The Evaluation of Health Systems in India

Decoding the Impact on Health Governance, Transparency, and Infrastructure

Report By:

United Nation Global Compact Network India

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TABLE OF ACRONYMS AND ABBREVIATIONS

ASHA	Accredited Social Health Activists
AMS	Attendance Monitoring System
ANM	Auxiliary Nurse Midwife
ABP	Ayushman Bharat Program
ABDM	Ayushman Bharat Digital Mission
CBO	Community Based Organizations
CHC	Community Health Centre
DBT	Direct Benefit Transfer
EHR	Electronic Health Record
eVIN	Electronic Vaccine Intelligence Network
HSS	Health Systems Strengthening
HMIS	Health Management Information System
HWCs	Health and Wellness Centres
NFHS	National Family Health Survey
NRHIM	National Rural Health Mission
NHM	National Health Mission
NUHM	National Urban Health Mission
NHP	National Health Policy
NGO	Non-Governmental Organizations

NRHM	National Rural Health Mission
NMCP	National Malaria Control Program
NTCP	National Tuberculosis Control Program
PHC	Primary Health Centres
PM BJP	Pradhan Mantri Bhartiya Janaushadhi Pariyojana
PM JAY	Pradhan Mantri Jan Arogya Yojana
PPP	Public-Private Partnerships
R&D	Research and Development
RKS	Rogi Kalyan Samitis
UHC	Universal Health Coverage
VHSNCs	Village Health, Sanitation, and Nutrition Committees
WHO	World Health Organization

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FOREWORD

The healthcare system is fundamental to a nation's development, directly influencing the health and well-being of its population and shaping the progress of society. As India achieves Universal Health Coverage (UHC), it faces challenges and opportunities to ensure that healthcare services are equitable, efficient, and transparent. This report comes at a critical juncture, where the need for a resilient healthcare system—one that can withstand shocks, adapt to changing needs, and deliver quality care to all—has never been more pronounced.
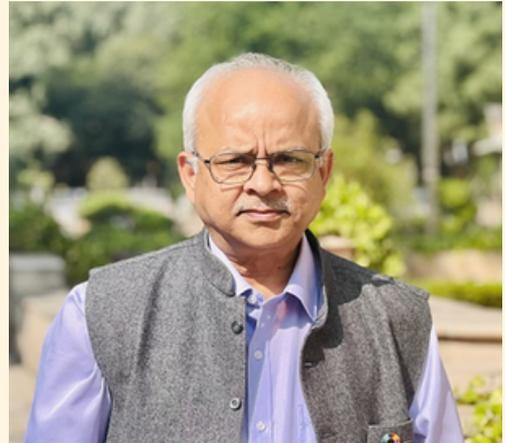
The integration of digital health technologies, the emergence of innovative public-private partnerships (PPPs), and the increasing focus on governance reforms are reshaping India's healthcare landscape. However, challenges such as corruption, resource misallocation, and gaps in service delivery continue to undermine progress, particularly in rural and underserved areas. Addressing these issues requires a collective commitment from the government, private sector, healthcare providers, and civil society, to create a healthcare system that is transparent, accountable, and driven by integrity.

This report provides an in-depth analysis of the progress India has made in strengthening its healthcare system while highlighting areas where further action is needed. It emphasizes the critical role that effective health systems perform in enhancing transparency, reducing corruption, and improving the governance of healthcare services. A strong and well-implemented health systems strategy has the potential to revolutionize healthcare delivery, but its success hinges on effective leadership, strong governance frameworks, and coordinated action across all levels of the healthcare system.

The report also underscores the importance of anti-corruption collective action and public-private partnerships, which are essential for mitigating corruption risks and ensuring that resources are used efficiently. By fostering collaboration between the public and private sectors, healthcare providers, and community stakeholders, India can create a healthcare system that not only delivers care more effectively but also ensures that it reaches the most vulnerable populations.

As we look ahead, the path to a more equitable, transparent, and accountable healthcare system is clear. The insights and recommendations in this report are not merely suggestions; they are calls to action. We must embrace the innovations in digital health, strengthen governance mechanisms, and, above all, commit to the principles of integrity and transparency in healthcare delivery. Only then can we build a healthcare system that serves the needs of all citizens and supports the nation's aspirations for health, prosperity, and social equity?

I, Ratnesh invite policymakers, healthcare leaders, and all stakeholders to engage with the findings of this report and work together to create a future where quality healthcare is not a privilege but a fundamental right for every individual in India.

Mr. Ratnesh Jha
Executive Director
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EXECUTIVE SUMMARY

Corruption within the Indian public healthcare system has been a persistent challenge, leading to several negative externalities such as misallocating resources and sub-optimal healthcare service delivery. It is often exacerbated by broader systemic issues such as weak governance structures, a lack of transparency and accountability within the healthcare system, and insufficient oversight over healthcare professionals, enabling unethical practices to flourish. The associated governance failures affect the quality of healthcare provided in public healthcare facilities and lead to the erosion of public trust amongst the poor and vulnerable populations who depend on public healthcare.

To address corruption in healthcare as a broader policy issue, it is essential to adopt a comprehensive approach that combines robust governance systems with ethical leadership, ensuring the integrity and effectiveness of the healthcare system. Transparency should be integrated within financial as well as data management systems and healthcare processes and services should be publicly audited to weed out corrupt practices. The introduction of community-driven audits, adequate protection of whistleblowers, and the active involvement of civil society is the need of the hour to ensure that healthcare delivery systems are accountable and reliable. This will enable public stakeholders to have a voice in building transparent health structures. Further, anti-corruption measures must be embedded within healthcare systems by using technology, digital innovations and effective monitoring mechanisms to ensure that financial and non-financial transactions in the healthcare system are traceable and subject to oversight.

As India strives to achieve universal health coverage (UHC), the performance of its health systems has come under intense scrutiny, particularly about governance, transparency, and infrastructure. This is because if corruption is not tackled head-on, it may lead to systemic deprivations within the healthcare ecosystem. This is further compounded by legacy issues that plague the Indian healthcare framework. Historically, India's health system has been marked by fragmentation, a legacy of underfunding, and disparities between urban and rural healthcare. This makes it imperative to address these broader issues in a time-bound manner. Steps have already been taken in the last two decades to design substantial policy initiatives aimed at strengthening healthcare delivery, improving governance, and enhancing transparency in the sector. There is a need to further build on this momentum to address governance failures within the Indian public health delivery system in an effective manner.

The adoption of the Health Systems Strengthening (HSS) framework within India's health policymaking for instance has led to substantial improvements in the country's healthcare landscape. This framework, which focuses on six critical building blocks—service delivery, health workforce, health information systems, access to essential medicines, health financing, and leadership/governance—has served as a blueprint for India's health reforms. This strategic approach has not only redefined the delivery of healthcare services but has also addressed systemic challenges such as accessibility, affordability, improved governance outcomes and quality of care. As a result, the nation has witnessed a paradigm shift, where the focus on comprehensive health care is paving the way for a healthier India. To continue the pace of these reforms and given the stage and needs of the Indian healthcare system, it is crucial to effectively deal with corruption as a policy issue so that the full potential of these policy initiatives may be realized.

This report, **The Evaluation of Health Systems in India: Decoding the Impact on Health Governance, Transparency, and Infrastructure**, seeks to unravel the complex interplay between these key pillars of the health system as juxtaposed against larger governance evils such as corruption and a lack of transparency. It provides an in-depth analysis of how health policies and reforms have shaped the programmatic landscape within India's public healthcare framework, the role of technology in enhancing transparency, and the efforts to build resilient infrastructure that can meet the needs of a diverse and growing population. This report adopts a combination of health systems framework and critical approaches whilst seeking insights and experiences from different stakeholders in the public health space. These perspectives and insights are crucial for drawing out learnings to build more resilient health programs in India. The purpose of this approach was to triangulate the data with all stakeholders of the research problem to provide a holistic picture of the emerging themes.

Central to this analysis is the understanding that effective governance is critical for the efficient functioning of health systems. Policies must be supported by strong leadership, accountability, and mechanisms for feedback and oversight. Furthermore, transparency in the health sector not only fosters trust but also reduces the opportunities for corruption, thus ensuring that resources are allocated fairly and effectively. The report highlights the need for continuous training and infrastructure development to harness the effectiveness of healthcare technologies, as well as underscores the need to use financial incentives (such as contractual stipulations) and non-financial incentives (such as increased community audits) to hold health systems accountable. It highlights how corruption is an important policy issue that has large-scale ramifications on the delivery of public healthcare services and provides recommendations as to how this issue may be targeted in a multi-faceted manner.

Using a mixed methodology approach, this report delves into the milestones and gaps within India's health system, to examine how newer initiatives like the Ayushman Bharat program, and the push towards digital health have impacted service delivery, governance, and patient outcomes. It also addresses the role of public-private partnerships (PPPs) in bridging infrastructural gaps and how new transparency measures, such as Health Management Information Systems (HMIS) and Direct Benefit Transfers (DBT), are revolutionizing the flow of information and resources across the health sector.

