How India Is Transforming Healthcare Through Technology

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Published: 2026-01-12 | DOI: 10.82098/icmed-mag.2025.05.007

ABSTRACT

India, now home to more than 1.4 billion people, is undergoing a significant shift in the way healthcare is delivered. This transformation is being driven by rapid digital advancement that is...

India, now home to more than 1.4 billion people, is undergoing a significant shift in the way healthcare is delivered. This transformation is being driven by rapid digital advancement that is influencing everything from specialised urban hospitals to the most remote primary care centres. Technology is gradually becoming the foundation of healthcare systems — helping improve accessibility, reduce costs, and enhance quality of care. The alignment of the Digital India initiative with national health goals is creating a future in which digital systems serve as the backbone of health services rather than mere add-ons.

Ayushman Bharat Digital Mission (ABDM):

The Ayushman Bharat Digital Mission, launched nationwide in September 2021 after earlier pilot deployments, serves as the central framework for India’s digital health systems. Its primary purpose is to enable an integrated digital health infrastructure that connects citizens, healthcare institutions, professionals, and government bodies through secure and interoperable digital tools.

At its core, the mission aims to establish a digital ecosystem capable of supporting large-scale healthcare delivery. It emphasises open standards, data security, and consent-based information exchange to ensure that individuals can access and share their health information safely and efficiently.

Objectives of the ABDM:

The program pursues several major goals that collectively support universal health coverage:

- Build and maintain the digital infrastructure required to store and securely exchange

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health data based on individual consent.

- Provide each citizen with a unique digital health identifier that enables authenticated access to personal medical information.
- Create national-level registries for healthcare professionals, facilities, and approved medical products.
- Encourage all stakeholders — public and private — to adopt interoperable digital systems based on common standards.
- Develop a Personal Health Records (PHR) framework that allows individuals to organise, view, and share their health information with full control over permissions.

Foundational Components of ABDM:

The mission is supported by several key digital tools that collectively form the backbone of the ecosystem:

Component	Description	Benefit
Ayushman Bharat Health Account (ABHA)	A unique, 14-digit digital identity is assigned to each participant.	Ensures individuals can securely retrieve and share their medical information across providers.
Health Facility Registry (HFR)	A unified database of healthcare establishments across public and private sectors.	Simplifies the discovery and verification of health facilities nationwide.
Healthcare Professionals Registry (HPR)	A validated directory of practitioners from modern and traditional medical systems.	Helps verify credentials and integrate professionals into digital workflows.
Unified Health Interface (UHI)	A digital network that enables various health services to interact seamlessly.	Supports integrated functions like teleconsultations, appointment scheduling, and service discovery.
ABHA Mobile Application	A user-friendly platform that allows citizens to manage their health ID, view linked records, and control permissions.	Enhances user autonomy and provides easy access to personal health information.
Health Information Exchange & Consent Manager	A system that governs how health records are shared across platforms based on user consent.	Strengthens privacy and ensures individuals remain in charge of their data-sharing decisions.

Benefits of ABDM:

ABDM brings meaningful advantages to all groups within the healthcare ecosystem:

- **For citizens:** It promotes portability of health records and enables consistent access to medical services regardless of location or provider.
- **For healthcare providers:** It reduces paperwork, standardises administrative processes,

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and improves efficiency through digitised workflows.
- **For policymakers and government agencies:** It provides valuable insights into population health trends, supporting evidence-based program design, planning, and research.

Implementation Progress (as of early 2025):

The mission has expanded rapidly in recent years:

- Over 730 million ABHA IDs have been created, allowing millions of individuals to participate in the digital health system.
- Around 490 million health records have been successfully linked to these accounts.
- Enrolment in the facility and professional registries continues to grow, strengthening the credibility and completeness of national datasets.
- The Digital Health Incentive Scheme (DHIS) motivates hospitals, clinics, and other providers to adopt ABDM-compatible software and generate digital records.
- Integration efforts have connected ABDM with other major health programs, including PM-JAY, e-Sanjeevani for telemedicine, and the U-WIN vaccination platform.

Critical Perspectives:

Despite substantial progress, ABDM and ABHA have generated discussion around several key challenges:

- Privacy and Data Protection

Concerns persist regarding the safeguarding of sensitive medical information. Critics note the possibility of unauthorised access, commercial misuse, or profiling if data is not adequately protected. Although the system uses consent-driven mechanisms, many argue that the complexity of “granular consent” may be difficult for the average citizen to navigate.

- Digital Accessibility

Digital literacy varies widely across India. A large number of individuals — particularly in rural regions — may be unaware of how the system works or how it benefits them. Limited access to smartphones and the internet further complicates participation.

- Practical Implementation Challenges

The diversity of India’s healthcare system makes uniform adoption difficult. Smaller clinics,

standalone practitioners, and rural facilities may face financial or technical barriers to meeting digital standards. In addition, some private-sector stakeholders may hesitate to integrate fully without clearer guidance, incentives, or regulatory certainty.

Suggested citation:

Shaik M. How India Is Transforming Healthcare Through Technology. ICMED Magazine. 2026;2025(5). doi:10.82098/icmed-mag.2025.05.007