



Evaluating the Impact of Public Health and Developmental Programs in Maharashtra

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DOI - 10.5281/zenodo.14936439

Abstract:

This paper provides an in-depth review of Maharashtra's health infrastructure and public health initiatives based on the Economic Survey of Maharashtra 2023-24. With a mission to enhance healthcare access, reduce disease burdens, and promote the welfare of women and children, Maharashtra has adopted a multi-tiered healthcare infrastructure supported by various state and national health schemes. The paper explores initiatives ranging from primary health facilities and emergency services to specialize maternal and child health programs, disease surveillance efforts, and health insurance schemes. The findings reveal substantial progress in health access, disease control, and maternal health indicators while also identifying critical gaps, especially in rural and marginalized communities. Recommendations for policy adjustments emphasize infrastructure enhancement, equitable distribution of health resources, and sustained efforts toward preventive healthcare. This paper concludes with a discussion of future directions, aiming to support Maharashtra's path to achieving Sustainable Development Goals in public health.

Keywords: health facilities, insurance schemes, health resources, infrastructure enhancement etc.

Introduction and Background:

Maharashtra has consistently invested in its healthcare sector to support quality of life and meet the growing demands of a diverse population. In line with the goals outlined in the National Health Mission, the state government has developed a three-tier health system to deliver reliable, accessible, and cost-effective care at all levels. This paper outlines the various public health initiatives detailed in the Economic Survey of Maharashtra 2023-24, focusing on infrastructure improvements, disease control, emergency services, and comprehensive maternal and child

health programs. The aim is to evaluate the impact of these initiatives, their effectiveness in reaching vulnerable populations, and their contribution to the state's long-term health goals.

Public Health Infrastructure and Primary Health Initiatives:

The Maharashtra healthcare model is structured as a three-tiered system aimed at delivering accessible healthcare services through interconnected layers:

Primary Tier: Comprising sub-centres, Primary Health Centres (PHCs), and Community Health Centres (CHCs), this tier provides essential services like

maternal and child health, family welfare, immunization, and disease control. PHCs offer outpatient services, emergency care, and family planning, while CHCs act as referral points.

Secondary Tier: Sub-district and district hospitals offer higher levels of

care, including surgical and emergency interventions, catering to larger populations.

Tertiary Tier: The tertiary tier consists of advanced facilities in medical colleges and super- speciality hospitals, focusing on complex care.

Table 1: Health infrastructure of the State Government (As on 31st March, 2024)

Type of Institution	Numbers
Sub-center	10,748
Primary Health Centre	1,913
Community Health Centre	364
Primary Health Unit	121
Mobile Medical Unit	66
Sub-district Hospital	95
District Hospital	19
Hospitals attached to Medical College	25
Primary Health Centre attached to Medical College	5
General Hospital	8
Women Hospital	20
Mental Hospital	4
Leprosy Hospital	2
TB Hospital	5
Orthopedic Hospital	1
Regional Referral Hospital	2

Table 1 in the survey offers a quantitative look at Maharashtra's health institutions, revealing the distribution of resources across levels, with 10,748 sub-centers, 1,913 PHCs, and 364 CHCs. Despite significant infrastructure, accessibility gaps remain, particularly in rural areas where doctor-patient ratios are low, and facilities are overstretched. The government's ongoing investment in the Pradhan Mantri Ayushman Bharat Health Infrastructure Mission underscores the need for better-equipped institutions, especially in underserved regions.

Major Health Programs and Missions:

The Maharashtra government has implemented several large-scale health initiatives, aiming to expand healthcare access, enhance disease management, and fortify preventive care across urban and rural regions.

