
Enhancing India's Public Health Infrastructure for Universal Coverage by 2047

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Abstract

As India envisions its future as a developed nation by 2047, achieving Universal Health Coverage (UHC) stands out as a foundational pillar for ensuring the well-being and productivity of its citizens. This paper outlines a strategic framework for enhancing India's public health infrastructure to make UHC a reality. It reviews the current state of the health system, identifying key challenges such as infrastructural gaps, workforce shortages, high out-of-pocket expenditure, and the urban-rural divide. The proposed framework is built on five core pillars: strengthening primary healthcare with a focus on prevention, bridging the urban-rural gap through technology and targeted investment, integrating a national digital health ecosystem, expanding and up skilling the healthcare workforce, and implementing sustainable financing models. The paper argues that a multi-pronged approach combining robust policy, technological adoption, and increased public investment is essential for building a resilient, accessible, and equitable public health system capable of meeting the needs of all Indians by 2047.

Keywords: Universal Health Coverage (UHC), Public Health, India 2047, Healthcare Infrastructure, Digital Health, Health Equity.

Introduction

The vision of a "Developed India @ 2047" articulates a future where economic prosperity is matched by social progress and a high quality of life for all citizens. Central to this vision is the health of its 1.4 billion people, which serves as the bedrock for productivity, innovation, and national development. Universal Health Coverage (UHC), as defined by the World Health Organization (WHO), is a state where all individuals and communities receive the full spectrum of essential, quality health services—from promotion to prevention, treatment, rehabilitation, and palliative care—without suffering financial hardship. This concept rests on three dimensions: population coverage (who is covered), service coverage (which services are covered), and financial protection (what proportion of costs are covered). Achieving this goal is not merely a social objective but a critical economic imperative; a healthy populace is a productive one, capable of driving the nation towards its long-term growth targets.

India's public health infrastructure is a complex, multi-tiered system that has made significant strides since independence. The establishment of institutions like the All India Institute of Medical Sciences (AIIMS), the launch of the National Health Mission (NHM), and successful campaigns against diseases like polio and smallpox are testaments to its potential. However, the system remains fraught with deep-seated challenges. These include chronic underfunding, a stark disparity in the quality and availability of services between urban and rural areas, a critical shortage of trained medical professionals, and a heavy reliance on out-of-pocket expenditure (OOPE), which pushes an estimated 60 million Indians into poverty each year. Existing initiatives, most notably the ambitious Ayushman Bharat program with its two components—Health and Wellness Centres (HWCs) and the Pradhan Mantri Jan Arogya Yojana (PM-JAY)—represent a paradigm shift towards a more comprehensive and accessible system. However, these are foundational steps on a long journey. A comprehensive, long-term strategy is required to transform these initiatives into a truly universal, resilient,

and equitable health system. This paper proposes such a strategic framework, built on five interconnected pillars, to guide the transformation of India's public health infrastructure to achieve UHC by 2047.

2. Current Challenges in India's Public Health System

To construct a blueprint for the future, it is essential to conduct a granular analysis of the foundational challenges that currently constrain India's public health system. These issues are multifaceted and interconnected, requiring systemic solutions rather than piecemeal interventions.

Infrastructural Deficits

At the heart of the delivery system, especially in rural India, lies a network of Sub-Centres and Primary Health Centres (PHCs). While their geographic reach is extensive, their functional capacity is often severely limited. Many facilities fail to meet the Indian Public Health Standards (IPHS), which stipulate norms for infrastructure, staffing, equipment, and service delivery. Deficits include unreliable electricity and clean water supply, a lack of basic diagnostic equipment (such as X-ray machines or simple blood analyzers), and inconsistent availability of essential medicines. This forces patients to bypass their local health centers and travel to overcrowded district hospitals or expensive private facilities for even basic care, defeating the purpose of a tiered health system.

Workforce Shortage and Maldistribution

A health system is only as effective as the people who operate it. India faces a dual crisis in its healthcare workforce: a shortage in absolute numbers and a severe maldistribution of available personnel. The country's doctor-to-population ratio remains below the WHO recommendation of 1:1000. This shortage is even more acute for nurses, midwives, and allied health professionals. The problem is compounded by a geographic imbalance, with a vast majority of doctors and specialists concentrated in urban areas, leaving rural and remote populations critically underserved. This urban bias is driven by a combination of factors, including better professional opportunities, higher income potential, and superior living conditions in cities. The absence of a skilled and motivated workforce at the primary care level undermines the entire system, rendering infrastructure and policies ineffective.