Ultimately, the findings underscore the need for a coordinated and holistic approach that integrates governance, transparency, and infrastructure improvements to ensure a health system capable of delivering quality care to all Indians. This analysis reflects the progress and offers strategic insights into what needs to be done to build a more resilient and equitable health system for the future.
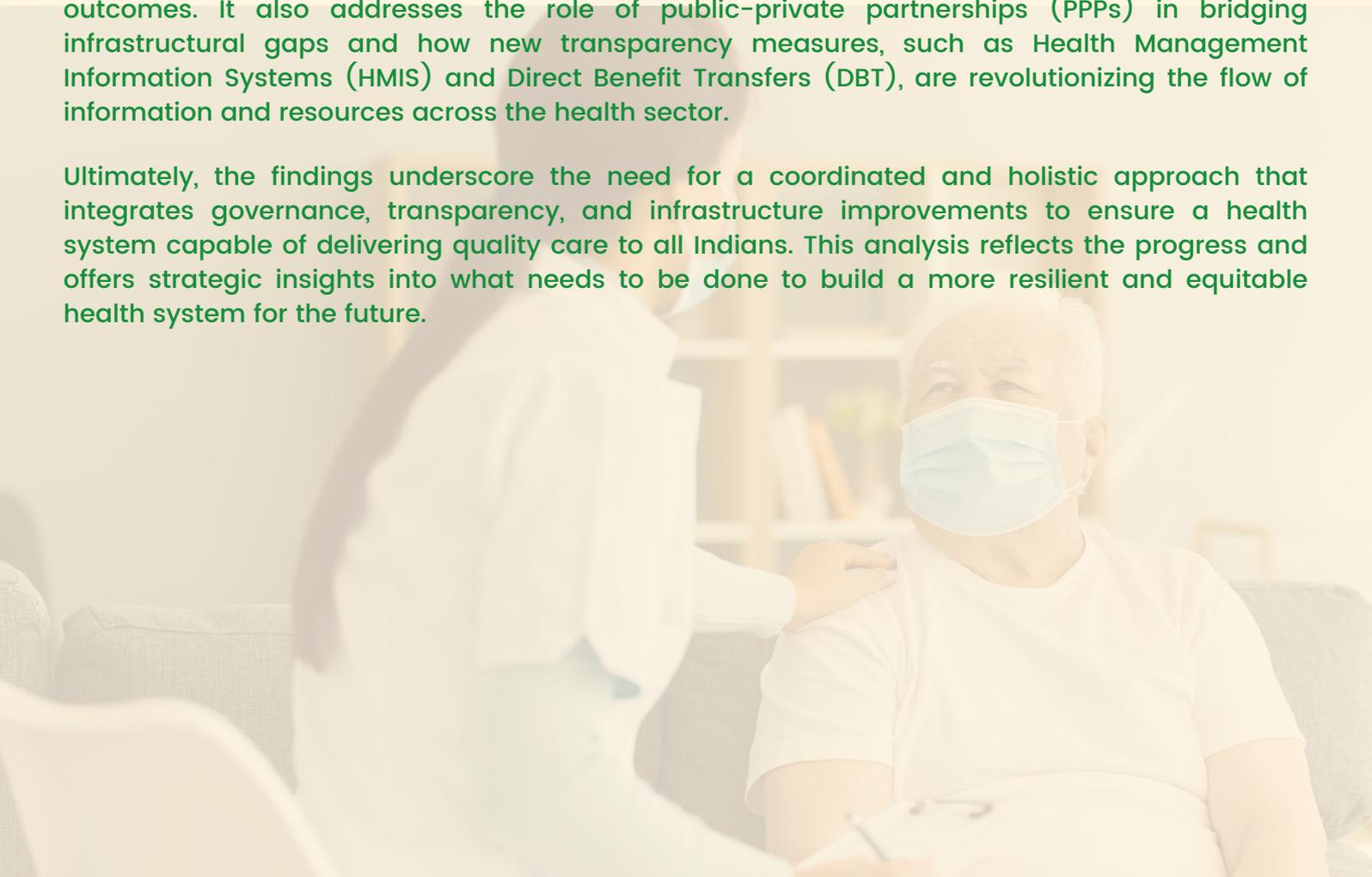
INTRODUCTION

Rooted in the principles of social justice and inclusivity, India's approach to healthcare has always prioritized equitable access, with significant efforts directed towards reducing disparities in healthcare delivery across its vast population.

India's health system, one of the largest and most diverse in the world, has undergone remarkable transformations in the past decades. With a focus on quality, equity, and resource optimization, the country's health policies and programs have consistently evolved to meet emerging challenges. Rooted in the principles of social justice and inclusivity, India's approach to healthcare has always prioritized equitable access, with significant efforts directed towards reducing disparities in healthcare delivery across its vast population. Beyond these intrinsic values, the healthcare sector has also been a crucial catalyst for advancing socio-economic development by fostering a productive workforce, mitigating the burden of disease, and bolstering resilience against unforeseen health crises. However, despite these laudable developments, some fault lines remain. Corruption and bribery remain pervasive challenges within the Indian healthcare system. If not systematically addressed, these issues can undermine transparency, resulting in a healthcare system that operates in a non-transparent and opaque manner, compromising both its effectiveness and public trust. This will ultimately negatively impact public health service delivery and impede the nation's ability to provide quality care for its population.

While public health falls under the state list, the Government of India has played a pivotal role in shaping the sector through various national health policies, centrally sponsored schemes, and a strong commitment to research and development. The journey began with the Bhore Committee in 1946, which highlighted the need for social orientation and community involvement in healthcare. This foundation was further strengthened by subsequent national initiatives, including the horizontal and vertical programs that aimed at building comprehensive and sustainable healthcare systems while positively impacting health indicators. This formed a strong base that helped in successfully combating infectious diseases, significantly improving maternal and child mortality by addressing the growing burden of non-communicable diseases.

The expansion of healthcare services across India, marked by the growth in government hospitals and healthcare facilities, the establishment of medical colleges, and the implementation of widespread health campaigns, has further transformed the country's health sector. These developments have collectively strengthened the healthcare system, enabling it to better meet the needs of the population, improve health outcomes, and reduce mortality rates. Recent findings from the National Family Health Survey-5 highlight the positive impact of these efforts.

Indicator	NHFS 4 (2015-16)	NFHS-5 (2019-21)	Impact
Maternal Mortality Rate (MMR)	130 per 100,000	113 per 100,000	-13%
Under-five Mortality Rate	39 per 1,000	35 per 1,000	-10%
Full Immunization Coverage	62%	76%	+14%

Table 1: Trends in Key Health Indicators: NHFS 4 to NFHS 5 Comparison

Today, India is better positioned to meet the dual objectives of improving health outcomes and ensuring financial sustainability. Strategic investments in healthcare infrastructure, particularly in underserved and rural regions, have greatly enhanced the capacity to deliver care where it is most needed.

Additionally, improvements in governance have strengthened the regulation of healthcare services, ensuring that providers maintain high standards of quality and ethical practice. These combined efforts lay a strong foundation for a more effective, equitable, and sustainable healthcare system. Despite significant progress, the evolving healthcare landscape presents a complex challenge. The country faces the dual burden of communicable and non-communicable diseases, while also managing the needs of a diverse and heterogeneous population. This multifaceted situation underscores the necessity of developing health systems that are resilient, accountable, and transparent, with the capacity to deliver high-quality services to all citizens, regardless of their demographic or geographic characteristics.

To understand these complex dynamics and the ongoing reforms, the report has delved deeper into the WHO Health System Framework within the Indian context, delineating six essential building blocks necessary for effective health system performance: Service Delivery, Health Workforce, Health Information Systems, Medical Commodities, Financing, and Governance. Using these foundational parameters the findings have been generated across the corresponding programs. The objective is to analyze the functioning of various components of the Indian health system and to assess how these elements interact and contribute to governance, transparency, and accountability. As part of a qualitative study utilizing semi-structured in-depth interviews, this report seeks to capture nuanced insights into the implementation pathways of various health initiatives.

By focusing on stakeholder perspectives, the research aims to illuminate the contextual factors influencing program formulation and assess both immediate and long-term impacts.Incorporating a health systems framework alongside critical approaches, this report emphasizes the importance of understanding how these policies and/ or programs interact within the broader healthcare landscape. The inquiry areas outlined in the table are designed to probe critical questions regarding service delivery, health information systems, workforce adequacy, access to essential medicines, health financing, and leadership and governance areas. This comprehensive approach aims to triangulate data across diverse stakeholders, ultimately contributing to the development of a more resilient health system in India.

Health Service Component	Corresponding Health Policies/Programs (Indicative list)	Enquiry Areas
Service Delivery	● Ayushman Bharat (PM-JAY) ● National Health Mission (NHM) ● Revised National Tuberculosis Control Program (RNTCP) National Program for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS)	● How do these programs prioritize different services? ● What challenges affect the continuity of healthcare services with the programs? ● How has service quality influenced public trust and utilization? Impact of service delivery for patient-centeredness?
Health Information Systems	●Health Management Information System (HMIS) ●eVIN (Electronic Vaccine Intelligence Network) ●Integrated Disease Surveillance Program (IDSP)	●How reliable is data reporting through these systems? ●How is data from these systems used in policymaking and program adjustments? ●What are the technological challenges in implementing health information systems?
Health Workforce	●National Health Mission - HR for Health ●Skill India - Healthcare Sector Skill Council	●What is the adequacy of health workforce distribution across urban and rural areas? ●How effective are the training and capacity-building programs? ●What are the retention and motivation challenges for healthcare workers, especially ASHAs and ANMs? ●How are digital health initiatives being utilized by the health workforce?
Access to Essential Medicines	●Universal Immunization Program (UIP) ●Pradhan Mantri Bhartiya Janaushadhi Pariyojana (PMBJP)	●How effective is the distribution of essential medicines? ●Are there gaps in access to affordable medicines, especially in rural and underserved areas?
Health Financing	●Ayushman Bharat (PM-JAY) ●Pradhan Mantri Matru Vandana Yojana (PMMVY)	●What are the challenges in the sustainability and scalability of health financing programs? ●How are funds being efficiently allocated to meet the demand for services?

Leadership and Governance	●National Health Policy, 2017 ●National Digital Health Mission (NDHM)	●What governance structures exist to ensure accountability in India's healthcare delivery? ●What is the impact of policies and programs on governance? ●How are stakeholders engaged in governance processes, and how is their feedback utilized?

Table 2: Health Systems Components and Corresponding Enquiry Areas

HEALTH POLICY EVOLUTION

Governance Issues in the Early Years of Public Health Decision-Making

In the years following independence, India faced substantial public health challenges, primarily driven by widespread poverty, the prevalence of infectious diseases, and insufficient healthcare infrastructure. The health indicators of the period were critical, characterized by high infant mortality rates, low life expectancy, and the widespread occurrence of communicable diseases such as malaria, tuberculosis, and smallpox. This led to the government's immediate response to focus on disease-specific interventions designed to control or eradicate specific health issues.

In addition to the challenges posed by skewed health indicators and inadequate infrastructure, corruption and a lack of transparency exacerbated the public health crisis. The emerging health system was plagued by inefficiencies, resource mismanagement, and widespread corruption, significantly undermining the effectiveness of government interventions. The allocation of funds was frequently marked by discrepancies, with substantial portions of financial resources diverted or misappropriated, resulting in critical shortages of essential medicines, supplies, and under-resourced health facilities. This lack of transparency and accountability not only obstructed the equitable distribution of healthcare services but also fostered a climate of distrust among the population, who were already grappling with severe health challenges.

