

“Reporting of Medical Certificate of Cause of Death (MCCD) in Death
Certificate: Perspective Study based on CRVS data of Rajasthan”

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By

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PREFACE

In the health industry, the issues are complicated and long-standing. To handle difficulties in the health sector, MBA hospital and healthcare management students must understand the operation of various organizations, both private and public. Healthcare professionals address these issues through a variety of strategies, long-term projects, time and money investments, and research undertaken within the institution. A three-month dissertation is scheduled to be submitted at the conclusion of the second year for this reason.

I am grateful for the chance to work on my dissertation with IIHMR University and UNICEF. I anticipated to memorize approximately the workings of the death enlistment strategy in Rajasthan, as well as medical professionals understanding of cause of death.

At IIHMR University, I was given free discretion in choosing a research project on factors influencing the MCCD registration in institutions of Rajasthan state.

Abbreviations

COD	Cause of death
CoMeRD	completeness of medically certified deaths
CoRD	completeness of registration of death
CRS	Civil registration system
CRVS	Civil registration and vital statistics
DES	Directorate of Economics and Statistics
GDP	Gross domestic product
ICD	International Classification of Diseases
ICU	Intensive Care Unit
MCCD	Medical certificate of cause of death
MHOs	Municipal Health Officers
MRR	medical record review
NIC	National Informatics Centre
ORGI	Office of the Registrar General of India
PME	Postmortem examination
PSA	Philippines Statistics Authority
RBD	Registration of Births and Deaths
RGI's	Registrar general of India
SDG	Sustainable development goals
SmoL	Start-up mortality List
SRS	Sample registration system
TOT	training of trainers
UCOD	Underlying cause of disease
ULBs	Urban Local Bodies
UNSD	United Nations Statistics Divisions
WHO	world health organization

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1. Introduction:

Globally, communicable illnesses are gradually shifting to lifestyle diseases. Age, gender, and CSDR are essential markers for monitoring based on evidence of population health patterns. For organizers, bureaucrats, and healthcare experts to take appropriate therapeutic and preventative actions for various health concerns, statistics on causes of mortality are vital. It is also critical for monitoring and refining diagnostic and analytical processes, as well as advancing medical research. The scheme of Medical Certification of Cause of Death (MCCD) – an important aspect of the VSS – intends to provide an authentic and timely database for generating cause-specific mortality statistics under the system of Registration of Births and Deaths.

The Medical Certification of Cause of Death, commonly called a death certificate is the most common certificate issued by a state-owned doctor, if not a general practitioner. It is well known that many medical professionals, even with unparalleled medical knowledge and expertise, do not fill out this document correctly, which is of great medical and legal importance. Reasons range from ignorance to indifference. Incorrect diagnosis or incorrect completion of a certificate leads to serious errors in mortality statistics and therefore has a direct impact on national health policy development. The statistical study of causes of death produces crucial morbidity and mortality statistics, which serve as the foundation of national health policy and planning.

Currently, information on causes of mortality based on MCCD is mostly limited to fatalities in certain urban hospitals. Because of the limited overall coverage, it is difficult to give the mortality perimeter with reasons for the whole metropolitan region in the nation. Recognizing this reality, and to create a profile of distinct natural and anthropogenic causes of mortality, the international community of Medical Professionals has categorized most diseases under the supervision of the WHO, naming them "International Classification of Diseases (ICD)." This ICD is designed to Indian conditions under the 'Medical Certification of Cause of Death (MCCD)' programme.

Despite India's substantial success in completeness of registration of death, the necessity of medical certification cannot be overstated; fundamental disparities within the CRS and MCCD continue to be a source of worry. Similarly, in Rajasthan, which has a high death registration rate, the medical certified death registration rate is exceedingly low (i.e., 13.9 percent). For the last nine years, the MCCD registration rate has been consistently lower than the national average. The state comes in 25th place out of 35 states and territories. Secondly, the medical physician's incomplete and imprecise filling of the MCCD form has a direct impact on the data for actual cause of death, resulting in variance in statistical documentation and further influencing formulation in National health policy planning.

Rajasthan is a northern Indian state. It covers 342,239 square kilometers or 10.4% of India's total geographical area. According to the 2011 census, the population of Rajasthan state is around 6.86 crores, accounting for approximately 5.6 percent of the overall Indian population, with a population growth rate of 21.31 percent. With a sex ratio of 928 and a child sex ratio of 888. The state has total child population (age 0-6) of 1.06 crores. It is ranked 29th on the human development index. Rajasthan has a total literacy rate of 66.11 percent. The state's overall GDP every year is Rs. 10.20 crores (US\$ 130 billion).

2. Literature review:

The study “The knowledge assessment and reducing the errors of medical certificate of cause of death with sensitization training of physicians: a quality improvement intervention study”, is conducted by Swapnil Prabhakar Akhade, et.al. during the year January 2022. This research was carried out in a Tertiary Care Hospital's Trauma and Emergency Department in Chhattisgarh, India.. The study indicates the importance of Sensitization and educational training that should be conducted on a regular basis to increase physicians’ awareness on the proper filling of MCCDs and reduce MCCD mistakes, which would improve the usefulness and comparability of mortality statistics derived from ICD data.

The study “The impact of errors in medical certification on the accuracy of the underlying cause of death” is conducted by U.S.H Gamage, et.al. during the year November 2021. This can be the primary ponder to utilize observational prove to survey the relative impact of several frequent restorative certification botches on the UCOD, giving significant information to assist move forward therapeutic certification. By analyzing the writing for common certification flaws, trade rules were built to reflect how these mistakes happen in hone, and each blunder was mimicked freely on 1592 error-free passing certificates some time recently being coded utilizing Iris programmed coding program. Weights were computed for diverse SDI levels (moo, halfway, and tall) to evaluate the effect of botches in countries at different stages of improvement and to track patterns in restorative certification quality. Diverse certification mistakes have a variable affect on the determination of the basic cause of passing. The announcing of ill-defined ailments as the basic cause of mortality has the foremost affect. The determination of the basic cause of passing is affected by the meaningfulness of the information and the report of competing causes in Part 1 of the death certificate. Recommendation given by author about implementation of mortality coding criteria correctly can significantly reduce the impact of some certification issues. Teaching mortality coders in proper coding techniques and the use of automated coding tools, as well as training physicians in proper certification processes, should be a significant part of national plans to enhance the quality of cause of death data.

The study “Improving cause of death certification in the Philippines: implementation of an electronic verbal autopsy decision support tool (SmartVA auto-analyse) to aid physician diagnoses of out-of-facility deaths” is done by Rohina Joshi, et. al, during March 22 at Philippines country, indicates about the deaths that occurs outside the hospitals. MHOs lack a consistent certification process for out-of-facility fatalities. MHOs certify a large proportion of ill-defined causes of death. The author talks about the intervention of SmartVA auto-Analyze that helps MHOs improve the quality of passing certification by standardizing the certification of domestic passings. The intercession was scaled up to 91 regions for the pilot. Verbal dissection is quickly being seen as a alluring and practical alternative to fortifying national CRVS frameworks in LMICs.

The study “Registration and medical certification of deaths in the Indian States: A comparative analysis of data of CRS and MCCD reports” is a systemic review conducted by Anuj Kumar Pandey, et.al. during the year December 2021. The author has reviewed articles of year 2010 to 2019. This study shows that, in MCCD, the CoMeRD has increased from 17.1% in 2010 to 20.6 percent in 2019, a significant increase of 37.7 percent Over 9 years ($P=0.001$). Over the same time span, India's CoRD climbed from 66.9% to 92 percent. Western locale has accomplished 100% enrollment of passings against assessed passings and same locale have too detailed more than 50% of therapeutically certified enrollment in passings against add up to enlisted passings. The current research suggests that, while death registration has grown dramatically over the last year, improved medical certification of recorded deaths must be given appropriate and long-overdue attention. The dependence on SRS for birth and death estimations will be diminished as death enlistment moves forward. The significance of therapeutic certification of fatalities for different evidence-based decision-making and open wellbeing approach choices cannot be exaggerated. The dependence on SRS for birth and passing estimations will be decreased as passing enlistment moves forward. At the state level of CRS and MCCD, a concentrated exertion in surveying qualities and deficiencies is required.

The study “Medical certificate of cause of death (MCCD)” is a systemic review conducted by RB Kotabagi, et.al, during the year July 2021. In this article author discuss about the Medical Certification of Cause of Death, commonly called a death certificate, and acknowledge that many medical professionals, even with unparalleled medical knowledge and expertise, do not fill out this document correctly, which is of great medical and legal importance, reason can range from ignorance to indifference. So, incorrect diagnosis or incorrect completion of a certificate leads to serious errors in mortality statistics and therefore has a direct impact on national health policy development. The author focuses on the underlying and preceding causes of death that causes variation in statistical data on mortality from specific diseases. In addition, the author discusses the various types of medical death certificates and the standard way to fill out that certificate according to WHO.

The study “Errors in cause-of-death statement on death certificates in intensive care unit of Kathmandu, Nepal” was started in November 2015 by the Aarzoo shah, et.al. at Blue Cross Hospital, Kathmandu, Nepal. In this retrospective observational study, a total of 220 deaths were recorded out of 1055 ICU admissions in the ICU of Blue Cross Hospital. Among the deaths, 60.8% were male and 39.2% were female with mean age of 57.89 years. At the end of the study, author reported that 78.4 percent of DCs had errors. The most errors were found in UCOD (83 percent). In addition this study also shows that, a gold standard framework for comparing and analyzing DC accuracy in hospitals must be developed.

The study “Are there sex differences in completeness of death registration and quality of cause of death statistics. Comes about from a worldwide analysis” is conducted by Tim adair, et.al, amid the year October 2021, may be a metanalysis to survey accessible around the world death

enlistment and cause of passing information, to see in case there are sex varieties within the completeness and quality of information from gracious enlistment and imperative measurements frameworks. The utility of crucial insights for approach and arranging is seriously diminished since of undercounting of female passings. This think about did not discover prove of a orderly and noteworthy predisposition in enrolling female compared with male deaths, but in seven nations. Future investigations ought to look for to play down the impact of other components, such as the contrasting age and cause structure of male and female death.

The study “Medical Certificates of Cause of Death for people with intellectual disabilities: A systematic literature review” conducted by Fred Dunwoodie stirton, et.al, started during March 24. The creator recognizes almost the individuals with gentle mental inability may be less likely to have their condition recorded on MCCD. Creator encourage examines around the predominance of Concerns approximately the exactness and unwavering quality of MCCD for people with mental disabilities that raise concerns around MCCD-based mortality information. WHO must give clear rules to therapeutic master completing the MCCD for individuals with mental disabilities. Way better taught direction and preparing for restorative experts completing MCCD for individuals with mental disabilities.

The study “Improving medical certification of cause of death: effective strategies and approaches based on experiences from the Data for Health Initiative” is conducted by John D. Hart, et.al. in the March 2020. This ponder demonstrates that a extend of preparing techniques can increment passing certification quality, in Sri Lanka, the TOT technique resulted in a 28 percent reduction in wrongly filled certificates and a 40 percent drop in the Philippines. The number of wrongly filled certificates was reduced by 30% after tutelage of physicians in PNG. In Peru, after implementing and teaching on an online system just, the number of wrong certificates decreased by 30%, and by 43% taking after tutelage on both the online framework and fundamental restorative certification principles.

The study “Assessing the quality of medical death certification: a case study of concordance between national statistics and results from a medical record review in a regional hospital in the Philippines” is conducted by Marilla Lucero, et.al. in the year December 2018. This research describes the MRR of MCCOD hospitals in the Philippines and compares the cause of death concordance with certificates categorized by the Philippines Statistics Authority (PSA). The concordance between the MRR and PSA was higher than would have been anticipated. Restorative records were regularly of satisfactory quality to relegate a cause of passing, and the PSA and MRR had a great level of concordance, recommending that customary mortality measurements information in Bohol are moderately dependable for portraying populace level causes of passing. Comes about recommend that clinic doctors fizzled to accurately show the UCOD on therapeutic certificates in 33.5% of cases. Whereas common assention between the PSA and MRR in primary cause categories was palatable for open wellbeing goals, doctors ought to upgrade their passing certification strategies to empower them to recognize between reparable (prompt) COD and COD that are significant for open wellbeing reconnaissance. The ponder contained both tall- and low-quality analyze, coming about within the incorporation of hazy reasons in leftover categories. The

need of newborn children and neonatal fatalities rendered measuring concordance between the MRR and PSA assignment unfeasible.

The study “Review of errors in the issue of medical certificates of cause of death in a tertiary hospital in Ghana” is conducted by Patrick K Akakpo, et.al, in the year March 2017. In this study a total of 337 medical certifications of death were examined. The majority, 212 (62.9 percent), were granted by the department of inside pharmaceutical and therapeutics. Specialists completed 30.86 percent (104) of the MCCDs, while non-specialist medical officers completed 69.14 percent (233). Over half of the MCCDs (56.68%) had severe mistakes, while all (100%) had at least one minor problem. 32 (16.75%) were blunders due to disconnected causes expressed as related essential causes of passing. Advance creators propose that Yearly Proceeding Proficient Improvement exercises on completion of MCCD shapes ought to be held by preparing and administrative organizations such as the Ghana Medical and Dental Council and the Ghana College of Physicians and Specialists.

The study “Adjusting Reported COVID-19 Deaths for the Prevailing Routine Death Surveillance in India” is a metanalysis and conducted by Hemant Deepak Shewade, et.al. in the year august 2021. This ponder talks about approximately India, having the "moo mortality" claim based on COVID-19 fatalities doing more genuine harm. The degree to which COVID-19 fatalities are recorded is decided by the scope of normal passing observation [passing enrollment combined with restorative certification of cause of passing (MCCD)] and MCCD botches. The scope of customary passing observation in India is 18.1 percent. This can be exacerbated by the truth that COVID-19 passing announcing is centered on detailed cases, with a destitute case location proportion. After normalizing for scope and quality of schedule passing surveillance, the evaluated COVID-19 fatalities in India may be 5.5–11 times higher than the detailed COVID-19 passings. COVID-19 fatalities in India calculated utilizing IFR and DPM COVID-19 contains a extend comparable to nations with successful passing observing programs. As a result, India's COVID-19 casualty rate (rate and supreme numbers) does not show up to be lower than worldwide gauges.

The study “Improving the accuracy of death certification” was conducted in May 1998, by the K.A. Myers, et.al. In this study the major mistakes were found on 32.9 percent of death certificates, a figure equal to previously reported rates for internal medicine services at medical college hospitals. This study suggests that a modest instructional intervention can help physician’s complete certifications more accurately. Although death certification is commonly included in undergraduate medical curricula, author recommend that educational interventions be provided early in postgraduate training, when they are most clinically relevant. To increase the accuracy of population-based mortality data, all physicians must learn the art of death certification. Although errors can occur at any point during the certification process.

This study “The quality of medical death certification of cause of death in hospitals in rural Bangladesh: impact of introducing the International Form of Medical Certificate of Cause of Death” was conducted by Riley H. Hazard, et.al. The study took place between January 2011 and April 2014 in the Chandpur and Comilla districts of Bangladesh. The consider took put between January 2011 and April 2014 within the Chandpur and Comilla locale of Bangladesh. The think about included 4914 passing certificates. 72.9% of therapeutic records were of as well destitute quality to allot a cause of passing, with small contrast by age, healing center, and cause of passing. 95.6% of death certificates did not demonstrate the time interim between onset and death, 31.6%

required a alter in grouping, 13.9% required to incorporate a modern conclusion, 50.7% utilized shortened forms, 41.5% utilized numerous causes per line, and 33.2% utilized an ill-defined condition as the fundamental cause of death. 99.1% of passing certificates had at slightest one mistake. The driving cause of passing among grown-ups was stroke (15.8%), among children was pneumonia (31.7%), and among neonates was birth asphyxia (52.8%). Doctors in Bangladeshi healing centers had troubles in completing the MCCD accurately. Doctors routinely made mistakes in passing certification hones and restorative record quality was destitute. There's an critical ought to move forward death certification hones and the quality of healing center information in Bangladesh in case these information are to be valuable for arrangement.

This study “Factors Associated with Major Errors on Death Certificates” was conducted by Sangyup Chung, et.al, in the April 2022. This paper depicts a six-month review examination at a college preparing clinic in 2020. Mistakes were classified as huge or little based on their affect to the method of setting up the cause of passing. Passing certificates were partitioned into two bunches: those with major blunders and those without major mistakes. The common characteristics of the passing certificates, the essential cause of passing, the number of causes of passing composed on the passing certificate, and major and minor mistakes were all examined. Out of 548 passing certificates, 127 were relegated to the ME bunch. The by and large number of botches and the number of reasons of passing shown on death certificates were more noteworthy within the ME bunch than within the non-ME gather. Cardiovascular sickness, cerebrovascular disease, stomach related infection, pneumonic infection, outside causes, and other disarranges had a better likelihood of genuine botches on passing certificates than cancer. Cancer was the cause of passing within the gather with the most reduced recurrence of genuine botches and less causes of passing. Ceaseless instruction and feedback for people qualified to issue a passing certificate are required to diminish serious botches.

This study “Medical Students’ Knowledge of the Cause-of-Death Certification: A Descriptive, Cross-Sectional Study from Saudi Arabia” was conducted December 2021 by the Mohammed Madadin. In this study, a total of 174 students completed the survey. 107 (61.5 percent) of the sophomore correctly identified the immediate cause of death in the provided case scenario. Only 20 (11.5 percent) of pupils correctly identified the UCOD. The bulk of the pupils clearly misunderstood the chain of events leading to death in the provided case scenario. Nonetheless, 151 (86.8 percent) of students correctly identified the other important factor related to mortality. Other mistakes included the use of acronyms, naming the mechanism of death as a cause of death, naming clinical aspects or unrelated causes of death, and naming the wrong time gap between the commencement of a cause of death and death. Before taking part in the current study, most of the students had attended a tutorial on medical certification of cause of death, suggesting that further training may be necessary.

The study “Does the Application of International Classification of Disease Codes for the Cause of Death on Death Certificates Reduce Garbage Codes” was conducted in January 2022 by Soobeom Park, et.al. The reason of this study was to see in the event that utilizing ICD illness codes straightforwardly as the COD on DCs rather than composing or writing the COD may minimize the usage of junk codes. The whole frequency of junk code within the Code group (25 percent) was much lower than within the Pre-code group (49 percent). The Code group utilized less waste codes, with an average of .5 within the Pre-code group and .3 within the Code bunch. The whole

utilization of waste codes on DCs may well be minimized by adjusting the method by which doctors total DCs, i.e., utilizing ICD ailment codes specifically as the COD on DCs.

The study “Accuracy and the factors influencing the accuracy of death certificates completed by first-year general practitioners in Thailand” was conducted by Chaiwat Washirasaksiri, et.al. Typically review inquire about that was carried out at 14 provincial common clinics in Thailand from June 2011 to May 2012. The think about was based on a clinical review of restorative records, typically the primary think about to uncover holes and errors in DC exactness, as well as factors affecting DC completion among first-year GPs in Thailand. On 63.1 percent of DCs, GPs committed botches. This investigate suggests that demonstrated instruction, system-related help, and advance preparing intercessions custom fitted to DC completion are fundamental.

