autopsy data show that around 90% of community death reported are of reliable quality. To cater for completeness of death certification and the quality of cause of death data, there is a need to establish and strengthen a sustainable training framework for in-service and pre-service medical doctors (death certifiers) and data managers (cause of death coders) on the cause of death certification using MCCoD and, sustain operationalization of verbal autopsy for community deaths.

Marriage statistics:

The findings show high frequency of marriages among person aged 21 to 34, something inspiring the need to plan taking into consideration the implications of potential new families founded in this regard.

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Annexes

Annex 1: Top 20 most preferred babies' surname in 2023 by sex[2]

	FEMALE		MALE	
	Child surnames	Total Counts	Child surnames	Total Counts
1	INEZA	7780	ISHIMWE	7991
2	UWASE	5477	MUGISHA	3703
3	ISHIMWE	5415	IRAKOZE	3031
4	IRAKOZE	3367	HIRWA	2693
5	IGIRANEZA	2927	IGIRANEZA	2378
6	UWINEZA	2376	INEZA	2310
7	IRADUKUNDA	2117	IGANZE	2112
8	INEZAYIMANA	1799	IRADUKUNDA	2055
9	UMUTONIWASE	1759	IRASUBIZA	1964
10	IRASUBIZA	1647	KWIZERA	1824
11	IGANZE	1497	IZIBYOSE	1760
12	NISHIMWE	1390	GANZA	1553
13	UMUKUNDWA	1282	IRANZI	1320
14	ISIMBI	1268	NIYOGISUBIZO	1279
15	IGIHOZO	1264	MANZI	1222
16	KUNDWA	1128	NIYONKURU	1184
17	UWAMAHORO	1090	BYIRINGIRO	1065
18	UMUHOZA	1036	BYISHIMO	1032
19	NIYOGISUBIZO	1007	NIYOGUSHIMWA	948
20	NIYOGUSHIMWA	1003	MUCYO	930
		46,629		**42,354**

Source: CRVS system, 2023

Annex 2: Top 20 leading causes of death at health facilities by sex, all ages (2023)

Top 20 Leading COD,Male, all ages			Top 20 Leading COD, Female, all ages		
Rank	Cause	%	Rank	Cause	%
1	Prematurity and low birth weight	9.5	1	Prematurity and low birth weight	9.8
2	Birth asphyxia and birth trauma	4	2	Birth asphyxia and birth trauma	4.3
3	Cerebrovascular disease	2.9	3	Cerebrovascular disease	3.7
4	Nephritis and nephrosis	2.8	4	Diabetes mellitus	2.8
5	Road traffic accidents	2.7	5	HIV	2.7
6	Tuberculosis	2.6	6	Nephritis and nephrosis	2.6
7	Lower respiratory infections	2.3	7	Lower respiratory infections	2.1
8	HIV	2.2	8	Endocrine disorders	2.1
9	Endocrine disorders	2	9	Congenital heart anomalies	1.1
10	Diabetes mellitus	1.6	10	Diarrhoeal diseases	1
11	Protein-energy malnutrition	1.2	11	Liver cancer	1
12	Hepatitis B	1.1	12	Tuberculosis	1
13	Prostate cancer	1	13	Protein-energy malnutrition	1
14	Lymphomas and multiple myeloma	1	14	Inflammatory heart diseases	0.9

2 The names mentioned in this annex table relate to births that occurred from 1st January to 31st December 2023, from the dataset of officially registered births in 2023.

Top 20 Leading COD,Male, all ages			Top 20 Leading COD, Female, all ages		
15	Congenital heart anomalies	0.9	15	Lymphomas and multiple myeloma	0.9
16	Liver cancer	0.9	16	Leukaemia	0.8
17	Leukaemia	0.8	17	Road traffic accidents	0.8
18	Diarrhoeal diseases	0.8	18	Cervix uteri cancer	0.8
19	Peptic ulcer	0.7	19	Hypertensive disease	0.8
20	Meningitis	0.7	20	Hepatitis C	0.7

Source: *CRVS system, 2023*

Annex 3: Top 20 leading causes of death at health facilities, both Sexes (2023)

