

# Health System Strengthening in Bihar



Bihar is on the cusp of a transformative digital shift in its public health system, one that has the potential to revolutionize healthcare delivery across the state. However, significant challenges remain.

While technology and data are crucial for improving healthcare access, efficiency, and equity, Bihar's digital infrastructure is underdeveloped. The state is grappling with fragmented efforts and a lack of a unified vision. Despite the government's efforts, limited digital skills among healthcare professionals and insufficient resources hinder progress. The absence of real-time data makes decision-making difficult, and even essential resources like medicines are managed based on outdated information.

To unlock the full potential of digital health, Digital Bharat Collaborative is empowering stakeholders in Bihar to embrace change management, foster digital adoption, and shift toward data-driven decision-making. This digital overhaul isn't just about technology—it's about reshaping the entire system to deliver equitable, efficient, and high-quality healthcare to all.

This digital transformation could accelerate progress toward Universal Health Coverage (UHC):

1

#### Improved Access

Digital tools can bridge healthcare gaps in rural areas by ensuring real-time tracking of services, medicine, and equipment for equitable resource distribution.

2

#### Unified Health Information

An integrated digital platform can consolidate fragmented systems, improving coordination, patient care, and service delivery.

3

#### Data-Driven Decisions

Digitization empowers real-time data access, enabling evidence-based governance and informed decisions on disease trends, resource allocation, and healthcare outcomes.

4

#### Enhanced Accountability

Digital tools enable better monitoring of healthcare facilities and programs, ensuring accountability and high-quality services aligned with UHC goals.

5

#### Workforce Efficiency

By automating routine tasks, digital solutions reduce healthcare professionals' workloads, allowing more focus on patient care, while digital skills training enhances workforce readiness.

6

#### Bridging the Digital Divide

Investing in infrastructure and training ensures all communities and health workers can access and benefit from digital healthcare tools.

7

#### Cost Efficiency

Digitization optimizes resources through better inventory management, reducing waste and improving sustainability in healthcare financing.

8

#### Supporting Global Health Goals

Aligned with the 2030 Sustainable Development Goals (SDGs), Bihar's digital health transformation can accelerate progress toward SDG 3—ensuring good health and well-being.

Bihar's digital health shift is more than a tech upgrade—it's a transformative step toward equitable, efficient, and sustainable healthcare, driving the state closer to UHC and global health objectives.

The objectives of the Bihar State Health System Digitization are:

- **Automation of Health Services:** Digitize basic medical screenings, community health initiatives, and frontline workers' functions. Enable telemedicine and connected medical devices for real-time, automated diagnostics and predictive analysis.
- **24/7 Access to Care:** Provide a single point of contact for healthcare needs, including primary consultations, symptom checkers, and service availability (appointments, bed access).
- **Population Health Monitoring:** Aggregate and analyze health data in real-time for predictive decision-making and improved patient outcomes.
- **Seamless Referrals and Transfers:** Streamline data flow across care levels, enabling anonymous health data transfer and follow-up care without travel.
- **Paperless System for Patient Mobility:** Automate processes and workflows, eliminating paper-based records and ensuring easy access to treatment and diagnostic history.
- **Access to Medical Professionals:** Monitor staffing, enhance clinical decision-making, and provide clinicians with instant access to patient data.
- **Standardized Workflows:** Standardize processes, workflows, and patient experiences across the health system, using clinical decision support systems to minimize errors.
- **Performance Management:** Track health delivery unit and staff performance through defined KPIs and performance rankings.

- **Integrated Administrative and Clinical Functions:** Digitize and integrate administrative functions (HR, finance, supply chain) with clinical operations.
- **Data-Driven Governance:** Ensure real-time data availability for transparent decision-making, planning, and policy development, engaging the population through digital channels.

These objectives aim to streamline healthcare delivery, improve patient care, and enhance governance in Bihar's health system.

#### Proposed Approach for Bihar Health Facilities Digitalization:

We are supporting the Government of Bihar in its comprehensive plan to accelerate digitalization in health facilities.

Key project strategies include:

- A steering committee with key stakeholders to oversee progress.
- Joint Application Development (JAD) to involve stakeholders throughout the process.
- Weekly progress reviews at the state level for decision-making.
- Phase-wise implementation and integration with national health apps for seamless data sharing.
- A dedicated Project Management Unit (PMU) to ensure timely deliverables, with feedback loops for issue resolution.