The Bhore Committee Report 1946, which formed the basis of India's health policies and programs, highlighted these issues, stressing the need for a transparent and accountable system as a cornerstone for any successful health reform. One of the critical aspects the committee addressed was the significant governance issues within the existing health system. The report highlighted pervasive problems such as bureaucratic inefficiencies, lack of coordination between various health agencies, and widespread corruption, which collectively undermined the effectiveness of health services in the country. It was pointed out that corruption and mismanagement were not merely byproducts of poverty but systemic issues that needed to be addressed head-on to ensure the successful implementation of health reforms.

Given these structural challenges facing the Indian healthcare sector at the time, the government was also confronted with a significant burden of epidemics and infectious diseases. Consequently, health decision-making heavily prioritized epidemiological factors. At the time, tuberculosis alone was responsible for nearly 500,000 deaths annually, with an estimated prevalence rate of 400 cases per 100,000 people[1]. Malaria was another significant challenge, with over 75 million cases reported annually in the 1950s, leading to widespread morbidity and mortality[2]. These health challenges were compounded by widespread poverty, inadequate sanitation, and a lack of access to basic healthcare services, making disease control a national priority.

[1] Peters, D. H., Rao, K. S., & Fryatt, R. (2002). Lumping and splitting: The health policy agenda in India. *Health Policy and Planning

[2] Banerji, D. (1985). Health and Family Planning Services in India: An Epidemiological, Socio-cultural and Political Analysis and a Perspective.

Progression of Policies and Programs

The government initiated a series of vertical programs aimed at tackling specific diseases. These initiatives were designed to aggressively target and reduce the prevalence of diseases, significantly contributing to improvements in public health indicators. For instance, the National Malaria Control Program led to a dramatic reduction in malaria incidence from 75 million cases in the early 1950s to just over 2 million cases by the late 1960s[3]. Similarly, the Expanded Programme on immunization played a crucial role in the eradication of smallpox, with the last reported case in India in 1975, a monumental achievement that demonstrated the effectiveness of focused public health interventions[4]. However, despite these successes, vertical programs had inherent limitations: they often operated in silos, with little integration into the broader healthcare delivery system. This approach, while effective in controlling specific diseases, did not contribute to the strengthening of the overall healthcare infrastructure or address the underlying problems related to malnutrition and sanitation.

Parallel to this, the government also implemented horizontal programs that sought to integrate health services under a unified system, promoting a holistic approach to healthcare that could address multiple health needs simultaneously. For example, by the end of the 1980s, the number of Primary Health Centers (PHCs) in India had more than tripled, from approximately 5,500 in 1980 to over 20,000 by 1990, and the number of doctors in the country increased by over 100,000 during the same period[5]. However, during the initial decades of newly independent India, the urgency of combating specific infectious diseases meant that vertical programs often overshadowed horizontal initiatives, leading to a fragmented health system with limited coordination between different levels of care. As a result, the lack of convergence between vertical and horizontal programs eventually became a significant concern.

In this scenario, the National Health Policy of 1983, marked a critical turning point in India's health policy landscape. The policy aimed to bridge the gap between vertical and horizontal approaches by advocating for a more structured and integrated healthcare system. It emphasized the importance of primary healthcare as the cornerstone of the national health system, advocating for a three-tiered healthcare delivery model that could effectively integrate disease-specific programs within a broader health infrastructure[6]. Recognizing the growing burden of NCDs it stressed upon the need for a more robust primary healthcare system to manage chronic diseases effectively and emphasized the importance of public-private partnerships in healthcare delivery.

The NHP 2002 further sought to expand the scope of primary healthcare services, improve the quality of care, and ensure the availability of essential medicines and technologies at all levels of care. The decentralization efforts under NHP 2002 led to significant improvements in healthcare delivery at the grassroots level. By empowering local health authorities and involving community members in decision-making processes, the policy helped to enhance the transparency and accountability of the health system. This, in turn, reduced corruption and inefficiencies, as local communities could better monitor the implementation of health programs and the use of resources.

[3] Sharma, V. P., Mehrotra, K. N., & Gautam, A. (1996). Malaria resurgence in India: a critical study. Social Science & Medicine

[4] Gupte, M., Ramachandran, V., & Mutatkar, R. K. (2001). Epidemiological profile of India: Historical and contemporary perspectives.

[5] Ministry of Health and Family Welfare, Government of India. (2002). National Health Policy 2002. New Delhi: Government of India.

[6] Ministry of Health and Family Welfare, Government of India. (1983). National Health Policy 1983. New Delhi: Government of India.
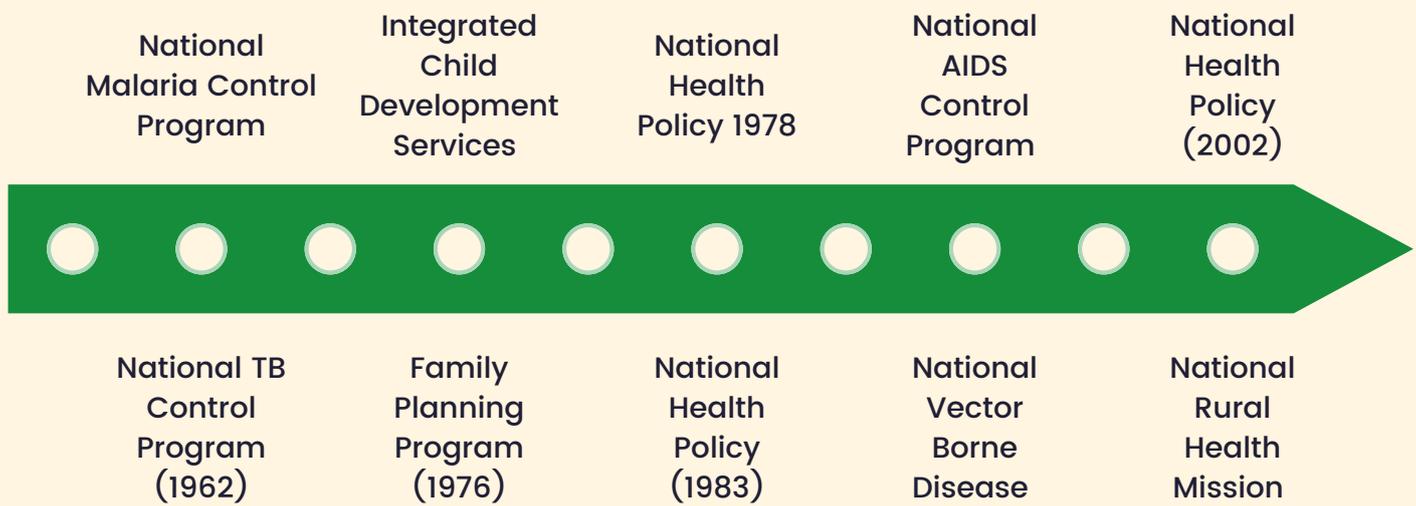
Figure 2: Key health programs launched from 1947-2005

Identifying the impact on governance, accountability, and transparency so far

The programs implemented between 1947 and 2000 were instrumental in reducing the prevalence of specific diseases and improving certain health indicators. However, their fragmented planning and implementation caused significant weaknesses in the governance and transparency of the Indian health system. One of the primary issues within the programs was their isolation from the broader healthcare delivery system. These programs often operated independently, with little coordination between different levels of care or integration into the overall health infrastructure.

This lack of integration not only limited the effectiveness of these programs but also contributed to systemic inefficiencies and governance challenges. For instance, the absence of a unified health information system meant that data collection and reporting were often inconsistent, leading to difficulties in monitoring and evaluating the outcomes of these initiatives[7].

The fragmented programs also made it challenging to hold health administrators accountable for the equitable distribution of resources, resulting in disparities in healthcare access and outcomes across different regions.

The lack of transparency was another significant issue that plagued the Indian health system during this period. Corruption, mismanagement of funds, and bureaucratic inefficiencies were rampant, undermining the effectiveness of health interventions. For example, the public health workforce, which was crucial for the implementation of these programs, was often inadequately trained, poorly supervised, and underfunded, leading to suboptimal service delivery[8]. The centralized nature of decision-making further exacerbated these issues, as it limited the ability of local health authorities to adapt programs to the specific needs of their communities and to hold those in power accountable for their actions. Recognizing these challenges, the Indian government began to shift its focus towards strengthening the governance and transparency of the health system.

[7] Banerji, D. (1985). Health and Family Planning Services in India: An Epidemiological, Socio-cultural and Political Analysis and a Perspective.
[8] Peters, D. H., Rao, K. S., & Fryatt, R. (2002). Lumping and splitting: The health policy agenda in India.

Consequently, the subsequent National Health Policies marked a significant departure from the previous approach.

These policies were pivotal in bringing decision-making closer to the people and involving communities more actively in the governance of health services. Promoting the decentralization of health services to the district and sub-district levels, enabled local health authorities to tailor programs to the specific needs of their populations.

The implementation of these policies had a significant impact on improving the governance and transparency of the Indian health system. For example, they helped reduce instances of corruption and mismanagement by providing clear transparency in health expenditures and outcomes. The decentralization of health services also contributed to a more equitable distribution of resources, as local authorities were better able to identify and address the specific health needs of their communities.

Despite these improvements, challenges remained in ensuring the full realization of transparent and accountable health governance in India. Issues such as regional disparities, workforce shortages, and the persistence of corruption in certain areas continued to pose obstacles to achieving a fully transparent and equitable health system. These challenges spanned across all the six pillars of the HSS framework ranging from a lack of funding and poor infrastructure in rural areas to a lack of trained healthcare staff.

In order to address these challenges, specific policy initiatives were instituted which have been summarised in the table below:

Institutional mechanisms		Service delivery	
Key challenge: • Fragmentation of health services due to vertical programs. • Limited coordination between different health programs.	**Key good practice:** • Collaboration among various health departments to ensure integrated service delivery.	**Key challenge:** • Inadequate access to healthcare in rural and underserved areas.	**Key good practice:** • Developed targeted training programs for healthcare providers to improve maternal and child healthcare practices.
Financing		Infrastructure	
Key challenge: • Insufficient funding leading to inadequate service delivery. • Lack of sustainable financing models for health programs	**Key good practice:** • Advocated for increased budget allocations for health at both state and national levels to support essential services.	**Key challenge:** • Poor healthcare infrastructure in rural areas. • Overcrowding and under-resourced urban health facilities.	**Key good practice:** • Enhanced infrastructure planning by assessing community health needs and reallocating resources accordingly.

