Child Morbidity and Mortality Reporting in HMISin Jammu and Kashmir

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EXECUTIVE SUMMARY

The health sector of the country is so vast that it needs its own reliable data bank. Keeping in view its importance, the Ministry of Health and Family welfare, Government of India launched the process of online data collection at district level throughout the country from the year 2008. This emphasizes on timely reporting and uploading of data that can be analyzed to study the performance of various interventions initiated under NHM from time to time. Now the information on inputs, outputs and outcome indicators are coming regularly from all the states and union territories. The stress is laid not only on flow of information but also on quality of information and use of information in policy planning and decision making. Further the monitoring of data recording and reporting assumes a lot of significance and is therefore, an important component of HMIS under NHM. There is no denying of the fact that reliable and timely information on health aspects is an essential foundation of any public health system for understanding the health care issues in order to prevent, diagnose or treat ailments. In India the health information is collected by a number of agencies functioning at various levels, in different forms through dissimilar systems. The health information is aggregated at different levels ranging from block to district headquarters, to state headquarters and finally at the national level. The inordinate delay in transmission of information from one level to another still hampers the task of timely generation of correct reports. This lengthy procedure makes the data reporting a time-consuming process. Thus, the data collection in the country has been suffering due to administrative delays in preparation of analytical reports.

Now as we know that there is almost only one reliable data resource bank that is the HMIS web portal. When we look at the data available on the HMIS website, the quality of data seems to have improved to a large extent as the validation errors have minimized. But still there are certain data quality implications which can be addressed through effective monitoring particularly to the staff involved in recording and reporting at all levels. Thus, the timely reporting and uploading of data can be analyzed to study the performance of various interventions initiated under NHM. The Population Research Centre at Srinagar, University of Kashmir undertook this study on a few indicators of HMIS data on child morbidity and mortality at the outset of Ministry of Health and Family Welfare, Government of India, New Delhi. Some of the findings of the analysis are as follows:

Thedatashows that the pneumonia have come down by almost 1.4 percentage points from 2017-18 to 2020-21 in Jammu and Kashmir. Among the districts of Kashmir division, In district Anantnag there had decrease in the percentage of pneumonia cases, under 5 years by 3.1 percent from the year 2017 to 2021.In district Badgam pneumonia is decreased by only 0.77 percent from the year 2017 to 2021 and in other districts like, Ganderbal, Kulgam, and Kupwara, the percentage is decreased by 3.4 percent, -19.4 percent, and-2.4 percent, respectively.

HMIS data shows district wise Asthma cases in the age group of 0-5 years from 2017-2021. There is a total percentage of change in Asthma by only 0.3 percent in UT of Jammu and Kashmir division. In district Anantnag there had decrease in percentage of cases from 2.2 percent in 2017-18 to 2.0 percent in 2020-21 which is total decrease by only 0.3 percent, and

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in other districts like Baramulla, Ganderbal, Kulgam, Pulwama, and Shopian there is decrease in percentage of case by 1.7% ,3.1 %. -10.7%, 10.8 %and-51.2 percent   respectively.

HMIS data   depicts cases of sepsis among children under 5 years of age in Kashmir division (all districts from year 2017-2021.In district Anantnag percentage points remained same 2.4% in the year 2017-18 to 2020-21. In district Kulgam sepsis have come down by almost minus 2.4% from 2017-18 to 2020-21. In district Pulwama there is decrease by only- 0.7% from 2017-18 to 2020-21. In district Shopian there is decrease by minus 1.2% from 2017-18 to 2020-21.

HMIS data depicts the number of measles cases under five children from year 2017-2021 in various districts of Kashmir division. There had no change in percentage of cases in district Anantnag Baramulla, Ganderbal, Ramban and Shopian. In district Bandipora, Pulwama and Rajouri   there had decrease of -0.1%, -0.2 and -0.1 from year 2017-2021 respectively.

HMIS data shows   the total percentage of decreases number of diarrhoea cases   under   five year of age in Jammu and Kashmir is 16 percent. Among the Kashmir division districts Anantnag shows   decrease in percentage by 9.1%   from year 2017-21   In other districts Bandipora, Baramulla, Kupwara, Kulgam, Pulwama and Srinagar there has decrease of percentage points by 42%, 8%, 7%, -32% and 2% in diarrhoea.

The HMIS data further reflects that there is no seriousness in reporting and recording of data o district Kashmir and   Jammu division having 231,134,124 percentage points which is an outlier and needs to be addressed. in diarrhoea   majority of the districts of Jammu and Kashmir.

The figures recoded in the HMIS portal indicate that there is some reporting and recording issue due to which the percentage points or even more than 100 percent indicating that the outliers are still found in the dataset. In district Ganderbal the diarrhoea cases have gone down by 231 percentage points followed data bank of Shopian by 124 percent points which again reflects outliers in HMIS data which needs to be addressed to make it reliable.

HMIS data shows district wise indicators of different diseases like **Diptheria, Pertusis, Tuberculosis, AFP, and Malaria** of children 0-5 years during the years 2017-18, 18-19 and 19-20. In 2017-18 In Jammu and Kashmir, the total number of children 0-5 years who had diptheria-69, pertussis-22, tuberculosis-95, AFP-95, measles-268, malaria-5,665. Among the districts, Kathua had highest number of children with malaria (1,798). Likewise, Poonch district had highest number of diphtheria cases (27), Kulgam had highest number of pertussis cases (13) and Baramula district and Srinagar district had highest number of measles cases (38). Jammu district had highest number of tuberculosis cases (33), AFP (33 In the   year 2018-19. In Jammu   and Kashmir, the total number of children 0-5 years who had diptheria-6, pertussis-46. Among the districts, Kargil had highest number of Diphtheria cases (3) and Kulgam had the highest number of pertussis cases.

There had no change in percentage ofmeasles cases in district Anantnag Baramulla, Ganderbal, Ramban and Shopian. In district Bandipora, Pulwama and Rajouri there had decrease of -0.1%, -0.2 and -0.1 from year 2017-2021 respectively.

