LEVELS AND TRENDS OF MATERNAL MORTALITY IN INDIA AND ANDHRA PRADESH: AN OVERVIEW

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ABSTRACT

Andhra Pradesh, a large state in southern India, has a high maternal mortality ratio of 195 per 100,000 live births despite the improvements in social, demographic and health indicators over the last two decades. There has been an overall reduction of 73.5% in MMR in India, between 2000 and 2020. In 2020, India's MMR stood at 103, a vast improvement from 384 at the turn of the century. Socioeconomic and demographic factors and health behaviour affecting maternal mortality are rarely known. It is suggested to reduce MMR faster, simultaneous investment is important in strengthening the health system; education and empowering women; and making available qualified human resources in health, good governance, and transportation facilities.

Key Words: Maternal Mortality, Levels and Trends, Andhra Pradesh, India

INTRODUCTION

Maternal morbidity describes any short- or long-term health problems that result from being pregnant and giving birth. Maternal mortality refers to the death of a woman from complications of pregnancy or childbirth that occur during the pregnancy or within 6 weeks after the pregnancy ends. The maternal mortality ratio (MMR) is defined as the number of maternal deaths during a given period per 100,000 live births during the same period. The maternal mortality ratio is considered a sensitive index of the prevailing health conditions and general socioeconomic development of a community. According to the World Health Organization (WHO), the following cause the majority of maternal deaths around the world[4]:

- Severe bleeding (sometimes called hemorrhage)
- Infections
- Blood pressure disorders of pregnancy, including preeclampsia and eclampsia
- Complications of labor and delivery
- Unsafe abortion

Infections and chronic medical conditions, such as diabetes, are also causes of or associated with maternal deaths worldwide.

Maternal mortality rate in the state of Andhra Pradesh

Between 2018 and 2020, Kerala had the lowest MMR of 19 in the country, followed by Maharashtra (33) and Telangana (43). Andhra Pradesh registered an MMR of 45 per lakh live births, while that of Telangana, Karnataka and Tamil Nadu was 43, 69 and 54, respectively. Around 1.3 million Indian women died from maternal causes over the last two decades. Although maternal mortality rates have fallen by 70% overall, the poorer states lag behind.[1]

Status of IMR and MMR in India

As per the Sample Registration System (SRS) Bulletin of Registrar General of India (RGI), the Infant Mortality Rate (IMR) has reduced from 37 per 1000 live births in 2015 to 30 per 1,000 live births in 2019 at National Level. The State/ UT wise details of Infant Mortality Rate (IMR) for the period from 2015 to 2019 are presented in the Table 1.

Table 1
State/ UT wise details of Infant Mortality Rate (IMR) for the period from 2015 to 2019

Sl. No.	National/ State/ UT	Infant Mortality Rate (per 1000 live births)				
		2015	2016	2017	2018	2019
	ALL INDIA	**37**	**34**	**33**	**32**	**30**
1	Andhra Pradesh	37	34	32	29	25
2	A&N Islands	20	16	14	9	7
3	Arunachal Pradesh	30	36	42	37	29
4	Assam	47	44	44	41	40
5	Bihar	42	38	35	32	29
6	Chandigarh	21	14	14	13	13
7	Chhattisgarh	41	39	38	41	40
8	D&N Haveli	21	17	13	13	11
9	Daman & Diu	18	19	17	16	17
10	Delhi	18	18	16	13	11
11	Goa	9	8	9	7	8
12	Gujarat	33	30	30	28	25
13	Haryana	36	33	30	30	27
14	Himachal Pradesh	28	25	22	19	19
15	J & K including Ladakh	26	24	23	22	20
16	Jharkhand	32	29	29	30	27
17	Karnataka	28	24	25	23	21
18	Kerala	12	10	10	7	6
19	Lakshadweep	20	19	20	14	8
20	Madhya Pradesh	50	47	47	48	46
21	Maharashtra	21	19	19	19	17
22	Manipur	9	11	12	11	10
23	Meghalaya	42	39	39	33	33
24	Mizoram	32	27	15	5	3
25	Nagaland	12	12	7	4	3
26	Odisha	46	44	41	40	38