Pradhan Mantri Ayushman Bharat Health Infrastructure Mission:

Since its inception in 2021, the Pradhan Mantri Ayushman Bharat Health Infrastructure Mission (PM-ABHIM) has focused on strengthening Maharashtra's healthcare infrastructure to address both communicable and non-communicable diseases. The program emphasizes the development of Integrated Public Health Laboratories (IPHLs) and Critical Care Hospital

Blocks (CCHBs), which have been strategically established across state government medical colleges and district hospitals. Key achievements include:

Integrated Public Health Laboratories (IPHLs): Maharashtra has operationalized IPHLs in district hospitals across various regions, including districts such as Pune, Dhule, Raigad, and Satara. These laboratories facilitate early disease detection through a range of diagnostic tests, supporting rapid responses to outbreaks, particularly in underserved areas.

Critical Care Hospital Blocks (CCHBs): Designed to provide high-level care for severe cases, CCHBs with 50 to 100 beds each have been set up in district hospitals such as those in Pune, Nagpur, Ahmednagar, and Buldhana. These facilities help reduce the load on tertiary care hospitals by treating critical cases locally, thus improving patient outcomes and reducing delays. The mission is crucial in augmenting Maharashtra's response to emergencies and providing comprehensive healthcare within rural and semi-urban areas. Maharashtra's implementation reflects significant resource allocation aimed at sustaining high-quality healthcare across multiple tiers, indicating government efforts to build a robust healthcare system capable of addressing both acute and chronic conditions.

National Health Mission (NHM):

The National Health Mission (NHM), which includes the National Rural Health Mission (NRHM) and National Urban Health Mission

(NUHM), has a wide-reaching impact across Maharashtra:

National Rural Health Mission (NRHM): NRHM has concentrated efforts on rural areas, targeting health disparities with community health workers, telemedicine, and ASHA (Accredited Social Health Activist) workers who provide care at the grassroots level. Notably, 63,401 ASHA workers, supported by over 14,000 medical officers, have been deployed across Maharashtra. These workers not only offer essential health services but also play a key role in patient education, preventive health practices, and maternal care support.

National Urban Health Mission (NUHM): Focusing on Maharashtra's urban populations, the NUHM supports 741 urban PHCs and provides mobile medical units and ASHA workers to address the needs of urban slums and other marginalized communities. Notable expenditures, such as ₹373.31 crore in 2023-24, underscore NUHM's commitment to healthcare for Maharashtra's urban poor, who are often vulnerable to diseases due to poor sanitation and living conditions.

Ayushman Arogya Mandir Programme: This program is a cornerstone of Maharashtra's preventive health approach. By converting existing PHCs and sub-centres into Health & Wellness Centres (HWCs), the government aims to deliver both curative and preventive care. With 11,177 Ayushman Arogya Mandirs operational by 2023-24, Maharashtra's HWC model focuses on offering a continuum of care that includes health counseling, disease screening, and

follow-up for conditions like hypertension and diabetes.

Disease Surveillance and Digital Health Platforms:

A significant component of the NHM is disease surveillance, leveraging digital tools for real-time monitoring and rapid response to health emergencies. These platforms facilitate data collection across rural and urban PHCs, enabling early detection and response to

infectious disease outbreaks. According to Table 2, Maharashtra has improved health service delivery significantly across both rural and urban areas, thanks to NHM-supported facilities. In addition to enhancing care, such surveillance systems contribute to the state's preparedness against future pandemics or local outbreaks by providing timely health insight.