The percentage of deaths among infants due to various diseases was high in the year 2018/19, which was seen to decrease in the year 2019/20. The total number of reported live births have increased in the year 2019/20. Various diseases among children aged 0-5 years show that there are still higher deaths of children due to different conditions,diarrhea, pneumonia, asthma and sepsis were the major causes of deaths among children of 0-5 years of age in all the years. In the year 2019/20, 2 cases of neonatal tetanus and 20 cases of AFP were reported.

During the year 2017-18 deaths due to asphyxia was 12.7% to total reported infant deaths. In 2018-19, it was 16.1% and in 2019-20 it was 4.7% deaths. Deaths due to pneumonia to total reported infant deaths in the year 2017-18, was 2.4%, 4% in 2018-19 and 2.7% in 2019-20 to total reported infant deaths.

1. **Introduction**

Morbidityand mortality statistics are essential for setting health targets, for monitoring health and development programmes, and for tracking health-demographic indicators, such as the prevalence rate of TB, Malaria, expectation of life at birth and the infant mortality rate etc. Morbidity and mortality statistics and cause of death data provide essential epidemiological intelligence to guide policy reforms aimed at reducing premature mortality and improving the efficiency and effectiveness of healthsystems. Properly and timely recording of such data of prevalent types of various morbidity and deaths by cause can provide early insights into trends in disease Prevalence, thus helping to design prevention or intervention strategies. Epidemiologically, untreated morbidity leads to premature mortality.

Childhood mortality is one of the important indicators of a country's general medical and public health conditions, and consequently, the country's level of socio-economic development. Its decline is therefore not only desirable but also indicative of an improvement in general living standards. The history of childhood as a modern concept is embedded in the narrative of the modern, welfare state, and childhood as a protected and prolonged period of life owes its recognition to popular struggles for welfare waged by the working classes in the context of the sweeping changes brought into their lives by the industrial revolution during the eighteenth and the nineteenth centuries. In India, 2.1 million children die before their fifth birthday. Half of these children die even before they are 28 days old, accounting for one-fourth global infant deaths. Of the 9.7 million child deaths worldwide annually, one-third occur in India. The statistics are equally shocking among neonates—children new born to a maximum age of 28 days old. While around 4 million children die within the first 28 days of life across the planet every year, India records around one million of these cases. Among the reasons cited for the poor state of infant and child health in India are inadequate neonatal care, insufficient breastfeeding, malnutrition, low immunity and high incidence of communicable diseases. Breastfeeding a baby within an hour of birth is said to markedly increase its change of survival since breast milk contains vital nutrients and antibodies that enhance a baby's immunity. Benefits accrue to the mother, too for breastfeeding helps her uterus contract post-delivery and burn calories and fat accumulated during pregnancy. It also releases beneficial hormones into the mother's baby. Of the 19 million infants in the developing world who have low birth (less than 2,500 gram), 8.3 million are in India. This means that approximately 43 per cent of all the world's infants who are born with a low birth

weight are born in India. The infant mortality rate (IMR)—probability of dying before one year of age expressed per 1000 live-births—and under-five mortality rate (U5MR)—probability of dying 3 between birth and age 5 expressed per 1000 live-births—have been used as measures of children's well-being for many years. The International Conference on Primary Health Care held in Alma Ata in 1978 was the first global forum to consider how child mortality could be reduced by systematic development of a primary health care system. Since then, the United Nations has been actively involved in reducing IMR and U5MR in developing countries. To this end, the plan of action adopted at the International Conference on Population and Development (ICPD) held in Cairo in 1994 incorporates the reduction of maternal and child mortality.

Health Management Information System (HMIS) launched in the year 2008 in India and its states as progressed to a great extent and now it has been covering more than two lakh public health facilities throughout the country. HMIS is also incorporating private health facilities for reporting of vital events and key health services. However, the reporting and recording of health services and health events pertaining to morbidity and mortality is extremely low. In district consolidated HMIS report, out of 536 data elements related to health events, vital events and health care services. Despite continuous analysis of reported HMIS data, analysis of completeness and quality of morbidity and mortality data reporting is relatively a less explored area.

Quality of HMIS reporting pertaining to morbidity and mortality depends on many factors, such as training of services providers in recording and reporting of health events and vital events, system that records the data, availability of IT infrastructure, procedures and definitions of data items and monitoring mechanism involved inHMISreporting

GLOBAL SCENARIO – INFANT AND CHILD MORTALITY
Globally, infant and Child survival is one among the most important health indicator of the development of a nation. The world has made substantial progress in reducing child mortality since 1990. The total number of under-five deaths dropped to 5.6 million in 2016 from 12.6 million in 1990 and under five mortality rate dropped to 41 deaths per 1000 live births in 2016 from 93 in 1990. The neonatal mortality fell by 49 per cent from 37 per 1000 live births to 19 in 2016 (UNICEF, 2017). Despite the substantial progress in reducing child mortality, child survival remains an urgent concern. Millennium Development goals-4 also

seeks to reduce under five mortality by two-thirds between 1990 and 2025. The global reduction in mortality of children aged < 5 years between 1990 and 2015 was 53 per cent against the aim of a two-third reduction by Millennium Development Goals. The 2030 agenda for Sustainable development provides an opportunity to build better system for health-by strengthening health system for health. Monitoring and evaluation of progress made towards defined targets was the major strength of the Millennium Development Goals (MDGs)-both in terms of measuring progress and fostering accountability (WHS, 2017).

In the world, every eighth reported medically certified death has been of the infants and every tenth reported medically certified death is 0-4 years (MCCD, 2015). About 78.5 per cent of infant deaths are occurred in the perinatal period. Disease originating in the peri-natal period is the fourth leading cause of reported infant deaths (6.6 per cent). Hypoxia, birth asphyxia and other respiratory conditions (40.6%), slow foetal growth, foetal malnutrition and immaturity (36.3 per cent), birth trauma (2.2%), Haemolytic diseases of foetus and new born (0.1%) and others (20.8%) are the leading reported causes for infant deaths (MCCD,2015). Forty-nine per cent of the deaths occurred for age less than one year is due to congenital malformations, deformations and chromosomal abnormalities. The children of age group 0-4 have contributed to 7.1 per cent of total deaths due to diseases of respiratory system particularly,Pneumonia, an inflammatory illness of the lung is a leading cause of death among the children less than five years.