Health Workforce		Leadership and Governance	
Key challenges: • Shortage of trained healthcare professionals. • Inadequate retention strategies	**Key good practice:** • Community health worker programs to enhance service delivery at the grassroots level. • Establishment of training programs to increase workforce capacity.	**Key challenges:** • Lack of strong leadership in health policy implementation. • Inconsistent political will affecting health policies.	**Key good practices:** • Active involvement of civil society in health programs to enhance accountability and transparency.

Table3: Brief outline of Health Systems Components status from 1947–2002

A Step Towards Comprehensive Health Programs

India's healthcare reforms, from the National Rural Health Mission (NRHM) to the Ayushman Bharat program, illustrate a clear and sustained commitment to strengthening the healthcare system across multiple dimensions. These reforms have not only expanded access to healthcare but have also played a pivotal role in addressing systemic issues related to governance, transparency, and service delivery. This shift represents a strategic transition towards building a more accountable and transparent health system. While the NRHM made significant strides in improving infrastructure and human resources, Ayushman Bharat took these efforts further by integrating advanced digital technologies and governance frameworks designed to reduce corruption and enhance accountability.
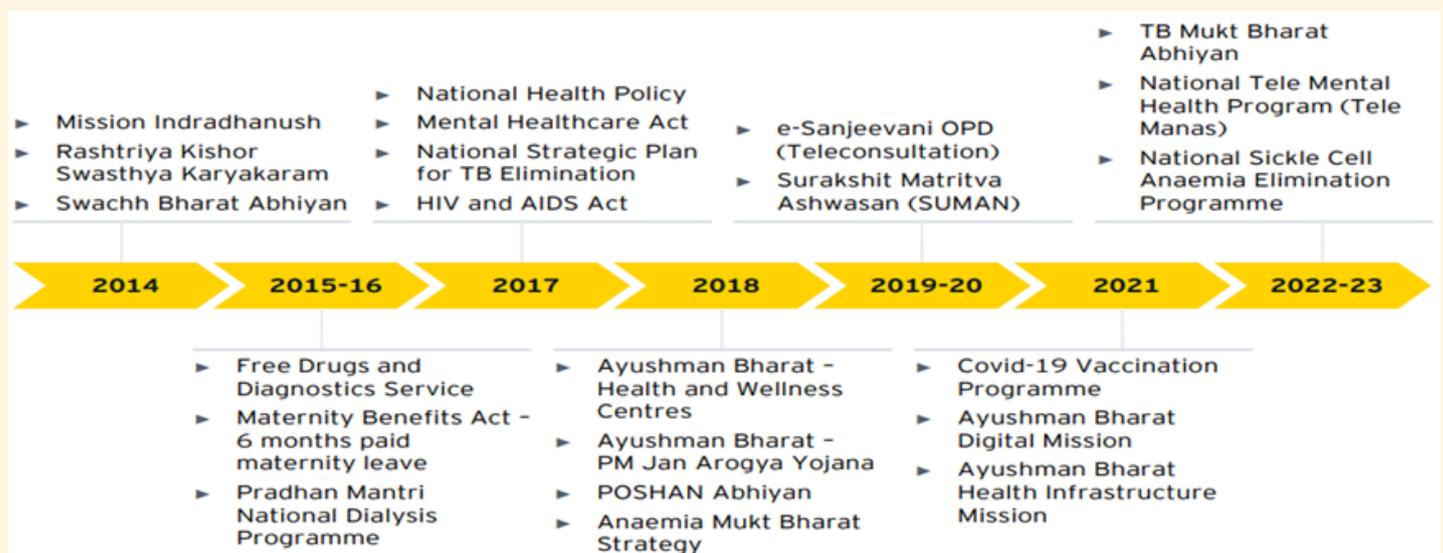
Figure 3: Key health programs launched from 2014–2023

National Rural Health Mission emerged as a comprehensive strategy aimed at strengthening the public health system at its core. It focused on enhancing infrastructure, human resources, and community participation, particularly at the primary and secondary levels, where healthcare access was most deficient. The integration of NRHM into the broader National Health Mission (NHM) in 2013, marked a pivotal shift in India's healthcare strategy, recognizing the unique challenges faced by the urban poor, and introducing digital health interventions and health management information systems to improve governance, transparency, and accountability across the health sector.

But it was only with the launch of the Ayushman Bharat Mission in 2018 that India's pursuit of Universal Health Coverage came to a final realization. Also, its emphasis on digital infrastructure is a significant addition to ensuring transparency and accountability. One notable example is the deployment of the National Health Authority's IT platform, which serves as the backbone for claim processing and payment systems. This system tracks every transaction in real time, minimizing fraudulent claims and ensuring that benefits are provided to eligible recipients only. Moreover, the mandatory Aadhaar-based authentication for patients and providers strengthens system integrity, ensuring that only legitimate claims are processed.

In addition, PM-JAY has introduced several anti-corruption measures through a comprehensive grievance redressal system and regular third-party audits. These measures enable real-time monitoring and provide beneficiaries and providers with a platform to address grievances, ensuring accountability and responsiveness. An exemplary case is Gujarat's implementation of PM-JAY, where digital audits revealed significant discrepancies in claims, leading to the recovery of over ₹12 crore in fraudulent payments. This proactive approach has not only improved accountability but also safeguarded public funds[9]. Another aspect of governance improvement under Ayushman Bharat is the integration of financial systems with health programs through direct digital payments to providers. By automating and digitizing payment processes, the program reduces opportunities for corruption that were prevalent in manual claim settlements. This shift has improved the efficiency of fund disbursement and minimized embezzlement and delays in service provision, fostering a culture of accountability[10]. Furthermore, the emphasis on public-private partnerships has enhanced governance by introducing private-sector efficiencies into the public healthcare system. Private hospitals are increasingly collaborating with the government to provide services under PM-JAY, with strict compliance protocols ensuring that private entities adhere to government-set standards for service quality and transparency.

Overall, the transition from NRHM to Ayushman Bharat marks a significant milestone in India's journey towards improved governance and reduced corruption in healthcare. The program's reliance on digital technologies, community oversight, and partnerships with private entities has ensured transparency and efficient allocation of resources.

Impact Area	Impact of Conversion from NRHM to NHM	Impact of Ayushman Bharat Digital Mission (ABDM)
Accountability	• Strengthening accountability mechanisms with clearer roles and responsibilities for stakeholders at various levels. • Established frameworks for regular audits and performance assessments of health programs.	The implementation of digital platforms has led to clearer tracking of expenditures and service delivery, significantly improving accountability among healthcare providers. Real-time monitoring has facilitated timely interventions when discrepancies arise.

[9] Press Information Bureau (PIB), Government of India. "Gujarat's Success Story: Fraud Detection and Recovery under Ayushman Bharat." (2021)
[10] The World Bank. "India: Digital Innovations in Healthcare Payments under Ayushman Bharat." World Bank Group Report (2020).

Corruption	• Enhanced oversight and monitoring systems aimed at reducing opportunities for misappropriation of funds. Implementation of e-governance tools to promote transparency in fund allocation and utilization.	Digital transactions have minimized the opportunities for corruption, with reported cases of ghost beneficiaries decreasing substantially. Enhanced monitoring and auditing mechanisms have created a more transparent financial environment.
Transparency	• Improved public access to information regarding health programs, budgets, and outcomes, fostering greater public scrutiny. • Mandatory reporting and disclosure of financial data and program achievements to stakeholders.	Public access to health records and metrics has increased stakeholder engagement and trust. The availability of dashboards displaying health program outcomes allows patients and the community to make informed decisions about their care.
Ethics	• Promoted ethical standards in healthcare delivery through guidelines and training for healthcare providers. • Encouraged community involvement in governance, fostering a culture of integrity and ethical practice in health service delivery.	Strict data privacy protocols have been established to protect patient information, reinforcing ethical practices in the handling of health data. Training programs for healthcare workers emphasize the importance of ethical conduct in digital health practices.

Table 4:Systemic Impact of National Health Mission (NHM) and Ayushman Bharat Digital Mission (ABDM)

CORRUPTION AND IT'S INTERPLAY WITH HEALTH SYSTEM COMPONENTS

Corruption remains one of the most pervasive challenges facing India's healthcare system, undermining its effectiveness, equity, and accessibility. As a complex, multi-dimensional issue, corruption in the healthcare sector affects all levels of the system, from the local to the national, and often intersects with broader socio-political and economic factors.

The World Health Organization's Health System Strengthening (HSS) framework identifies six essential pillars—service delivery, health workforce, information systems, access to medicines, financing, and leadership and governance—that are crucial for creating a robust, resilient healthcare system. In India, corruption emerges as a significant force that weakens these pillars, hindering the country's ability to achieve universal health coverage and equitable health outcomes. The repercussions are far-reaching, affecting not only the efficiency and accessibility of healthcare services but also the integrity of financial resources and governance structures.

The reliance of a large portion of India's population on out-of-pocket expenses for healthcare has exacerbated the risk of corruption within the service delivery pillar. With a large uninsured population and limited public sector capacity, many individuals are forced to turn to the private sector for care, where unethical practices can flourish. In the absence of strict regulation and oversight, private healthcare providers often engage in corrupt practices such as overcharging, unnecessary testing, and the promotion of substandard treatments. This not only increases the financial burden on individuals but also compromises the quality of care received. When competition within the private sector is driven by profit maximization rather than patient well-being, healthcare providers may be incentivized to exploit patients through fraudulent practices, ultimately undermining trust in the system.

On the other side of the spectrum lies the health workforce serving as the primary mechanism responsible for delivering healthcare services to the population. A skilled, well-trained, and ethically motivated workforce is critical to achieving high-quality care and ensuring equitable allocation of healthcare resources. However, in India, corruption within the health workforce poses a significant threat to both the quality and accessibility of healthcare. This corruption manifests in various forms, including unethical compensation models, and fraudulent practices, each of which undermines the integrity of healthcare delivery.

A study conducted as a citizen audit of government hospitals and urban Primary Healthcare Centres in Chennai by an NGO called Arappor Iyakkam revealed that rampant corruption was prevalent among the housekeeping staff and security members in the government hospitals. The study reports that 49% of the patients had indicated that they had to pay a bribe for accessing services at the government hospitals and in the absence of a bribe, they were denied even basic services like the stretcher services.