27	Puducherry	11	10	11	11	9
28	Punjab	23	21	21	20	19
29	Rajasthan	43	41	38	37	35
30	Sikkim	18	16	12	7	5
31	Tamil Nadu	19	17	16	15	15
32	Telangana	34	31	29	27	23
33	Tripura	20	24	29	27	21
34	Uttar Pradesh	46	43	41	43	41
35	Uttarakhand	34	38	32	31	27
36	West Bengal	26	25	24	22	20

Source: Sample Registration System of Registrar General of India[2]

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As per the Sample Registration System (SRS) Report of Registrar General of India (RGI), the Maternal Mortality Rate (MMR) has reduced from 8.1 in 2015-17 to 7.3 in 2016-18 at National Level. The Status of MMR at National level and State level as per SRS 2015-17 and 2016-18 are presented in the Table 2.

Table 2
Status of Maternal Mortality Rate (MMR)

Sl. No.	India/ States	2015-17	2016-18
	All India	**8.1**	**7.3**
1	Andhra Pradesh	3.6	3.6
2	Assam	15.2	14.0
3	Bihar	16.9	15.1
4	Jharkhand	6.1	5.6
5	Gujarat	6.0	5.1
6	Haryana	7.7	7.0
7	Karnataka	7.3	4.9
8	Kerala	1.9	2.1
9	Madhya Pradesh	17.5	15.9
10	Chhattisgarh	11.0	12.1
11	Maharashtra	3.3	2.6
12	Odisha	11.1	9.7
13	Punjab	6.8	7.0
14	Rajasthan	16.8	14.5
15	Tamil Nadu	4.8	3.2
16	Telangana	3.8	3.6

17	Uttar Pradesh	20.1	17.8
18	Uttarakhand	5.9	6.4
19	West Bengal	5.0	5.0
20	Other States	4.7	4.5

Source: Sample Registration System (SRS) of Registrar General of India (RGI)

The age-adjusted death rate increased by 5.3% from 835.4 deaths per 100,000 standard population in 2020 to 879.7 in 2021. Age-specific death rates increased from 2020 to 2021 for each age group 1 year and over. In order to bring down Infant Mortality Rate (IMR) and Maternal Mortality Rate (MMR), the Ministry of Health and Family Welfare (MoHFW) is supporting all States/UTs in implementation of Reproductive, Maternal, New-born, Child, Adolescent health and Nutrition (RMNCAH+N) strategy under National Health Mission (NHM) based on the Annual Program Implementation Plan (APIP) submitted by States/ UTs. The interventions taken up by Govt. are:

Interventions for improving Maternal Mortality Rate (MMR)

- **Janani Suraksha Yojana (JSY),** a demand promotion and conditional cash transfer scheme was launched in April 2005 with the objective of reducing Maternal and Infant Mortality by promoting institutional delivery among pregnant women.
- **Janani Shishu Suraksha Karyakram (JSSK)** aims to eliminate out-of-pocket expenses for pregnant women and sick infants by entitling them to free delivery including caesarean section, free transport, diagnostics, medicines, other consumables, diet and bloodin public health institutions.
- **Surakshit Matratva Ashwasan (SUMAN)** aims to provide assured, dignified, respectful and quality healthcare at no cost and zero tolerance for denial of services for every woman and newborn visiting the public health facility to end all preventable maternal and newborn deaths.
- **Pradhan MantriSurakshit Matritva Abhiyan (PMSMA)** provides pregnant women fixed day, free of cost assured and quality Antenatal Careon the 9thday of every month.
- **LaQshya** aims to improve the quality of care in labour room and maternity operation theatres to ensure that pregnant women receive respectful and quality care during delivery and immediate post-partum period.
- **Comprehensive Abortion Care services** are strengthened through trainings of health care providers, supply of drugs, equipment, Information Education and Communication (IEC) etc.
- **Midwifery programme** is launched to create a cadre for Nurse Practitioners in Midwifery who are skilled in accordance to International Confederation of Midwives (ICM) competencies and capable of providing compassionate women-centred, reproductive, maternal and new-born health care services.
- **Delivery Points**-Over 25,000 'Delivery Points' across the country are strengthened in terms of infrastructure, equipment, and trained manpower for provision of comprehensive RMNCAH+N services.
- Functionalization of **First Referral Units (FRUs)**by ensuring manpower, blood storage units, referral linkages etc.
- Setting up of **Maternal and Child Health (MCH) Wings** at high caseload facilities to improve the quality of care provided to mothers and children.
- Operationalization of **Obstetric ICU/HDU** at high case load tertiary care facilities across country to handle complicated pregnancies.
- **Capacity building** is undertaken for MBBS doctors in Anesthesia (LSAS) and Obstetric Care including C-section (EmOC) skills to overcome the shortage of specialists in these disciplines, particularly in rural areas.