Table 2: Physical achievements under NRHM

Component	Particulars	2021-22	2022-23	2023-24
AYUSH	Patients treated			
	1. Out Patient Department (OPD)	28,87,189	42,97,034	47,76,672
	2. In Patient Department	91,382	79,461	1,21,471
Mobile Medical Unit	Patients treated	20,81,279	6,46,061	1,93,353
	RMNCH+A	3,65,479	1,45,812	24,703
	Lab test	11,11,796	2,30,407	75,736
	Villages visited	30,912	11,970	4,408
Telemedicine	Patients referred and opinion received	15,665	25,805	27,400
Sickle cell disease control programme	Total tests performed	9,53,990	8,82,873	32,05,277
	Sufferers	933	1,838	16043
	Carriers	10,237	15,720	1,20,347
Palliative Care	Patients treated	36,820	44,931	1,04,087
Referral transport	Pregnant women			
	Institutional deliveries	5,09,847	4,70,342	12,00,007
	Home to institute	4,45,026	4,77,758	2,99,157
	Institute to institute	1,60,061	1,63,242	1,44,582
	Institute to home	4,77,770	5,43,400	3,75,583
	Sick Neonates			
	Home to institute	76,695	83,024	41,288
	Institute to institute	30,018	27,819	42,465
	Institute to home	90,802	1,35,347	66,706
	Public - Private Partnership (PPP)			
a) Health Advice Call Centre	Total calls	6,73,498	8,67,060	9,21,735
b) Epilepsy programme	Camps organized	4	7	6
	Patients treated	506	1,861	1,956
	EEG in camps	120	260	324
	OT/PT/Speech therapy provided	254	536	618
c) Medical & Dental camp	Camps organized	64	67	63
	Patients treated	96,686	97,635	12,85,205
	Surgeries performed	6,132	4,501	4,301
d) Maher Ghar	Beneficiary mothers	2,190	2,352	2,729

(Source: Directorate of Health Services, GoM)

Maternal, Newborn, and Child Health Initiatives:

Maternal, Newborn, and Child Health (MCH) programs are integral to Maharashtra’s public health strategy, aiming to reduce maternal and child mortality through targeted interventions.

Janani Suraksha Yojana (JSY) The Janani Suraksha Yojana is a vital initiative for enhancing maternal health outcomes among marginalized communities. Maharashtra has seen significant success with JSY by promoting institutional deliveries among BPL, SC, and ST families:

- **Beneficiary Reach and Financial Expenditure:** According to data from 2023-24, JSY has reached nearly 3.56 lakh beneficiaries. This reflects a considerable investment in reducing maternal and infant mortality rates through safer childbirth environments. Financial assistance under JSY has also provided necessary support for mothers, encouraging them to seek institutional care.
- **Impact on Maternal Mortality and Child Health Indicators:** As a result of JSY and other MCH initiatives, Maharashtra has seen a reduction in Maternal Mortality Ratio (MMR) and Infant Mortality Rate (IMR). According to Table 3, the MMR declined from 46 in 2018 to 33 in 2020, while the IMR dropped from 19 to 16 in the same period. These declines indicate an improvement in maternal and infant health, showcasing the effectiveness of JSY and related programs in addressing health disparities among disadvantaged populations.

Table 3: Selected health indicators

Indicator	2018	2019	2020
Infant Mortality Rate (IMR)	19	17	16
Neo-natal Mortality Rate (NMR)	13	13	11
Under-Five Mortality Rate (U5MR)	22	21	18
Total Fertility Rate (TFR)	1.7	1.6	1.5
	(2016-18)	(2017-19)	(2018-20)
Maternal Mortality Ratio (MMR)	46	38	33

Pradhan Mantri Surakshit Matritva Abhiyaan (PMSMA):

PMSMA provides essential antenatal care to pregnant women on a designated day each month, ensuring they receive timely health check-ups and screenings:

- **Program Reach and High-Risk Pregnancy Identification:** Table 4 indicates that PMSMA identified an increased number of high-risk pregnancies in 2023-24,

underscoring its role in managing complicated pregnancies. Approximately 2.76 lakh pregnant women received antenatal care, with high-risk pregnancy cases rising from 0.32 lakh in 2021-22 to 0.44 lakh in 2023-24. This focus on high-risk pregnancies helps in early identification and treatment of potential complications, reducing both maternal and neonatal mortality rates.

Table 4: Performance of Pradhan Mantri Surakshit Matritva Abhiyaan

Year	Number of pregnant women who received ANC (lakh)	Number of pregnant women who received ANC in 2 nd and 3 rd trimester for 1 st time (lakh)	Number of high risk pregnancies identified (lakh)	Expenditure incurred (lakh)
2021-22	3.01	1.47	0.32	9.16
2022-23	2.91	1.35	0.42	8.12
2023-24	2.76	1.18	0.44	17.03

- Quality of Care:** The initiative provides free-of-cost laboratory tests, abdominal exams, and screenings for pregnant women, ensuring they receive comprehensive prenatal care. The increased attention on timely diagnosis and referrals is expected to improve maternal health further, particularly in regions with traditionally limited healthcare access.