INDIAN SCENARIO – INFANT AND CHILD MORTALITY

India's National health policy 2018, aimed to reduce the under-five mortality to 23 by 2025 and infant mortality rate to 28 by 2019 and also reduce the neo-natal mortality to 16 and still birth rate to "single digit" by 2025. Infant mortality rate decreased considerably from 71 in 1997 to 68 in the year 2000. From 2001 onwards, the IMR declined to 58 per 1000 live births in 2005 and 47 in 2010 and 37 in 2015. India, out of the total medically certified deaths, around 8.4 per cent has been reported for the infants (children who could not complete their first birthday). The highest incidence of death under this age-group is caused by Conditions Originating in the Perinatal Period (78.5 per cent). The constituent diseases of this group like Hypoxia, birth asphyxia and other respiratory conditions and slow foetal growth, foetal malnutrition and immaturity caused 31.9 per cent and 28.5 per cent deaths respectively. The next in order was Diseases of Respiratory system which was responsible for 5.2 per cent deaths. Under this major group Pneumonia alone accounted for 2.4 per cent deaths. The third major group accounting for 3.9 per cent deaths was congenital

malformation, deformation and chromosomal abnormalities. The constituent diseases of this group, congenital malformation of circulatory system alone caused 2.3 per cent deaths. The major group of diseases of the circulatory system constituted 1.6 per cent deaths. The heart diseases including pulmonary circulation one of the constituent diseases of this group caused1.2 per cent infant deaths.

The Government of India has repeatedly taken steps to strengthen maternal and child health services in India, starting during the First and Second Five-Year Plans (1951–56 and health services in India, starting during the First and Second Five-Year Plans (1951–56 and1956–61) under the Ministry of Health, and continuing with the Minimum Needs Programme initiated during the Fifth Five-Year Plan (1974–79). More recently, efforts to improve maternal and child health have been enhanced by activities of the Family Welfare Programme and by the introduction of the Child Survival and Safe Motherhood Programme (Ministry of Health and

Family Welfare,1992). The Ministry of Health and Family Welfare has also sponsored specialprojects under the Maternal and Child Health Programme, including the Oral Rehydration Therapy (ORT) programme, the establishment of Regional Institutes of Maternal and Child Health in states where infant mortality rates are high, the Universal Immunization Programme and the Maternal and Child Health Supplemental Programme within the Postpartum Programme (Ministry of Health and Family Welfare, 1992). These programmes are now integrated into the Reproductive and Child Health Programme launched in 1996.

 National Family Health Survey (NFHS)-4 report was recently released for health-related data. This review compares the child health indicators across NFHS-3 and NFHS-4 with a background of existing health programs catering to child health. Reports of NFHS-4 and NFHS-3, along with ministry reports and existing literature were reviewed to understand the current status of child health. Child health indicators were compared between the two rounds of NFHS and among Empowered Action Group states of India. National Health Policy 2017 and National Health Programs related to child health were also analyzed. There has been an improvement in almost all child health indicators from NFHS-3 to NFHS-4. The infant mortality rate has reduced to 41 per 1000 live births.

STATE SCENARIO– INFANT AND CHILD MORTALITY

The infant mortality rate in Jammu & Kashmir in NFHS-4 is estimated at 32 deaths before the age of one year per 1,000 live births, down from the NFHS-3 estimate of 45 and the NFHS-2 estimate of 65. The under-five mortality rate is 38 deaths per 1,000 live births, down substantially from the NFHS-3 estimate of 51 and the NFHS-2 estimate of 80. In Jammu & Kashmir, all infant and child mortality rates are higher for boys than for girls, with the exception of child mortality. In fact, 1 in 25 boys die before the age of five, compared with 1 in 28 girls. Children born to mothers age 30-39 are slightly more likely to die during infancy than children born to mothers in the prime childbearing age (20-29 years). Having children too close together is especially risky. Children born less than two years after a previous birth are about one and a half times as likely to die in infancy as children whose mothers waited two or more years between births.

Need for the Study

Reducing inequities and reaching the most vulnerable new-borns and children are the important priorities to achieve the SDG targets on child survival. Causes for mortality trends are important to demographers because they present a useful way of examining the principal causes across the populations. Reliable age and cause specific infant and child mortality statistics is a cornerstone for tracking progress towards child survival goals and identifying priority areas to accelerate progress towards eliminating preventable child deaths.There are multiplicity of factors related to social and economic conditions, health care and environment have a significant role to play on childhood mortality and improving childhood mortality at the peripheral level. This may help the Researchers and other Professionals for evidence-based decision-making with regard to resource allocation, monitoring of indicators, identifying the priorities for programs and other related activities in the area of Public Health.

2. Objectives: The study aimed to analyse morbidity and mortality reporting in HMIS with following objectives:

b) Toanalyze the level and trends in reporting of child morbidity in Jammu and Kashmir.
c) To study the pattern of child mortality under HMIS in Jammu and Kashmir
d) To assess the completeness of morbidity and mortality data in district consolidated HMIS reports.

3. METHODOLOGY

Data and Methods   Data for the present study was obtained   from HMIS Web portal of the Ministry of Health and Family Welfare, Government of India. We downloaded the HMIS data for the four consecutive years i. e 2017-18, 2018-19, 2019-2020 and 2020-2021.For analysis, morbidity and mortality indicators covers conditions pertaining child, child morbidity and other morbidity conditions. An attempt was made to compare the death reporting under HMIS. Further data on child morbidity from 2017 up to 2021 were analysed to achieve the objectives above. Mortality indicators cover deaths by age and causes of deaths during the period 2020-2021. District wise trend   in causes for infant mortality and under-five mortality were assessed separately. Data on infant and child mortality from 2017 to 2021 was analysed in the present study. Trend analysis was used to assess the percentage of change in causes for infant and childmorbidity and mortality during the reference period.