- **Maternal Death Surveillance Review** (MDSR) is implemented both at facilities and at the community level. The purpose is to take corrective action at appropriate levels and improve the quality of obstetric care.
- Monthly **Village Health, Sanitation and Nutrition Day (VHSND)** is an outreach activity for provision of maternal and child care including nutrition.
- Regular IEC/BCC activities are conducted for early registration of ANC, regular ANC, institutional delivery, nutrition, and care during pregnancy etc.
- **MCP Card and Safe Motherhood Booklet** are distributed to the pregnant women for educating them on diet, rest, danger signs of pregnancy, benefit schemes and institutional deliveries.[3]

Interventions for improving Infant Mortality Rate (IMR)

- **Facility Based New-born Care:** Sick New-born Care Units (SNCUs) are established at District Hospital and Medical College level, New-born Stabilization Units (NBSUs) are established at First Referral Units (FRUs)/ Community Health Centres (CHCs) for care of sick and small babies.
- **Community Based care of New-born and Young Children:**Under Home Based New-born Care (HBNC) and Home-Based Care of Young Children (HBYC) program, home visits are performed by ASHAs to improve child rearing practices and to identify sick new-born and young children in the community.
- **Mothers' Absolute Affection (MAA):**Early initiation and exclusive breastfeeding for first six months and appropriate Infant and Young Child Feeding (IYCF) practices are promoted under Mothers' Absolute Affection (MAA).
- **Social Awareness and Actions to Neutralize Pneumonia Successfully (SAANS)** initiative implemented since 2019 for reduction of Childhood morbidity and mortality due to Pneumonia.
- **Universal Immunization Programme (UIP)** is implemented to provide vaccination to children against life threatening diseases such as Tuberculosis, Diphtheria, Pertussis, Polio, Tetanus, Hepatitis B, Measles, Rubella, Pneumonia and Meningitis caused by Haemophilus Influenzae B. The Rotavirus vaccination has also been rolled out in the country for prevention of Rota-viral diarrhoea. Pneumococcal Conjugate Vaccine (PCV) has been introduced in all the States and UTs.
- **Rashtriya Bal Swasthya Karyakaram (RBSK):** Children from 0 to 18 years of age are screened for 30 health conditions (i.e. Diseases, Deficiencies, Defects and Developmental delay) under Rashtriya Bal SwasthyaKaryakaram (RBSK) to improve child survival. District Early Intervention Centres (DEICs) at district health facility level are established for confirmation and management of children screened under RBSK.
- **Nutrition Rehabilitation Centres (NRCs)**are set up at public health facilities to treat and manage the children with Severe Acute Malnutrition (SAM) admitted with medical complications.
- **Intensified Diarrhoea Control Fortnight / Defeat Diarrhoea (D2)** initiative implemented for promoting ORS and Zinc use and for reducing diarrhoeal deaths.
- **Anaemia Mukt Bharat (AMB) strategy** as a part of POSHANAbhiyan aims to strengthen the existing mechanisms and foster newer strategies to tackle anaemia which include testing & treatment of anaemia in school going adolescents & pregnant women, addressing non nutritional causes of anaemia and a comprehensive communication strategy.
- **Capacity Building:** Several capacity building programs of health care providers are taken up for improving maternal and child survival and health outcomes.[4]