High Out-of-Pocket Expenditure (OOPE)

Despite the existence of public health services, a significant portion of healthcare in India is financed directly by households. OOPE constitutes a large percentage of the total health expenditure, one of the highest rates in the world. This reliance on personal funds creates a significant barrier to accessing care and often leads to catastrophic health expenditures, where a family's spending on health exceeds a substantial portion of its income. The primary drivers of high OOPE are expenditures on medicines, diagnostics, and care from the largely unregulated private sector. This financial burden not only deepens poverty but also forces individuals to delay or forgo necessary treatment, leading to worse health outcomes and higher long-term costs for both the individual and the state.

Fragmented Digital Ecosystem

In the digital age, data is a critical asset for efficient healthcare delivery. However, India's health information ecosystem remains largely fragmented. Patient health records are typically paper-based or stored in siloed electronic systems within individual hospitals or clinics. This lack of interoperability prevents the creation of a longitudinal health record for patients, leading to a disconnected care experience. When a patient moves from a PHC to a district hospital, their medical history often does not follow them, resulting in redundant

diagnostic tests, potential medical errors, and inefficient use of resources. At a macro level, this fragmentation hampers effective public health planning, as policymakers lack access to real-time, integrated data for disease surveillance and resource allocation.

Predominance of Curative Care

India is currently undergoing an epidemiological transition, facing a "dual burden" of disease. While communicable diseases like tuberculosis and malaria remain significant threats, there is a rapidly rising epidemic of non-communicable diseases (NCDs) such as diabetes, hypertension, cardiovascular diseases, and cancer. The public health system, historically designed to combat infectious diseases, has been slow to adapt. It remains largely focused on a curative, episodic model of care rather than a proactive, preventive one. This approach is ill-suited for managing chronic conditions, which require continuous, long-term care and lifestyle management. A system that prioritizes treatment over prevention is not only less effective for managing NCDs but also financially unsustainable in the long run.

3. A Strategic Framework for UHC by 2047

Achieving UHC requires a holistic and systemic transformation built upon a clear strategic framework. The following five interconnected pillars provide a roadmap for this ambitious goal.

3.1 Pillar 1: Reimagining Primary Healthcare as the System's Foundation

A resilient health system is built not on advanced tertiary hospitals, but on robust, accessible, and comprehensive primary care. The focus must fundamentally shift from a treatment-centric model to a proactive, wellness-based approach that keeps communities healthy.

- **Empowering Health and Wellness Centres (HWCs):** The conversion of Sub-Centres and PHCs into Health and Wellness Centres under Ayushman Bharat is a critical first step. This transformation must go beyond a mere name change. HWCs must be fully equipped and staffed to provide a comprehensive range of services that extend beyond basic maternal and child health. This includes robust screening programs for common NCDs, basic management of chronic conditions, mental health counseling, geriatric care, and wellness activities such as yoga and health education sessions.
- **Strengthening and Formalizing Community Health Workers:** The role of frontline health workers like Accredited Social Health Activists (ASHAs) and Anganwadi workers is indispensable. They are the trusted bridge between the community and the formal health system. Their role should be enhanced through structured training programs, fair and timely compensation, and clear career progression pathways. By equipping them with digital tools like tablets for real-time data entry and decision support, they can be transformed from mere mobilizers into effective community-based health service providers.

3.2 Pillar 2: Bridging the Persistent Urban-Rural Divide

Health equity will remain an elusive goal as long as a citizen's access to quality care is determined by their geographic location. A concerted effort is needed to bridge this gap.

