

Small Hospital, Big Leap: A Clinician-Built Digital Hospital

Category: Digital Excellence

Focus Area: Implementation and effective use of Clinical Applications

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Problem Statement / Digital Challenge

Like most small and mid-size Indian hospitals, Kasturi Hospital ran on paper-based records, which quietly undermined patient safety. In a 45-bed hospital running OPD, IPD, ICU, NICU, dialysis and 24×7 casualty, a returning or trauma patient's history was slow or impossible to retrieve in an emergency; earlier investigations were repeated because old reports could not be found in time; and allergies and drug histories were scattered across files, raising medication-error risk. Continuity broke at every shift change, handover and consultant change. Paper also created an operational and medico-legal burden: years of files to store and protect, and risky retrieval of old records (for example, when a relative needed the death certificate of a patient who had died years earlier).

A digital solution was required to make the complete record available at the point of care, to protect continuity and safety independent of any one individual, and to meet the hospital's lifelong medico-legal and NABH record-retention responsibilities, affordably and at small-hospital scale.

Stakeholders most affected: treating doctors and consultants, nursing staff, front-desk/admin and billing teams, and above all patients, whose safety and continuity depended on information paper could not reliably deliver.

monitoring; completeness and legibility of medical records; discharge-summary timeliness; continuity and coordination of care; investigation turnaround; and documentation, traceability and audit readiness.

Digital Tool / Solution Implemented

A self-designed Electronic Medical Record, the hospital's electronic Indoor Case Paper, built and run entirely in-house on Google Workspace. It was designed primarily by Dr. Rakhi Agarwal (clinical architect; Chairman, IT Cell, IMA Maharashtra State) with in-house development by Suyash Agarwal, with no external HIS licensing.

One structured record per patient spans demographics, SOAP progress notes, RMO medication orders and investigations, with laboratory (LIS), pharmacy and radiology auto-linked into the same record. Key features: e-prescribing patient-safety alerts (look-alike/sound-alike and allergy mismatches); a quality dashboard tracking NABH indicators (e.g., adverse-drug-reaction rate); KPI and audit reporting generated from live data; and a workflow-automation suite (OT posting orders, TPA payment receipts, automated diagnostic-report delivery, admissions and reminders) delivered over WhatsApp/SMS. Governance includes trilingual digital consent, role-based access, audit trails and encrypted backup.

Digital Implementation Highlight

Rollout was phased and safety-first rather than a big-bang switch. The self-designed EMR went live in March 2022 and was extended in stages: adoption and training through 2022; laboratory, pharmacy and report interoperability across 2022-23; and the automation suite (OT posting, TPA, diagnostics, HR) through 2023-24. ABDM readiness (ABHA, HFR/HPR, FHIR) is the current phase, targeted within 3 to 6 months.

Staff trained and departments covered: treating doctors and consultants, nursing staff, and front-desk/admin/billing teams, across OPD, IPD, ICU, NICU, OT, laboratory, pharmacy and 24×7 casualty. Today, 100% of IPD admissions and about 50% of OPD encounters are captured digitally.

Internal champions: the initiative was clinician-led and owned at the top. Dr. Rakhi Agarwal (Medical Director; Chairman, IT Cell, IMA Maharashtra State) was the clinical architect; Dr. Rajeev Agarwal (Medical Director) co-led adoption and training; and Suyash Agarwal led in-house software development. Adoption held because design was clinician-led, training was short and bedside, and the Medical Directors used the system themselves, making digital the default, not an extra step. The directors have since taught 2,000+ doctors on hospital digitalisation.

Digital Impact

Operational improvements: prior records are retrievable at the point of care in 30 to 45 seconds; discharge summaries are issued the same day, most often within the same hour; in-house laboratory turnaround fell from over 2 hours to 45 to 60 minutes; and automations (OT posting, TPA payment receipts, diagnostic-report delivery, admissions) removed repetitive manual steps. Building in-house on Google Workspace avoided external HIS licensing cost. Today 100% of IPD admissions and about 50% of OPD encounters are digital.