Capacity building is a priority, with intensive training for healthcare providers and ongoing support for digital tool adoption. A dedicated support team will assist at every level to ensure smooth deployment and address user feedback. Data security standards are strictly enforced, and change management is integral to sustainability.

#### Target Beneficiaries

- Direct: Patients and healthcare providers at public facilities.
- Indirect: Policymakers, researchers, and administrators relying on accurate data for decision-making.

#### Expected Outcomes

- Short-term: Enhanced efficiency in patient registration, record management, and appointment scheduling.
- Medium-term: Improved patient care and faster service delivery.
- Long-term: A stronger, data-driven healthcare system.

**Phase 1 (Pilot):** The digitization journey began with a pilot project in Muzaffarpur, where the focus was on enhancing facility excellence and patient satisfaction through digital workflows. The Muzaffarpur Pilot implemented several innovative digital health initiatives to enhance service delivery and data management across health facilities:

- **SAKHI Application:** Empowered 356 ASHA workers, capturing data from 13,896 households and 73,820 beneficiaries.
- **BAHMNI HMIS:** Deployed in three major facilities, recording over 168,000 beneficiaries and 22,261 lab tests.
- **IoT Devices:** Monitored medical equipment in real-time across three facilities with 30 devices.
- **AMRIT:** Rolled out in 12 lower health facilities, registering over 4,000 patients and addressing 2,396 complaints.
- **Command and Control Centre (CCC):** Provided real-time monitoring and governance support through integrated health dashboards.
- **Innovation:** Introduced HealthCube (portable diagnostics) and Fetosense (remote fetal heart monitoring) for improved care.

Despite challenges in infrastructure and technology adoption, the pilot laid the foundation for data-driven healthcare management.

**Phase 2 (Scale):** Building on the lessons from Muzaffarpur, the Government of Bihar expanded digitization to all health facilities, integrating a wide range of modules:



- **Hospital Information Management System (HIMS):** Modules for registration, appointment management, OPD, IPD, laboratory, radiology, inventory, billing, and more.
- **Enterprise Resource Planning (ERP):** Finance, HR, asset, and supply chain management.
- **Citizen/Web Portal:** For registration, appointment booking, and access to medical records.
- **Electronic Health Record (EHR):** Access to patient demographics, care plans, and medical history.
- **Integration:** With state applications, IoT devices, and health programs.
- **Command and Control Centre (CCC):** Real-time monitoring and disaster management.
- **Ayushman Bharat Digital Mission (ABDM):** Roll-out with health facility and professional registry.
- **Training and Capacity Building:** Training end-users on system features and processes.
- **Adoption and Sustainability:** Ensuring long-term success through change management strategies.

Phase 3 of the digitization initiative focused on the deployment and scaling of the **Hospital Information Management System (HIMS)** and **Bihar Health Application Visionary Yojana for All (BHAVYA)**, marking a significant leap in Bihar's healthcare digital transformation. Following a stakeholder-driven approach, discussions shaped key features like offline functionality for rural outreach, integration with lab and radiology machines, Hindi language support, and automated reporting for governance. The rollout began in Muzaffarpur in December 2022, followed by Siwan and Nalanda in March 2023, and Gopalganj in August 2023. By August 2024, Bhavya was fully deployed across all districts. The phased approach also included decentralized procurement of IT infrastructure and a robust training program to ensure smooth adoption.

**Stakeholders and Partners:** The key stakeholders in Bihar's health digitization include the Government of Bihar's Department of Health, the State Health Society (SHS), and Bihar Swasthya Suraksha Samiti (BSSS). Private sector support comes from Rodic Consultants, the Managed Service Provider (MSP), while international partners like the Gates Foundation (GF) and Piramal Foundation (PF) provide crucial expertise and resources.

**Challenges and Risks:** Key challenges include inconsistent data entry, low adoption of digital tools by healthcare workers, and limited data utilization for service improvement. Tech literacy gaps, lack of trust in digital tools, and minimal managerial ownership further hinder progress. Additionally, issues like poor tool functionality, lack of structured stakeholder communication, and leadership instability pose risks to the project's success.

**Mitigation Strategies:** To address these risks, securing long-term commitments from leadership, establishing a dedicated IT Project Management Unit (PMU), and ensuring regular user engagement and training are essential. Strong cybersecurity measures will be implemented to safeguard data privacy, and open APIs will be adopted for better system interoperability. A governance structure with clear accountability will help ensure sustainability and innovation in the digital health system.