In response to such concerns, the National Medical Commission implemented guidelines prohibiting doctors from accepting gifts, commissions, or any form of compensation from pharmaceutical companies. These regulations are designed to protect patients from the undue

influence of the pharmaceutical industry, ensuring that medical decisions are based on patient needs rather than financial interests.

At the level of information systems, malpractices are seen in data collection and reporting. Such manipulation of patient records or falsification of treatment statistics hinders the effective functioning of health information systems. Without accurate data, it becomes nearly impossible to assess the true state of healthcare services, monitor performance, or allocate resources effectively. Furthermore, the lack of transparency in reporting and tracking can perpetuate the misallocation of resources, whether in terms of personnel, infrastructure, or medical supplies, thereby further weakening the system's ability to deliver quality care.

Further, procurement challenges within India's healthcare system often manifests as overpricing and substandard medical supplies. To illustrate with an example, there have been reports that suggest that during the Covid-19 pandemic in Karnataka, thermometers were purchased at an abnormal rate of INR 15,000 (USD 178) per unit and huge payments were made to unauthorized diagnostic labs without the necessary administrative approvals.[11] Thus, the lack of adequate regulatory oversight leads to normalization of corrupt practices, which in turn leads to a systematic erosion of public trust within the healthcare delivery system and a widening of extant healthcare disparities. The effects of widespread corruption are most strongly felt in the rural and underserved areas where the diversion of essential resources leads to a decline in the quality of care, where it is most required.

The Government of India has implemented several key policy interventions to address the pervasive corruption within the healthcare sector. One of the most notable initiatives is the Pradhan Mantri Jan Arogya Yojana, which has introduced significant regulatory oversight over the previously unregulated landscape of out-of-pocket healthcare transactions.

"The Government of India has introduced significant regulatory oversight over the previously unregulated landscape of out-of-pocket Healthcare transactions".

Through this initiative, the government has sought to extend its influence over the private healthcare sector. A central feature of PM-JAY is its requirement for enrolled physicians and healthcare facilities to obtain digital pre-authorization before administering non-emergency services to beneficiaries. This digital system ensures that services are scrutinized and approved before they are provided, reducing the potential for unnecessary or inappropriate treatments. This mechanism has promoted transparency by introducing a layer of accountability in service delivery, particularly in the private sector, where regulatory oversight has historically been lax.

Another critical tool in PM-JAY's anti-corruption arsenal is its AI-enabled fraud analytics platform, which has proven effective in identifying fraudulent insurance transactions. To date, the system has successfully flagged over 18,000 fraudulent transactions, leading to the imposition of penalties on healthcare entities found guilty of malpractice. The use of such advanced technology to detect and deter fraud is a significant advancement in healthcare oversight, reducing the opportunity for corrupt practices such as inflated billing, unnecessary procedures, and kickbacks.

Therefore, to effectively combat corruption within India's healthcare system, the core elements of the health system must operate in alignment, creating a cohesive and transparent framework. The interdependence of key components—service delivery, workforce management, financing, and governance—is critical, as corruption thrives in the gaps or breakdowns between these areas. A fragmented system with weak connections between these pillars creates opportunities for unethical practices to flourish. Equally important are community monitoring mechanisms, which play a vital role in oversight, especially when they work in tandem with structured service delivery frameworks. When these mechanisms are integrated with digital monitoring, financial transparency, skilled personnel, and robust governance, they form a comprehensive approach to reducing corruption. Such integration ensures that resources are used efficiently and equitably, reaching the most vulnerable populations and improving healthcare outcomes for all. This approach not only strengthens governance but also promotes accountability, reducing systemic inefficiencies and inequities in care.

Furthermore, to fully understand the extent of corruption's impact, it is useful to benchmark its effects against the WHO's Health System Strengthening (HSS) framework. In the Indian context, corruption interacts with and undermines the six critical building blocks of the health system, leading to compromised service delivery, skewed workforce management, financial mismanagement, and weak governance. By evaluating corruption through this lens, it becomes evident how deeply it erodes the foundations of the healthcare system and the urgent need for a coordinated, holistic reform strategy.

DIGITAL HEALTH INTERVENTIONS: IMPACT ON HEALTH SYSTEMS STRENGTHENING

Digital health technologies have catalyzed a transformative shift in service delivery, monitoring, and governance. These interventions are not just tools of efficiency but also critical drivers for improving transparency, enhancing accountability, and curbing the deep-rooted corruption that has historically plagued the sector.

The infusion of real-time data, automated processes, and integrated digital platforms has empowered the government to better allocate resources, track service delivery, and optimize health outcomes. However, the success of these technologies relies heavily on robust leadership, effective governance, and continuous enforcement of anti-corruption measures.

There are many tools used by the government to leverage technology for better healthcare outcomes. Some of these key interventions and their laudable impact are discussed below to demonstrate the correlation between technology adoption rates and better health outcomes. These tools can broadly be divided into three buckets:

Tools to enhance transparency outcomes and reduce corruption	Tools aimed at improving the efficiency of the health supply chain	Tools meant to optimize service delivery to patients

Tools to enhance transparency outcomes and reduce corruption

i.Health Management Information System (HMIS)

One of the most significant tools that was introduced to enhance transparency within the healthcare framework is the Health Management Information System (HMIS). Launched in 2008, HMIS revolutionized how health data was collected and analyzed across India's vast healthcare network. This system standardized the flow of information from over 200,000 health facilities, enabling the government to monitor health programs in real-time and identify performance gaps. Before HMIS, healthcare reporting witnessed rampant manipulation, with inflated patient numbers, misreporting of health worker attendance, and duplication of services distorting resource allocation. The digitization of health data under HMIS has minimized these opportunities for fraudulent activities.

The HMIS facilitated the tracking of immunization coverage, maternal health services, and the performance of ASHAs. This transparency ensured that health workers and facilities were held accountable for their performance, which in turn led to more efficient service delivery. By providing a clear and verifiable record of healthcare activities, the HMIS reduced the scope for manipulation of data and misreporting, which were common issues in the pre-NHM era. Further, by creating a single source of information, HMIS allows policymakers to base decisions on verified, real-time data, ensuring that resources flow where they are genuinely needed. This has played a significant role in addressing governance failures by holding health workers and administrators accountable for the data they report. Additionally, HMIS has strengthened the transparency of fund disbursement, ensuring that public health funds are not misallocated due to false reporting, thus fostering a more accountable and transparent system.

ii.Attendance Monitoring System (AMS)

The Attendance Monitoring System, implemented across various states, has played a pivotal role in tracking the real-time attendance of healthcare workers, thereby reducing corrupt practices within the sector. By ensuring that health workers are present at their posts and fulfilling their duties, the AMS has significantly decreased absenteeism, promoting greater accountability in healthcare delivery. This system has ensured a transparent and verifiable record of attendance, allowing for continuous monitoring and oversight of the workforce. As a result, it has been instrumental in enhancing accountability among healthcare workers.

The AMS also reduces the scope for engaging in fraudulent and unethical activities, such as falsification of attendance records or attempting to receive payment without actual fulfillment of duties. Thus, this ensures public funds are being used for their intended use and purpose.

iii.Direct benefit transfers (DBTs)

Historically, the Indian healthcare sector has also been plagued by issues such as fund misallocation, fraudulent claims, and inefficiencies in resource distribution. The Direct Benefit Transfer (DBT) scheme is a prime example of how digital interventions have helped eliminate middlemen and the corruption associated with them and ensure that financial benefits reach the intended beneficiaries directly. By linking beneficiary accounts with Aadhaar, the government has streamlined the disbursement of funds for various health programs, including the Janani Suraksha Yojana. This has not only reduced the risk of fund misallocation but has also ensured that vulnerable populations receive the financial support they need to access healthcare services.

Ayushman Bharat, particularly through the Pradhan Mantri Jan Arogya Yojana (PM-JAY), has also significantly contributed to reducing corruption in the healthcare sector. The scheme's use of digital payment systems and DBTs has minimized the risk of funds being siphoned off or misused. Payments to hospitals for services rendered under PM-JAY are processed electronically, reducing the chances of fraudulent claims or inflated billing, which were rampant under previous insurance schemes.

Under the PM-JAY, hospitals are required to submit detailed claims supported by patient records and treatment details, which are then scrutinized by a robust system before payments are disbursed. This process has reduced the opportunities for corruption and ensured that funds are used efficiently and for their intended purpose. Moreover, the involvement of technology in monitoring and auditing these claims has further strengthened the integrity of the process.

Tools aimed at improving the efficiency of the health supply chain

Issues related to corruption and a lack of transparency have also marred the successful implementation of India's supply chain. In the absence of accurate data tracking systems, India's health supply chains have often been fragmented and unreliable, thus leading to health disparities across regions. Some of the digital interventions that have aimed at targeting these gaps are listed below.

i.Electronic Vaccine Intelligence Network

Historically, India's vaccine management system used to suffer from frequent disruptions due to frequent shortages, wastage, and pilferage, with no reliable system to track stock levels and distribution. This was a key barrier to inequitable access, particularly for remote and underserved areas. To combat the same, the government introduced the Electronic Vaccine Intelligence Network in 2015 which brought a real-time, technology-enabled mechanism to track vaccine stocks, storage conditions, and distribution. By providing visibility across the entire supply chain, eVIN eliminated opportunities for pilferage and mismanagement.

A clear milestone of this was during the COVID-19 pandemic when eVIN became indispensable in managing vaccine distribution nationwide. Its ability to track vaccine stock levels in real-time ensured equitable distribution and prevented wastage thereby bringing more transparency and reducing the risks of corruption common in critical health programs. By removing manual intervention and introducing automated tracking systems, eVIN ensured that life-saving vaccines reach those who need them most, thereby reinforcing people's trust in the health system.

ii.Digital innovations in the cold chain in medicine supply and procurement

A notable innovation in this regard has been the implementation of IoT-based temperature monitoring systems which use sensor technology to track temperature and humidity levels during the transportation and storage of temperature-sensitive pharmaceutical products. By providing real-time data, these IoT devices have helped in ensuring that vaccines and other pharma supplies are stored under optimal conditions, without being spoiled or losing potency. The integration of IoT technology maximizes the integrity of the system by reducing human error related risks.