Quality and safety improvements: no avoidable repeat investigations in the past year; an e-prescribing alert prevented a look-alike/sound-alike medication error (Hydralazine versus Hydroxyzine); care now continues seamlessly across consultant changes; and a quality dashboard tracks NABH indicators such as adverse-drug-reaction rate, so documentation and audit happen by design.

Recognitions: Dr. Rakhi Agarwal chairs the IT Cell of IMA Maharashtra State and is regularly invited as faculty on hospital digitalisation; both directors are recognised by NGOs for social service.

Supporting NABH: automatic, traceable, NABH-aligned documentation strengthens our NABH Entry-Level accreditation and prepares us for NABH Digital Health Standards certification.

Key Enablers / Innovations

Key enablers: clinician leadership was decisive. The EMR was designed by a practising surgeon (Dr. Rakhi Agarwal, Chairman, IT Cell, IMA Maharashtra State) and the Medical Directors used it themselves, so it fitted real clinical workflow. Building in-house on everyday, low-cost tools (Google Workspace, with WhatsApp/SMS for delivery) meant no heavy capital, no vendor lock-in, and rapid iteration. Phased, safety-first sequencing kept risk low.

Innovations: a self-designed EMR, a NABH-by-design quality dashboard, an automation suite (OT posting, TPA, diagnostic delivery), and trilingual digital consent, all built on tools a small hospital already has.

Challenges: driving adoption with no dedicated IT department, which we met through short bedside training and leadership by example; extending digital capture across all OPD (currently about 50%); and safeguarding data on accessible tools, addressed with role-based access, audit trails, encryption and consent. ABDM interoperability is being layered incrementally rather than as a rip-and-replace.

Key Learnings & Sustainability

Top learnings: (1) Start with continuity and safety, not certification; the safety wins come immediately and certification follows. (2) Clinician-led design is what makes

adoption stick; a system built by the people who use it becomes the default. (3) You do not need a corporate budget; accessible tools (Google Workspace, WhatsApp) plus in-house effort can run a real digital hospital.

What other hospitals should consider: digitise records first, then connect lab, pharmacy and radiology; automate the repetitive workflows; build governance (consent, access control, audit, retention) from day one; and layer ABDM readiness in stages rather than rip-and-replace.

Supporting visuals: a quality dashboard and de-identified EMR, automation and report screens are included in the attached case-study deck.

Links and documents: full write-up and visuals in the attached PowerPoint/PDF; hospital website www.kasturihospital.com.

Reference Sources (If Applicable)

1. NABH Digital Health Standards for Hospitals, 2nd Edition (2025), National Accreditation Board for Hospitals and Healthcare Providers (NABH), Quality Council of India.
2. NABH Accreditation Standards for Hospitals, NABH / Quality Council of India.
3. NABH APEX, National Compendium of Case Studies and Best Practices, NABH / QCI (nabh.co).

4. Ayushman Bharat Digital Mission (ABDM), National Health Authority, Government of India, including ABHA, Health Facility Registry (HFR), Healthcare Professionals Registry (HPR), the ABDM Health Data Management Policy, and the National Health Claims Exchange (NHCX).
5. HL7 FHIR (Fast Healthcare Interoperability Resources) interoperability standard.
6. Digital Personal Data Protection (DPDP) Act, 2023, Government of India.
7. Information Technology Act, 2000, Government of India.
8. National Medical Commission (NMC) / Medical Council of India (MCI) Regulations on professional conduct and maintenance of medical records.
9. Consumer Protection Act, 2019; Indian Evidence Act, 1872; Clinical Establishments (Registration and Regulation) Act, 2010.
10. Telemedicine Practice Guidelines, 2020, Ministry of Health and Family Welfare, Government of India.
11. Record-retention statutes referenced in the hospital policy, including the Biomedical Waste Management Rules, 2016, and the PCPNDT Act, 1994.
12. Hospital website and internal documentation: www.kasturihospital.com.

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