4.Demographic and Socio-economic features of Jammu and Kashmir

Situated on the northern extremity of India, the union territory of Jammu and Kashmir occupies a position of strategic importance with its borders touching the neighboring countries of Afghanistan, Pakistan, China and Tibet. The total geographical area of Jammu and Kashmir including the recently carved out union territory of Ladakh from Jammu and Kashmir is2,22236 square kilometers. The total population of Jammu and Kashmir is 12 million accounting roughly for one percent of the total population of the country. The decadal growth rate of population is 31 percent substantially higher than the national decadal growth rate of 21 percent. As per the estimates of Sample Registration System (SRS) 2018, the crude birth rate and crude death rate of Jammu and Kashmir is lower than the national average. The total fertility rate of Jammu and Kashmir is 1.6 which is lower than the national average of 2.2. The distribution of population by marital status as per SRS, 2018 implies that 55.4 percent of population in Jammu and Kashmir are married and 42.5 percent are never married while as 2 percent are widowed/divorced/separated against 3.5 percent of the national average. The sex ratio of the population (number of females per 1,000 males) in Jammu and Kashmir according to SRS, 2018 is 927, which is much higher than the country as a whole (899).

Infant and child mortality rates are good indicators of socio-economic development and the status of health and population programmes. The infant mortality rate has come down from

50 during census 2001 to 41 as per census 2011 which has reached to 22 in 2018 according to SRS figures which is much lower than the national average of 32 (SRS). Twenty-seven percent of the total population in Jammu and Kashmir lives in urban areas which is almost the same as the national level. The scheduled caste population registered in Jammu and Kashmir is only 8 percent as against 16 percent at the national level. However, the schedule tribe population is higher (11 percent) than the national average (8.6 percent).The neonatal mortality rate has come down in Jammu and Kashmirto 17 and the infant mortality rate to 22. Similarly, child mortality rate also decreased to 5 (SRS 2018). Comparative figures of major health and demographic indicators are reflected in the table below.

Table:1 Demographic Characteristics of Jammu and Kashmir and India, 2011/2018		
Indicator	Jammu and Kashmir	India
Total Population (Corers) (Census 2011)	12.54	1210.19
Decadal Growth (percent) (Census 2011)	31.42	21.54
Crude Birth Rate (SRS 2018)	15.4	20.0
Crude Death Rate (SRS 2018)	4.9	6.2
Total Fertility Rate (SRS 2018)	1.6	2.2
Marital Status of population, Married (SRS 2018)	55.4	50.3
Marital Status of population, Never-Married (SRS 2018)	42.5	46.3
Marital Status of population, Widowed/Divorced/ Separated (SRS 2018)	2.0	3.5
Sex Ratio (SRS 2018)	927	899
Neonatal Mortality Rate (SRS 2018)	17	23
Infant Mortality Rate (SRS 2018)	22	32
Child Mortality Rate (SRS 2018)	5	9

5. Main Findings

Morbidity reporting in HMIS

Reporting of morbidity is crucial for timely intervention of health care delivery system and to prevent spreading of disease conditions. In HMIS various morbidity conditions reported child morbidity and disease specific morbidity.

Child Morbidity:

HMIS provides crucial indicators for morbidity among children below age of 5 years. These morbidity conditions are associated with leading causes of under-five mortality in the country. Childhood morbidity age under 0-5 years under HMIS reporting are as follows:

5.1 Pneumonia

In children under 5 years of age,who have cough and/ or difficult breathingwith or without fever, pneumonia is diagnosed by the presence of either fast breathing or lower chest wall indrawing where their chest moves in or retracts during inhalation (in a healthy person, the chest expands during inhalation).

The datashows that the pneumonia have come down by almost 1.4 percentage points from 2017-18 to 2020-21.There is total percentage of change in pneumonia from 2017 to 2021 by 1.4 percent. Among the districts of Kashmir division. In districtAnantnag there had decrease in the percentage pf pneumonia cases, under 5 years by 3.1 percent from the year 2017 to 2021. In district Badgam pneumonia is decreased by only 0.7 percent from the year 2017 to 2021 and in other districts Likewise, Ganderbal, Kulgam and Kupwara ,the percentage is decreased by 3.4 percent, -19.4 percent, and -2.4 percent, respectively. **Table 2:** Provides percentage of children below 5 years reported to have pneumonia morbid condition.

Table No:2 District wise indicators of pneumonia of total no of live births conducted in Jammu and Kashmir and percentage change during 2017-18 to 2020-21, as per HMIS data.					
Districts	**2017-18**	**2018-19**	**2019-20**	**2020-21**	**% age Change during 2017-18 to 2020-21**
	% Pneumonia in Children 0-5 Years of Age	**% Pneumonia in Children 0-5 Years of Age**	**% Pneumonia in Children 0-5 Years of Age**	**% Pneumonia in Children 0-5 Years of Age**	
Jammu and Kashmir	3	2.6	2.8	1.6	1.4
Anantnag	6.0	4.3	2.9	2.9	3.1
Badgam	0	0	0	0	0.0
Bandipora	1.27	0.8	3.1	0.5	0.7
Baramula	1.7	2.5	2.6	0.9	0.8
Doda	0.7	0.5	1.6	1.1	-0.4
Ganderbal	3.4	0	0.1	0	3.4

Jammu	3.3	6.0	4.5	0.9	2.4
Kathua	24.2	4.4	6.7	0	24.2
Kishtwar	2.5	2.2	1.6	0.9	1.6
Kulgam	0.9	16.2	19.4	20.3	-19.4
Kupwara	0	1.0	4.2	2.4	-2.4
Poonch	1.1	2.4	1.3	0.9	-0.2
Pulwama	0.4	1.0	5.1	1.37	-0.9
Rajouri	0.9	1.9	3.4	1.69	-0.7
Ramban	11.3	1.6	1.5	1.09	10.2
Reasi	2.3	0.6	1.1	2.1	0.2
Samba	1.8	0.2	0.5	0	1.8
Shopian	1.4	1.8	1.5	0.9	0.5
Srinagar	0.25	0.1	0.2	0.04	0.2
Udhampur	2.3	0.0	0.4	0.8	1.5

Source: HMIS Web Portal, Ministry of Health and Family Welfare, Government of India, New Delhi

5.2 Asthma

In most children, Asthma develops before age 5 years, and, in more than half, asthma develops before age 3 years. Among infants, 20% have wheezing with only upper respiratory tract infections (URTIs), and 60% no longer have wheezing by age 6 years. Asthma is condition in which airways narrow and swell and may produce extra mucus. This can make breathing difficult and trigger coughing, a whistling sound when you breath out shortness of breath.