This study “A review of completeness, correctness, and order of cause of death statements among decedents with documented causes of death and HIV status at two major mortuaries in Kenya, 2015” was conducted by Emily A. R0gena, et.al. This ponder demonstrates that DC of unnatural passings for the most part contributes to UCOD blunders, while characteristic passings basically contribute to ICOD botches. Whereas the majority of DCs had the correct sequence, less than half had the right sentence and less than one-fifth had the full articulation. Out of 810 fatalities, 610 (75.3 percent) had HIV status, and 356 had at slightest one COD; 114 (32 percent) females and 242 (68 percent) guys; 239 (67.1 percent) from KNH and 117 (32.9 percent) from the city mortuary. In comparison to KNH Funeral home, the cases from City Mortuary appeared higher rates of adjust articulations on 116 (99.1%) ICOD, 90 (89.1%) UCOD, and 40 (81.6%) OSCs; 50 (20.9%), 200 (90.1%), and 62 (76.5%), individually, p 0.001. Inadequate data and distinguishing forms of passing as the COD were the foremost predominant sorts of mistakes. Need of visit refresher preparing may be to fault for the destitute quality of both quick and fundamental CODs. As a need for high-quality mortality information, occasional preparing with input frameworks ought to be executed. This will be fulfilled by creating strategies that require passing certifiers to be prepared in DC filing. There's moreover a necessity to assess and bind together DC forms and devices on a customary premise to preserve the exactness of information within the country's passing registry.

3. Research Question:

Why MCCD reporting is low in Rajasthan?

4. Objective:

- To study the scenario of death registration in Rajasthan state.
- To undertake secondary data analysis for comparing MCCD status across state.

5. Research Methodology:

Secondary research has done on the Medical Certification of Cause of Death reporting in Rajasthan state for the 2019 and 2020 year. Information on the MCCD was taken from India's MCCD reports in order to conduct this study.

For searching publications relating to the specified issue, a systematic review was conducted using PubMed, Research Gate, and Google Scholar. To find distinct references to MCCD, cause of Death in Rajasthan, and cause of Death in India, the first, second, and third searching keywords were employed. All items collected from the database between 2011 and 2022 are included in the search.

5.1 Study Design: Descriptive study design.

5.2 Inclusion criteria:

MCCD report 2019 and 2020 of India.

MCCD report 2019 of Rajasthan state.

Literature from year Jan 2011 to May 2022

5.3 Exclusion criteria:

MCCD reports other than 2019 & 2020 of India.

MCCD reports of other states/UTs.

Any literature that did not meet the above-mentioned inclusion criteria.

5.4 Data Collection Methods:

Secondary data on the medical Certification of Cause of Death of Rajasthan state was taken from India's MCCD reports of 2019 and 2020 to perform this study.

5.5 Data analysis:

Data from MCCD report 2019 and 2020 of India is gathered in MS excel for analysis and interpretation.

6. Ethical consideration:

The study's documents and reports will be archived in the reference section.

7. Results and discussion:

7.1. Civil registration and vital statistics:

CR has a long history in India, dating back to the 19th century. It began with the reporting of fatalities to implement health measures to combat pestilence and illness, rather than to analyze population patterns. Considering the many municipalities' acts and regulations governing civil registration in different areas of the country, a national law on the issue was deemed essential required to enhance the structure.

The RBD Act was first proposed in Rajya Sabha in 1969, but it lapsed when the parliament was dissolved. On February 27, 1968, the Rajya Sabha passed the bill for the first time. The bill was amended and passed by the Lok Sabha on May 27, 1969. These revisions were affirmed by the Rajya Sabha on May 31, 1969. On May 31, 1969, it gotten the president's assent. On June 2, 1969, it was distributed within the Journal of India, Exceptional, Part II, Section I.

As per provision of the Registration of birth and deaths act 1969 registration of every birth and death are compulsory. The people who are to report the occasions of births and deaths to their closest enrollment units inside 21 days of event of such occasions coming up short which late expenses for deferred enlistment are charged.

This Act provides for:

- Uniform law over the nation on the enlistment of births and deaths.
- Compulsory detailing and enrollment of all births and deaths.
- Implementation of the Act is the duty of the state governments.
- Rules surrounded by the state governments are based on a demonstrate set of rules given by the central government (Registrar General, India).

CRVS Definition: UNSD 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 in each country” (UNSD 2014).

Live birth, death, fetal death, marriage, divorce, annulment of marriage, judicial separation of marriage, adoption, legitimation, and recognition are all examples of vital events. Because it is "the collecting of data on important occurrences in a person's lifetime as well as significant characteristics of the events themselves and of the person and individuals affected," CR is the finest source of vital statistics (UNSD 2014).

The Civil Registration and vital System has two basic aims (CRVS). It is a government-run public utility service that allows the general public to obtain birth/death certificates, which can be used for a variety of civil purposes such as proving age and identity, preparing driving licences and passports, filing insurance claims, settling inheritance and property rights, and so on. There is no replacement for the statistics produced by a well-designed and comprehensive CRVS. The relevance of civil registration has grown more than ever before as a result of the growing emphasis on decentralized planning. It is extremely useful for successful population control and public health management planning.

CRVS are important tools for achieving the SDGs. The finest source of continuous and up-to-date information on birth, death, and population data is a well-functioning CRVS system. The denominator for a wide range of population-based objectives and indicators in the SDGs is derived from these numbers. Data from CRVS systems on cause of death is also required to report on several other variables. Maternal mortality, infant mortality, traffic accident deaths, non-communicable disease deaths, and other causes are among them. Improving CRVS is also an SDG target. Goal 16.9 calls for the provision of a legal identity for all, including birth registration, by 2030. Indicator 17.19.2 includes a provision to achieve 100% birth registration and 80% death registration by 2030. Finally, Target 17.18 calls for enhanced support for developing countries to improve the quality, timeliness, reliability and disaggregation of their statistical data, of which CRVS is an integral component.

Vital Statistics: The statistical outputs of a CRS are known as vital statistics. Individual civil registration records are mined for data that is used to produce vital statistics for the population.

All activities involved in collecting, assembling, evaluating, and disseminating information derived from vital events submitted through the CRS are included in the VSS.

The purpose of a country's vital statistics system is to have full, accurate, and timely data for all major occurrences. When compared to other sources of vital data, such as the census or household surveys, vital statistics derived from CR offer significant benefits. Specifically:

- Continuously generated as and when events occur, ensuring maximum accuracy.
- Over time and across regions, reliable and comparable data is available.
- At the national and lowest administrative levels, data is generated for the whole population of a country.

10 Types of Vital Events – Key Definitions (UNSD)

Birth – the complete expulsion or extraction from its mother of a product of conception, regardless of the length of the 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.

Death is defined as a complete loss of all signs of life at any point following the occurrence of a live birth, i.e., the cessation of vital processes without the ability to resuscitate. Fetal deaths are not included in this definition.

Fetal Death is defined as the death of a conceived product before to its complete ejection or extraction from its mother, regardless of the gestation time. The fact that the fetus does not breathe or display any other signs of life following such separation, such as beating of the heart, pulse of the umbilical cord, or clear movement of voluntary muscles, indicates death.

Marriage is the act, ceremony, or procedure by which a couple's legal connection is established. The validity of the union can be shown by civil, religious, or other ways recognized by each country's laws. Countries may seek to broaden the term to include civil partnerships that are legally recognized. In such scenario, a registered partnership is a legal construct that entails registration with public authorities in accordance with local laws and serves as the foundation for legal conjugal duties between two people.

Divorce — The legal dissolution of a marriage, i.e., the legal separation of spouses that grants the parties the opportunity to remarry under civil, religious, and/or other stipulations as determined by the laws of each nation. A legal dissolution of a registered partnership, in the situation where a country recognizes registered partnerships, involves the legal final dissolution of a registered partnership according to national legislation, granting the parties the ability to form another partnership or marry.

Annulment of Marriage — When competent authority, acting under the rules of the nation, invalidates or voids a legal marriage, the parties are given the status of never having been married to each other.

Judicial Separation of Marriage - The disunification of married people without the parties being granted the opportunity to remarry under the laws of their respective countries.

Adoption — The legal and voluntary taking in of a kid of other parents and treating them as one's own, as provided by the country's laws. The adopted kid, whether related or not to the adopter, receives the rights and status of a biological child born to the adoptive parents through a legal process.

Legitimation - According to the laws of the nation, the legal vesting of a person with the same status and rights as a person born in wedlock.

Recognition - The voluntary or obligatory legal recognition of the fatherhood of a child born out of wedlock.

7.2. Key Function of CRVS:

1. **Registration:** A crucial event's occurrence and significant features are recorded and maintained in the civil registry.

2. **Certification:** The registered event is recognized with an official certificate. The certificate is a replica of the civil registration entry.
3. **Archiving:** Individuals and families can access and retrieve copies of their registration records by storing, archiving, and maintaining them. To preserve the integrity of the records and prevent fraud, this necessitates a high level of secrecy and data protection.
4. **Information Sharing:** Other government organizations that require essential occasion data, for example, the Ministry of Health, populace registers, public measurements workplaces, annuity subsidizes frameworks, electing administrations, individual recognizable proof administrations, and, now and again, research foundations, get dependable and convenient data and information from the common enlistment center's office.
5. **Vital Statistics:** Individual records' data is anonymized before being aggregated, collated, tabulated, analyzed, and extensively disseminated to drive policymaking, programme planning, and monitoring, as well as to enlighten all stakeholders, including the general public.

Purpose of CRVS:

CR fundamental objective is to lay out the authoritative necessary archives by regulation. People can make cases of legitimate personality, common status, and familial connections because of the reported verification and long-lasting records created by CRVS.

- The right to a name and to lay out identity claims.
- Having confirmation old enough gives you the right to social security, for example, against child work or marriage.
- Admittance to administrations, for example, medical care, schooling, government managed retirement, and monetary exchanges for poor people.
- The capacity to participate in political systems like democratic and campaigning for office.
- The right to monetary interest, like property possession, formal business, legacy, and the utilization of banking and monetary administrations.
- The option to look for review in a courtroom.

This Act consolidated the several laws on the topic and harmonized the registration system across the country. The RBD Act of 1969 establishes a statutory authority at the federal level as well as in each state. The Registrar General of India is the central authority in charge of coordinating and integrating the actions of the Primary Registrars, who are the chief executive authority in charge of enforcing the RBD Act, 1969 in their respective states. As a result, the Registrar General of India has been entrusted with a number of essential roles and responsibilities in ensuring that the RBD Act is properly implemented throughout the country. The RGI's responsibilities are as follows:

- Chief Registrars' operations must be coordinated and unified.
- Issuing directives to states, as and when needed, for carrying out legislative provisions on birth and death registration,
- Provide states with guidance and explanations on the Act's provisions.
- Standardization of registration forms and methods, as well as the compilation of vital data, to ensure uniformity and comparability.

- Training organization,
- Organize public relations and other promotional activities.
- Submission to the Central Government of an annual report on the Act's operation, as well as
- Compilation of a national statistics report based on registration data and other sample surveys.

7.3. Benefits of functional CRVS system:

1) Statistical

- a) Recording every life event results in the most accurate, thorough, and timely health and demographic statistics.
- b) The constant and universal coverage of all critical events eliminates sampling error.
- c) Any degree of statistical analysis of disaggregated population data is conceivable.

2) Administrative

- a) Governments may collect more precise and up-to-date data about their citizens.
- b) CRVS can provide continuous information about the health and needs of small groups of individuals.
- c) It lays the groundwork for the creation of a national demographic record as well as a unique identity system.

3) Legal

- a) To obtain legitimate certificates as proof of legal status.
- b) Allows people to exercise their civil rights; provides access to social security and other government services

7.4. The person in charge of registering births and deaths is:

Area	Birth and Death Registration
Village Panchayats	Village Administrative officers (Panchayat <u>sewak</u>)
Nagar Panchayats	Health officer/ Executive Officers
Corporation/ Municipal Areas	Executive officers/Health officer/Sanitary Inspectors of the division
Plantations/Estates	Estate Manager/Plantation Manager

7.5. Formats – CRVS Registration:

The WHO has released the standard format for reporting vital events. Following are the forms of various vital events.

Form No. 1- Birth Report

Form No. 1A – Birth reported for adopted child

Form No. 2 – Death Report

Form No. 3 – Still birth

7.6. CRVS reporting in Rajasthan state:

In Rajasthan state, all parturition and mort must be registered under the Registration of Births and Deaths (RBD) Act of 1969 and the Rajasthan Births and Deaths Act of 2000. With general guidelines from the "Registration of Births and Deaths Act, 1969," Indian governments produced state-specific "Registration of Births and Deaths Rules." States began with manual registration systems before progressively transitioning to online registration systems. Rajasthan has been a leader in the digitization of the registration procedure.

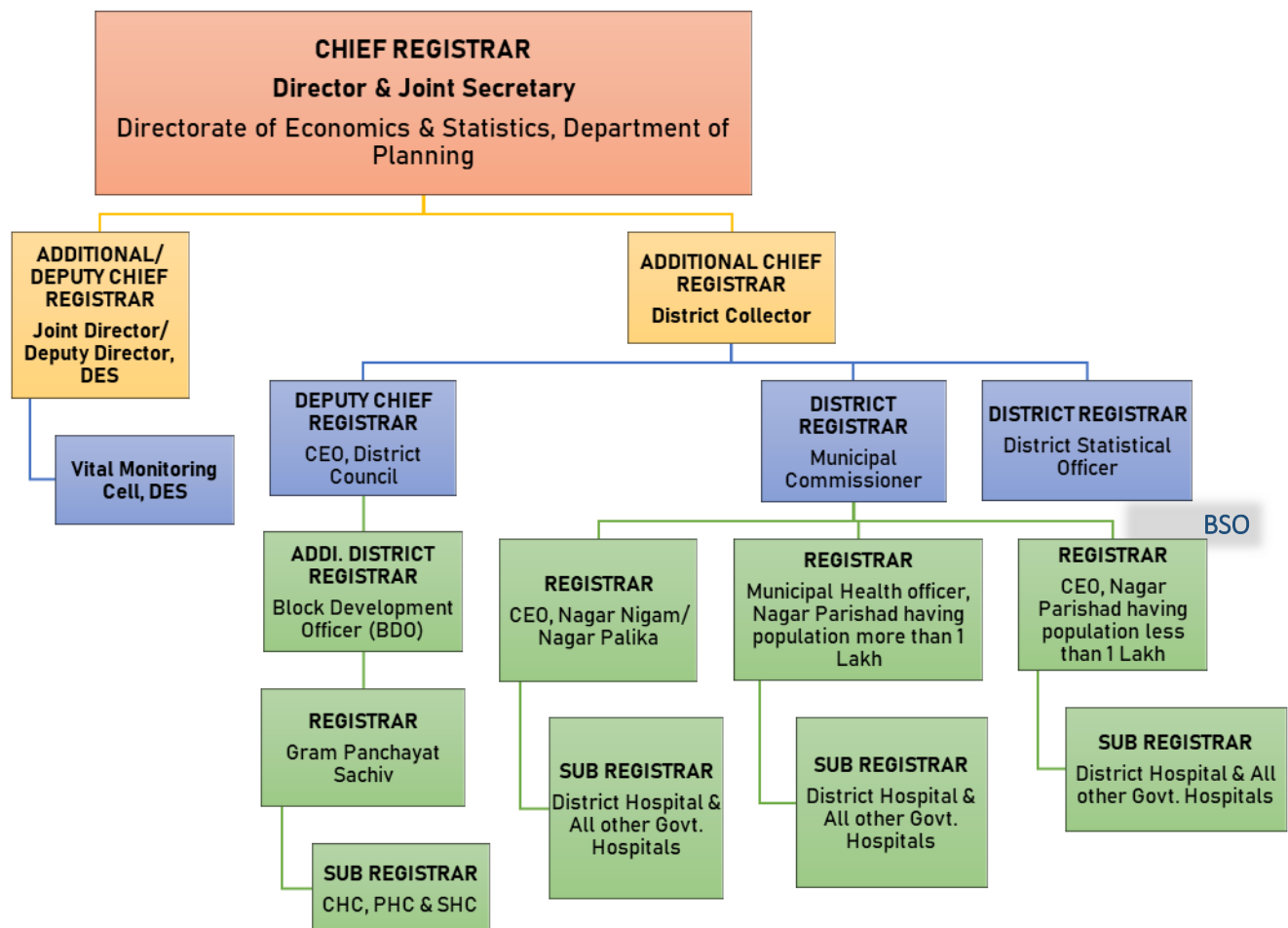
In 2014, the state created and deployed an indigenous registration system known as "Pehchan" across the whole state. In the years that followed, the Rajasthan Chief Registrar of Births and Deaths (Director of Directorate of Economics and Statistics) performed registrar capacity building and made required revisions to state legislation to allow online registration operations.

Many digital solutions that cater to social and economic services have been pioneered in Rajasthan. Rajasthan's Directorate of Economics and Statistics (DES) envisioned an online births and deaths registration system and cooperated with the state's NIC (National Informatics Centre) to establish the "Pehchan" online site. The database structures and logic necessary for online registration were collaboratively created by DES and the Rajasthan NIC. At the same time, they created an interactive decision portal for the Chief Registrar that included all of RGI's vital data tables as well as extra tables for tracking births and deaths in Rajasthan. After a limited trial period in one area in November and December 2013, DES was able to adopt this innovation across the state in 2014.

It was a commendable accomplishment since the whole manual registration system was transformed to an operational online system in just six months. The registrars were taught on a regular basis in a cascade fashion, with the district and block statistics officials receiving training first, followed by the registrars in their respective blocks and gramme panchayats. The geographical and internet connection issues were addressed thanks to a collaborative effort with the NIC, which assisted in providing regular video conferencing services and ensuring internet connectivity to all districts of Rajasthan.

Rajasthan kept innovating with this digital platform, integrating Aadhar and digital signatures with Pehchan in 2015. Marriage registration began in 2016, and the Bhamashah (single registry system) was fully integrated in 2017. Because of the system's effectiveness, the Chief Registrar of Births and Deaths of Rajasthan issued an order in 2018 mandating the use of digital certificates for all births, deaths, and marriage registration events. DES also realized that in order to increase Pehchan system adoption and utilization, they needed to reach out to registrars and beneficiaries at their convenience, which is why the Pehchan android app was created. On Pehchan, the state government has established "NICCI," an artificial intelligence chatbot for online help.

7.7. CRVS Hierarchy in Rajasthan state:



Inter-departmental role in CRVS Rajasthan:

- 1) **Planning & Statistics:** Nodal Department.
- 2) **Information Technology:** Development and management of Pehchan Portal.
- 3) **Health:** Registrar & Sub-Registrar functions.
- 4) **Panchayati Raj:** Registrar functions.
- 5) **Women & Child Development:** Notifiers.
- 6) **Urban Development:** Registrar functions.
- 7) **Education:** Notifiers.

7.8. Sample Registration System (SRS):

In the lack of reliable vital data from civil registration, the Office of the Registrar General of India began sample registration of births and deaths in India, also known as the Sample Registration

System (SRS), on a trial basis in 1964-65 then on a large scale in 1969-70. This is a dual-record system-based demographic sample survey. The major goal of SRS is to produce accurate estimates of birth and mortality rates for rural and urban areas separately at the state and national levels. It also includes a number of additional fertility and mortality indicators.

The field study entails a continuous enumeration of births and deaths in chosen sample units by resident part-time enumerators, usually Anganwadi workers and teachers, as well as an independent retrospective survey every six months by SRS supervisors. The features of SRS that assure the accuracy of crucial event reporting are as follows:

1. Only a sample of the population is studied, not the entire population.
2. It employs a dual-recording system:
 - a. A baseline survey of sampled units is conducted first.
 - b. A continuous enumeration of vital events in the regions is then conducted by an enumerator (who is a volunteer from the community).
 - c. Independent retrospective 6-monthly surveys are conducted to record births and deaths that happened in the previous 6 months, and the number is compared to the one given by the enumerator.
3. Not only should the numbers of critical events match, but it is also checked to see if the births and deaths recorded by the enumerator match those discovered by the survey. The observer refers to this as 'Matching of events.'
4. The Sample Registration System (SRS) now offers accurate yearly data on fertility and mortality at the state and national levels for rural and urban regions separately. The sample units, villages in rural regions and urban blocks in urban areas, are replaced once every 10 years in this study.