- **Targeted Rural Infrastructure Investment:** A dedicated "Rural Health Infrastructure Modernization Fund" should be established to upgrade health facilities in remote and underserved districts. This investment should focus not just on physical construction but also on ensuring last-mile supply chains for medicines, reliable power for equipment (through solar installations), and high-speed digital connectivity.
- **Creating a National Telemedicine Grid:** Technology can leapfrog traditional infrastructural barriers. A national telemedicine grid, built on a "hub-and-spoke" model, must be established. Under this model,

specialists at district hospitals or medical colleges (hubs) can provide virtual consultations to patients at remote HWCs (spokes), guided by a community health officer. This would provide rural populations with access to specialist care in fields like cardiology, dermatology, and pediatrics without the need for arduous and expensive travel.

- **Incentivizing Rural Service:** To address the maldistribution of healthcare professionals, a multi-pronged incentive structure is needed. This should include mandatory rural service for medical graduates, coupled with attractive incentives such as significant financial bonuses, preferential admission to postgraduate courses, and better housing and educational facilities for their families in rural areas.

3.3 Pillar 3: Building a Unified National Digital Health Ecosystem

Technology is the most powerful catalyst for creating an efficient, transparent, and patient-centric health system.

- **Achieving Universal Electronic Health Records (EHR):** The Ayushman Bharat Digital Mission (ABDM) provides the architectural backbone for this transformation. Efforts must be scaled to ensure every citizen has a unique Ayushman Bharat Health Account (ABHA) number and a portable, interoperable EHR. This will empower patients with control over their health data and enable a seamless continuum of care across different providers, public or private, anywhere in the country.
- **Leveraging AI for Predictive and Public Health:** An AI-driven Integrated Health Information Platform (IHIP) can revolutionize public health management. By analyzing anonymized data from EHRs, diagnostic labs, and even environmental sources, AI algorithms can enable real-time tracking of disease outbreaks, predict future epidemics, and identify hotspots for targeted interventions. This moves the system from being reactive to proactive and predictive.

3.4 Pillar 4: Investing in a Future-Ready Healthcare Workforce

A health system, no matter how well-equipped, is only as good as the people who run it. India needs a massive expansion and upskilling of its healthcare workforce.

- **Scaling and Reforming Medical Education:** The number of medical and nursing colleges must be significantly increased, with a focus on establishing new institutions in underserved states to promote regional equity. Simultaneously, the medical curriculum must be reformed to place greater emphasis on primary care, public health, and the social determinants of health, training doctors to be not just clinicians but also community health leaders.
- **Creating a Specialized Public Health Management Cadre:** Clinical training does not automatically impart managerial skills. To improve the administration of the public health system, a specialized cadre of public health managers should be created. These professionals, trained in epidemiology, health economics, and policy, would oversee the management of the health system at the district and state levels, allowing clinicians to focus on patient care and thereby improving overall system efficiency.

3.5 Pillar 5: Ensuring Sustainable and Equitable Financing

UHC is not possible without a significant and sustained increase in public investment in health.

- **Increased Public Expenditure on Health:** India must meet its stated goal of increasing public health spending to at least 2.5% of its GDP, as recommended by the National Health Policy 2017. This increased allocation is a non-negotiable prerequisite for strengthening infrastructure, hiring more personnel, and ensuring the availability of free essential medicines and diagnostics.

- **Strengthening Insurance and Strategic Purchasing:** The PM-JAY scheme should be expanded to cover a wider range of services, including outpatient care and diagnostics, to further reduce OOPe. Furthermore, the government, acting as a large-scale purchaser of healthcare services through PM-JAY, can engage in "strategic purchasing." This involves using its bargaining power to negotiate costs and enforce quality standards with empanelled private hospitals, thereby bringing a degree of regulation to the private sector and ensuring value for money.

4. Conclusion

Enhancing India's public health infrastructure to achieve Universal Health Coverage by 2047 is an ambitious but essential mission for realizing the vision of a developed nation. It demands a paradigm shift—moving beyond incremental changes to a comprehensive and systemic transformation. This journey is not merely about building more hospitals or training more doctors; it is about fundamentally re-engineering the system to be proactive, equitable, and patient-centric. By focusing on a wellness-based primary care model, leveraging technology to bridge access gaps, investing in a skilled and motivated workforce, and ensuring sustainable financing, India can build a world-class health system that is resilient to future shocks and accessible to all. This journey will demand unwavering political commitment, multi-sectoral collaboration, and active community participation, but the result—a healthier, more equitable, and prosperous India—will be a legacy worthy of its centennial celebration.

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