HMIS data shows district wise Asthma cases in the age group of 0-5 years from 2017-2021. There is a total percentage of change in Asthma by only 0.3 percent in UT of Jammu and Kashmir division. In district Anantnag there haddecrease in percentage of cases from 2.2 percent in 2017-18 to 2.0 percent in 2020-21 which is total decrease by only 0.3 percent, and in other districts Likewise, Baramulla, Ganderbal, Kulgam, Pulwama and Shopian. There is decrease of percentagein case by, 1.7% 3.1 % -10.7%, -10.8 %,and-51.2 percent respectively.

Table No:3 District wise indicators of Asthma of total no of live births conducted in Jammu and Kashmir and percentage change during 2017-18 to 2020-21, as per HMIS data.					
Districts	**2017-18**	**2018-19**	**2019-20**	**2020-2021**	**%age change during 2017-18 to 2020-21**

	% Asthma in Children 0-5 Years of Age	% Asthma in Children 0-5 Years of Age	% Asthma in Children 0-5 Years of Age	% Asthma in Children 0-5 Years of Age	
Jammu and Kashmir	1.70	1.7	2.9	1.4	0.3
Anantnag	2.2	2.0	1.5	2.0	0.2
Badgam	0	0	0	0	0
Bandipora	0.2	0	2.8	0.4	-0.2
Baramula	1.74	1.5	0.2	0	1.7
Doda	0	0	0.4	0.1	-0.1
Ganderbal	3.1	0	0	0	3.1
Jammu	2.6	2.2	0.9	0.1	2.5
Kathua	19.7	4.0	3.5	0.1	19.6
Kishtwar	0	0	0	0	0
Kulgam	1.02	10.1	17.1	11.8	-10.7
Kupwara	0	0.4	1.7	0.2	-0.2
Poonch	0.3	1.2	0.7	0	0.3
Pulwama	0.2	5.3	46.9	11.0	-10.8
Rajouri	0	0	0	1.4	-1.4
Ramban	NA	0.8	0.5	0.8	0.8
Reasi	0.7	0.1	0.1	1.4	-0.7
Samba	0.4	1.4	0	0	0.4
Shopian	1.79	62.4	110	53	-51.2
Srinagar	0.1	0.1	0.2	0	0.1
Udhampur	0	0	0	0	0

Source: HMIS Web Portal, Ministry of Health and Family Welfare, Government of India, New Delhi

5.3 Sepsis

Sepsis is the body's extreme response to an infection. It is a life-threatening medical emergency. Sepsis happens when an infection you already have triggers a chain reaction throughout your body. Infections that lead to sepsis most often start in the lung, urinary tract, skin, or gastrointestinal tract. Without timely treatment, sepsis can rapidly lead to tissue damage, organ failure, and death.

HMIS data depicts cases of sepsis among children under 5 years of age in Kashmir division (all districts from year 2017-2021.In district Anantnag percentage points remained same 2.4% in the year 2017-18 to 2020-21.In district Kulgam sepsis have come down by almost minus 2.4% from 2017-18 to 2020-21.In district Pulwama there isdecrease by only-0.7% from 2017-18 to 2020-21. In district Shopian there is decrease by minus 1.2% from 2017-18 to 2020-21.

Table No:4 District wise indicators of Sepsis of total no of live births conducted in Jammu and Kashmir and percentage change during 2017-18 to 2020-21, as per HMIS data.					
Districts	2017-18	2018-19	2019-20	2020-21	% change during 2017-18 to 2020-21
	% Sepsis in Children 0-5 Years of Age	% Sepsis in Children 0-5 Years of Age	% Sepsis in Children 0-5 Years of Age	% Sepsis in Children 0-5 Years of Age	
Jammu and Kashmir	1.0	1.0	0.7	0.6	0.4
Anantnag	2.4	2.8	2.2	2.4	0.0
Badgam	0	0	0	0	0.0
Bandipora	0	0	0.1	0.1	-0.1
Baramula	0.2	0.1	1.4	0	0.2
Doda	0.4	0	0.2	0.6	-0.2
Ganderbal	0	0	0	0	0.0
Jammu	0.1	0.1	0.2	0	0.1
Kathua	5.0	0.1	2.5	1.5	3.5
Kishtwar	0.2	0.1	0	0	0.2
Kulgam	6.5	5.5	9.5	8.9	-2.4
Kupwara	0	0.1	0.3	0	0.0
Poonch	1.7	3.7	0.3	0	1.7
Pulwama	0.2	0.8	1.5	0.9	-0.7
Rajouri	0	1.7	0	1.3	-1.3
Ramban	NA	0	0	0	0
Reasi	0.8	0.3	0.2	0	0.8
Samba	0.3	0.3	0	0	0.3
Shopian	0.1	0.6	0.7	1.3	-1.2
Srinagar	0.3	0.2	0	0	0.3
Udhampur	3.8	3.7	2.6	0.6	3.2

Source: HMIS Web Portal, Ministry of Health and Family Welfare, Government of India, New Delhi

5.4 Measles

Measles is a childhood infection caused by a virus. Once quite common, measles can now almost always be prevented with a vaccine Also called rubeola, measles can be serious and even fatal for small children. While death rates have been falling worldwide as more children receive the measles vaccine, the disease still kills more than 100,000 people a year, most under the age of 5.