7.9. Registration of Death:

Deaths are enlisted within the deaths form which have two segments: the legal portion and the statistical portion. The lawful portion is kept at the gram panchayat office in case of rural zones and within the nagarpalika in case of urban zones and the measurable portion beside a unthinkable compilation is sent to the panchayat samiti within the rustic ranges, where it is compiled by the PEO and sent forward to the Locale enlistment center together with a unthinkable compilation of the information. Within the urban ranges, the information from the nagarpalika is sent to Area enlistment center. The DSO sends them forward to the Directorate of Economics and Statistics for last compilation and publication.

A medical officer tasked with two responsibilities. 1st to Determine the cause of death and pronounce the person deceased; the second is to certify it. After determining that the person is deceased, he fills out a "Death Report" as an informant. For each death, both the Legal Information and Statistical Information sections of the death report must be completed. These, together with the medical certificate of cause of death, must be delivered to the death registrar's office.

The second duty, issuing a Medical Certificate of Cause of Death, is done by the same medical officer who proclaimed the individual dead if the medical officer is completely confident of the cause of death and if it is a natural death.

Natural Fatalities include mort caused by old age and deaths caused by any naturally occurring disease or its complications. Correct information about the cause of death is critical because if the death is not natural or the reason of death is unknown or uncertain, the subsequent course of action will be different.

The bottom section of the MCCD must presented by family at the cremation ground/municipality office granting cremation authorization; failure to do so would ensure that the body cannot be cremated.

The death was not caused by biological cause. The MCCD is completed either by the medical professional who performs medicolegal autopsy or by the hospital administrative authorities as soon as the autopsy is completed. Because the medical officer has exclusive responsibility in determining the cause of death, adequate documenting of the cause of death by him is critical. Wrong diagnosis or certificate fill-up may result in a large inaccuracy in mortality numbers, which will have a direct impact on the formation of national health policy.

Responsible person for reporting of death:

The medical officer in charge of the hospital or PHC where the delivery/mort occurred is responsible for reporting the death for registration.

The head of the household/nearest relative is responsible for reporting all births and deaths that occur in the home.

7.10. Formats – Death Registration:

- **Form 4-** Medical certificate of cause of death form for the death occurred in hospitals.
- **Form 4A-** Is MCCD form for death occurred in housed, (MCCD).
- **Form 6-** Death certificate.

MCCD is available in two formats: one for perinatal fatalities and another for all other deaths.

There are two variations for hospital deaths and non-hospital deaths in the one to be utilised in non-perinatal deaths.

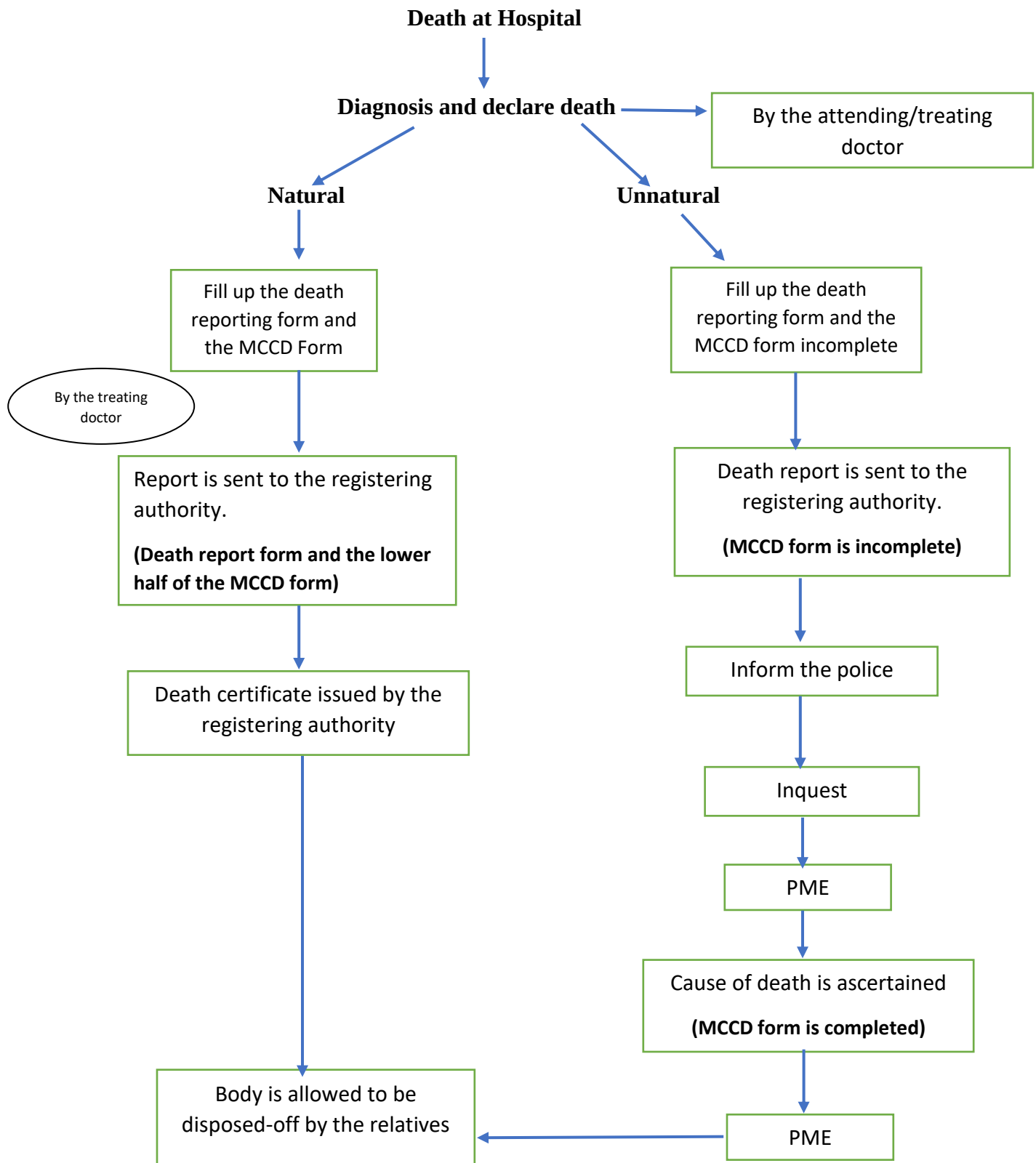
Per-natal fatalities:

The certificate of Cause of Peri-natal Death should ideally used for all neonatal deaths up to 28 days following delivery.

It should include extensive information on the mother's current and previous obstetrical history, as well as medical information on the dead child, siblings, and the mother.

This special form is to be used for reporting peri-natal fatalities, which allows for a full statistical study of such deaths, due to the multi-factorial effect on peri-natal deaths.

7.11. Chronology of death reporting in hospital



7.12.. Scheme of MCCD: Status of Implementation:

In order to require the MCCD Scheme forward in an orderly way within the nation, the RGI has been awing upon all the States/Union Domains to bring all hospitals (Government & Private) and private medical specialists beneath its scope, both in rural as well as urban zones by forcing issue of Notice. In this setting, a notice has been issued by the Government of Rajasthan moreover to bring all Government medical institutions beneath the plot of MCCD and 2363 hospitals are detailing beneath this plot. The scheme is constrained to institutional deaths only. The scheme is limited to institutional deaths only and a large number of rural as well as urban events occurred at home are not being covered under this scheme.

Because of its significance, a provision in RBD, 1969 has been provided for certification by a medical practitioner who has visited the deceased during the latter's last illness. The Act also includes an enabling clause that allows the State Government to implement a system of medical certification of cause of death in specific locations, considering available facilities and other relevant considerations. The relevant parts of the Act are provided in Section 10(2) & Section 10(3). The Act also includes a clause regarding the confidentiality of cause-of-death information contained in registration records. Section 17(1)(b) of the Act is the applicable section.

7.12.a. Cause of death:

A disease, anomaly, injury, or poisoning that led directly or indirectly to death is referred to as a cause of death.

In 1967, the 20th World Health Assembly defined the causes of death to be entered on the medical certificate of cause of death as “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”.

More than one of the aforementioned requirements may be present in a particular circumstance, and they may be wholly unconnected to one another or causally related to one another, i.e., one leading to the other, thus generating a sequence.

7.12.b. Sequence of Cause of Death:

For the sake of tabulation, the underlying cause, i.e., sickness or injury that started a chain of events, will be chosen.

The underlying cause of death is either by the sickness or injury that started the chain of morbid events that led to death, or the accident or violence that resulted in the fatal injury.

All of these morbid illnesses or injuries that occur as a result of the UCOD are referred to as antecedent and immediate causes of death.

The importance of recording the sequence correctly lies in the fact that appropriate strategies can be adopted to cut the chain at its most vulnerable point and thus prevent death.

7.12.c. Method of certification of cause of death:

The WHO devised the medical section of the certificate to make reporting the UCOD and obtaining information about the causative and pathological sequence of events that led to death easier.

It is divided into two sections:

1. The sequence of events leading up to death, and
2. Other relevant condition that led to the death.

This section should be prepared by the ministering physician or another physician who is familiar with the case history.

PART – I of the cause of death statement:

One cause is to be entered on each line of Part I. The underlying cause of death ought to be entered on the least line utilized in this portion.

Line (a): ICOD

The direct or immediate cause of death is detailed on line (a). This is often the malady, harm, or complication that straightforwardly preceded death. It can be the sole section within the statement in the event that as it were one condition was show at death. There must always be an entry on line (a).

The mode of dying (e.g., heart disappointment, respiratory disappointment) ought to not be expressed at all since it is no more than a symptom of the reality that death happened and gives no valuable data.

In the case of a violent death, enter the result of the outside cause (e.g. break of vault or cranium, pulverized chest).

Line (b): Due to (or as a consequence of)

In the event that the condition on line (a) was the result of another condition, record that in line (b).

This condition must be antecedent to the immediate cause of death, both with regard to time and etiological or neurotic viciousness or circumstances of mishap is predecessor to a damage entered on line (a) and ought to be entered on line (b), in spite of the fact that the two occasions are nearly synchronous (e.g., car mishap, drop from tree).

An antecedent condition might have fair arranged the way for the ICOD, by harm to tissues or disability of work, indeed after a long interval.

Line (c):

The condition, in case any which gave rise to the antecedent condition on line (b) is to be detailed here. The comments given for line (b) apply here too. In case the condition on line (b) is the underlying cause, nothing more be entered on this line. Be that as it may, in the event that the

grouping of occasions comprises more than three stages, additional line (and sections) may be made in part I.

However, numerous conditions are included; type in the complete grouping, one condition per line, with the foremost later condition (immediate cause) at the best, and the earliest (the condition that begun the grouping of occasion between typical wellbeing and death) final.

Normally the condition or circumstance on the least line utilized in portion I will be taken as the premise for fundamental cause statistics, in spite of the fact that classification of it may be altered to require account of complications or other conditions entered by extraordinary arrangements of the ICD.

PART-II other significant conditions:

Enter, in order of importance, all other illnesses or conditions accepted to have unfavorably impacted the course of the morbid process and in this way contributed to the overall result, but which were not related to the illness or condition specifically causing death.

There will be cases where it'll be troublesome to choose whether a condition important to passing ought to be recorded as portion of the fatal sequence in part I or as a contributory condition in part II.

Conditions in part I ought to speak to an unmistakable grouping so that each condition may be respected as being the result of the condition entered quickly underneath it. Where a condition does not appear to fit into such an arrangement, consider whether it has a place to part II.

7.13. Importance of MCCD scheme:

Mortality data are critical for improved health planning and programme administration, as well as for implementing effective and planned control measures for people's welfare. It also gives medical practitioners a mortality profile and provides scientific and fundamental information for medical study. It is also beneficial to understand the impact of health deliveries and to assess health indicators such as infant mortality, maternal mortality, and so on. It aids in determining the scale of newly emerging diseases such as COVID-19, black fungus, monkeypox etc., as well as understanding the trend and changing mortality pattern of diverse diseases.

A good vital registration system requires comprehensive and detailed hospital death certificates. VR systems help health policymakers make better decisions by directing resources to localized health issues. Hospital death certificates have been shown to be of low quality in a number of nations, despite the fact that physician-certified DCs are the gold standard in identifying COD. Incorrect or incomplete DCs might lead to erroneous inferences from health data and misdirect efforts to address time-sensitive health concerns.

7.14. Analysis of MCCD scenario in Rajasthan state for year 2020:

The data is acquired from the RGI and Census Commissioner of India's annual MCCD report for 2020, which was released on May 25, 2022. According to the MCCD 2020 report, we have taken Rajasthan state's position as of 2020. According to the study, the total number of deaths reported in the state Rajasthan in 2020 was 477151, and the Medical Certification of Cause of Death – 2020 was 77626. The percentage of medically certified deaths was 16.3 percent of all recorded deaths, less than the national average of 22.5 percent in 2020. According to the National List, the total number of medical institutions reporting MCCD data in the Rajasthan state is 4725.

The MCCD, which is part of the CRS, has been phased in the states/UTs to give data on causes of death. However, it has only been implemented in hospitals that have been notified by the CRs of Births and Deaths. As a result, the system primarily covers deaths that occur in medical institutions.

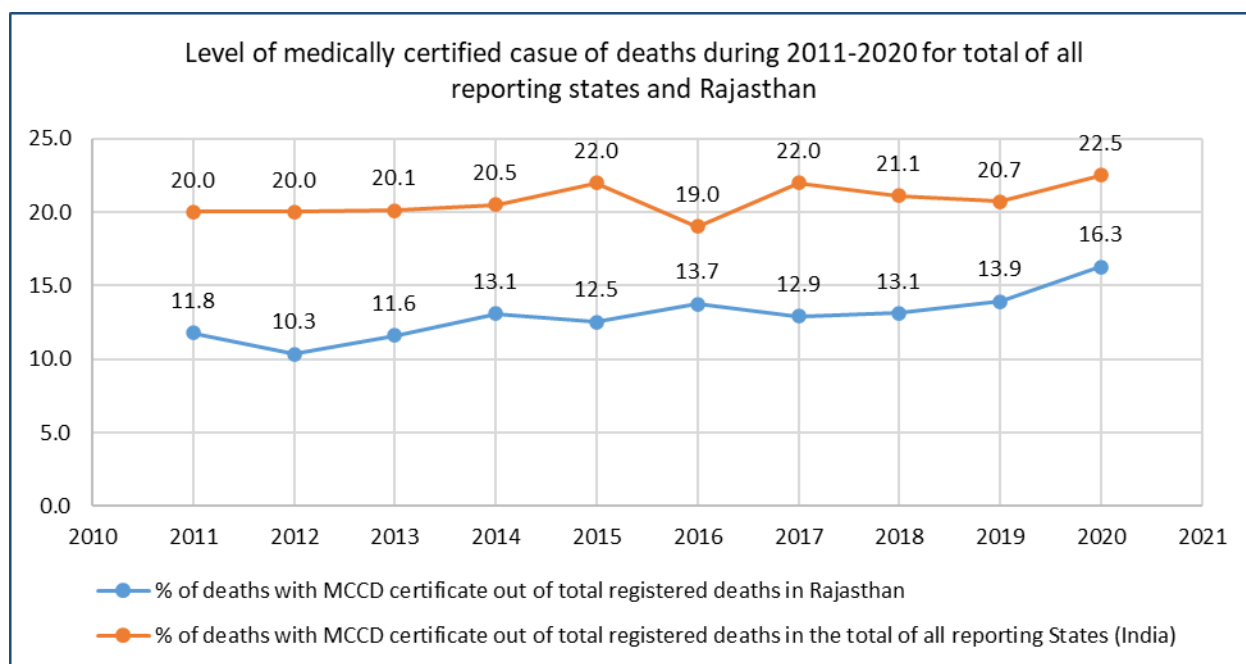
Following is the time series data of MCCD reporting in Rajasthan state from 2016 to 2020.

Table No. 1: Percentage of MCCD reporting in Rajasthan state (2016-2020)

Percentage of Medical Certified death to registered death in State Rajasthan (Year 2016 to 2020)			
Year	Total Registered Death	Medically Certified Deaths (TOTAL)	% Of deaths with MCCD certified out of total registered deaths in Rajasthan
2016	416992	57260	13.7
2017	424763	54784	12.9
2018	443173	58145	13.1
2019	451315	62782	13.9
2020	477151	77626	16.3

Rajasthan state contributes for 16.3 percent of all medically certified cause of death registrations, according to the MCCD report 2020. There is a 2.4 percent improvement in MCCD reporting compared to the previous year, which is promising, but the state is still lagging underneath the national average (i.e., 22.5 percent). However, it has only been implemented in hospitals that have been notified by the CRs of Births and Deaths. As a result, system primarily covers fatalities that occur in medical facilities. The scheme's scope in terms of rate level of therapeutic certification as well as the sort of clinics included changes by state/UT. To guarantee that the MCCD arrange is executed in a orderly way over the country, the RGI has encouraged all States/UTs to incorporate all clinics (public and private) and private therapeutic professionals in its scope, both in provincial and urban locales.

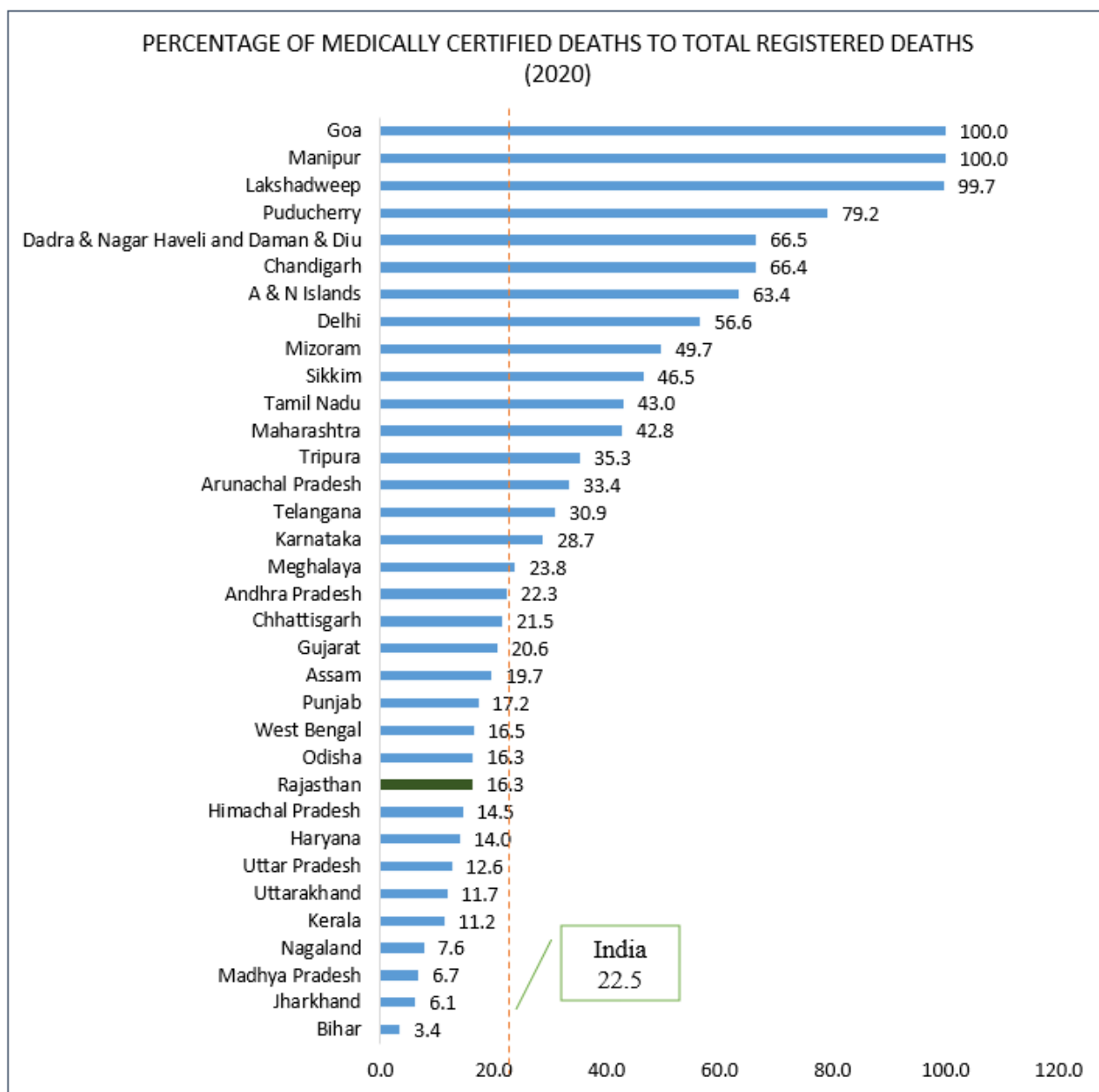
Figure No. 1: Comparison of MCCD registration in Rajasthan state with national average (2011 to 2020)



The percentage of medically certified deaths to total recorded deaths was used to rank states and territories. Manipur and Goa recorded 100 percent registered fatalities as medically certified in 2020, followed by 99.7 percent in Lakshadweep, 79.2 percent in Puducherry, 66.5 percent in D & N Haveli and Daman & Diu, 66.4 percent in Chandigarh, 63.4 percent in A & N Islands, and 56.6 percent in Delhi. Tamil Nadu (43.0 percent) has the greatest percentage of MCCD among major states, followed by Maharashtra (42.8 percent), Telangana (30.9 percent), Karnataka (28.7 percent), Andhra Pradesh (22.3 percent), and Gujarat (20.6 per cent).