Further, using blockchain technology in the shipment process of pharmaceuticals helps stakeholders such as manufacturers, distributors, and healthcare providers to obtain reliable data about the conditions under which these products were shipped and handled. This was particularly important during the COVID-19 pandemic when blockchain technology was used to track vaccine shipments to vaccination sites while ensuring compliance with safety regulations.

Tools meant to optimize service delivery to patients

Digital health interventions have not only enhanced governance and transparency but have also led to substantial improvements in service delivery across India.

i.Ayushman Bharat Digital Mission (ABDM)

The Ayushman Bharat Digital Mission (ABDM) further added to India's efforts to create a comprehensive digital health ecosystem.

This program aims to provide every citizen with a unique Health ID linked to their digital health records, facilitating seamless access to healthcare services across different levels of care. With this data integration across both public and private sectors, ABDM is poised to significantly enhance the efficiency and coordination of service delivery. This integration is crucial, as it not only minimizes redundancies but also ensures that healthcare services are delivered in a timely and appropriate manner, which has been a longstanding challenge in the country's healthcare landscape.

Furthermore, the digitalization of health records under ABDM is expected to reduce instances of fraud and malpractice, as it will create an auditable trail of healthcare transactions, thereby further enhancing transparency and accountability, both of which are important to uphold public confidence in the healthcare system.

ii.Telemedicine

During the COVID-19 pandemic, the expansion of telemedicine was done rapidly with the government's eSanjeevani platform. As the need for remote consultations surged due to lockdowns and restricted physical access to healthcare facilities; the scale and rapid uptake of eSanjeevani maintained the continuity of care, thus proving its efficacy in optimizing service delivery across the nation. By 2021, this platform had facilitated over 12 million teleconsultations, demonstrating its ability to bridge the urban-rural divide in healthcare access.

Telemedicine initiatives have helped in reducing the urban-rural divide as they enable patients even in remote and rural areas to access quality healthcare without travelling. The platform's design also promotes seamless communication across medics and patients and ensures that patients can access safe and qualified healthcare without compromising on quality considerations. This alleviates the burden on hospitals and also leads to greater patient satisfaction.

iii.Pradhan Mantri Bhartiya Janaushadhi Pariyojana

The impact of improved policies can be seen on essential medicines too, which form a critical pillar of health systems. The Pradhan Mantri Bhartiya Janaushadhi Pariyojana (PMBJP), supported by the Jan Aushadhi Sugam App has improved access to affordable medicines by providing real-time information on the availability of generic drugs at Jan Aushadhi Kendras across the country. This has been instrumental in reducing out-of-pocket expenditure on medicines. The scale of its impact is considerable, in that it brought about transparency in drug pricing and availability, ensured generic alternatives at substantially lower prices, and alleviated financial pressures on households, particularly those in lower-income brackets.

Further, by ensuring that generic alternatives are available at lower prices, the PMBJP promotes reduced corruption outcomes in drug pricing as well as availability as patients are not left at the mercy of unscrupulous middlemen to access life-saving drugs, which again leads to positive patient outcomes.

iv.Social audits

A critical factor in improving governance and reducing corruption has been the increased emphasis on community participation and social audits. Programs like NRHM and NHM encouraged the formation of Village Health and Sanitation Committees (VHSCs) and Rogi Kalyan Samitis (RKS), which included community members in the decision-making and oversight processes. These bodies provided a platform for local communities to voice their concerns, monitor the functioning of health facilities, and ensure that resources were being utilized appropriately.

Social audits, where community members are involved in reviewing the performance of health programs and the utilization of funds, have become an effective tool in ensuring accountability. For example, in states like Rajasthan and Andhra Pradesh, social audits conducted by local communities revealed instances of mismanagement and corruption, leading to corrective actions and more responsible governance.

Corruption is often a systemic issue rather than an isolated one; therefore, a holistic approach is needed to combat it. The examples above demonstrate how the Indian government has effectively leveraged technology to address inefficiencies, achieving significant progress in delivering healthcare services to vulnerable populations, reducing waste in the health supply chain, and improving access to essential medicines. However, challenges persist, and if left unaddressed, corruption may continue to undermine these efforts.

GAPS AND CHALLENGES

While the healthcare reforms in India, particularly through initiatives like NRHM, NHM, and Ayushman Bharat, have brought about significant positive changes, they have also faced numerous challenges and barriers that have hindered their full potential. These challenges reflect the complexity of implementing large-scale health programs in a country as diverse and populous as India. Some of the key gaps identified are:

i.Implementation Gaps and Regional Disparities

One of the major challenges in India's healthcare system has been the uneven implementation of health programs across different states and regions. While states like Kerala and Tamil Nadu have successfully utilized these initiatives to strengthen their healthcare systems, others, particularly in northern and central India, have struggled to achieve similar outcomes. This disparity is primarily driven by differences in administrative capacities, governance structures, and political will at the state level. For instance, Kerala's effective implementation of the National Health Mission has resulted in high immunization coverage and significant reductions in maternal and child mortality.

The disparity is driven by differences in administrative capacities, governance structures, and political will at the state level.

Similarly, Tamil Nadu's public health system is known for its well-organized supply chain for drugs and medical supplies, ensuring consistent availability of essential medicines across the state, setting a benchmark for other states to follow.

In contrast, states like Bihar and Uttar Pradesh face challenges such as inadequate infrastructure, insufficient human resources, and weaker governance, hindering the effective roll-out of health programs and leading to persistent poor health outcomes despite national efforts. Madhya Pradesh exemplifies the regional disparities in healthcare outcomes, with some of the highest neonatal and maternal mortality rates among India's larger states. Contributing factors include inaccurate data on pregnancies, births, and deaths, underreporting of key health metrics, low nurse-to-baby ratios in neonatal care units, delays in responding to emergencies, and a lack of skilled birth attendants. Even in areas with available skilled attendants, there are inter-district variations in their numbers. The gaps in healthcare surveillance and the lack of an effective health review mechanism in Madhya Pradesh highlight the need for improvements in data tracking and health system monitoring, drawing lessons from better-performing states like Kerala.

ii.Human Resource Constraints

While the creation of a large cadre of health workers, such as ASHAs, under the National Rural Health Mission (NRHM) was a significant achievement, India's healthcare system continues to face critical challenges related to human resources.

Despite the expansion of the workforce, there remains a significant shortage of trained healthcare professionals, particularly in rural and remote areas. This shortage is exacerbated by factors such as low wages, inadequate training, and limited career progression opportunities, which contribute to high attrition rates and a demotivated workforce. The uneven distribution of healthcare professionals, with a heavy concentration in urban centers, further amplifies access issues in rural regions, making it difficult to ensure equitable healthcare delivery across the country.

The shortage is exacerbated by factors such as low wages, inadequate training, limited career progression opportunities, and uneven distribution of healthcare professionals

A key challenge is the low wages and inadequate incentives, which fail to provide financial security and contribute to worker dissatisfaction. Many ASHA workers report that their compensation is insufficient and irregular, which leads to high turnover and reduced morale. In addition, the lack of continuous and updated training is a critical limitation. While ASHAs receive initial training upon recruitment, ongoing education and skill development are often neglected. This gap in training restricts their ability to manage complex health issues, particularly non-communicable diseases (NCDs) and emergencies. A report by the National Health Systems Resource Centre highlighted that ASHAs often struggle to address such challenges effectively due to insufficient training in these areas. Addressing these issues is essential for improving the performance of health programs and ensuring that the healthcare workforce is equipped to meet the needs of the population.

iii. Lack of coordination exacerbates corruption

Despite the efforts to improve transparency and reduce corruption through digital interventions and community participation, corruption and inefficiencies persist in the healthcare system. In some cases, the very mechanisms designed to enhance accountability have been manipulated. For instance, there have been reports of fraudulent claims under PM-JAY, where collusion with patients or fabricated records to claim insurance payouts for services that were either never provided or were exaggerated. Additionally, the implementation of HMIS and other digital tools has been hampered by issues such as inadequate infrastructure, lack of technical skills among healthcare workers, and resistance to change. For instance, often health workers at the local level such as ANMs lack adequate training in utilizing the HMIs, which leads to gaps in either the data entry or the data analysis stage. Insufficient training on data interpretation often leads to negative public health outcomes such as underreporting of critical healthcare metrics which in turn leads to misguided policy interventions.

The implementation of HMIS and other digital tools has been hampered by issues such as inadequate infrastructure, lack of technical skills among healthcare workers, and resistance to change.

This is because the already overburdened ANMs who manage extensive workloads, including undertaking village tours, often engage in manual data entry work where they are required to physically input the data into poorly designed registers with limited space, which hurts the quality of data being recorded. Thus, a lack of insufficient training to already overburdened workers coupled with a lack of cohesive, standardized and streamlined processes for data collection, analysis, and interpretation further compromises the overall quality and reliability of health data.[12]

[12] Shyama Nagarajan, Health Information Systems in India: Challenges and Way Forward (2022)

iv.Governance gaps and impact on public health outcomes

Good governance within the realm of public health often requires active participation and intent on the part of the leadership and a lack in this regard can significantly impact both public health delivery as well as erode public trust in the public health system because of systemic issues such as corruption. This lack of trust is particularly significant for people from socio-economically backward intersectionalities since in the absence of transparent and reliable public health services, they are often compelled to turn toward sub-optimal services from informal doctors (commonly called quacks) or self-medicate, both of which have several drawbacks and often compound existing vulnerabilities.