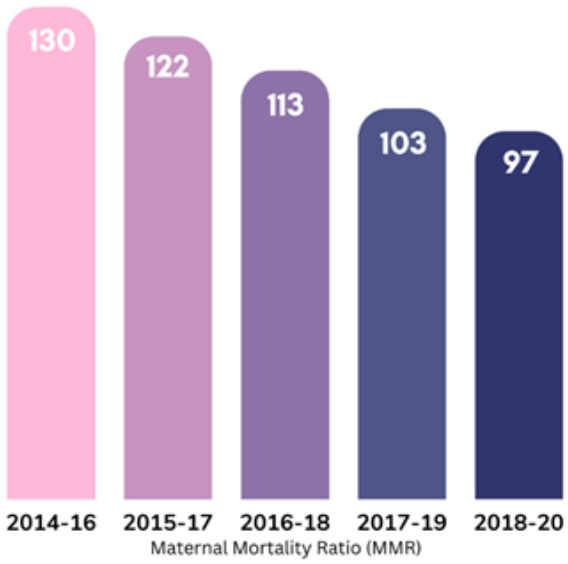
Significant Decline in Maternal Mortality in India

"A very encouraging trend. Happy to see this change. Our emphasis on furthering all aspects relating to women empowerment remains very strong"

-Prime Minister Narendra Modi

Maternal mortality has been an issue of concern in India for many years, and one of the country's endless endeavours has been to improve maternal health and bring down the **Maternal Mortality Ratio (MMR)**. MMR is the number of maternal deaths during a given time period per 100,000 live births during the same time period.[5] Maternal mortality in a region is a measure of the reproductive health of women in the area. Many women in reproductive age-span die due to complications during and following pregnancy and childbirth or abortion. Maternal Mortality Ratio (MMR) in India was exceptionally high in 1990 with 556 women dying during child birth per hundred thousand live births. Approximately, 1.38 lakh women were dying every year on account of complications related to pregnancy and child birth. The global MMR at the time was much lower at 385.[6]

The National Health Policy (NHP) 2017 lay down the target to bring the MMR in India below **100/lakh live births** by 2020. Owing to ceaseless efforts by the Government, India has successfully achieved the major milestone of bringing down its MMR to **97/lakh live births** in 2018-20, well in time. The targeted interventions by the Government of India with the objective of addressing all aspects of maternal care have translated into a consistent decline in MMR over the last eight years. MMR in the country declined from 130 per lakh live births in 2014-16 to 122 in 2015-17, and further dropped by 9 points to 113 in 2016-18. By 2017-19, India's MMR was already down to 103, against a global MMR of 211 (2017).[7]



Target in the **Sustainable Development Goals (SDG)** set by the United Nations in 2015 is to reduce the **global MMR to less than 70/lakh live births by 2030**. India is steadily advancing on the track to achieve this goal ahead of time with its policies for women's health and wellbeing. The steps taken by the Central Government have **facilitated outstanding progress by a number of states, eight of which have already achieved the SDG target**. These include Kerala (19), Maharashtra (33), Telangana (43) Andhra Pradesh (45), Tamil Nadu (54), Jharkhand (56), Gujarat (57), and Karnataka (69).

The Government's major focus area, in striving to bring down maternal mortality, has been to address the actual causes of mortality and morbidity among women, and deliver solutions to eliminate these causes. The emphasis has been on ensuring a continuum of care to address maternal and child health in a holistic manner, by providing excellent healthcare facilities to pregnant women, right from early stages of the pregnancy to postpartum care. Schemes have been designed keeping in mind the requirement of a range of medical facilities, right from testing and regular check-ups, to facilities for smooth delivery and further on to postnatal care of both mother and child.The efforts to boost maternal and new born care have given due

attention to areas like antenatal care, nutrition for pregnant women and providing a positive birthing experience to mothers. **Pradhan Mantri Surakshit Matritva Abhiyan**, for instance, seeks to improve the quality and coverage of diagnostics and counselling services, along with providing **assured comprehensive and quality antenatal care free of cost**.[8]

Pregnant Women are among the major target groups of **POSHAN Abhiyaan**- the government's flagship programme to improve **nutritional outcomes**. To further draw attention to the nutritional needs of this group, the Government of India's focus for the 5th Rashtriya Poshan Maah (September 01 to 30, 2022) has been on maternal and child health. This year, the objective was to trigger Poshan Maah through Gram Panchayats as *Poshan Panchayats* with key focus on "***Mahila aur Swasthya***" and **"***Bacha aur Shiksha***"**.To ensure a pregnancy without any financial woes, the Government has launched the **Pradhan Mantri Matru Vandana Yojana (PMMVY)**, a direct benefit transfer (DBT) scheme under which **cash benefits are provided to pregnant women in their bank account directly** to meet enhanced nutritional needs and partially compensate for wage loss.