With a focus on Rajasthan, we can observe that the state has just 16.3 percent of MCD to total recorded deaths reporting and ranks 25th out of all 34 states in terms of MCCD requirements by 2020.

Figure no. 2: Rajasthan position with respect to other states and Union territories (2020)

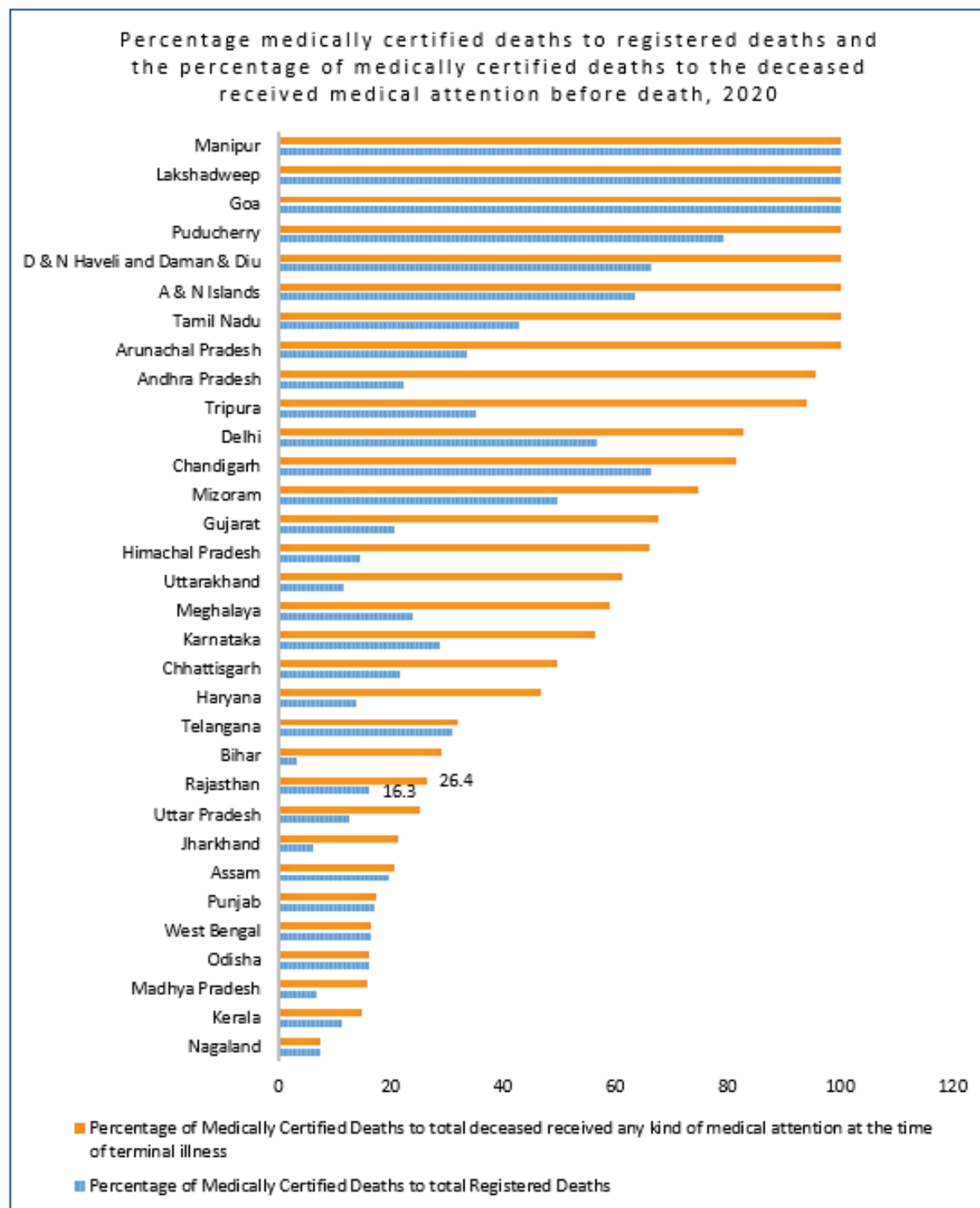


7.14.a. Percentage of medically certified deaths received any sort of medical assistance at the time of terminal illness- Rajasthan state (2020):

Figure 3 depicts the state-by-state difference in the percentage of MCD to total registered deaths and the percentage of medically certified deaths to total deceased who received any sort of medical assistance at the time of terminal illness. The chart shows the states where the deceased had get any form of medical assistance during their final illness, the percentage of MCCD is encouraging in States/UTs namely A & N Islands, Arunachal Pradesh, D & N Haveli and Daman & Diu, Goa, Lakshadweep, Manipur, Puducherry and Tamil Nadu, it is 100 percent.

When we look at the current state of Rajasthan, we can find that the total number of MCCD registered to total death registered is 16.3 percent, and the proportion of deceased who received medical treatment before death is 26.4 percent.

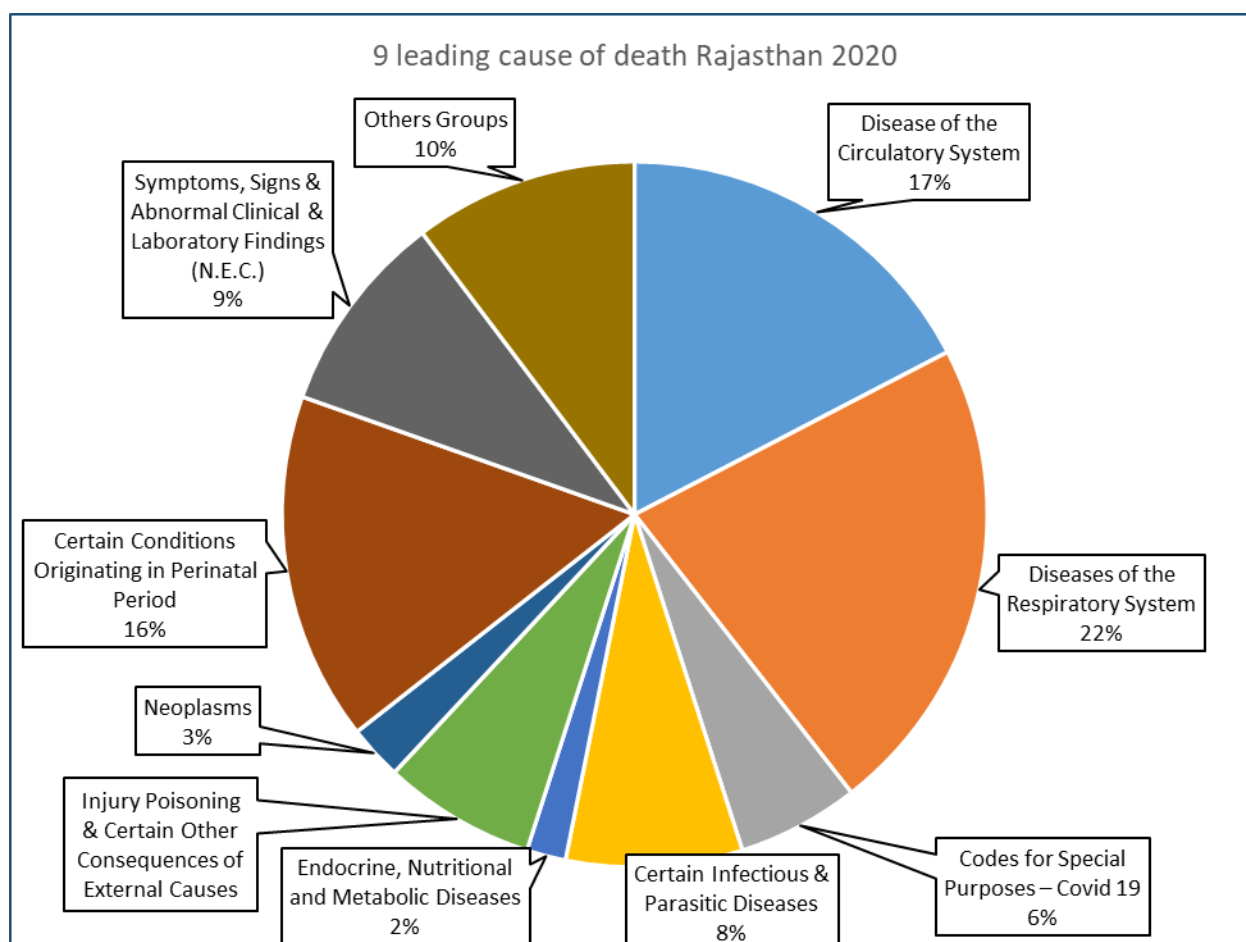
Figure No. 3: Percentage of MCCD to the percentage of diseased who received medical attention (2020)



7.14.b. Leading cause of death- Rajasthan state 2020:

Based on MCCD 2020 report, the 9 leading COD in Rajasthan state is due to Disease of the Circulatory System (I00-I99), Diseases of the Respiratory System (J00-J98), Codes for Special Purposes – Covid 19, Certain Infectious & Parasitic Diseases (A00-B99), Endocrine, Nutritional and Metabolic Diseases (E00-E89), Injury Poisoning & Certain Other Consequences of External Causes (S00-T98), Neoplasms (C00-D48), Certain Conditions Originating in Perinatal Period (P00-P96), Symptoms, Signs & Abnormal Clinical & Laboratory Findings (N.E.C.) (R00-R99). The most common causes of death in 2020 in state Rajasthan are shown in the below pie-chart.

Figure No. 4: Leading cause of death in Rajasthan state (2020)



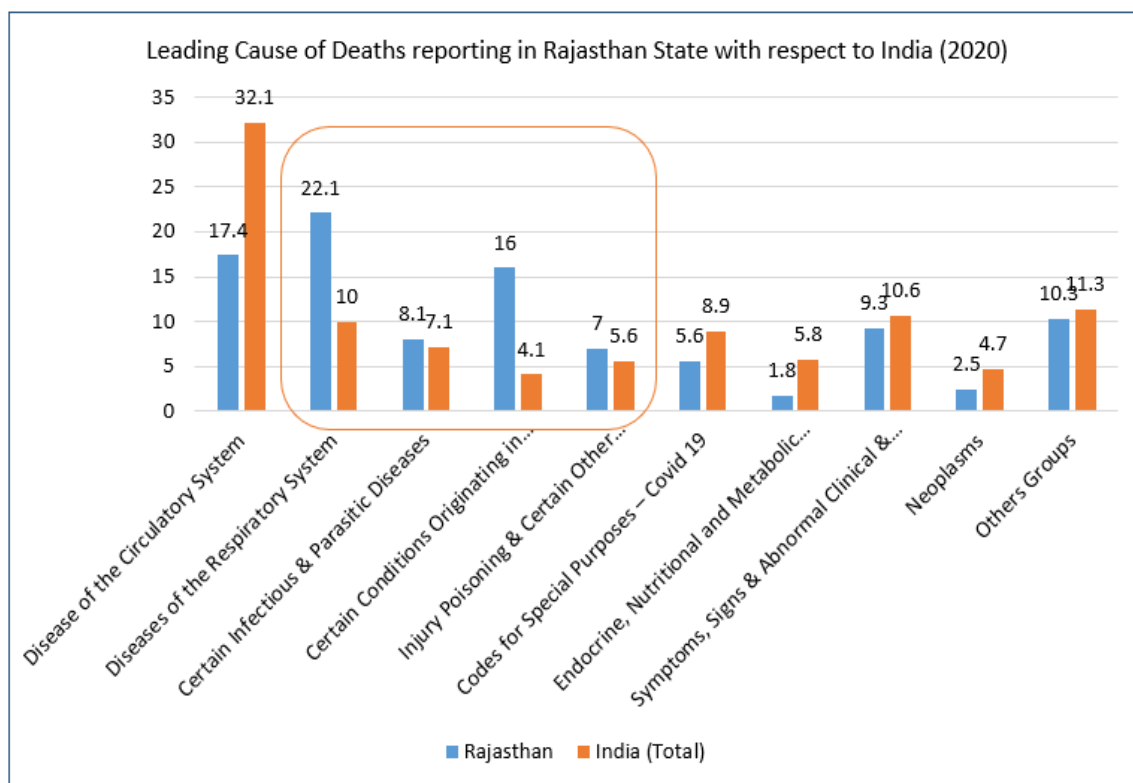
- The most common COD is "**Diseases of the Respiratory System**," which accounts for 22.1 % of all deaths.
- "**Diseases of the Circulatory System**," second top cause group, with highest number of fatalities (17.4%).
- With 16 percent of fatalities, "**Certain Conditions Originating in the Perinatal Period**" is the 3rd most common cause.
- "**Symptoms, Signs, and Abnormal Clinical & Laboratory Findings N.E.C.**" is the fourth cause group, accounting for 9.3 percent of fatalities.

- The main category "**Certain Infectious and Parasitic Diseases**" is the fifth most common COD, accounting for 8.1 percent of all deaths.
- 7 percent of the total leading cause category is "**injury, poisoning, and certain other effects of external sources.**"
- The newly included leading cause group "**Codes for Special Purposes – Covid 19**" accounts for 5.6 percent of the total reported death.
- "**Neoplasms**" and "**Endocrine, Nutritional, and Metabolic Disease**" respectively account for 3% and 2% of the cause categories. Other significant causes of mortality are responsible for 10% of all deaths.

7.14.c. Comparing registration of death based on cause of death: (2020):

When the total MCCD registered leading COD in Rajasthan compared to national data, we can clearly see that the four major cause of death groups, namely "Certain infectious and parasitic diseases", "Diseases of the Respiratory system", "Certain conditions originating in the perinatal period, out of total infant deaths", and "Injury Poisoning & certain other consequences of External causes", have a higher percentage of total MCCD death registered. In Rajasthan, the average MCCD registration for these four cause groups is higher than the average registration for any other cause group in India.

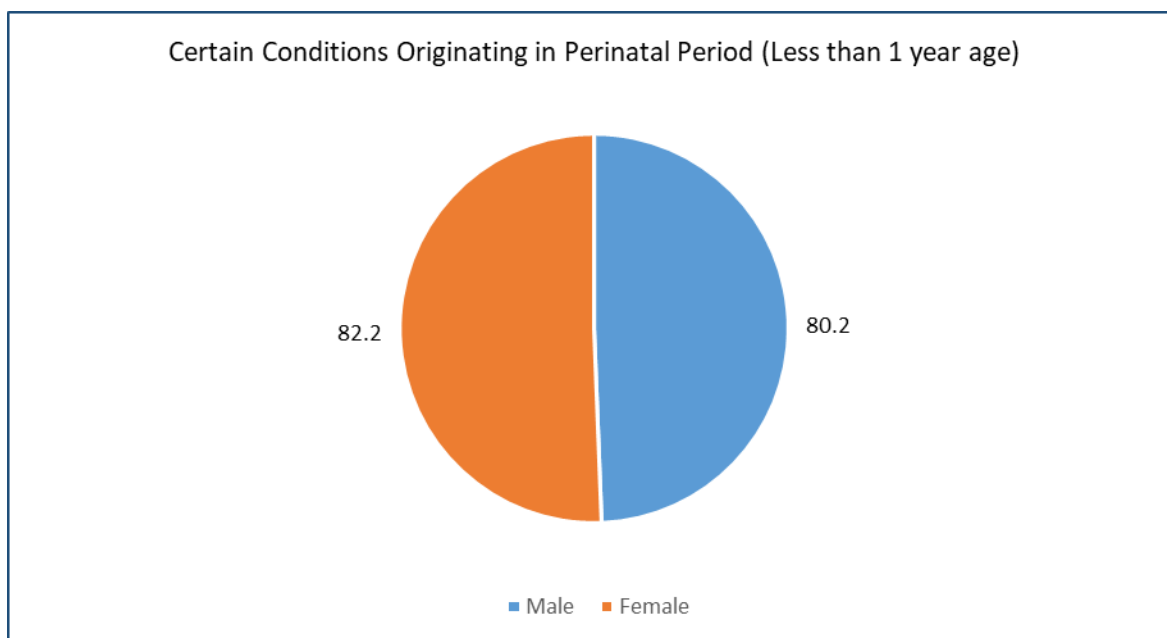
Figure No. 5: Leading COD reporting in Rajasthan State with respect to India (2020)



We can notify you that the majority of deaths in Rajasthan state are caused by the disease cause group "Diseases of the Respiratory System" (22.1 percent).

The second most common COD group is "certain illnesses starting in the prenatal period" (16 percent). As a result, we may conclude that the cause of infant death is more widespread in Rajasthan than in any other state in India.