Maternal and Child Health Indicators and Outcomes:

Table 4 provides insights into Maharashtra’s progress in key maternal and child health indicators from 2018 to 2020:

- Infant Mortality Rate (IMR):** The IMR has progressively declined to 16 per 1,000 live births in 2020, down from 19 in 2018. The reduction aligns with Maharashtra’s push for improved neonatal care and enhanced immunization coverage.
- Total Fertility Rate (TFR):** The TFR dropped from 1.7 in 2016-18 to 1.5 in 2018-20, reflecting increased access to family planning and reproductive health services. These results are consistent with Maharashtra’s goals of achieving population stabilization and

ensuring reproductive health services are accessible to all.

Need for Ongoing Support and Resource Allocation:

Despite positive trends, challenges remain in reaching equitable outcomes across rural and urban regions. Urban-rural disparities in healthcare infrastructure and resource availability persist, with rural populations facing difficulties in accessing advanced maternal care. Continued investment in MCH services is essential to sustain the progress and extend care to remote and underserved communities.

Disease Surveillance and Immunization Programs:

Maharashtra’s disease surveillance and immunization programs play a crucial role in advancing the state's healthcare system. These programs are designed to prevent the spread of infectious diseases, reduce morbidity and mortality rates, and improve public health outcomes. They focus on surveillance, early intervention, vaccination, and controlling disease vectors.

Universal Immunization Programme (UIP):

The Universal Immunization Programme (UIP) aims to protect

children and pregnant women from vaccine-preventable diseases. It focuses on routine immunization to achieve higher vaccination coverage, reducing the incidence of diseases such as tuberculosis, polio, diphtheria, pertussis (whooping cough), tetanus, hepatitis B, and measles. The UIP targets infants, young children, and pregnant women across Maharashtra, with a strong focus on underserved and rural populations. It seeks to vaccinate all eligible individuals with the recommended vaccine schedule.

Key Vaccines and Coverage Achievements:

- BCG (Bacille Calmette-Guérin): Targets tuberculosis, especially critical for young children. Table indicates high vaccination rates, with coverage close to target levels.

- OPV (Oral Polio Vaccine): Protects against poliovirus. Achieving widespread OPV coverage helps in maintaining Maharashtra’s polio-free status, a critical public health goal.
- Pentavalent Vaccine: Combines protection against diphtheria, pertussis, tetanus, hepatitis B, and Haemophilus influenzae type B (Hib). Pentavalent coverage rates have been high, indicating strong uptake and acceptance of the combination vaccine.
- Measles/Rubella Vaccine: Measles and rubella vaccinations are essential to reducing the spread of these viral infections, which can lead to serious complications, especially in children.

Table 5: Number of beneficiaries of Universal Immunization Programme

Vaccine	2021-22		2022-23		2023-24	
	Target	Achievement	Target	Achievement	Target	Achievement
BCG	19.32	18.45	19.27	19.37	19.04	19.52
OPV 0	19.32	17.67	19.27	18.01	19.04	16.42
OPV I	19.32	18.96	19.27	19.6	19.04	18.9
OPV II	19.32	18.44	19.27	19.28	19.04	18.43
OPV III	19.32	18.99	19.27	19.57	19.04	18.83
Hepatitis B 0	19.32	11.5	19.27	14.97	19.04	11.09
Measles/Rubella	19.32	18.76	19.27	19.67	19.04	18.89
FIPV I	19.32	18.83	19.27	19.55	19.04	18.75
FIPV II	19.32	18.53	19.27	19.51	19.04	18.68
FIPV III	N A	N A	N A	N A	19.04	18.34
DPT (booster)	18.94	18.09	18.94	18.89	18.74	18.47
OPV (booster)	18.94	18.08	18.94	18.87	18.74	18.52
DPT 5 years	18.96	15.74	21.04	17.21	21.75	16.31
Td 10 years	26.08	15.41	21.96	15.77	22.13	16.15
Td 16 years	23.59	14.45	23.75	15.16	25.3	15.08
Td Pregnant women	21.26	20.92	21.2	19.87	21.16	19.45
Pentavalent 3	19.32	19.02	19.27	19.59	19.04	18.85
Rota virus 3	19.32	18.54	19.27	19.57	19.04	18.72
Japanese Encephalitis	2.92	2.59	4.4	4.4	4.4	3.96
PCV 1st	N A	N A	19.27	17.13	19.04	18.7
PCV 2nd	N A	N A	19.27	16.88	19.04	18.66
PCV booster	N A	N A	19.27	14.78	19.04	18.51