Table 4 depicts the number of measles cases under five children from year 2017-2021 in various districts of Kashmir division. There had no change in percentage of cases in district Anantnag Baramulla, Ganderbal, Ramban and Shopian. In district Bandipora, Pulwama and Rajouri   there had decrease of only -0.1%, -0.2 and -0.1 from year 2017-2021 respectively.

Table No. 5 District wise indicators of Measlesof total no of live births conducted in Jammu and Kashmir and percentage change during 2017-18 to 2020-21, as per HMIS data.					
Districts	2017-18	2018-19	2019-20	2020-21	% Age change during 2017-18 to 2020-21
	%Measles in Children 0-5 Years of Age	%Measles in Children 0-5 Years of Age	%Measles in Children 0-5 Years of Age	%Measles in Children 0-5 Years of Age	
Jammu & Kashmir	0.1	0.2	0.1	0	0.1
Anantnag	0.1	0.1	0.1	0	0.1
Badgam	0	0	0	0	0.0
Bandipora	0.1	0	0.1	0.2	-0.1
Baramula	0.3	0.3	0	0	0.3
Doda	0	0	0	0	0.0
Ganderbal	0.1	0	0	0	0.1
Jammu	0	0.1	0	0	0.0
Kathua	0	0	0	0	0.0
Kishtwar	0.2	0.6	0	0	0.2
Kulgam	0.4	2.6	3.1	0	0.4
Kupwara	0	0.1	0	0	0.0
Poonch	0	0.8	0	0	0.0
Pulwama	0.5	1.5	1.4	0.7	-0.2
Rajouri	0	0	0	0.1	-0.1
Ramban	0.4	0.5	0	0	0.4
Reasi	0	0	0	0	0.0
Samba	0	0	0	0	0.0
Shopian	0.4	5.0	1.1	0	0.4
Srinagar	0	0	0	0	0.0
Udhampur	0	0	0	0	0.0

Source: HMIS Web Portal, Ministry of Health and Family Welfare, Government of India, New Delhi

5.5 Diarrhea

Diarrhea can occur with fever, nausea, vomiting, cramps, dehydration, and even **rashes**. Some of the most common reasons kids get diarrhea include: Infection from viruses like rotavirus, bacteria like salmonella and, rarely, parasites like giardia. Viruses are the most common cause of a child's diarrhea.

HMIS data shows the total percentage of decreases number of diarrhoea cases underfive year of age in Jammu and Kashmir is 16 percent. Among the Kashmir division districts Anantnag shows decrease in percentage by 9.1% from year 2017-21In other districts Bandipora, Baramulla, Kupwara, Kulgam, Pulwama and Srinagar there had decrease of percentage points by 42%,8%,7%,-32%and 2% in child's diarrhoea.

The HMIS data further reflects that there is no seriousness in reporting and recording of data odistrict Kashmir and Jammu division having 231,134,124 percentage points which is an outlier and needs to be addressed. in diarrhoea indicators majority of the districts of Jammu and Kashmir.

Table No: 6 District wise indicators of Diarrhoea of total no of live births conducted in Jammu and Kashmir and percentage change during 2017-18 to 2020-21, as per HMIS data.					
Districts	2017-18	2018-19	2019-20	2020-21	
	% Diarrhoea in children0-5 years of age	% Diarrhoea in children 0-5 years of age	% Diarrhoea in Children 0-5 Years of Age	% Diarrhoea in children 0-5 years of age	% age change during 2017-18 to 2020-21
Jammu & Kashmir	32.4	40	29	16.4	16
Anantnag	19.1	20	19	10	9.1
Badgam	0.4	0.9	0.5	0	0.4
Bandipora	59	25	28	17	42
Baramula	20	18	33	12	8
Doda	10	4	4	4	6
Ganderbal	235	26	13	4	231
Jammu	21	23	14	5	16
Kathua	75	72	24	6	69
Kishtwar	35	46	23	0.9	34.1
Kulgam	136	113	148	129	7
Kupwara	0	8	13	7	-7
Poonch	54	82	34	8	46
Pulwama	57	94	182	89	-32
Rajouri	22	23	14	53	-31
Ramban	15	11	13	13	2
Reasi	80	99	33	8	72
Samba	NA	347	301	134	134
Shopian	184	312	379	60	124
Srinagar	2	11	1	0	2
Udhampur	47	30	24	7	40

Source: HMIS Web Portal, Ministry of Health and Family Welfare, Government of India, New Delhi

5.6. Other Child Morbidity 0-5 years of age reporting in HMIS:

Diptheria, Pertusis, Teberculosis,AFP, and Malaria

HMIS data Provides number of children below 5 years reported to have various morbid conditions.

Diphtheria: is **a** <u>bacterial</u> infection. It spreads easily and happens quickly, and mainly affects the nose and throat. Children under 5 and adults over 60 years old are particularly at risk for getting it. People living in crowded or unclean conditions, those who aren't well nourished, and children and adults who don't have up-to-date <u>immunizations</u> are also at risk.

Pertussia: Whooping cough (pertussis) is a contagious illness. It causes intense fits (paroxysms) of coughing. It mainly affects babies and young children.

Whooping cough used to be called the "100-day cough" because it can last for weeks to months. The illness often starts like the common cold, with a runny nose, sneezing, and a mild cough or fever. After 1 to 2 weeks, severe coughing starts. The cough often ends with a whooping sound as air is inhaled. During coughing spells, it's hard for babies and children to eat, drink, or breathe. These spells can last for weeks. In babies, it may cause periods of not breathing (apnea). Whooping cough is worse for children younger than age 1. It's fatal in some cases.

Tuberculosis (TB) is a disease caused by bacteria called Mycobacterium, tuberculosis. The bacteria usually attack the lungs, but they can also damage other parts of the body. TB spreads through the air when a person with TB of the lungs or throat.

Malaria is a disease caused by a **parasite**. The parasite is spread to humans through the bites of infected mosquitoes. People who have malaria usually feel very sick with a high fever and shaking chills. While the disease is uncommon in temperate climates, malaria is still common in tropical and subtropical countries.