Figure No. 6: % distribution of MCD by sex of "Certain Conditions Originating in Perinatal Period (Less than 1 year age)"

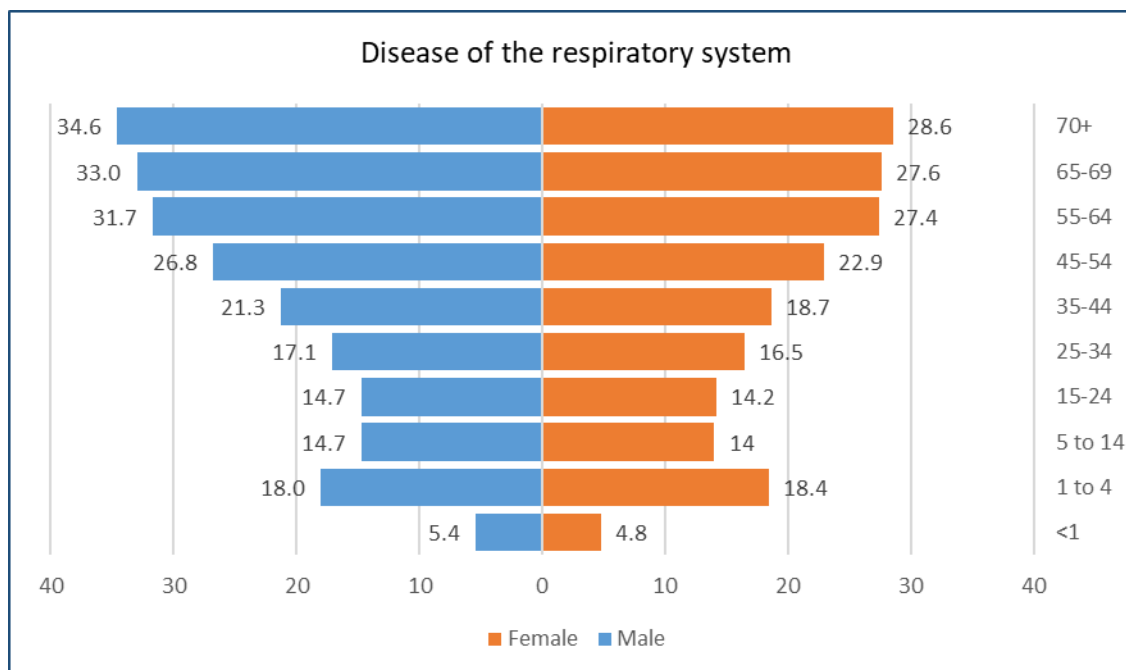


7.14.d. Leading cause of death in Rajasthan state (2020):

The % distribution of medically certified deaths by age & sex of four major cause groups (based upon 10th revision of ICD) namely "Certain infectious and parasitic diseases", "Diseases of the Respiratory system", "Certain conditions originating in the perinatal period, out of total infant deaths", and "Injury Poisoning & certain other consequences of External causes" during 2020 has been taken for further analysis.

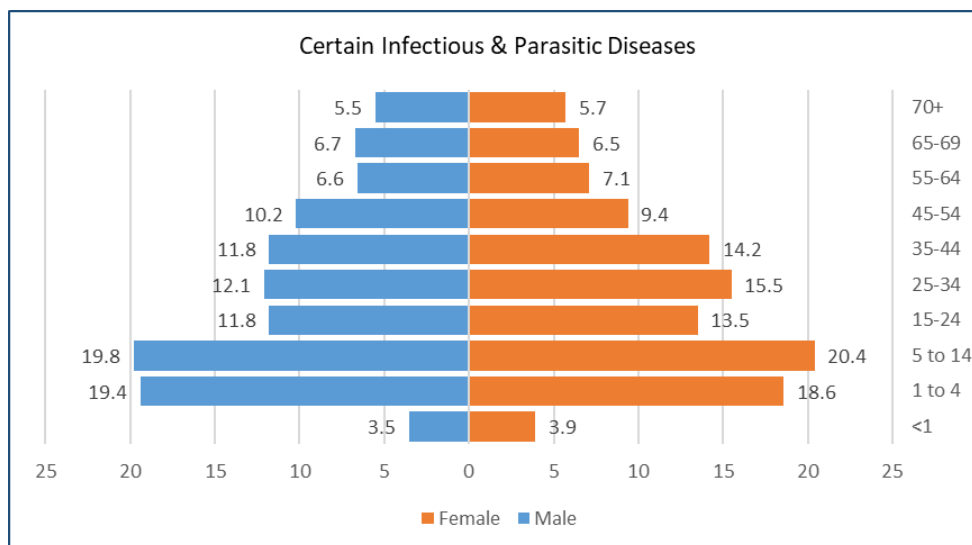
Death from "Diseases of the Respiratory System," are most common among age groups "55-64," "65-69," and "70+." That means, those aged 55 & above are more likely to die because of respiratory disorders. Male death registration, on the other hand, outnumbers female death registration in the above-mentioned age range. Here, we can also see the noticeable registration of death due to respiratory disorders in the age group "1 - 4".

Figure No. 7: % distribution of medically certified deaths by age & sex of “Disease of the respiratory system”



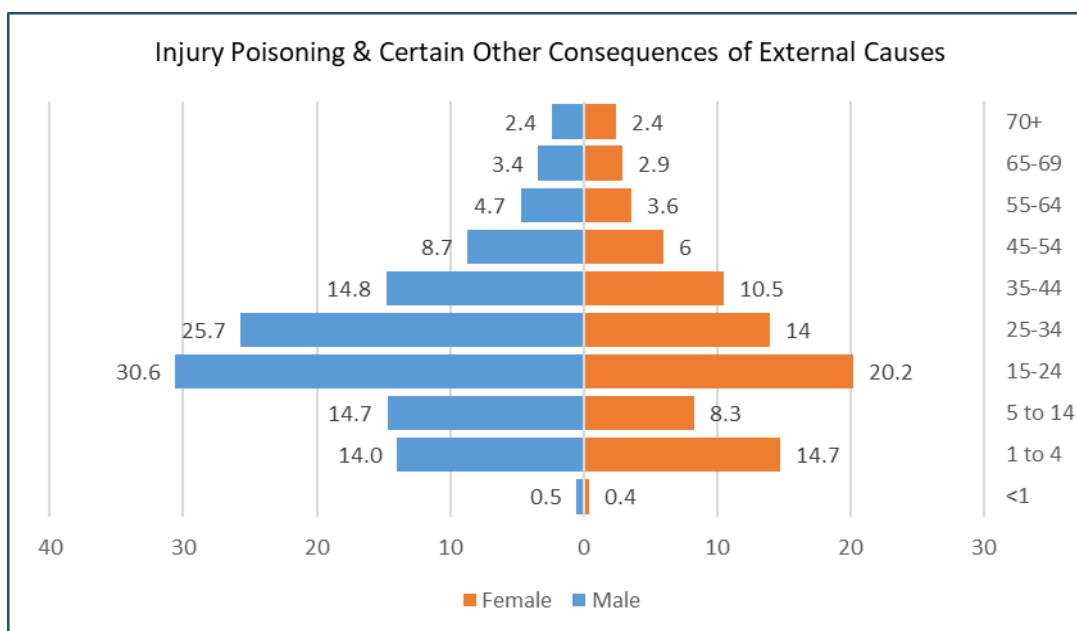
The diseases of cause group “Certain infectious and parasitic diseases” more prominent in the age group “1 – 4” & “5 – 14”. That concludes, young children (age 1 to 14), are mostly dying due to condition related to “infectious and parasitic diseases” in the Rajasthan state.

Figure No. 8: % distribution of MCD by age & sex of “Certain infectious and parasitic diseases”



The population of age group "15-24" is more noticeably dying due to cause group "Injury poisoning & some other consequences of external sources." In this cause category, we can readily see that males are more affected than females.

Figure No. 9: % distribution of MCD by age & sex of "Injury poisoning & some other consequences of external sources"



7.15. Analysis of MCCD scenario in Rajasthan state for year 2019:

According to a Rajasthan State government MCCD 2019 report, the total number of deaths registered in 2019 was 451315, & the MCCD – 2019 was 62782. The percentage of medically certified deaths was 13.9 percent of total registered deaths, which was lower than the national average of 20.7 percent in 2019. The total number of medical Institutions Reported MCCD Data as per the National List in state Rajasthan is 2363.

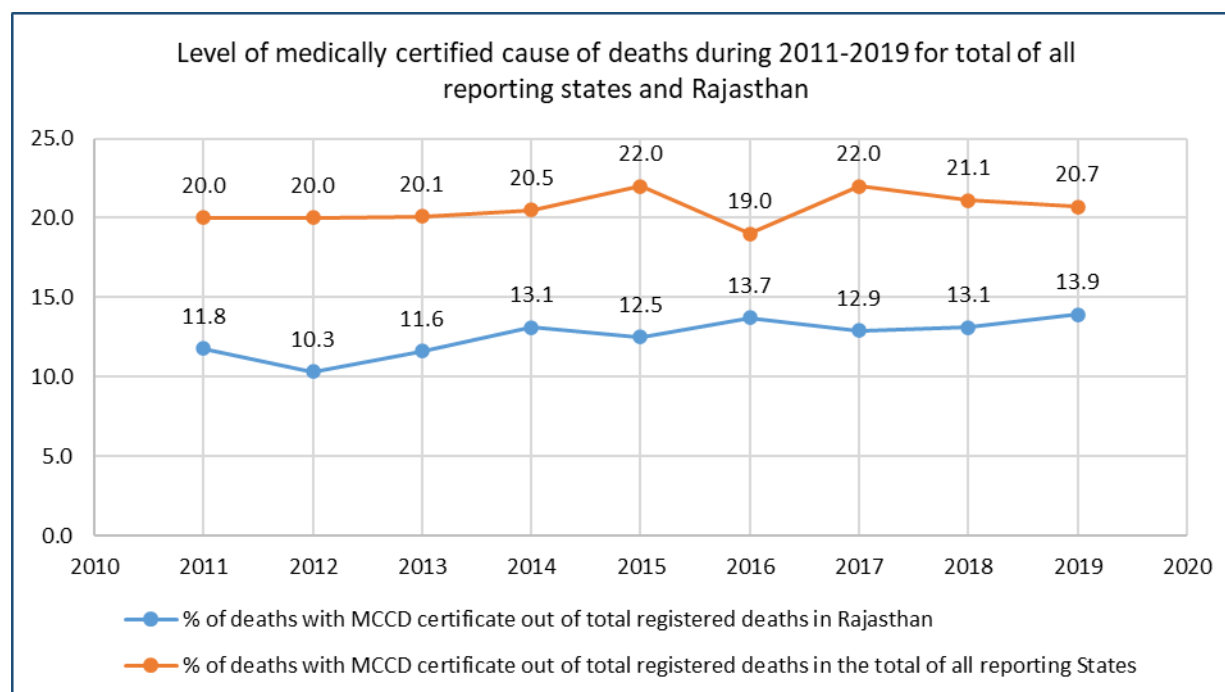
Though the number of deaths registered in the state is not low, the number of medically certified deaths registered is significantly lower than the overall no: of deaths registered. The reports of medically certified death registration from 2011 to 2019 are included here.

Year	Medically Certified Deaths (TOTAL)	Total Registered Death	% of deaths with MCCD certificate out of total registered deaths in Rajasthan
2011	42417	360560	11.8
2012	36913	356946	10.3
2013	46714	401656	11.6
2014	52085	397468	13.1
2015	51260	409463	12.5
2016	57260	416992	13.7
2017	54784	424763	12.9
2018	58145	443173	13.1
2019	62782	451315	13.9
2020	77626	477151	16.3

Table no 1: No: of registered death and medically certified registered death in state Rajasthan (2011-2019)

When comparing the % medical deaths recorded to total registered deaths in the state of Rajasthan to the national average during the last 9 years, it is obvious that the state has fallen behind the national norm. Following graph shows the Percentage of Medical Certified death to registered death in State Rajasthan in comparison with India (Year 2011 to 2019).

Figure No.10: Comparison of MCCD registered in Rajasthan with National average (2011-2019)

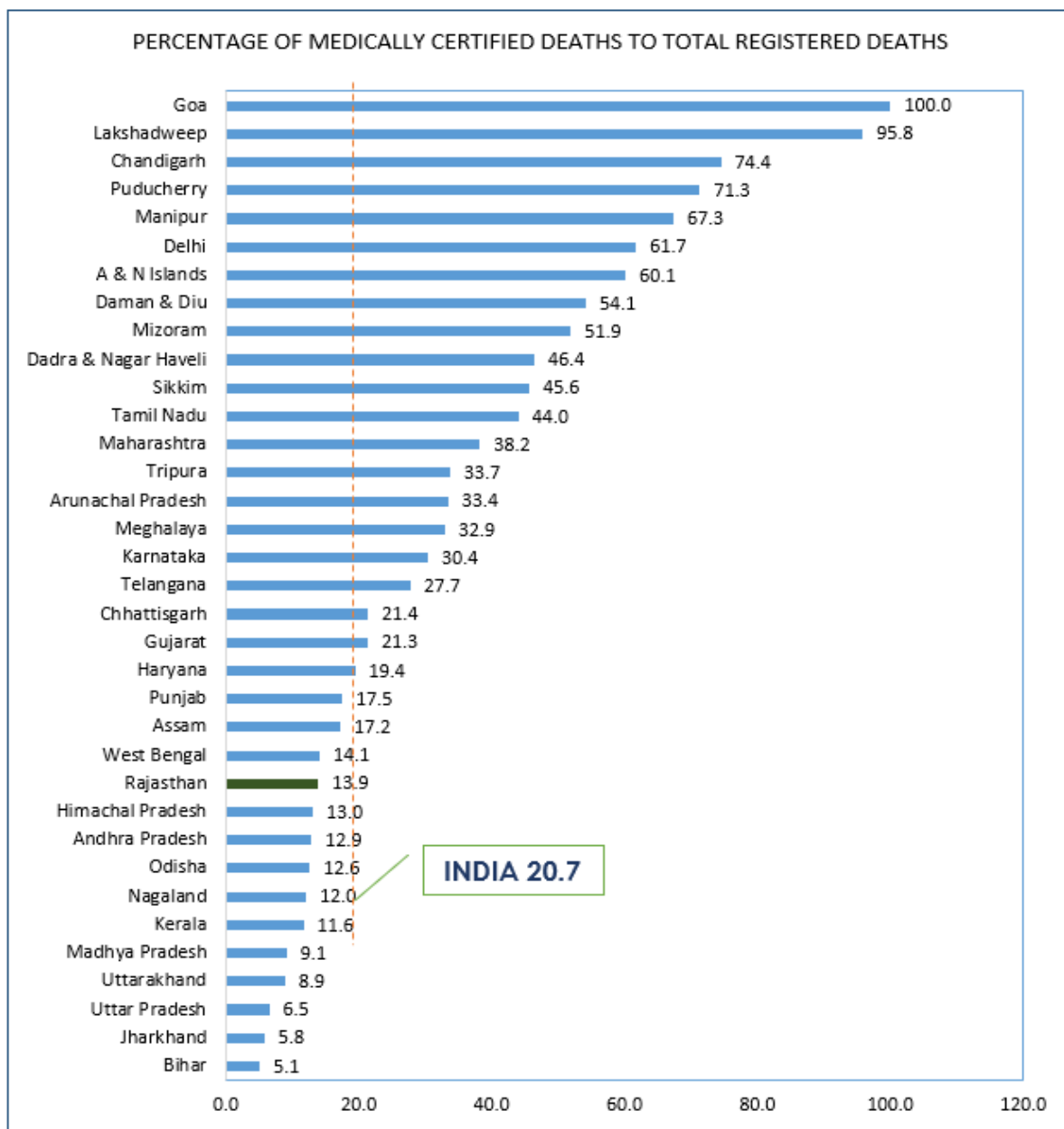


Despite India's substantial success in completeness of registration of death, the necessity of medical certification cannot be overstated; fundamental disparities within the CRS and MCCD continue to be a source of worry. In Rajasthan, concentrated efforts are needed to analyze the strengths and weaknesses of the MCCD and CRS procedures at the state level, as well as the quality of data and plausibility of information provided. There is a serious cause of concern and entails proper prioritization in effective implementation of the scheme by the State.

The 2019 MCCD reports are being considered for further examination. To rank states and territories, the percentage of MCD to total recorded deaths was utilized. Among major States, the highest level of medical certification of cause of death has been notice in Tamil Nadu (44.0 per cent), Maharashtra (38.2 per cent) Karnataka (30.4 percent), Telangana (27.7 percent) and Gujarat (21.3 percent). In terms of union territories, Goa came out on top with 100.0 percent medically certified deaths, followed by 95.8 percent in Lakshadweep, 74.4 percent in Chandigarh, 71.3 percent in Puducherry, 67.3 percent in Manipur, 61.7 percent in Delhi, 60.1 percent in the Andaman and Nicobar Islands, and 54.1 percent in Daman & Diu.

Centering on Rajasthan state, we can see that Rajasthan have only 13.9 percent of medically certified deaths to total recorded deaths and ranks at 25th position out of all 35 states within the year 2019 which are incorporate in MCCD standards.

Figure No. 11: Ranking/position of Rajasthan state with respect to other States/UTs

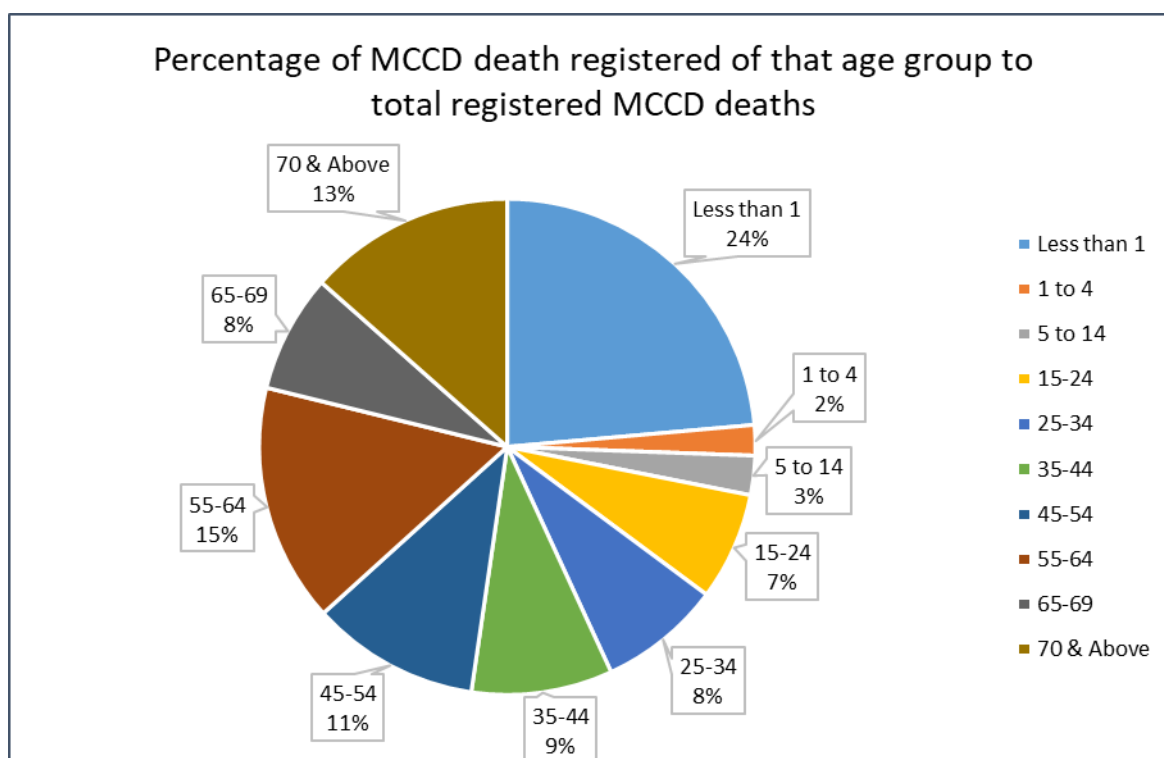


7.15.a. MCCD registered status: death by age group wise:

- Infants comprised for about 23.59 percent of all reported medically certified deaths (age <1 year)
- Children aged 1-4 contributed for about 1.98 percent of all reported medically certified deaths.
- Children aged '5-14' constituted for about 2.55 percent of all recorded MCD.
- The age group '15-24' accounts for 7.03 percent of all reported medically certified death.