Top 20 Leading COD, both sexes, all ages			Top 20 Leading COD, both sexes, 0 -4 Years		
Rank	Cause	%	Rank	Cause	%
1	Prematurity and low birth weight	9.6	1	Prematurity and low birth weight	31.6
2	Birth asphyxia and birth trauma	4.1	2	Birth asphyxia and birth trauma	13.2
3	Cerebrovascular disease	3.3	3	Congenital heart anomalies	3
4	Nephritis and nephrosis	2.7	4	Lower respiratory infections	2.7
5	HIV	2.4	5	Protein-energy malnutrition	1.6
6	Lower respiratory infections	2.2	6	Abdominal wall defect	1.5
7	Diabetes mellitus	2.1	7	Diarrhoeal diseases	1.1
8	Endocrine disorders	2	8	Endocrine disorders	1.1
9	Tuberculosis	1.9	9	Down syndrome	0.6
10	Road traffic accidents	1.8	10	Meningitis	0.4
11	Protein-energy malnutrition	1.1	11	Spina bifida	0.3
12	Congenital heart anomalies	1	12	Leukaemia	0.2
13	Liver cancer	0.9	13	Skin diseases	0.2
14	Lymphomas and multiple myeloma	0.9	14	Iron deficiency Anaemia	0.2
15	Diarrhoeal diseases	0.9	15	Lymphomas and multiple myeloma	0.2
16	Leukaemia	0.8	16	Road traffic accidents	0.2
17	Hepatitis B	0.8	17	Epilepsy	0.2
18	Inflammatory heart diseases	0.7	18	Nephritis and nephrosis	0.2
19	Stomach cancer	0.7	19	Chronic obstructive pulmonary disease	0.1
20	Hepatitis C	0.7	20	Cerebrovascular disease	0.1

Annex 4: Top 20 leading cause of death in community by sex, all ages (2023)

	Males				Females		
S/N	Cause of deaths	Number of VAs	Percentages	S/N	Cause of death	Number of VAs	Percentages
1	Other and unspecified cardiac dis	1101	13.0%	1	Other and unspecified cardiac dis	1,210	17.5%
2	Digestive neoplasms	859	10.1%	2	HIV/AIDS related death	724	10.5%
3	Acute cardiac disease	755	8.9%	3	Acute cardiac disease	543	7.8%
4	HIV/AIDS related death	743	8.8%	4	Digestive neoplasms	484	7.0%
5	Pulmonary tuberculosis	377	4.4%	5	Stroke	455	6.6%
6	Stroke	376	4.4%	6	Reproductive neoplasms MF	344	5.0%
7	Assault	364	4.3%	7	Diabetes mellitus	329	4.8%
8	Acute resp infect incl pneumonia	321	3.8%	8	Acute resp infect incl pneumonia	203	2.9%
9	Road traffic accident	314	3.7%	9	Pulmonary tuberculosis	162	2.3%
10	Diabetes mellitus	300	3.5%	10	Diarrhoeal diseases	156	2.3%
11	Diarrhoeal diseases	236	2.8%	11	Other and unspecified neoplasms	133	1.9%
12	Liver cirrhosis	179	2.1%	12	Chronic obstructive pulmonary dis	99	1.4%
13	Respiratory neoplasms	159	1.9%	13	Assault	89	1.3%
14	Acute abdomen	147	1.7%	14	Liver cirrhosis	87	1.3%
15	Other and unspecified neoplasms	143	1.7%	15	Severe malnutrition	79	1.1%
16	Chronic obstructive pulmonary dis	130	1.5%	16	Other and unspecified NCD	76	1.1%
17	Other and unspecified infect dis	106	1.3%	17	Malaria	73	1.1%
18	Epilepsy	102	1.2%	18	Obstetric haemorrhage	71	1.0%
19	Malaria	95	1.1%	19	Epilepsy	71	1.0%
20	Meningitis and encephalitis	90	1.1%	20	Road traffic accident	67	1.0%

Source: *CRVS system, 2023*

Annex 5: Top 20 leading cause of death in community, both sexes, all ages (2023)

S/N	Causes of death	Number of deaths	Percentages
1	Other and unspecified cardiac dis	2,311	15.00%
2	HIV/AIDS related death	1,467	9.50%
3	Digestive neoplasms	1,343	8.70%
4	Acute cardiac disease	1,298	8.40%
5	Stroke	831	5.40%
6	Diabetes mellitus	629	4.10%
7	Pulmonary tuberculosis	539	3.50%
8	Acute resp infect incl pneumonia	524	3.40%
9	Assault	453	2.90%
10	Diarrheal diseases	392	2.50%
11	Road traffic accident	381	2.50%
12	Reproductive neoplasms MF	364	2.40%
13	Other and unspecified neoplasms	276	1.80%
14	Liver cirrhosis	266	1.70%
15	Chronic obstructive pulmonary dis	229	1.50%
16	Respiratory neoplasms	212	1.40%
17	Acute abdomen	208	1.40%
18	Epilepsy	173	1.10%
19	Malaria	168	1.10%
20	Severe malnutrition	166	1.10%