HMIS data shows district wise indicators of different diseases like **Diptheria, Pertusis, Teberculosis, AFP, and Malaria** of children 0-5 years during the years 2017-18.18-19 and 19-20. In 2017-18 In Jammu and Kashmir, the total number of children 0-5 years who had diptheria-69, pertussis-22, tuberculosis-95, AFP-95, measles-268, malaria-5,665. Among the districts, Kathua had highest number of children with malaria (1,798). Likewise, Poonch district had highest number of diphtheria cases (27), Kulgam had highest number of pertussis

cases (13) and Baramulla district and Srinagar district had highest number of measles cases (38). Jammu district had highest number of tuberculosis cases (33), AFP (33).

In theyear 2018-19. In Jammuand Kashmir, the total number of children 0-5 years who had diptheria-6, pertussis-46. Among the districts, Kargil had highest number of Diphtheria cases (3) and Kulgam had the highest number of pertussis cases.

In the year, 2018-19, in Jammu and Kashmir, the total number of children 0-5 years who had tuberculosis was 132, AFP-28, measles-515, malaria-73 Among the districts, Kulgam had the highest number of tuberculosis (36) and measles (106) cases. Similarly, Samba had the highest number of AFP cases. The cases of malaria were highest in Poonch district.

In the year 2019-20, in Jammu and Kashmir, the total number of children 0-5 years who had diphtheria: 10, pertussis: 252 and tetanus:2. Diphtheria and Pertusis in Kulgam with 378, 7 and 247 respectively. The two cases of tetanus were reported in Jammu.

In the year 2019-20, there were a total of 62 Tuberculosis cases reported in Jammu and Kashmir among children 0-5 years of which the highest number was reported in Jammu (34). In terms of AFP, a total of 20 cases was reported and 244 cases of measles were reported with 126 cases in Kulgam. Of the total 140 malaria cases in the state, 117 was reported in Jammu.

6.Childhood Mortality

Childhood mortality is one of the important indicators of a country's general medical and public health conditions, and consequently, the country's level of socio-economic development. Its decline is therefore not only desirable but also indicative of an improvement in general living standards. The history of childhood as a modern concept is embedded in the narrative of the modern, welfare state, and childhood as a protected and prolonged period of life owes its recognition to popular struggles for welfare waged by the working classes in the context of the sweeping changes brought into their lives by the industrial revolution during the eighteenth and the nineteenth centuries.

Infant Mortality

The infant mortality rate (IMR)—probability of dying before one year of age expressed per 1000 live-births—and under-five mortality rate (U5MR)—probability of dying 3 between

birth and age 5 expressed per 1000 live-births—have been used as measures of children's well-being for many years. The International Conference on Primary Health Care held in Alma Ata in 1978 was the first global forum to consider how child mortality could be reduced by systematic development of a primary health care system. Since then, the United Nations has been actively involved in reducing IMR and U5MR in developing countries. To this end, the plan of action adopted at the International Conference on Population and Development (ICPD) held in Cairo in 1994 incorporates the reduction of maternal and child mortality.

7. Neonatal and Infant Deaths*: Infant mortality rateis considered as a measure of quality of health services. Deaths during infancy and particularly in neonatal ages are major public health concerns in Jammu and Kashmir. HMIS captures the death among neonates and infants on monthly basis. All the deaths among neonates and infants are line listed at every health facility and then consolidated at the district level. These deathsare grouped as follows, Deaths within 24 hours ofbirth, Deaths of children age between 1-4 weeks(late neonatal deaths) and deaths of children agebetween1-11months(post-neonataldeaths)Deaths of children age between 1-5 years.

7.1Causes of infant deaths

Table7presents the percentage of cause of infant deaths to the total reported infant deaths during the year 2017 to 20 in UT of Jammu and Kashmir. During the year 2017-18 deaths due to asphyxia was 12.7% to total reported infant deaths. In 2018-19,it was 16.1% and in 2019-20 it was 4.7% deaths.Deaths due to pneumonia to total reported infant deaths in the year 2017-18, was 2.4%,4% in 2018-19 and 2.7% in 2019-20to total reported infant deaths. In the year 2017-18 the highest percentage of deaths due to asphyxia was reported in Srinagar with 18.2%, due to pneumonia in Kulgam with 22.2%, 6.3% diarrhea deaths in Shopian and 2.7% deaths due to fever in Anantnag.

In 2018-19 The highest percentage of deaths due to sepsis was in Kargil with 28.9%, due to asphyxia was reported in Jammu with 20.5%, due to pneumonia in Kulgam with 27.1%, 5.6% diarrhea deaths in Bandipora.

During 2019-20 0.2% due to measles. The highest percentage of deaths due to sepsis was in Srinagar. With 20.4%, due to asphyxia was reported in Kishtwar with 33.3%, due to pneumonia in Ganderbal with 100%, and 5.4% diarrhea deaths in Udhampur.