- The age group '25-34' represented for 7.95 percent of all reported medically certified mortality.
- The age group '35-44' constituted for about 9.20 percent of all reported medically certified deceased.
- The age group '45-54' account for nearly 10.97% of all reported medically certified mortality.
- The age group '55-64' represents for 15.54 percent of all medically confirmed deaths.
- The age group '65-69' contributed for 7.69% of all reported medically certified fatalities.
- The age group 70 and up has the highest incidence (13.46 percent) of all MCD.

Figure No. 12: Percentage of MCCD death registered of that age group to total registered MCCD of state Rajasthan (2019)

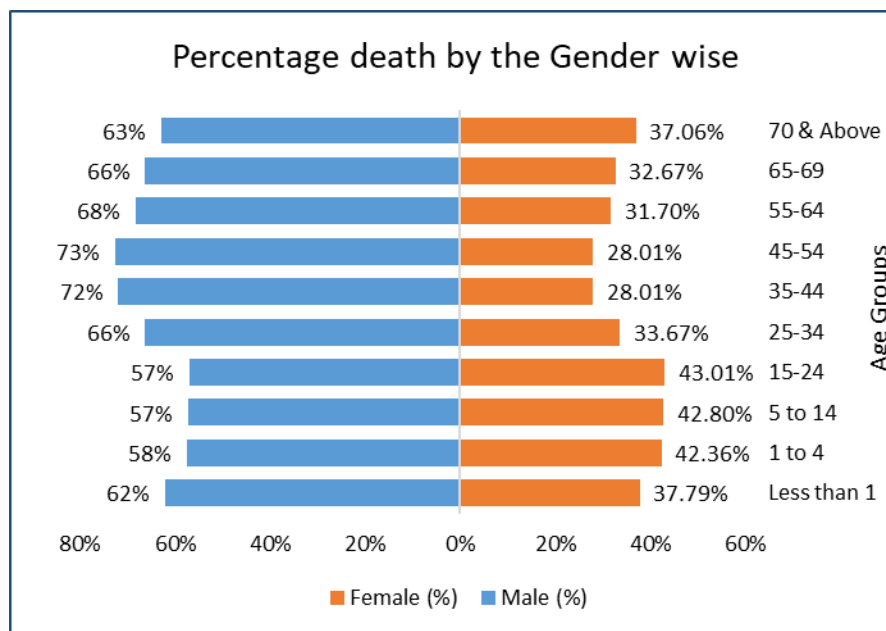


7.15.b. MCCD registered status: death by gender wise:

- Males account for 65.43 percent of all medically certified deaths, while females account for 34.57 percent.
- For all age categories, there is a considerable disparity between males and girls in medically certified deaths. The percentage difference is considerable across all age groups.
- Males account for 62.21 percent of infant deaths under the age of one year, while females account for 37.79 percent.

- In the age range 1-4, males contribute for 57.64 percent of deaths and females contribute for 42.36 percent.
- In the age range 5- 14, male deaths account for 57.20 percent and female deaths account for 42.80 percent.
- In the age range 5- 14, male deaths represent for 57.20 percent and female deaths reflect for 42.80 percent.
- Males contribute for 66.33 percent of deaths in the 25-34 age range, while females contribute for 33.67 percent.
- In the age range 35-44, men represent for 71.99 percent of deaths while women represent for 28.01 percent.
- In the 45-54 age range, 72.59 percent of deaths are male and 28.01 percent are female.
- The age range 55-64 has 68.30 percent male deaths and 31.70 percent female deaths.
- Male fatalities contribute for 66.33 percent of deaths in the 65-69 age range, while female deaths contribute for 32.67 percent.
- Males account for 62.94 percent of deaths in the 70+ age group, while females account for 37.06 percent.

Figure No. 13: Percentage death registered by the Gender wise: Rajasthan (2019)

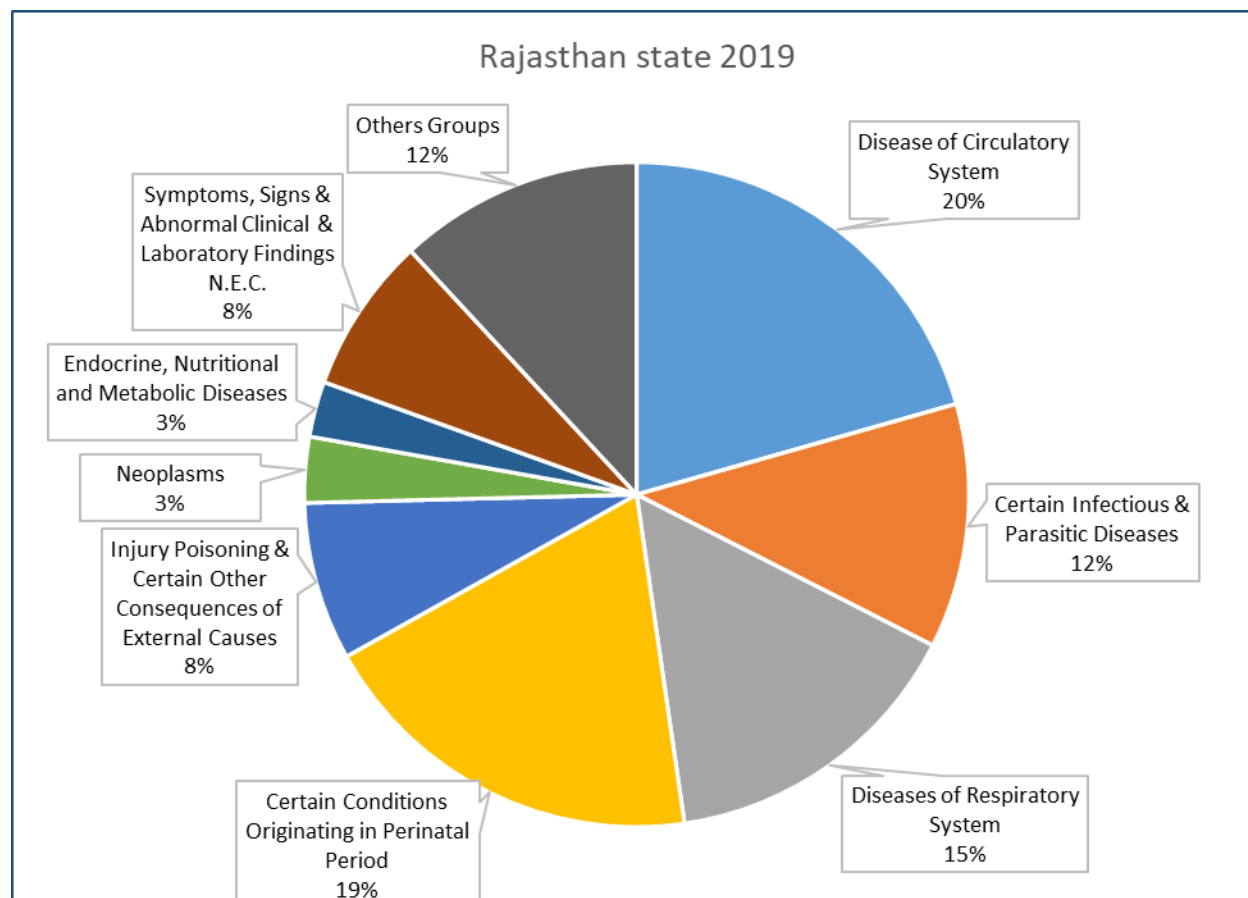


7.15.c. Leading cause of Deaths - Rajasthan State Scenario:

To promote meaningful comparison and drawing reliable conclusions, the data on MCCD has been given according to the National List based on the 10th version of the International Classification of Diseases (ICD-10). The eight leading cause groups of deaths viz., Diseases of the Circulatory System (I00-I99), Certain Infectious and Parasitic Diseases (A00-B99), Diseases of the Respiratory System (J00-J98), Endocrine, Nutritional and Metabolic Diseases (E00-E89), Neoplasm (C00-D48), Certain Conditions Originating in the Perinatal Period (P00-P96), Injury,

Poisoning and Certain Other Consequences of External Causes (SOO-T98) and Symptoms, Sign and Abnormal Clinical & Laboratory Findings Not Elsewhere Classified (ROO-R99). The most common causes of death in 2019 in state Rajasthan are shown in the below pie-chart.

Figure No.14: Leading cause of death in Rajasthan state (2019)

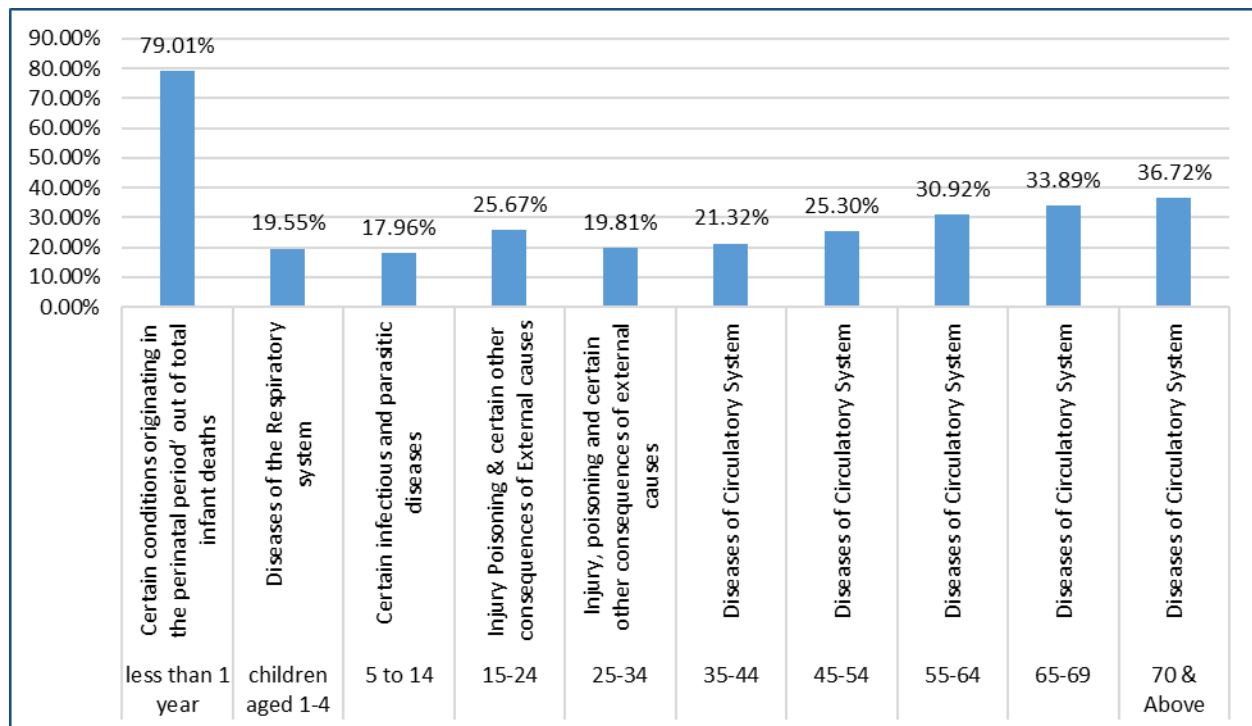


- Among the significant cause group "**Diseases of Circulatory System,**" greatest death rate accounts for 20.6 percent for "Diseases of pulmonary circulation of heart disease."
- The second leading cause group, "**certain conditions developing in the prenatal period,**" has the largest number of fatalities i.e.19.2 percent.
- "**Diseases of the Respiratory System**" is the 3rd greatest cause group, with 15.2 percent of fatalities.
- The fourth CG, is "**Certain Infectious and Parasitic Diseases,**" with 12 percent of fatalities attributed to "other Bacterial Diseases".
- The major category containing "**Injury, poisoning, and some other consequences of external causes**" is the 5th greatest COD comprises of 7.7 percent of the total leading causes.
- "**Symptoms, Signs & Abnormal Clinical & Laboratory Findings N.E.C.**" comprises of 7.6 percent of the total leading cause group.

- “Neoplasms” and “Endocrine, Nutritional & Metabolic Disease” account for 3.2 percent and 2.7 percent of the cause groups, respectively. The other major causes of death account for 11.9 percent of all deaths.

7.15.d. Leading Cause of Deaths - Age Groups wise:

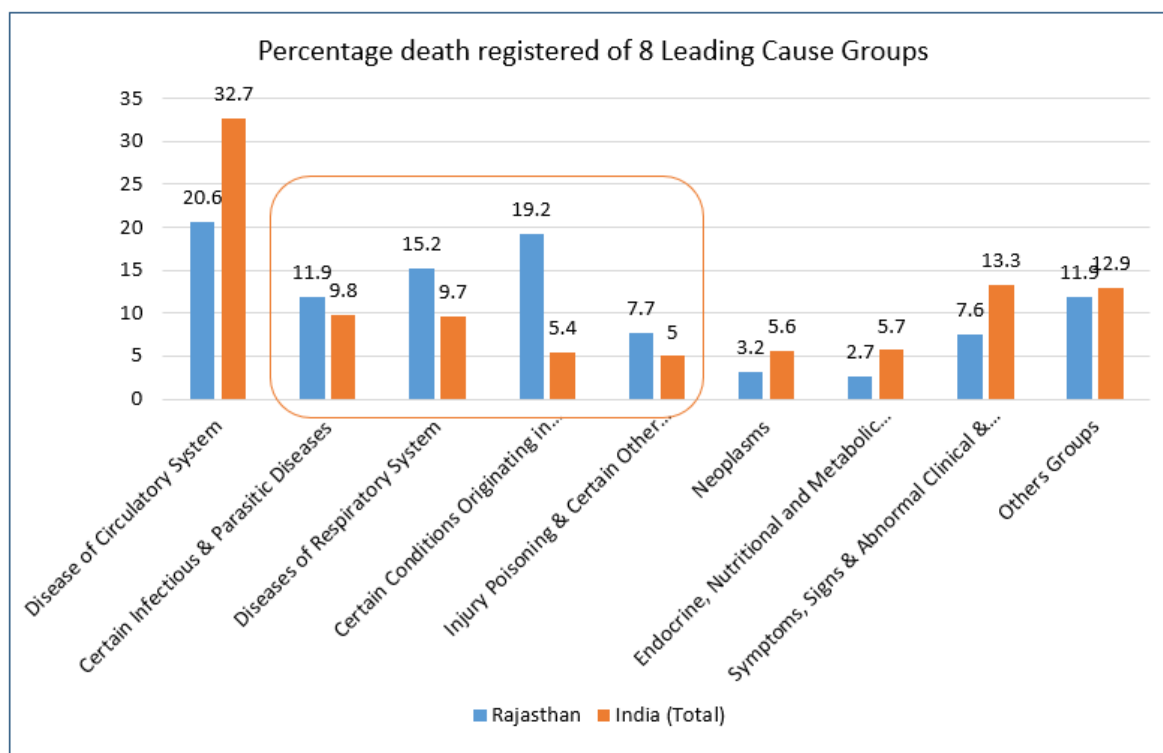
Figure No. 15: Leading Cause of Deaths of Particular Age Groups of Rajasthan State (2019)



- Out of all newborn fatalities, 79.01 percent have been documented to be caused by “certain conditions originating in the perinatal period.”
- “Diseases of the respiratory system” have claimed largest toll of 19.55 percent among children aged 1-4.
- The main group “Certain infectious and parasitic diseases” ranks first in age range '5-14,' accounting for 17.96 percent of the total.
- In the '15-24' age range, the major group, “Injury Poisoning & Certain Other External Causes”, is the foremost among the primary causes, accounting for around 25.67 percent.
- “Injury, poisoning, and certain other consequences of external causes” account for around 19.81 percent of deaths in the 25-34 age range.
- The top cause in the age range '35-44' is 'Diseases of the Circulatory System,' accounting for 21.32 percent.
- The leading COD for people aged “35-44”, “45 to 54”, “55-64”, “65-69” and age 70 above is “Diseases of the Circulatory System”, which contributes for 25.30 percent, 30.92 percent, 33.89 percent and 36.72 percent respectively of all deaths.

7.15.e. Comparing registration of death based on cause of death:

Figure No. 16: Leading Cause of Deaths of Particular Age Groups of Rajasthan State (2019)



Comparing the total MCCD registered leading cause of death in Rajasthan with national data, we can clearly see that the four major COD groups i.e. “Certain infectious and parasitic diseases”, “Diseases of the Respiratory system”, “Certain conditions originating in the perinatal period, out of total infant deaths” and “Injury Poisoning & certain other consequences of External causes”, has more percentage of total MCCD death registered than that of percentage of total MCCD registered in India, of that particular cause groups.

7.15.f. Leading cause of death – Four major disease causes:

As previously stated, the four major cause of death groups, namely "certain infectious and parasitic diseases," "diseases of the respiratory system," "certain conditions originating in the perinatal period, out of total infant deaths," and "injury, poisoning, and certain other consequences of external causes," are more commonly registered than national MCCD registered. Upon assessment of the sub-groups and disease-specific MCCD registration that fall under these four primary cause of death groups, Other bacterial diseases, TB disease, and viral diseases are the most common causes of mortality under the category "certain infectious and parasitic disorders."