Annex 6: Major causes of death in the community disaggregated by sex, 2023

	Female		Male		Total	
Major Group	Number	%	Number	%	Number	%
Group I: Communicable	1,786	12	2,155	14	3,941	25.6
Infectious	1470	9.5	2008	13.0	3478	22.6
Maternal	180	1.2	0	0.0	180	1.2
Neonatal	54	0.4	60	0.4	114	0.7
Nutrition	82	0.5	87	0.6	169	1.1
Group II: Non-Communicable	4,065	26	4,359	28	8,424	54.7
Cancers	1079	7.0	1203	7.8	2282	14.8
Other NCD	2986	19.4	3156	20.5	6142	39.9
Group III: Injuries	350	2.3	1058	6.9	1408	9.1
External Causes	350	2.3	1058	6.9	1408	9.1
Undetermined & Ill defined	725	5	908	6	1,633	10.6
Acute abdomen	61	0.4	147	1.0	208	1.4
undetermined	664	4.3	761	4.9	1425	9.2
Total	6,926	45	8,480	55	15,406	100.0

Source: CRVS system, 2023

Annex 7: Numbers of total population in 2023 by age groups and sex (projections)

Age groups	Both sexes	Male	Female
All	13,499,072	6,560,328	6,938,744
0-4	1,720,327	864,346	855,981
5-9	1,699,683	850,707	848,976
10-14	1,567,089	783,863	783,226
15-19	1,530,206	761,978	768,228
20-24	1,233,095	602,606	630,489
25-29	1,022,504	500,878	521,626
30-34	955,492	468,166	487,326
35-39	885,262	433,163	452,099
40-44	759,509	365,707	393,802
45-49	516,051	234,461	281,590
50-54	402,947	181,851	221,096
55-59	322,442	145,272	177,170
60-64	311,560	137,266	174,294
65-69	227,905	98,385	129,520
70-74	154,452	63,800	90,652
75-79	81,959	30,757	51,202
80+	108,589	37,122	71,467

Source: NISR, Fifth Rwanda population and Housing census projections, 2023

contributors

People who contributed to the production of Rwanda Vital statistics (V.S) Annual report, 2023.

National overall coordinators:

- MURANGWA Yusuf, Director General of NISR
- MURENZI Ivan, Deputy Director General of NISR

National technical coordinators:

- NDAKIZE Michel, Director of demographic and social statistics - NISR
- NILINGIYIMANA Faustin, CRVS Team Leader - NISR

V.S Report 2023 data analysis and report writing:

- NILINGIYIMANA Faustin, CRVS Team Leader – NISR
- NSHIMIYIMANA Patrick, CRVS statistician – NISR
- NGOBOKA Godfrey, CRVS coordinator – RBC
- MANZI Yves, Data quality assurance officer – NIDA
- NDAGIJIMANA Valens, Mortality data surveillance officer -RBC
- KAGARURA Bonaventure, Data analysis officer - NIDA

V.S Report 2023 Review, typesetting, design and layout:

- KABERA Jean Luc – Data Portals management Officer - NISR
- AGASARO Charity – Communication Specialist – UNICEF/NISR
- UWAMUNGU Thierry – Publication Specialist – UNICEF/NISR

1. MCCOD FORM USED IN HEALTH FACILITIES

REPUBLIC OF RWANDA

MINISTRY OF HEALTH

MEDICAL CERTIFICATE OF CAUSE OF DEATH

Name of the deceased:.....File N°:.....Health Facility:.....
National Identification Number/Passport Number :.....Nationality:.....Residence:
District.....Sector.....Cell.....Village.....
Marital status: ..... Sex ..... Place of Death:..... Date of Birth:.....
Date of Birth unknown (Estimated age).....Date of Death: ..... Time of Death .....p.m/a.m