The Performance Audit of the National Health Mission performed by the Comptroller and Auditor General of India for the state of Goa in 2024 suggested various shortcomings which highlight how governance gaps exacerbate public health inequalities. The Report noted that the State had neither framed a procurement policy nor set up a Centralised Procurement Body for procurement and distribution of drugs, consumables and equipment impacting the quality controls and non-provision of free drugs in the range of 10 to 83 percent in the test-checked PHIs (under Directorate of Health Services) and in Goa Medical College and Hospital (GMCH) during May to July 2022.[13]

> *It is reported that a significant proportion of healthcare workers do not receive adequate training in the use of electronic health records, resulting in incomplete and inaccurate data collection and impeding the effectiveness of digital health initiatives.*

Further, in areas where digital literacy is low, the shift to electronic health records and digital payments has faced significant resistance, leading to gaps in data collection and monitoring. Often it is reported that a significant proportion of healthcare workers do not receive adequate training in the use of electronic health records, which results in incomplete and inaccurate data collection. These infrastructural deficiencies severely limit the effectiveness of digital health initiatives, particularly in areas that need them the most.

v.Financial Constraints and Sustainability

While Ayushman Bharat and other programs have significantly expanded healthcare coverage, their financial sustainability remains a concern. The scale of these programs, particularly PM-JAY, requires substantial ongoing funding. Ensuring that these programs remain adequately funded, especially in the face of economic challenges, is a major concern. There is also the challenge of managing the rising costs associated with healthcare services, which could strain both government budgets and the long-term viability of these programs. Additionally, there have been concerns about the adequacy of funding for preventive and primary care services. While Ayushman Bharat has placed a strong emphasis on secondary and tertiary care through PM-JAY, the focus on Health and Wellness Centres for preventive care has not always received the same level of financial and administrative attention, leading to potential imbalances in the healthcare system.

> *The heavy reliance in India on government funding to sustain large-scale healthcare programs places a strain on the budget, and in the absence of alternative funding mechanisms, there is a risk that healthcare services could become less accessible over time. In order to alleviate this, there is a need to explore alternative funding models that reduce the pressure as well as promote the delivery of better healthcare services.*

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[13] Comptroller and Auditor General of India, 'Performance Audit on Public Health infrastructure and Management of Health Services in Goa' (2022)

vi.Technology and Infrastructure Gaps

The shift towards digital health through platforms like the HMIS and other initiatives has been both promising and challenging. On one hand, they hold the promise of revolutionizing healthcare delivery by improving data accuracy, streamlining processes, and enhancing the overall efficiency of the healthcare system. On the other hand, their implementation has been fraught with significant challenges, particularly related to infrastructure deficits, which are most pronounced in rural and remote areas of India. One of the most critical barriers to the successful implementation of digital health technologies is the lack of reliable internet connectivity. In many rural areas, internet access is either poor or non-existent, making it difficult for healthcare facilities to adopt and sustain digital health platforms like HMIS. The rural penetration of the Internet has been low with about 25% of the rural population having access to the Internet as of 2019 whereas there has been a rapid growth of Internet users in urban areas [14].

Digital Divide	Lack of a Reliable Power Supply	Limited Digital Literacy

This digital divide severely limits the ability of rural healthcare facilities to implement and benefit from digital health initiatives, as they are unable to consistently access the internet to update records, access patient data, or communicate with other healthcare providers. In addition to connectivity issues, the lack of a reliable power supply further exacerbates the challenges faced by rural healthcare facilities in implementing digital health tools. Many health centres in remote areas experience frequent power outages, which disrupt the use of digital systems and force healthcare workers to revert to paper-based methods. Often, healthcare facilities, especially in rural areas, lack the necessary hardware, such as computers, servers, and other digital devices, to support the use of digital health platforms.

Moreover, limited digital literacy among both healthcare workers and patients presents a significant challenge to the effective use of digital health systems. Healthcare workers, particularly in rural areas, often lack the training needed to use digital tools effectively. This lack of digital literacy leads to errors in data entry, mismanagement of electronic health records, and a general reluctance to adopt new technologies. Similarly, patients in rural areas, who may also have limited experience with digital technology, are less likely to engage with digital health services, such as telemedicine or online health records, further reducing the impact of these initiatives.

[14] Internet and Mobile Association of India (IAMAI). (2019). Digital in India: State of Play. New Delhi: IAMAI.

RECOMMENDATIONS AND WAY FORWARD

i.Need for a Unified Data Portal and Interoperability

While the HMIS and other digital health platforms have significantly improved data collection and transparency, there remains a need for greater integration and interoperability between these systems. Currently, multiple government programs require data entry across different portals, creating a cumbersome and time-consuming process. This complexity is compounded by the creation of multiple identification systems/ IDs for beneficiaries.

A unified data portal would address these challenges by centralizing health information, streamlining data entry, and enhancing accuracy. By providing real-time access to comprehensive and reliable data, the portal would facilitate improved coordination among various health programs. This centralized system would not only simplify processes for healthcare providers but also support effective decision-making, monitoring, and evaluation of health services, ultimately leading to better health outcomes for the population.

Potential areas of intervention are:
- National standards for health data exchange to ensure interoperability between various digital health platforms.
- Integrate private healthcare providers into the national health information ecosystem, requiring mandatory reporting of key health indicators.
- Strengthen the Ayushman Bharat Digital Mission by expanding its coverage and ensuring that all citizens are provided with a unique Health ID linked to a comprehensive digital health record.

ii.Generative Artificial Intelligence to tackle workforce shortages

The integration of GenAI into healthcare processes not only streamlines operations but also fosters greater transparency and accountability. By using AI systems that log every interaction and decision made within the healthcare ecosystem, organizations can create an auditable trail of actions taken. This increased visibility allows stakeholders—such as management, regulatory bodies, and patients—to monitor how resources are allocated and how decisions are made, thereby holding healthcare providers accountable for their actions.

By implementing GenAI technologies, healthcare organizations can optimize workflows and allow healthcare professionals to focus on direct patient care. For instance, **AI algorithms can handle patient inquiries through chatbots, schedule follow-ups, and even remind patients of upcoming appointments, thereby minimizing no-shows and improving patient engagement**. Also, its benefits of managing and analyzing vast amounts of data can be successfully leveraged by the health systems.

Case Study: Healthcare Innovation by using GenAi

Apollo TeleHealth, leveraged GenAI to provide healthcare services in rural areas. Apollo TeleHealth introduced teleradiology services across CHCs in Uttar Pradesh and also helped mitigate the shortage of healthcare professionals. This also assisted patients in self-triaging and effectively managing their appointments, thus leading to enhanced health outcomes.

Plausible interventions through GenAi	Chatbot to assist the patient in self-triaging and scheduling an appointment
	Centralized applications for maintaining complaints and medical records uploaded by patient
	AI tools for remote patient monitoring
	AI-assisted diagnostics
	Customized training modules

iii.Digital Health for Strengthening Pharmaceuticals

Digital health interventions, such as the Electronic Vaccine Intelligence Network (eVIN), have already demonstrated success in improving supply chain transparency and efficiency. Scaling up these solutions to cover all essential medical supplies will further reduce wastage, prevent stockouts, and enhance the reliability of the supply chain.

As demonstrated during Covid-19 pandemic, blockchain technology can effectively track the supply chain of medicines and vaccines by ensuring details regarding the storage, handling and transportation of pharma products are maintained transparently and accurately. Blockchain when integrated with the eVIN network will also help to provide real-life information about the supply of vaccines and their availability and thus lead to a reduction in black marketing and other corrupt practices.

Further, the pharmaceutical industry is also slowly evolving towards value-centric R&D with GenAi. From discovering new molecules, leveraging artificial intelligence with data analytics holds the potential to revolutionize the entire R&D value chain.

Blockchain technology can be leveraged to prevent counterfeit drug distribution by automating data collection and verification, ensuring efficient compliance with regulatory standards. It can help track the origin of pharmaceuticals, drug transport, and raw material procurement, enforcing real-time tracking throughout the supply chain. This empowers the stakeholders to swiftly identify and remove expired or fraudulent products, address supply chain issues, and efficiently redistribute inventory.

The following steps could also be added to strengthen supply chain management for essential medicines, vaccines, and medical supplies.
- Expand the eVIN platform to include all essential medicines and medical supplies, ensuring end-to-end tracking of stock levels, distribution, and storage conditions.
- Integrate supply chain management systems with HMIS to provide real-time data on stock availability and consumption patterns at health facilities.
- Conduct regular training for supply chain managers and health workers on using digital tools for inventory management and reporting.

iv.Improved workforce training and development

To address the high attrition rates, there is a need to implement strategies that extend beyond initial training and instead focus on providing holistic mentorship and satisfaction to healthcare professionals. This can be enhanced through the establishment of formal mentorship programs where experienced healthcare professionals are paired with new recruits, so that the latter can get targeted guidance and support continually.

For instance, the **Nurse Mentoring Program in Uttar Pradesh** which aimed to enhance the skills of staff nurses and ANMs through on-site mentoring by designated nurse mentors has led to significant positive outcomes in maternal and neonatal care practices. The success of these mentorship programs is premised on a continuous culture of learning and collaboration, with such mentorship frameworks often leading to reduced turnover rates as compared to scenarios where no mentorship program exists.[15]

To further motivate healthcare workers, particularly in rural areas, strategies must also be implemented to create better financial incentives and career progression opportunities. Inadequate compensation and limited career advancement prospects may deter many skilled professionals from participating meaningfully in the health workforce. Thus, it is recommended that proper career growth prospects be structured in the form of financial incentives such as performance-based bonuses and educational scholarships for further training. Also, programs may be implemented which provide professionals to achieve upward mobility within the workforce through opportunities for specialization or leadership roles.

v.Enhancing community engagement to better accountability

A decentralized model of healthcare governance can further strengthen these community-based monitoring efforts. **Empowering community-based organizations** to oversee local health initiatives will ensure that programs that align with community needs and healthcare aspirations gain precedence and funding support, thereby promoting equity in resource allocation. Additionally, forming local health committees that include representatives from various socio-economic segments within the community can facilitate better communication between healthcare providers and community members and reduce trust deficits.

Using a **Decentralized Governance Model** Community-Based Organizations and local health committees can be empowered to directly monitor healthcare service delivery, track resource allocation, and oversee the implementation of health programs. Such a model could be piloted in select districts, where CBOs and local committees are given formal oversight roles, access to data, and decision-making powers.

People's Plan Campaign implemented in Kerala successfully integrated local bodies into the management of primary health centers. This campaign enabled local communities to actively participate in health-related decision-making, resulting in improved health infrastructure, better resource utilization, and more transparent service delivery. In this campaign, local health committees played a key role in ensuring that healthcare services were tailored to the needs of the community and that funds were allocated efficiently.

vi.Enhancing Financial Sustainability and Resource Allocation through a Financial Accountability Framework

[15] India Health Action Trust, 'The Nurse Mentoring Program: Saving Mhers and Newborns'

To improve the financial sustainability of India's healthcare system and ensure effective resource allocation, a comprehensive financial accountability framework is the need of the hour. This framework should include real-time monitoring of fund allocations and expenditures, alongside regular audits to ensure transparency, efficiency, and the optimal use of resources. **A Real-Time Monitoring Systems** can help create a centralized digital platform that allows for real-time tracking of healthcare funding at both the state and district levels. This platform can be accessible to key stakeholders, including CBOs, local health committees, and government officials, to monitor the flow of funds, allocation to specific programs, and expenditures.