The UIP has significant improved vaccination coverage across Maharashtra, reducing the incidence of targeted diseases and lowering the associated mortality rates. High vaccination coverage leads to herd immunity, helping prevent outbreaks of these diseases within communities, especially in rural and high-density urban areas. By achieving high immunization rates, Maharashtra has managed to control the spread of infectious diseases, contributing to healthier childhood outcomes and reduced public health costs associated with treating these preventable illnesses.

While Maharashtra has achieved high immunization coverage, challenges remain in reaching remote or underserved areas. More outreach and mobile vaccination units could help bridge this gap. Ensuring public trust and acceptance of vaccines is crucial, and sustained awareness campaigns are needed to counter misinformation and increase participation.

Pulse Polio Programme:

The Pulse Polio Programme aims to eliminate polio by ensuring that all children under five receive the Oral Polio Vaccine (OPV) multiple times, regardless of their vaccination history. The program targets all children under the age of five, focusing on full state-wide coverage. The emphasis is on comprehensive vaccine distribution to prevent any resurgence of poliovirus, especially in areas with lower routine immunization coverage.

Special immunization days are organized to administer OPV to all

children, regardless of prior vaccination status, ensuring that no child is missed. The program uses multiple delivery methods, including fixed booths, house-to-house visits, and mobile vaccination units in high-risk or hard-to-reach areas. Through mass media, healthcare worker engagement, and local health influencers, the program promotes awareness to ensure widespread participation in polio vaccination.

Maharashtra's disease surveillance and immunization programs have significantly contributed to its healthcare improvements:

Universal Immunization Programme (UIP): Targeted at infants, children, and pregnant women, UIP has improved vaccination coverage rates for diseases like polio, measles, and tuberculosis. Data from Table 10.19 shows high vaccination achievements, approaching target levels for BCG, OPV, and Pentavalent vaccines.

Pulse Polio Programme: With a focus on eradicating polio, this initiative reached over 111 lakh children in 2023-24, as shown in Table 10.20. The state's success in preventing polio highlights effective vaccine distribution and outreach.

Vector-Borne Disease Control: The National Vector Borne Disease Control Programme combats diseases like malaria and dengue through surveillance and rapid response. Table 10.22 presents annual case data, indicating fluctuating malaria and dengue prevalence, with a rise in dengue cases necessitating reinforced preventive measures.

Epidemic Control Programmes have also been instrumental in controlling outbreaks of waterborne diseases, which remain a seasonal challenge.

Emergency and Specialized Care Services:

Maharashtra Emergency Medical Services (MEMS): MEMS offers a 24/7 ambulance service across the state, equipped with life-support facilities to handle emergencies from accidents to childbirth. Data from Table 10.23 reflects MEMS' reach, handling over 12 lakh cases in 2023-24. Specialized National Programs: The state has made notable strides in tackling tuberculosis, leprosy, and blindness. Under the National Tuberculosis Elimination Programme, the cure rate for TB has reached 87%. Similarly, the National Leprosy Eradication Programme has managed to bring the prevalence rate below the national target, addressing both disease treatment and rehabilitation.

These initiatives underscore Maharashtra's commitment to specialized healthcare services, especially for underserved and vulnerable populations.