Figure No. 17: Certain infectious and parasitic diseases

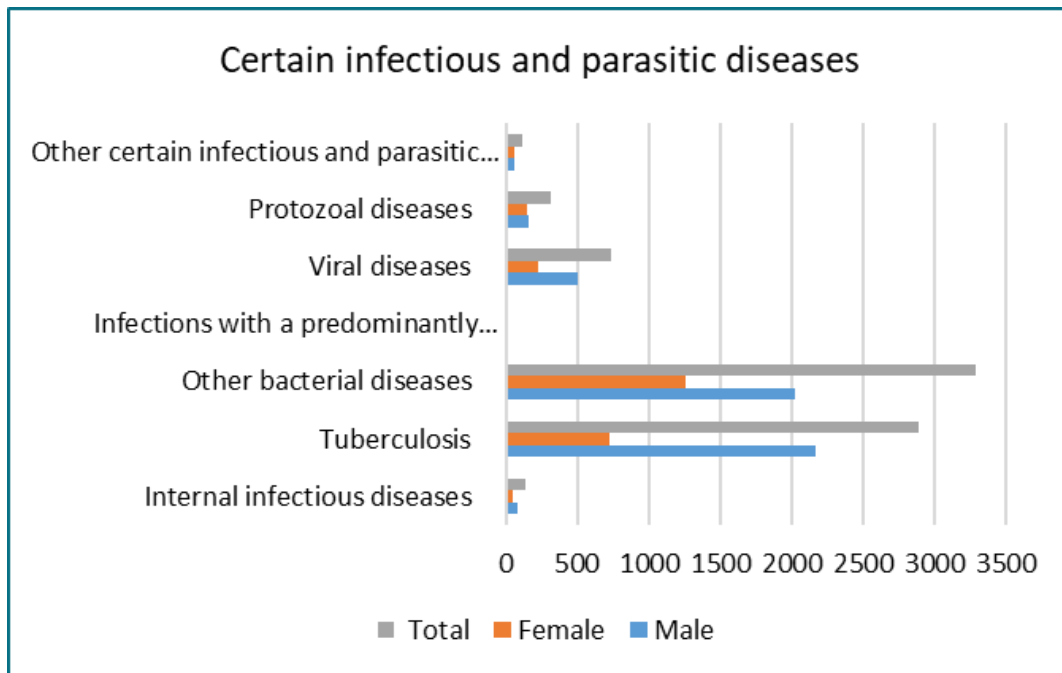
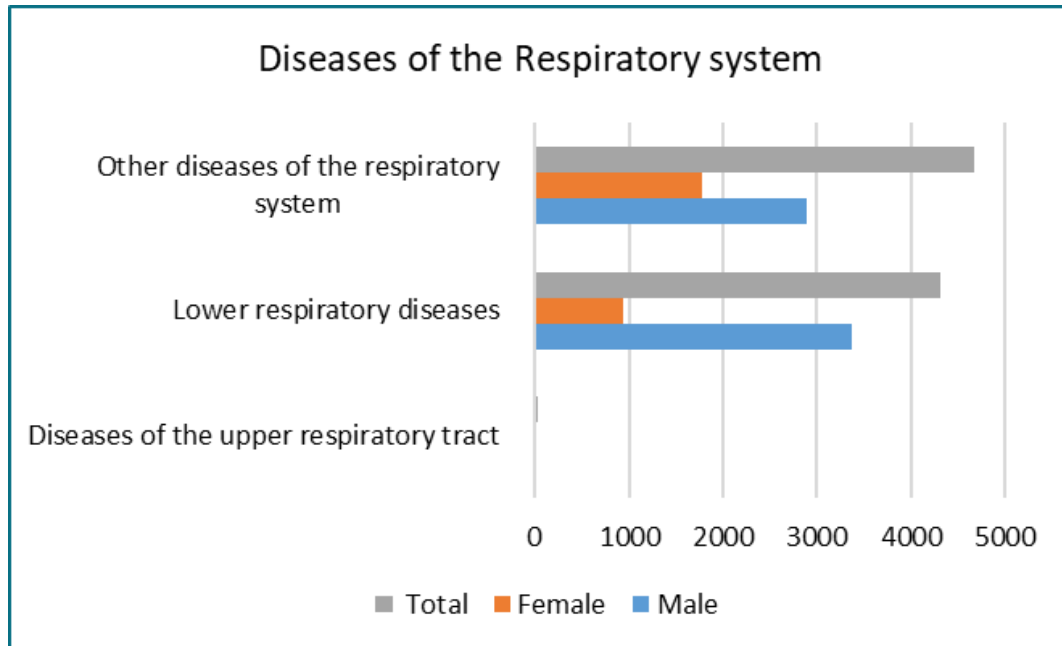
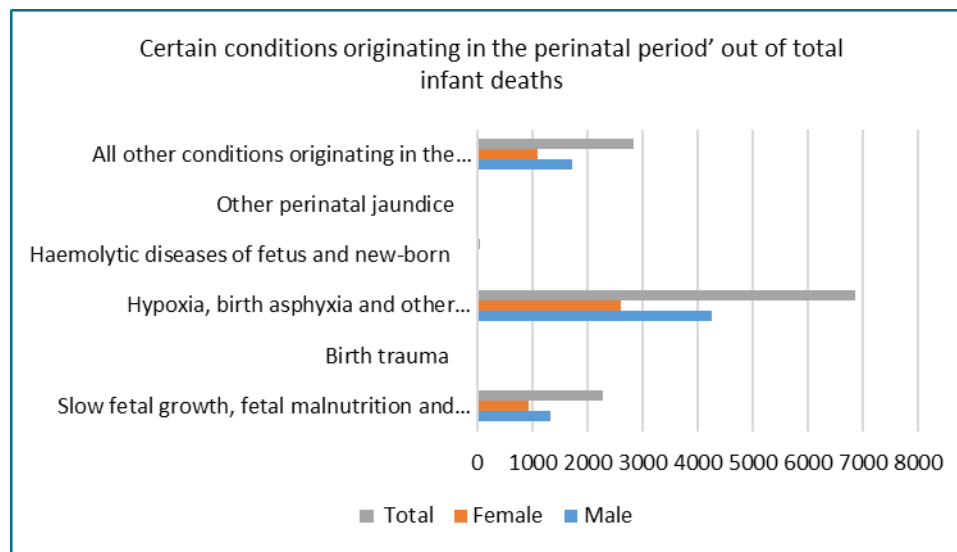


Figure No. 18: Diseases of the Respiratory system



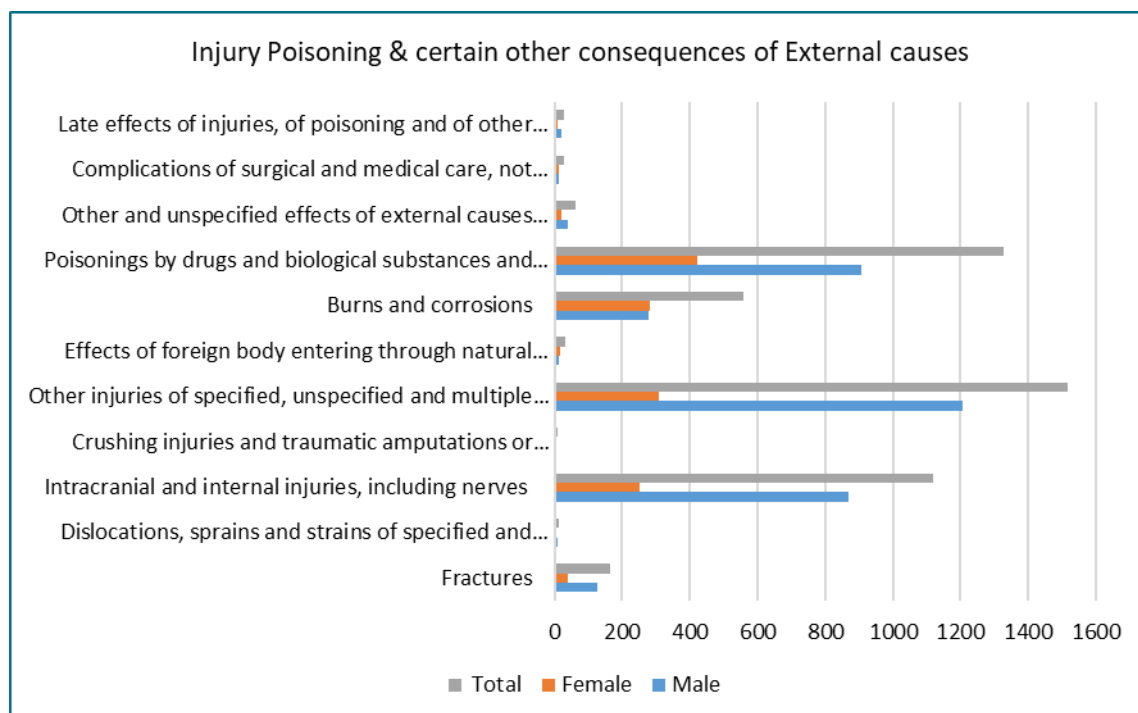
The greatest deaths occur in the subgroup of diseases of lower respiratory diseases & other diseases of the respiratory system in the cause of death group "Diseases of the Respiratory System."

Figure No. 19: Certain conditions originating in the perinatal period' out of total infant deaths



The most common cause of mortality among "certain problems originating in the perinatal period" includes "hypoxia, birth asphyxia, and other respiratory disorders," "slow fetal growth, fetal malnutrition, and immaturity," and "all other conditions originating in the perinatal period".

Figure No. 20: Injury Poisoning & certain other consequences of External causes



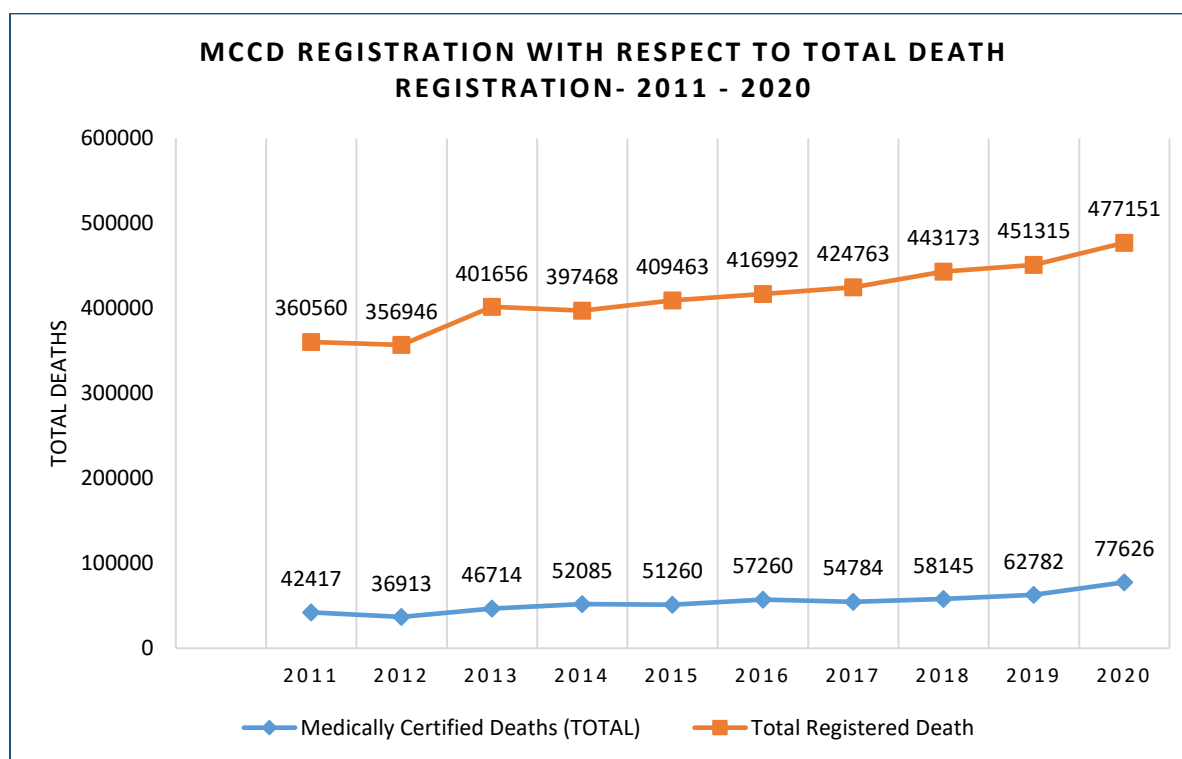
The most MCCD registrations are for diseases/causalities caused by "other injuries of specified, unspecified, and multiple body regions", "intracranial and internal injuries, including nerves", "poisoning by drugs and other biological substance and toxic effects of substances chiefly non

medicinal as to source", "burns and corrosions", and "fractures" in the cause of death group "Injury Poisoning & certain other consequences of External causes".

7.16. Shifting pattern of death registration and MCCD in Rajasthan state 2019 & 2020:

The shifting pattern of CRS and MCCD reporting in Rajasthan is evaluated by a comparison of scenario cause of death registration between the years 2019 and 2020. Despite the fact that Rajasthan has made significant progress in death registration, the importance of medical certification cannot be emphasized; basic inconsistencies b/w CRS and the MCCD remain a cause of concern. As shown in Figure No. 21, death reporting increased from 360560 to 477151 from 2011 to 2020, indicating a consistent improvement in death registration. However, when it comes to cause of death registration, the situation remains concerning; over the year 2011 to 2019, the share of medically certified deaths to total registered deaths has hovered around 11.8–13.9 percent, just 2.1 percent change for period of 9 years. However, there is a 2.4 percent increase in MCCD reporting in 2020 compared to 2019, which is quite encouraging.

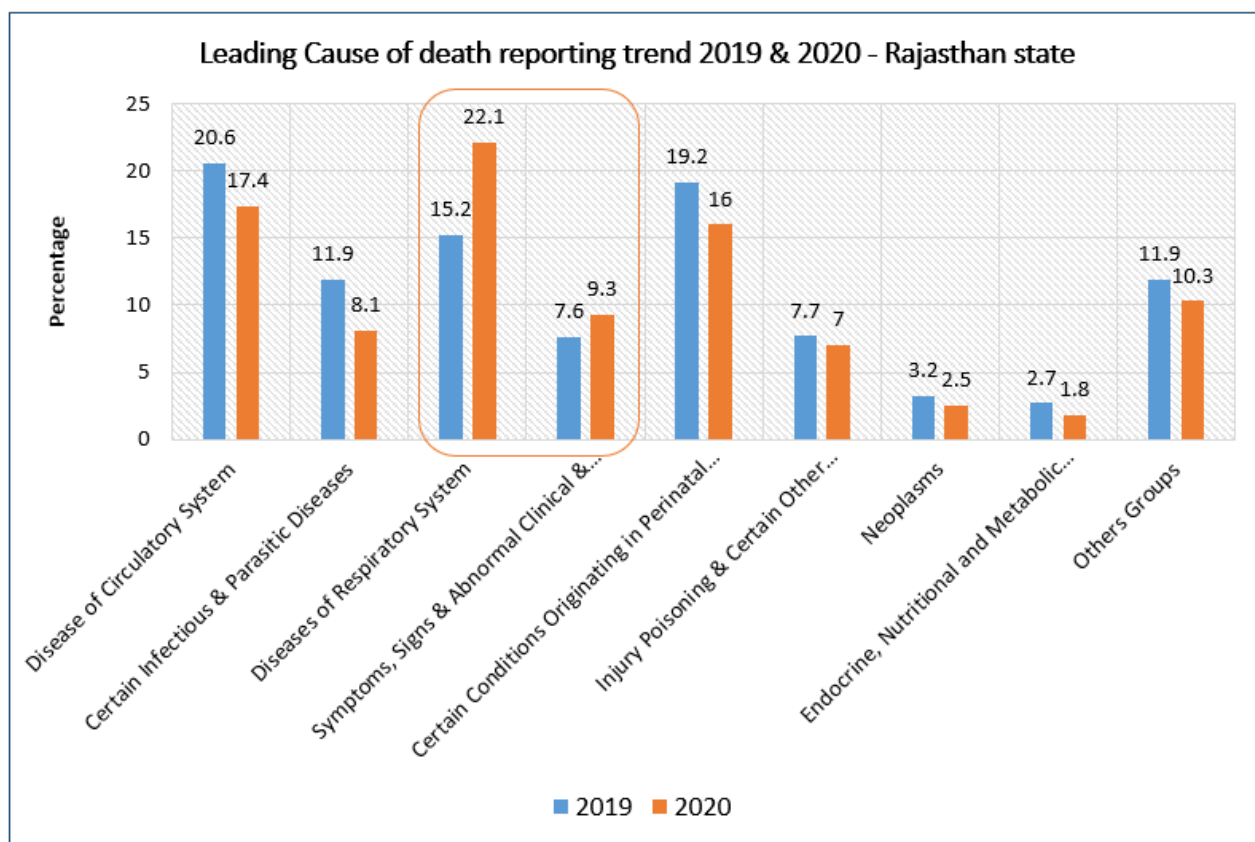
Figure. No 21: MCCD registration with respect to total death registration in Rajasthan state (2011 – 2020)



Here we can see how the trend of death registration is changing as a result of the primary cause of death. The graph below depicts the change in death reporting trends by main cause category between 2019 and 2020. From 2019 to 2020, death reporting in the disease cause groups "Disease of the Circulatory System" (from 20.6 percent to 17.4 percent), "Certain Infectious & Parasitic Diseases" (from 11.9 percent to 8.1 percent), "Certain Conditions Originating in the Perinatal

Period" (from 19.2 percent to 16 percent), "Injury Poisoning & Certain Other Consequences of External Causes" (from 7.7 percent (from 2.7 percent to 1.8 percent). When looking at the disease cause groups "Diseases of the Respiratory System," there is an increase in death registration under this cause group, with the percentage rise in death reporting from 15.2 percent to 22.1 percent when compared to the previous year. Similarly, mortality reporting in the illness group "Symptoms, Signs, and Abnormal Clinical & Laboratory Findings N.E.C." increased from 7.6 percent to 9.3 percent in 2020, when compared to the previous year. As a result, diseases associated with these cause groups have a very high prevalence rate.

Figure. No 22: Leading Cause of death reporting trend 2019 & 2020 - Rajasthan state



8. Recommendations:

8.1. Improving civil registration with technology:

It is recommended that technology be used to validate data, check for duplicate registrations, and monitor real-time data. Any other software now in use can be merged with ORGI software for usability, and registration units that do not utilize ORGI software should be oriented towards ORGI software for economic reasons.

With improved cooperation with the healthcare system, it is also possible to preserve that every birth is recorded and that every woman leaves the hospital with the infant's birth certificate.

Using technology to transmit CRVS data from the registration unit to higher levels such as the district and chief registrar, as well as at the national level, would create unparalleled potential. It also allows for the issuance of digital certificates through the internet.

8.2. Enhancing the competence and resources of the workforce:

At all levels, including at the ORGI, adequate, skilled, and motivated human resources are necessary to lead the CRVS system. To meet the training sessions' objectives, training programmes must be done on a regular basis while maintaining high quality (small batch size, organized design, participative employing adult learning concepts). It is advised that institutional links for human resources be improved, as well as staff remote learning possibilities.

Salary and travel expenses, mentoring and capacity development, printing of forms and stationery and other material, computer hardware and software, clerical work, data documentation, bonuses for notifiers, and costs associated with the preparation and propagation of vital statistics are all included in the resources. The amount of money needed varies greatly from one state to the next, depending on factors such as the size of the state, the existing level of registration and intra-state variation in registration, the efficiency of the registration machinery, public awareness, and the availability of IT infrastructure, including hardware.

8.3. Facilitated Structures and administration at all levels:

The State governments are led by the ORGI. Chief registrars are frequently saddled with several obligations and are unable to devote sufficient time to civil registration. One of the most important functions is coordination b/w the Centre and the States; the States and the districts; the districts and the sub-districts; & the sub-districts & the registration units.

Interdepartmental coordination committees have been constituted at various levels; nevertheless, coordination across multiple departments and ministries has to be strengthened. Because the majority of crucial events occur in health institutions, the Ministry of Health and Family Welfare must take on considerably greater responsibility for birth and death registration.

8.4. Optimizing death registration and cause of death:

It is advised that campaigning for children's death registration be done with health workers in order to improve death registration. They must be taught "why" this knowledge is necessary and "how" it will be used in developing a programme for children.

If the policy makers and program directors inquire for CRVS information to utilize for making choices, or in case the government plans make it obligatory to create birth or passing certificate to avail benefits of the plans, request for birth and passing certificates will increment. The advantages that families gain from timely recording births and deaths reflect the demand for and quality of birth & death registration. It is also critical to prioritize production of crucial data, particularly at the state and sub-state levels. When districts, municipalities, and panchayats can track the progress of policies and programmes they implement using data supplied by the civil registration system, demand will skyrocket.

8.5. Improving MCCD:

To move MCCD project ahead in a systematic manner across the country, the Registrar General of India must persuade all States/UTs to include all hospitals (public and private) and private medical practitioners, both in rural and urban regions, in the scheme.

COD should be properly investigated in the presence of an experienced physician, and monthly review sessions should be held.

An evidence-based knowledge of the relative relevance of medical certification mistakes on cause of death data should drive efforts to examine & enhance the quality of medical certification, particularly medical physician training in correct certification.

MCCD should be institutionalized, together with medical officer induction training, constant monitoring, and oversight. This should occur concurrently with a push to educate medical practitioners about the need of recording the cause of death and a commitment from the highest levels of the health system to make it happen. Following its adoption in certain African countries, WHO has proposed that a streamlined technique known as SmoL (Start-up mortality List) be tested in India.

In India, to enhance death registrations and medically confirmed death reporting:

- There is a need to raise community knowledge about the advantages of death registration.
- Improving the procedure for first reporting of fatalities.
- Implementing rigorous & more effective monitoring system of death registration data.
- Strengthening capacity building of staff.
- Making registration offices more readily accessible.
- At the municipal and state levels, digitization of death data entry and flow of cause of death is one way to enhance registration.
- Strengthening the private sector's death and MCCD reporting.
- Municipalities and health agencies should have a joint evaluation meeting.

9. Limitation and strength:

The high proportion of fatalities that occur either at home or in under-resourced health institutions, with major constraints in both competent people and effective diagnostic tools, explains the lack of exact information on CoD in many low-income settings.