Providing a **positive birthing experience** to pregnant women has been made an imperative through programmes like **Surakshit Matritva Anushasan (SUMAN)**, and **Labour Room & Quality Improvement Initiative (LaQshya)**. SUMAN aims to provide assured, dignified and respectful delivery of quality healthcare services at no cost and zero tolerance of denial of services to any women and new born visiting a public health facility in order to end all preventable maternal and new born deaths and morbidities. This initiative has been built on the progress of schemes like Janani Shishu Suraksha Karyakram (JSSK) and Janani Suraksha Yojana (JSY).

LaQshya was launched with the objective of reducing maternal and new born mortality and morbidity, improving quality of care during delivery and immediate post-partum period, and enhancing positive birthing experience along with providing Respectful Maternity Care to all pregnant women attending public health facilities. The programme is working on improve quality of care for pregnant women in labour room, maternity Operation Theatre and Obstetrics Intensive Care Units (ICUs) & High Dependency Units (HDUs).[9]

These initiatives by the Government of India have played a pivotal role in increasing the number of institutional deliveries in the country. Institutional deliveries in India have increased substantially from 79 per cent in 2015-16 to 89 per cent in 2019-20. Around 87% births in rural areas and 94% births in urban areas are institutional deliveries. The government is also taking various other steps to promote institutional deliveries, like, operationalisation of Sub-Centres, Primary Health Centres, Community Health Centres and District Hospitals for providing 24x7 basic and comprehensive obstetric care, and capacity building of healthcare providers in basic and comprehensive obstetric care to enable them to provide high quality services during childbirth at the institutions.

Other initiatives include setting up of **Maternal and Child Health (MCH) Wings** at high caseload facilities to improve the quality of care provided to mothers and children, establishing **Birth Waiting Homes (BWH)** in remote and tribal areas to promote institutional delivery and improve access to healthcare facilities, and strengthening of over 25,000 'Delivery Points' across the country in terms of infrastructure, equipment, and trained manpower. **Comprehensive Abortion Care** services are also being strengthened through trainings of health care providers, supply of drugs, equipment, Information Education and Communication (IEC) etc. The Union Ministry of Health and Family Welfare also launched the **Anemia Mukt Bharat** strategy in 2018 to reduce anaemia prevalence both due to nutritional and non-nutritional causes, in the lifecycle approach. The strategy is estimated to reach out to 450 million beneficiaries including **30 million pregnant women**.

India's achievement in bringing down MMR bolsters the Government's resolve to *'Surakshit Matritva Aashwasan*' for the women by creating a responsive health care system which strives to achieve zero preventable maternal and newborn deaths. As India celebrates its 'Amrit Kaal', the aim is to reduce MMR below the goal of 70/lakh live births, and maintain a steady decline going forward. To achieve this target, India is focusing on the standard of in-facility maternity care and raising awareness of the significance of reproductive health. The future that the Government of India envisions for the country is one where maternal mortality is no longer a cause for concern; with the various initiatives and healthcare facilities being introduced and diligently implemented, this vision is well on its way to becoming a reality.[10]

CONCLUSION

The economic system works on a quid pro quo basis, which implies that it would neglect social groups unable to offer the system any economic service. In India, these groups largely include women and tribal sub-groups living in unfavourable geographic locations demotivating. Moreover, states with high MMR also tend to have an unfavourable geography; therefore, economic growth would largely be confined to advantaged locations, and the remotest and tribal areas will remain underserved and have high levels of MMR. Economic growth may help initiate improvements in MMR but, to reduce MMR faster, simultaneous investment is important in strengthening the health system; education and empowering women; and making available qualified human resources in health, good governance, and transportation facilities. Also, improvement in recording and sharing vital health information is critical to facilitate policymaking and enhance effectiveness of various interventions. India's developmental narrative should display increased socio-political commitment towards health, one that could place India ahead of other countries.

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