> In **Madhya Pradesh,** a digital platform was used to track the progress of fund utilization at district hospitals, which resulted in improved budgeting practices and a reduction in fund mismanagement. The state also implemented regular financial audits and encouraged local health committees to participate in the auditing process, increasing trust and transparency within the system.

vii. Leverage Public-Private Partnerships

The private sector can provide valuable implementation support to the government to improve the public health delivery system. For instance, the adoption of telemedicine in India which was accelerated by COVID-19 can be further expanded by scaling up PPPs. This could be enhanced through collaborations between private entities and state governments, as demonstrated by Apollo TeleHealth's successful implementation of teleradiology services across Uttar Pradesh's CHCs which significantly improved access to diagnostic services for rural populations.

PPPs can further be explored to enhance infrastructure and service delivery by combining public-sector reach with private-sector efficiency.	However, effective scaling of PPPs must be supported by creating a robust policy framework that clearly defines roles, responsibilities, and revenue-sharing structures between private and state players to ensure transparency and accountability.

The table below summarizes some of the potential areas of intervention:

Service Delivery	Enhance telehealth services and establish mobile medical units (MMUs) through PPPs to ensure wider and more equitable access, particularly in underserved areas.
PPP for enhancing digital literacy	There is a need to collaborate with private entities to provide training and support for ASHAs and ANMs, focusing on new digital technologies and data entry processes. This shall support in streamlining processes, and easier adoption of technology to improve data accuracy across various health programs.
Health Information System Integration	Need for programmatic integration by developing a unified digital health platform through partnerships with technology firms to centralize health data management. This shall reduce cumbersome procedures that cause inaccuracies in data reporting.

viii.Strengthen Health Workforce Governance

The effectiveness of India's health system is heavily dependent on the quality and availability of its health workforce. However, issues such as absenteeism, inadequate training, and a lack of accountability continue to undermine service delivery. Strengthening governance frameworks for workforce management will ensure that healthcare providers are adequately trained, equitably distributed, and held accountable for their performance. This can be done by establishing robust governance frameworks for health workforce management, including transparent recruitment, performance monitoring, and continuous professional development. The following steps could be taken in this regard:

Implement a National Registry for health workers linked to their performance metrics, qualifications, and training history.	Introduce Mandatory Continuing Medical Education (CME) requirements, with regular assessments to ensure health workers are updated on the latest clinical guidelines and technologies.	Deploy Biometric Attendance Systems across all health facilities to monitor and improve workforce attendance and service delivery, with penalties for non-compliance.

ix.Institute Rigorous Monitoring and Evaluation Frameworks

Effective monitoring and evaluation are essential for ensuring that health programs are delivering the intended outcomes and that resources are being used efficiently. A strong M&E framework allows for the timely identification of issues, facilitates course corrections, and ensures that health programs are continuously improving. A robust implementation Strategy in this regard could be developed by focusing on:

- Developing a national M&E framework that includes clear indicators, baseline data, and targets for all major health programs.
- Utilizing digital health tools, such as mobile data collection and GIS mapping, to enhance the accuracy and timeliness of data collection for M&E purposes.
- Conducting regular independent audits and evaluations of health programs, with findings made publicly available to promote transparency and accountability.

x.Remove regional disparities in healthcare

Regional disparities in the level of healthcare provided in various states leads to differential progress on critical indicators. To extend the example of Madhya Pradesh which records high rates in maternal and neonatal mortality rates as compared to a state like Kerala, it is recommended that interstate co-learning mechanisms be enhanced.

For instance, Kerala's Comprehensive Health Plan which offers a decentralized model of healthcare involving Panchayati Raj Institutions may be easily replicable in high-priority districts of MP to identify local health needs of the tribal people living in these districts. Combining these inputs by using a multi-sectoral approach and prioritizing targetted actions on anemia, malnutrition, and early childhood illnesses can greatly solve the problems plaguing the local population in these districts.

Moreover, Kerala's emphasis on quality assurance programs for healthcare facilities as well as the Comprehensive Health Insurance Scheme underscores the necessity of improving service quality as well as reducing out-of-pocket expenses on healthcare.

Madhya Pradesh could take inspiration from Kerala's model and initiate such quality assurance programs to standardize services across its government hospitals as well as incentivize strong adherence to benchmarks in quality of healthcare services. Similarly, addressing resource gaps in tribal and rural areas through innovative partnerships and accountable, decentralized governance structures can ensure a coordinated effort to improve health outcomes.

Since health is ultimately a state subject, states should take inspiration from each other to ensure more equitable access to healthcare services by taking appropriate measures. Key strategies would include identifying gaps in structures, process, and outcomes vis-à-vis other states and the creation of adequate review and monitoring mechanisms to ensure accountability. To the best extent possible, states should focus on adopting complementary approaches from comparable states that integrate health and non-health sectors, while addressing social determinants of health. This will ensure that the knowledge on best practices can be effectively leveraged to enhance performance in individual states.

CONCLUSION

Building on the achievements of the past few decades, India finds itself at a pivotal moment, poised to leverage a range of opportunities to further strengthen its health system. As the country faces evolving healthcare demands, it is critical to adopt a proactive approach by prioritizing transparency and accountability within the system. Enhancing transparency will not only help curb inefficiencies and prevent financial leakages but also foster public trust and ensure a more equitable allocation of resources to public healthcare services.

By capitalizing on existing strengths—such as improved health infrastructure, expanded immunization coverage, strengthened maternal health services, the adoption of technology-driven solutions, and the development of new frameworks to combat corruption—India can continue to address disparities in healthcare access and quality. Additionally, the integration of innovative technologies, such as blockchain, and data-driven monitoring systems must be expedited to combat corruption, bribery, and unethical practices effectively.

In doing so, India can transform current challenges into opportunities for substantial growth and improved health outcomes. The following sections outline a roadmap for addressing the complexities of health program implementation and its broader implications for public health in India. This report highlights how corruption is systematically prevalent within India's healthcare ecosystem and the need for a unified, strategic approach to address the core challenges of transparency and accountability to improve healthcare outcomes. Given the complexity of India's healthcare landscape—with its multitude of stakeholders and intricate administrative layers—achieving sustainable, meaningful change which is premised on enhancing accountability and reducing corruption requires a long-term, multi-sectoral effort that transcends isolated interventions. This report presents a comprehensive roadmap, detailing the critical actions needed to build a resilient, equitable, and transparent health system which is capable of withstanding future challenges.

At the heart of this transformation lies robust governance and a strong commitment to anti-corruption and anti-bribery measures. Strong governance is not merely a foundation but the driving force that ensures transparent operations, effective resource allocation, and the establishment of accountability mechanisms that curtail corruption. For India to achieve sustainable health system improvements, it must foster deeper cooperation among public authorities, private healthcare providers, civil society, and industry as well as leverage technology to improve transparency outcomes across the breadth of the healthcare service delivery continuum. Through collective anti-corruption action, these actors can cultivate a culture of integrity that ensures health resources are directed where they are most needed, particularly in underserved and low-resource areas.

PPPs can play a pivotal role in this vision by offering innovative solutions that improve both access to and quality of care. Leveraging the expertise, technology, and capital of the private sector in tandem with public measures such as the establishment of Lokayuktas to investigate corruption complaints can go a long way in ensuring that India can accelerate health system modernization through strong regulatory frameworks that safeguard public interests.

The expansion of digital health technologies further opens transformative pathways to enhance the credibility and transparency of India's healthcare system. Initiatives such as the HMIS and the eVIN have already demonstrated their ability to enhance data reliability and promote accountability. Scaling these platforms and ensuring seamless integration across public and private sectors will create a more connected and responsive healthcare ecosystem. However, success in this domain depends on a sustained focus on data security, privacy as well as enhancing both India's digital infrastructure as well as the digital literacy skills of its healthcare workers. These reforms are crucial to build trust and empower both healthcare providers and patients alike in promoting transparent healthcare outcomes.

Equally critical to the system's transformation is the health workforce, whose governance must be enhanced to meet the evolving demands of healthcare delivery. Transparent recruitment processes, merit-based promotions, and rigorous performance evaluations are key to maintaining high standards of care and ensuring accountability at all levels. By investing in continuous professional development that improves both the knowledge bases and digital skills of healthcare workers as well as by providing meaningful mentorship opportunities, states can incentivize them to perform in an adequate and acceptable manner. Further, by leveraging data-driven insights such as the ATS to monitor workforce attendance and productivity, India can cultivate a workforce which is equipped to deliver quality care in an ever-changing health landscape.

Financial governance forms another cornerstone of reform. Efficient and transparent use of financial resources is essential to building public trust and ensuring optimal health outcomes. Developing innovative financing mechanisms, particularly those aimed at reaching underserved areas, will be crucial in expanding access to care. Through sound financial management, the health system can maximize the impact of investments, fostering equity and long-term sustainability. Further, there is a need for financial systems to be transparent and free from the evils of corruption and mismanagement. For this, investments in effective monitoring and oversight mechanisms, including public and community-based audits, are essential to ensure that there are no undue advantages being gained by bad actors in the healthcare system and all systems within the healthcare machinery from procurement to service delivery are governed by ethical and legal principles.

A decentralized, community-based governance model is integral to making the health system more responsive to local needs. Empowering local governments and communities to actively participate in health governance ensures that health interventions are tailored to the specific challenges of each region. This bottom-up approach not only strengthens accountability but also promotes community ownership of health outcomes, ensuring that services are aligned with local priorities.

In conclusion, the strategies outlined in this report offer India a unique opportunity to construct a health system that is resilient, transparent, and equitable. Achieving Universal Health Coverage (UHC) and addressing disparities in access and quality of care will require sustained, coordinated efforts from all sectors—government, private, civil society, and communities. Strengthening governance, promoting anti-corruption initiatives, and harnessing the potential of PPPs and digital health solutions are critical to ensuring that India's health system evolves to meet the needs of its population. The rewards of this transformation are far-reaching: a healthier, more equitable society that not only improves lives domestically but also stands as a global exemplar of health system reform.