Frame A: **Medical data: Part 1 and 2**			
I Report disease or condition directly leading to death on line a Report chain of events 'due to' (b to d) in order (if applicable) State the underlying cause on the lowest used line		Cause of death	Time interval from onset to death
	a		
	b	Due to:	
	c	Due to:	
	d	Due to:	
II Other significant conditions contributing to death (time intervals can be included in brackets after the condition)			

Frame B: **Other medical data**									
Was surgery performed within the last 4 weeks?			☐ Yes	☐ No	☐ Unknown				
If yes please specify date of surgery			D D	M M	Y Y Y Y				
If yes please specify reason for surgery (disease or condition)									
Was an autopsy requested?			☐ Yes	☐ No	☐ Unknown				
If yes were the findings used in the certification?			☐ Yes	☐ No	☐ Unknown				
Manner of death:									
☐ Disease	☐ Assault		☐ Could not be determined						
☐ Accident	☐ Legal intervention		☐ Pending investigation						
☐ Intentional self-harm	☐ War		☐ Unknown						
If external cause or poisoning:		Date of injury	D D	M M	Y Y Y Y				
Please describe how external cause occurred (If poisoning please specify poisoning agent)									
Place of occurrence of the external cause:									
☐ At home	☐ Residential institution	☐ School, other institution, public administrative area			☐ Sports and athletics area				
☐ Street and highway	☐ Trade and service area	☐ Industrial and construction area			☐ Farm				
☐ Other place (please specify):					☐ Unknown				
Fetal or Infant Death									
Multiple pregnancy			☐ Yes	☐ No	☐ Unknown				
Stillborn?			☐ Yes	☐ No	☐ Unknown				
If death within 24h specify number of hours survived			Birth weight (in grams)						
Number of completed weeks of pregnancy			Age of mother (years)						
If death was perinatal, please state conditions of mother that affected the fetus and newborn									
For women, was the deceased pregnant?			☐ Yes	☐ No	☐ Unknown				
☐ At time of death			☐ Within 42 days before the death						
☐ Between 43 days up to 1 year before death			☐ Unknown						
Did the pregnancy contribute to the death?			☐ Yes	☐ No	☐ Unknown				
Referred from (level of care)		Parity		Mode of delivery	☐ SVD	☐ Assisted	☐ Caesarean		
Place of Delivery	☐ Health Facility	☐ Home	☐ In transit	☐ Don't Know	Delivered by skilled attendant	☐ Yes	☐ No	☐ Don't Know	

Declaration
I hereby certify that (*tick as appropriate*)
a) I attended the deceased before death
b) I examined the body after death
c) I conducted the post mortem of the body
d) Other (specify) .....

Medical Doctor's Name: .....

Signature .....Date.....

S

2. DEATH CERTIFICATE QUALITY ASSESSMENT TOOL

REPUBLIC OF RWANDA

MINISTRY OF HEALTH
P.O. BOX 84 KIGALI
www.moh.gov.rw

DEATH CERTIFICATE QUALITY ASSESSMENT TOOL V1.2

A correctly filled-in death certificate has none of the following errors. Please indicate whether the death certificate has:

No.	Error Type	Yes*	No
1	Date of birth missing		
2	Date of death missing		
3	Time of death (a.m./p.m.) missing		
4	Sex of the deceased not specified		
5	Multiple causes of death per line		
6	Missing time interval from onset to death		
7	Abbreviations used in certifying cause of death		
8	Blank lines within chain of events leading to death		
9	Incorrect or clinically improbably chain of events leading to death		
10	Incorrect injuries or illnesses listed as contributory causes of death		
11	**Ill-defined condition(s) entered as the underlying cause of death**		
If yes, was the ill-defined condition:			
11.1	*Assigned impossible underlying cause of death i.e. signs and symptoms*		
11.2	*Mode of dying entered as underlying cause of death e.g. respiratory/ heart arrest*		
11.3	*Intermediate cause entered as underlying cause of death eg Septicaemia*		
11.4	*Unspecified causes within a larger death category entered as underlying cause of death*		
12	If surgery was performed, it is not indicated in Frame B		
13	For deaths as a result of neoplasms, additional details were missing		
14	For deaths due to external causes, additional details were missing		
15	For fetal or infant deaths, additional details were missing		
16	For deaths of women, additional details were missing		
17	Illegible hand writing		
18	The form is not signed by the medical doctor		

*** Whenever there is "*Yes*" response, clarify with certifying Medical doctor.**