Table: 7 Causes of infant deaths during the year 2017-2020

Districts	% Deaths due to Asphyxia to Total Reported Infant Deaths 2017-18	% Deaths due to Asphyxia to Total Reported Infant Deaths 2018-19	% Deaths due to Asphyxia to Total Reported Infant Deaths 2019-20	% Deaths due to Pneumonia to Total Reported Infant Deaths 2017-18	% Deaths due to Pneumonia to Total Reported Infant Deaths 2018-19	% Deaths due to Pneumonia to Total Reported Infant Deaths 2019-20	% Deaths due to Diarrhoea to Total Reported Infant Deaths 2017-18	% Deaths due to Diarrhoea to Total Reported Infant Deaths 2018-19	% Deaths due to Diarrhoea to Total Reported Infant Deaths 2019-20	% Deaths due to Fever to Total Reported Infant Deaths 2017-18	% Deaths due to Fever to Total Reported Infant Deaths 2018-19	% Deaths due to Fever to Total Reported Infant Deaths 2019-20
Jammu & Kashmir	12.7	16.1	4.7	2.4	4	2.7	0.2	0.2	0.1	0.5	0.3	0.4
Anantnag	17.8	0	0	0	4.3	0	0	0	0	2.7	0	0
Badgam	19	10.5	5.3	0	0	0	0	0	0	0	5.3	0
Bandipora	11.1	0	8.3	5.6	0	0	0	5.6	0	0	5.6	8.3
Baramula	4.3	4.6	2.2	10.4	10.3	2.2	0	1.1	2.2	1.7	0	1.1
Doda	0	0	0	0	0	0	0	0	0	0	0	0
Ganderbal	0	0	0	3.6	0	100	0	0	0	0	0	0
Jammu	18	20.5	21.8	14.8	5.7	4.3	0	0.1	0	0	0.1	0
Kathua	0	0	0	0	0	13.3	0	0	0	0	0	0
Kishtwar	8.1	0	33.3	2.7	0	0	2.7	0	0	0	0	4.8
Kulgam	11.1	6.3	0	22.2	27.1	0	0	0	0	0	4.2	5
Kupwara	4.9	3.4	0.5	0	3.4	1.2	0	0	0	0	0	0
Poonch	11.3	3.6	12	0	1.2	0.7	0	0	0	0.8	0	0
Pulwama	12.1	0	0	0	6.5	18.2	0	0	0	0	0	0
Rajouri	0	0	10.5	0	0	0	0	0	0	0	0	0
Ramban	0	0	0	0	0	0	0	0	0	0	0	0
Reasi	0	0	0	0	0	0	0	0	0	0	0	0
Samba	1.9	0	0	0	0	7	0	0	0	0	0	0
Shopian	0	0	0	0	0	0	6.3	0	0	0	0	0
Srinagar	18.2	20.3	5.4	0	0	7.9	0	0	0	0	0	1.7
Udhampur	10.3	8.3	5.4	0	2.1	10.8	0	2.1	5.4	3.4	0	0

Source: HMIS Web Portal, Ministry of Health and Family Welfare, Government of India, New Delhi

Causes of Neonatal and Infant deaths:

The deaths of infant age within 24 hours of birth were 153 cases in Jammu and Kashmir.Age up to 4 weeks due to sepsis were 194 cases.Againup to 4 weeksdueto Asphyxia was 214, 696 cases due to other causes, Age between 1-12 months due to other cause was 193 in the year 2020-21. Infant deaths up to age 1-12 months due to other causes was highest in Srinagar 89 cases. Infant deaths up to age 1-12 months due to pneumonia was 52 cases. Children age between 1-5 years died due to pneumonia was 17cases and due

to fever 18 cases in the same year. .Age between 1- 5 years highest 16 deaths was in Srinagar due to fever.And 85 children died due to other cause in the same year in Jammu and Kashmir.

Table:8 causes of deaths specified for Infant and child deaths during the year 2020-21		
Age	Cause of death recorded in HMIS	Number
Within 24 hours of birth (1-23 hours of birth)		153
Infant deaths up to 4 weeks	Due to sepsis	194
Infant deaths up to 4 weeks	Due to Asphyxia	214
Infant deaths up to 4 weeks	Due to Other causes	696
No of infant deaths 1-12 months	Due to pneumonia	52
No of infant deaths 1-12 months	Due to Diarrhoea	10
No of infant deaths 1-12 months	Due to fever related	39
No of infant deaths 1-12 months	Due to measels	0
No of infant deaths 1-12 months	Due to other	193
No of child deaths 1-5 years	Due to pneumonia	17
No of child deaths 1-5 years	Due to diarrhoea	2
No of child deaths 1-5 years	Due fever related	18
No of child deaths 1- 5 years	Due to measles	0
No of child deaths 1- 5 years	Due to other	85

Source: HMIS Web Portal, Ministry of Health and Family Welfare, Government of India, New Delhi

8. Conclusion and Recommendation

The study ascertains the level of morbidity and mortality reporting in HMIS in Jammu and Kashmir. After launching of HMIS in 2008,there were many inconsistencies and under-reporting for various health care services at the district level. This was primarily due to lack of trained personnel at periphery level health institutions and lack of understanding about HMIS indicators among district data officers. After repeated training and orientation, reporting of majority of indicators concerning maternal and child health services-ante natal care, delivery, postnatal care, immunization and patient care services have improved. Health facility level HMIS reporting introduced since 2013 has enhanced the importance of HMIS for micro level planning and thus it became crucial to maintain the quality of HMIS reporting at district as well as health facility level.

However, adequate attention was not given to reporting of health events and vital events which areequally important to understand the prevailing health conditions in the population.

The HMIS data pertaining to various morbidity conditions in dicate that all the districts have been reporting data continuously during 2018-2021 under HMIS. This needs to be sustained for better understanding of morbidity profile of the state and districts. Many districts are still lagging in capturing mortality data in HMIS.

Analysis of morbidity and mortality reporting at district as well as individual health facility level has found systemic gaps. At one hand many districts and health facilities are not reporting all the morbidity and mortality data and on the other, individual health facilities have been reporting very high cases of morbidity and mortality. Both the situations prompt close monitoring of reporting of data.

The study suggests morbidity and mortality data, which constitute nearly half of all the data items, in HMIS reporting needs monitoring and supervision for completeness. State and district data officers and programme managers need to be oriented for analysisandscrutinyofthesecrucialdata.

Jammu and Kashmir still have high infant and child deaths as compared to other states. Although various initiatives have been taken, it still seems insufficient. There is a need to provide quality of care, develop skilled human resources to provide services to infant and child, conduct awareness activities in the community and strengthen referral system between health centres for management of complications in infant and children, which could decrease the infant and child deaths in Jammu and Kashmir.

Based on the findings, the following are the recommendations:
- ➢ 1.There is a need to improve and strengthen infant and child health services in the state and provision of services in an integrated manner.
- ➢ 2.Capacity of health workers should be developed to identify and treat children for different symptoms.
- ➢ 3.Establishment of referral centres for complicated cases.
- ➢ 4.Increase and improve IEC and BCC activities in the community
- ➢ 5.Proper management of drugs and logistics.

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