Health Insurance and Accessibility Initiatives:

Health insurance programs in Maharashtra, particularly the Integrated Mahatma Jyotirao Phule Jan Arogya Yojana (MJPJAY) and Ayushman Bharat (AB-PMJAY), offer essential financial protections:

- MJPJAY and AB-PMJAY: These schemes provide cashless coverage, offering over 1,200 surgeries and

treatments. Data from Tables 10.27 and 10.28 show high usage rates, with claims exceeding ₹1,845 crore in 2023-24. This dual scheme structure enhances accessibility to quality healthcare, particularly for low-income households.

- The success of these programs is vital for inclusive healthcare, particularly for Maharashtra's economically vulnerable populations.

Women and Child Development Initiatives:

Maharashtra's approach to women and child development is multidimensional, addressing health, safety, and social welfare:

- Mission Shakti: Encompassing programs like Sakhi One Stop Centres and Beti Bachao Beti Padhao, this initiative empowers women with support services and gender equality programs. The effectiveness of these programs is evident in increased outreach, with over 6,000 women assisted in 2023-24 through Sakhi Centres.
- Ujjawala Homes: These facilities provide safe, rehabilitative environments for victims of trafficking, supporting their reintegration into society. Data shows that over 330 women benefited from these services in 2023-24.

Challenges and Future Directions:

Despite substantial progress, Maharashtra's healthcare system faces challenges:

- Accessibility and Workforce Gaps: Although infrastructure is extensive,

doctor-patient ratios and specialist availability remain uneven, especially in rural areas.

- **Infrastructure Needs:** The need for sustained investment in medical equipment, especially in remote regions, is critical.
- **Preventive Health Focus:** Expanding preventive healthcare programs can further reduce disease burdens, particularly for non-communicable diseases.

Recommendations include deploying digital health platforms, boosting telemedicine, and strengthening rural healthcare staffing. Improving health equity and access is crucial to achieving the Sustainable Development Goals.

Conclusion:

This paper reveals that Maharashtra’s multi-tiered healthcare infrastructure, bolstered by state and national programs, has significantly advanced health outcomes. Improvements in maternal and child health, disease control, and emergency services reflect well-coordinated policy implementation. Nonetheless, rural-urban disparities and infrastructure limitations pose ongoing challenges. Continued policy enhancements focusing on preventive care and resource equity can further Maharashtra’s progress toward a more inclusive healthcare system.

References:

Academic periodicals (peer-reviewed journals):

1. Journal of Management Information and Decision Sciences (Vilas, B.G. (2021). An evaluation of public health schemes in India: A case study of

Maharashtra state. Journal of Management Information and Decision Sciences, 24(S1), 1-10.

2. Indian Journal of Public Health (Kausar, M., Siddharth, V., & Gupta, S.K. (2021). A study on economic evaluation of an outreach health-care facility in Jhajjar District of Haryana: Service delivery model for increasing access to health care. Indian Journal Public Health, 65,45-50.
3. The International Journal of Entrepreneurship and Innovation (Gurtoo, A., & Williams, C.C. (2009). Entrepreneurship and the informal sector: Some lessons from India. The International Journal of Entrepreneurship and Innovation, 10(1), 55-62.

Books and textbooks:

1. Fundamentals of Statistics (Gupta S. C. (2019). Fundamentals of Statistics, Himalaya Publishing House Pvt. Ltd., Mumbai)

Government Reports and Websites:

1. Maharashtra Directorate of Health Services: Official Website and Annual Report.
2. National Health Mission (NHM), Maharashtra: Official Website and Program Report.
3. Economic Survey of Maharashtra: Annual Report.
4. National Family Health Survey (NFHS): Report for Maharashtra.
5. District Health Information System (DHIS): District-level health data.
6. Indian Council of Medical Research (ICMR): Research Publications and Reports.

Academic Journals:

1. Indian Journal of Medical Research
2. Indian Journal of Public Health
3. The Lancet
4. The BMJ
5. Health and Population: Perspectives and Issues