Medical practitioners filling out the cause of death form incorrectly owing to a lack of knowledge of the relevance of this form among them. Regular training on the right sequence for filling out cause of death forms is difficult to perform since medical professionals have limited time and a busy schedule. The importance of carefully documenting the sequence stems from the fact that suitable tactics may be used to sever the chain at its weakest point, preventing death.

10. Conclusion:

The non-availability of dependable and quality information of mortality, morbidity & cause specific deaths are a major concern as they result in nations unable of tracking & shielding the prosperity of their populations due to inaccessibility of the records of millions of deaths and births within the nation. Better health statistics, including actual data & estimates on many elements of health such as births, deaths, morbidity, risk factors, health systems, & health care coverage, are in high demand. These characteristics serve as the foundation for evidence-based decision-making in the areas of resource allocation, indicator monitoring, programme prioritization, and other public health-related activities.

Mortality data are an essential component of the vital statistics system. They are a fundamental component of population expansion. Furthermore, cause-specific mortality rates are important indicators of population health trends & are supplied on a scientific foundation by the system of MCCD. Age, gender, and cause-specific death rates are essential markers for evidence-based monitoring of population health trends. Statistics on causes of mortality are critical for planners, administrators, and medical experts to implement effective therapeutic and preventative actions for a variety of health issues.

Recognizing the centrality of proper MCCD and DRs, the preceding discussion of the many parts of the same has attempted to address the challenges & concerns that licensed medical practitioners have, when certifying death. Even with exceptional medical knowledge and competence, many medical professionals incorrectly answer this form. Understanding the pathology of the underlying and contributory causes of death is essential for the certifier. Medical research is currently being affected by the spread of illnesses such as cancer, AIDS, heart disease, non-communicable and communicable diseases, and so on. In order to address these concerns, good documentation of information on causes of death is required.

In spite of having high death registration rate in Rajasthan, there is an extremely low medical certified death registration rate (i.e., 16.3%). This low MCCD registration rate has been continuously below the national average for the previous ten years. The state is ranked 25th out of 34 states and territories. Secondly, the partial and imprecise completion of the MCCD form by the medical physician is directly affecting the data for actual cause of death, leading to variation in statistical documentation, further effecting formulation in National health policy planning. CSMR are key indicators of the health trends in the population. So, COD certification is a critical skill that all physicians should acquire in order to enhance the accuracy of population mortality statistics.

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12. Annexure:

Form No. 1: Birth Report

FORM NO.1 BIRTH REPORT Legal Information		BIRTH REPORT Statistical Information		FORM NO.1
This part to be filled by the Informant		This part to be detached and sent for statistical processing		
To be filled by the informant 1. Date of Birth : (Enter the exact day, month and year the child was born e.g. 1-1-2000) 2. Sex : (Enter 'Male', 'Female' or 'Transgender') do not use abbreviation) 3. Name of the child, if any : (If not named, leave blank) 4. Name of the father : (Full name as usually written) UID No of Father (if any) 5. Name of the mother : (Full name as usually written) UID No of Mother (if any) 6. Address of parents at the time of birth of the child 7. Permanent address of parents: 8. Place of birth : (Tick the appropriate entry 1 or 2 below and give the name of the Hospital/Institution or the address of the house where the birth took place) 1. Hospital/Institution Name: Address: 2. House Address: 9. Informant's name : Address: (After completing all columns 1 to 22, informant will put date and signature here.)		To be filled by the informant 10. Town or Village of Residence of the mother: (Place where the mother usually lives. This can be different from the place where the delivery occurred. The house address is not required to be entered.) a) Name of Town/Village : b) Is it a town or village : (Tick the appropriate entry below) 1. Town 2. Village c) Name of District : d) Name of State : 11. Religion of the Family : (Tick the appropriate entry below) 1. Hindu 2. Muslim 3. Christian 4. Any other religion : (write name of the religion) 12. Father's level of education : (Enter the completed level of education e.g. if studied upto class VI but passed only class VI, write class VI) 13. Mother's level of education : (Enter the completed level of education e.g. if studied upto class VII but passed only class VI, write class VI) 14. Father's occupation : (If no occupation write 'N/A') 15. Mother's occupation : (If no occupation write 'N/A')		To be filled by the informant 16. Age of the mother (in completed years) at the time of marriage : (If married more than once, age at first marriage may be entered) 17. Age of the mother (in completed years) at the time of this birth : 18. Number of children born alive to the mother so far including this child : (Number of children born alive to include also those from earlier marriages, if any) 19. Type of attention at delivery : (Tick the appropriate entry below) 1. Institutional - Government 2. Institutional - Private or Non-Government 3. Doctor, Nurse or Trained midwife 4. Traditional Birth Attendant 5. Relatives or others 20. Method of Delivery : (Tick the appropriate entry below) 1. Natural 2. Caesarean 3. Forceps/Vacuum 21. Birth Weight (in kgs.) (if available) : 22. Duration of pregnancy (in weeks) :
Date: _____ Signature or left thumb mark of the Informant: _____ (Columns to be filled are over. Now put signature at left)		(Columns to be filled are over. Now put signature at left)		
To be filled by the Registrar Registration No. : _____ Registration Date : _____ Registration Unit : _____ District : _____ Town/Village : _____ Remarks : (if any) Name and Signature of the Registrar: _____		To be filled by the Registrar District : _____ Name : _____ Code No. : _____ Taluk : _____ Town/Village : _____ Registration Unit : _____ Name and Signature of the Registrar: _____		To be filled by the Registrar Registration No. : _____ Registration Date : _____ Date of Birth : _____ Sex : 1. Male 2. Female Place of Birth : 1. Hospital/Institution 2. House Name and Signature of the Registrar: _____

Form No. 2 – Death Report

FORM NO.2 DEATH REPORT Legal Information		DEATH REPORT Statistical Information		FORM NO.2
This part to be filled by the Informant		This part to be detached and sent for statistical processing		
To be filled by the informant 1. Date of Death : (Enter the exact day, month and year the death took place e.g. 1-1-2000) 2. Name of the Deceased : (Full name as usually written) 3. Sex of the deceased : (Enter 'Male', 'Female' or 'Transgender') do not use abbreviation) 4. Name of Mother : (Full name as usually written) UID No of Mother (if any) 5. Name of Father : (Full name as usually written) UID No of Father (if any) 6. Name of husband/wife : (Full name as usually written) UID No of husband/wife (if any) 7. Age of husband/wife : (Full name as usually written) UID No of husband/wife (if any) 8. Contact details of husband/wife: 9. Age of the deceased: (If the deceased was over 1 year of age, give age in completed years. If the deceased was below 1 year of age, give age in months, and if below 1 month give age in completed number of days, and if below one day, write hours) 10. Address of the deceased at the time of death: 11. Permanent address of the deceased: 12. Place of death : (Tick the appropriate entry 1, 2 or 3 below and give the name of the Hospital/Institution or the address of the house where the death took place, if other place, give location) 1. Hospital/Institution Name: Address: 2. House Address: 3. Other Place 13. Informant's name : Address: (After completing all columns 1 to 21, informant will put date and signature here.) (Declaration: _____) To the best of my knowledge and information, the detail of Aadhaar of deceased is not available. Date: _____ Signature or left thumb mark of the Informant: _____		To be filled by the informant 14. Town or Village of Residence of the deceased: (Place where the deceased usually lived. This can be different from the place where the death occurred. The house address is not required to be entered.) a) Name of Town/Village : b) Is it a town or village : (Tick the appropriate entry below) 1. Town 2. Village c) Name of District : d) Name of State : 15. Religion : (Tick the appropriate entry below) 1. Hindu 2. Muslim 3. Christian 4. Any other religion : (write name of the religion) 16. Occupation of the deceased: (If no occupation write 'N/A') 17. Type of medical attention received before death : (Tick the appropriate entry below) 1. Institutional 2. Medical attention other than institution 3. No medical attention		To be filled by the informant 18. Was the cause of death medically certified? : (Tick the appropriate entry below) 1. Yes 2. No 19. Name of Disease or Actual Cause of Death : (If or at death irrespective of whether medically certified or not) 20. In case this is a female death, did the death occur while pregnant, at the time of delivery or within 6 weeks after the end of pregnancy : (Tick the appropriate entry below) 1. Yes 2. No 21. If used to habitually smoke - for how many years? 22. If used to habitually chew tobacco in any form - for how many years? 23. If used to habitually chew areca nut in any form (including pan masala) - for how many years? 24. If used to habitually drink alcohol - for how many years?
Date: _____ Signature or left thumb mark of the Informant: _____ (Columns to be filled are over. Now put signature at left)		(Columns to be filled are over. Now put signature at left)		
To be filled by the Registrar Registration No. : _____ Registration Date : _____ Registration Unit : _____ District : _____ Town/Village : _____ Remarks : (if any) Name and Signature of the Registrar: _____		To be filled by the Registrar District : _____ Name : _____ Code No. : _____ Taluk : _____ Town/Village : _____ Registration Unit : _____ Name and Signature of the Registrar: _____		To be filled by the Registrar Registration No. : _____ Registration Date : _____ Date of Death : _____ Sex : 1. Male 2. Female Age : _____ Years/month/Day/Hours Place of Death : 1. Hospital/Institution 2. House 3. Other Place Name and Signature of the Registrar: _____

Form No. 3 – Still birth

FORM NO.3 STILL BIRTH REPORT	STILL BIRTH REPORT FORM NO.3															
Legal Information <i>This part to be added to the Still Birth Register</i> <i>To be filled by the informant</i> Date of Birth : (Enter the exact day, month and year e.g. 1-1-2000) Sex : (Enter "Male", "Female" or Transgender (Do not use abbreviation)) Name of the father : (Full name as usually written) UID No. of father (if any) Name of the mother : (Full name as usually written) UID No. of mother (if any) Place of birth : (Tick the appropriate entry below and give the name of the Hospital/Institution or the address of the house where the birth took place) 1. Hospital/ Institution Name : 2. House Address : Informant's name : Address : <i>(After completing all columns 1 to 12, informant will put date and signature here.)</i> Date _____ Signature or left thumb mark of the Informant _____	Statistical Information <i>This part to be detached and sent for statistical processing</i> <i>To be filled by the informant</i> Town or Village of Residence of the mother: (Place where the mother usually lives. This can be different from the place where the delivery occurred. The house address is not required to be entered.) a) Name of Town/Village : b) Is it a town or village : (Tick the appropriate entry below) 1. Town 2. Village Name of District : Name of State : Age of the mother (in completed years) at the time of this birth : Mother's level of education : (Enter the completed level of education e.g. if studied upto class VII but passed only class VI, write class VI) Type of attention at delivery : (Tick the appropriate entry below) - Institutional – Government - Institutional – Private or Non-Government - Doctor, Nurse or Trained midwife - Traditional Birth Attendant - Relatives or others Duration of pregnancy: (in weeks) Cause of foetal death : (if known) <i>(Columns to be filled are over. Now put signature at left)</i>															
<i>To be filled by the Registrar</i> Registration No. : _____ Registration Date : _____ Town/Village : _____ District : _____ Remarks : (if any) Name and Signature of the Registrar _____	<i>To be filled by the Registrar</i> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Name</td> <td style="width: 20%;">Code No.</td> <td style="width: 50%;">Registration No. : _____</td> </tr> <tr> <td>District :</td> <td></td> <td>Registration Date : _____</td> </tr> <tr> <td>Tahsil :</td> <td></td> <td>Date of Birth : _____</td> </tr> <tr> <td>Town/Village :</td> <td></td> <td>Sex : 1.Male 2.Female</td> </tr> <tr> <td>Registration Unit :</td> <td></td> <td>Place of Birth : 1.Hospital/Institution 2.House</td> </tr> </table> Name and Signature of the Registrar _____	Name	Code No.	Registration No. : _____	District :		Registration Date : _____	Tahsil :		Date of Birth : _____	Town/Village :		Sex : 1.Male 2.Female	Registration Unit :		Place of Birth : 1.Hospital/Institution 2.House
Name	Code No.	Registration No. : _____														
District :		Registration Date : _____														
Tahsil :		Date of Birth : _____														
Town/Village :		Sex : 1.Male 2.Female														
Registration Unit :		Place of Birth : 1.Hospital/Institution 2.House														

Form No. 1A – Birth reported for adopted child

Legal Information	Statistical Information															
<i>This part to be added to the Birth Register</i> <i>To be filled by the informant</i> Date of Birth (if known, write exact) (Otherwise record the date of birth as ascertained by the Magistrate) Sex: (Enter "male" or "female"; do not use abbreviation) Name of the child : (If name is changed on adoption, write new name) Name of the mother : (If Known) UID No of mother (if any) Name of the father : (if Known) UID No of father (if any) Date and number of adoption deed/ order Name of the adoptive mother : UID No of adoptive mother (if any) Name of the adoptive father: UID No of adoptive father (if any) Address of adoptive parents as recorded in Adoption deed. Permanent address of adoptive parents: Place of birth If adoption through agency write the place & address Of the Adoption agency. Informant's name and address : <i>(After completing all columns 1 to 18 informant will put date and signature here.)</i> <i>*As contained in the original birth certificate.</i> Date: _____ Signature or left thumb Mark of the Informant. _____	<i>This part to be detached and sent for statistical processing</i> <i>To be filled by the informant</i> Religion of the adoptive Father : (Tick the appropriate entry below) 1. Hindu 2. Muslim 3. Christian Adoptive father's level of education : (Enter the completed level of education e.g. if studied upto class VII but passed only class VI, write class VI) Adoptive mother's level of education : (Enter the completed level of education e.g. if studied upto class VII but passed only class VI, write class VI) Adoptive father's occupation : (If no occupation write 'Nil') Adoptive mother's occupation : (If no occupation write 'Nil') <i>Columns to be filled are over. Now put signature at left)</i>															
<i>To be filled by the Registrar</i> Registration No. : _____ Registration Date : _____ Town/Village : _____ District : _____ Remarks : (if any) Name and Signature of the Registrar _____	<i>To be filled by the Registrar</i> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Name</td> <td style="width: 20%;">Code No.</td> <td style="width: 50%;">Registration No. : _____</td> </tr> <tr> <td>District :</td> <td></td> <td>Registration Date : _____</td> </tr> <tr> <td>Tahsil :</td> <td></td> <td>Date of Birth : _____</td> </tr> <tr> <td>Town/Village :</td> <td></td> <td>Sex : 1.Male 2.Female</td> </tr> <tr> <td>Registration Unit :</td> <td></td> <td>Place of Birth : _____</td> </tr> </table> Name and Signature of the Registrar _____	Name	Code No.	Registration No. : _____	District :		Registration Date : _____	Tahsil :		Date of Birth : _____	Town/Village :		Sex : 1.Male 2.Female	Registration Unit :		Place of Birth : _____
Name	Code No.	Registration No. : _____														
District :		Registration Date : _____														
Tahsil :		Date of Birth : _____														
Town/Village :		Sex : 1.Male 2.Female														
Registration Unit :		Place of Birth : _____														

Form no. 4 – MCCD Form (Institutional Death)

FORM NO. 4
(See Rule 7)
MEDICAL CERTIFICATE OF CAUSE OF DEATH
(Hospital in-patients. Not to be used for still births)
To be sent to Registrar along with Form No. 2 (Death Report)

Name of the Hospital

I hereby certify that the person whose particulars are given below died in the hospital in Ward No..... on at AM/PM

NAME OF DECEASED					For use of Statistical Office
Sex	Age at Death				
	If 1 year or more, age in years	If less than 1 year, age in month	If less than one month, age in days	If less than one day, age in hours	
1. Male					
2. Female					
CAUSE OF DEATH I Immediate cause (a) State the disease, injury or complication which caused death, not the mode of dying such as heart failure, asthenia, etc. due to (or as a consequences of) Antecedent cause (b) Morbid conditions, if any, giving rise to the above cause, stating underlying conditions last due to (or as a consequences of) (c) II Other significant conditions contributing to the death but not related to the disease or condition causing it					Interval between onset and death approx.

Manner of Death

How did the injury occur?

1. Natural 2. Accident 3. Suicide 4. Homicide
5. Pending investigation

If deceased was a female, was pregnancy the death associated with? 1. Yes 2. No
If yes, was there a delivery? 1. Yes 2. No

Name and signature of the Medical Attendant certifying the cause of death

Date of verification

SEE REVERSE FOR INSTRUCTIONS

(To be detached and handed over to the relative of the deceased)

Certified that Shri/Smt/Kum..... S/W/D of Shri

R/O was admitted to this hospital on

and expired on

Doctor
(Medical Supdt.
Name of Hospital)

Form no. 4A – MCCD Form (Non-institutional death)

FORM NO. 4A
(See Rule 7)
MEDICAL CERTIFICATE OF CAUSE OF DEATH
(For non-institutional deaths. Not to be used for still births)
To be sent to Registrar along with Form No. 2 (Death Report)

I hereby certify that the deceased Shri/Smt/Km..... son/wife/daughter of resident of was under my treatment from to and he/she died on at A.M./P.M.

NAME OF DECEASED				For use of Statistical Office	
Sex	Age at Death				
	If 1 year or more, age in years	If less than 1 year, age in month	If less than one month, age in days	If less than one day, age in hours	
3. Male					
4. Female					
CAUSE OF DEATH I Immediate cause State the disease, injury or complication which caused death, not the mode of dying such as heart failure, asthenia, etc. (a) due to (or as a consequences of) Antecedent cause Morbidity conditions, if any, giving rise to the above cause, stating underlying conditions last (b) due to (or as a consequences of) (c) II Other significant conditions contributing to the death but not related to the disease or condition causing it 					Interval between onset and death approx.

If deceased was a female, was pregnancy the death associated with? 1. Yes 2. No
If yes, was there a delivery? 1. Yes 2. No

Name and signature of the Medical Practitioner certifying the cause of death

Date of verification

SEE REVERSE FOR INSTRUCTIONS

(To be detached and handed over to the relative of the deceased)

Certified that Shri/Smt/Km..... S/W/D of Shri

R/O was under my treatment from

to and he/she expired on at A.M./P.M.

Doctor
Signature and address of Medical Practitioner/
Medical attendant with Registration No.

Peri-natal Death Form:

6. CERTIFICATE OF CAUSE OF PERINATAL DEATH	
To be completed for still births and live born infants dying within 168 hours (1 week) from birth	
<i>Identifying particulars of mother</i> ☐ This child was born live on _____ at _____ hours and died on _____ at _____ hours	
Nam ☐ This child was still born on _____ at _____ hours W/D Rank and died before labour ☐ during labour ☐ not known ☐	
Name of	
Mother	Child
Date of Birth or, if unknown, age (years)	Birth weight: grams Sex: ☐ Boy ☐ Girl ☐ Indeterminate ☐ Single Birth ☐ First twin ☐ Second twin ☐ Other multiples
Number of previous Pregnancies: Live births Still births Abortions	1 st day of last menstrual period or, if unknown, estimated duration of pregnancy (completed weeks) Antenatal care, two or more visits ☐ Yes ☐ No ☐ Not known
Outcome of last previous pregnancy: ☐ Live births: ☐ Still births: ☐ Abortions: Date:	Delivery : ☐ Normal spontaneous vertex Other (specify)
Attendant at birth	
☐ Physician ☐ Trained midwife Other trained person (specify) Other(specify)	
Causes of death	
a. Main disease or condition in fetus or infant b. Other diseases or conditions in fetus or infant	
c. Main maternal disease or condition affecting fetus or infant d. Other maternal disease or condition affecting fetus or infant	
e. Other relevant circumstances	
☐ The certified cause of death has been confirmed by autopsy ☐ Autopsy information may be made available Inter ☐ Autopsy not being held	I certify..... Signature and qualification