

OFFICIAL CASE STUDY SUBMISSION

**Pioneering Digital Health
Accreditation:
The Gold Standard**

NABH Digital Health Excellence Awards 2026

**★ 3rd Hospital in All Over India ★
To Hold the Gold Standard in Digital NABH
Accreditation**

**Implementing Institution:
Ujala Cygnus: Maharaja Aggarsain Hospital, Panipat**

Prepared & Submitted By:
Department of Hospital Operations Management
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1. Executive Summary

In the rapidly evolving landscape of Indian healthcare, the integration of digital technology is no longer a luxury but a fundamental necessity for ensuring patient safety, clinical excellence, and operational efficiency. This comprehensive document outlines the monumental digital transformation journey undertaken at Ujala Cygnus: Maharaja Aggarsain Hospital, Panipat.

Driven by an unwavering commitment to the National Accreditation Board for Hospitals and Healthcare Providers (NABH), our operations management team executed a complex, multi-phased digital health strategy that has set a new benchmark for clinical operations in the region. Through meticulous planning, robust change management, and the deployment of a state-of-the-art Hospital Information System (HIS), Ujala Cygnus: Maharaja Aggarsain Hospital has achieved a historic milestone.

We are incredibly proud to be recognized as the 3rd hospital in all over India to hold the gold standard in Digital NABH Accreditation. This prestigious recognition underscores our holistic approach to healthcare administration—where technology serves as an invisible yet omnipotent safety net for clinical practices.

This case study delves deep into the operational methodologies, the architectural framework of our digital interventions, and the measurable outcomes that strictly align with the NABH APEX framework. Furthermore, it outlines our strategic vision to scale this proven digital infrastructure to our robust pipeline of 10 upcoming network facilities, ensuring a standardized continuum of gold-standard care across multiple geographies.

2. Organizational Overview & Context

2.1 The Legacy of Ujala Cygnus: Maharaja Aggarsain Hospital

Situated in the industrial hub of Panipat, Ujala Cygnus: Maharaja Aggarsain Hospital has long served as a vital healthcare lifeline for a vast demographic, ranging from urban professionals to the rural populace of neighboring districts. Operating as a high-volume, multi-specialty tertiary care center, the hospital faces the unique challenge of balancing immense patient loads with the uncompromising demand for high-quality clinical outcomes.

Over the past decade, the hospital has expanded its footprint, adding complex surgical wings, advanced intensive care units (ICUs), and a highly active emergency response department. However, as the physical infrastructure grew, the administrative and clinical workflows—reliant heavily on traditional, paper-based systems—began to experience significant strain.

2.2 The Operations Management Imperative

From an operations management perspective, managing a high-footfall hospital requires extreme precision. Prior to our digital intervention, patient data was compartmentalized in physical silos. When a patient transitioned from the Outpatient Department (OPD) to Radiology, and subsequently to the Inpatient Department (IPD), their medical history had to be manually transferred, resulting in massive bottlenecks.

Our operational mandate was clear: To engineer a seamless, frictionless patient journey where data moves instantaneously, securely, and accurately alongside the patient. Achieving the gold standard in Digital NABH was chosen not merely as an accolade, but as the rigorous operational framework necessary to enforce structural discipline across all clinical and non-clinical departments.

3. Baseline Assessment & Root Cause Analysis

The first step toward Digital NABH accreditation involved a brutally honest appraisal of our existing workflows. Our operations management team utilized Lean Six Sigma methodologies, specifically the DMAIC framework (Define, Measure, Analyze, Improve, Control) and Failure Mode and Effects Analysis (FMEA), to identify critical failure points within the hospital's ecosystem.

Key Pre-Intervention Bottlenecks:

- **Information Latency:** Critical lab results took an average of 45 minutes to reach the physical ward after being processed. In an ICU setting, this 45-minute delay posed a direct risk to patient safety during critical interventions.
- **Transcription Vulnerabilities:** Handwritten doctor's orders were subject to misinterpretation by nursing and pharmacy staff. The baseline transcription error rate required constant operational vigilance, leading to redundant double-checking protocols that wasted valuable nursing hours.
- **Inventory Shrinkage & Expiry:** Without real-time tracking, the pharmacy and central stores struggled with stock-outs of critical drugs and the costly expiration of underutilized surgical consumables.
- **Cumbersome Audit Preparation:** Preparing for standard NABH surveillance audits required diverting senior nursing staff for weeks to manually compile physical records, trace incident reports, and calculate Quality Indicators (QIs).

These baseline metrics provided the mathematical and operational justification for a massive capital investment into a comprehensive, gold-standard digital health ecosystem.

4. Architecting the Digital Health Ecosystem

To meet the exacting criteria of the NABH APEX Digital Health standards, the hospital could not rely on piecemeal, fragmented software. We required an interoperable, unified architecture. The resulting ecosystem was built upon highly secure foundational pillars.

4.1 Advanced Electronic Medical Records (EMR)

The core of the transformation was the deployment of an intelligent EMR system. This system replaced all physical charts on the floors. It features structured data entry for clinical notes, allowing for instantaneous retrieval of patient histories. Crucially, the EMR is equipped with advanced Clinical Decision Support Systems (CDSS), which actively alert physicians to potential drug-allergy interactions, therapeutic duplications, or dosage abnormalities at the exact point of prescribing.

4.2 Seamless System Interoperability (PACS & LIS)

A major NABH APEX requirement is the seamless flow of diagnostic data. We integrated a state-of-the-art Picture Archiving and Communication System (PACS) for radiology and a bi-directional Laboratory Information System (LIS). When a scan or blood test is completed, the high-resolution images and precise numerical data are instantly pushed directly into the patient's EMR. Doctors can view a CT scan on their secure ward tablets within seconds of the scan's completion.

4.3 Real-Time Bed Management

To address the operational bottleneck of artificial bed shortages, a visual, real-time bed management dashboard was deployed. This system uses color-coded status indicators (Dirty, Cleaning in Progress, Ready, Occupied) linked directly to

the housekeeping department's mobile application, dropping turnaround times drastically.

5. The Change Management Protocol

The most sophisticated software is useless if the clinical staff refuses to adopt it. Transitioning a hospital to a 100% digital environment is primarily a human challenge, not a technological one. Recognizing this, the operations management team designed a bespoke Change Management Protocol.

Phase 1: Cultivating Clinical Champions

Instead of a top-down mandate, we identified 'Digital Champions' within every department—respected senior nurses, dynamic junior residents, and tech-friendly senior consultants. These individuals were given early access to the systems, allowing them to provide feedback on the user interface. Once they bought into the system's benefits, they became the most effective advocates among their peers.

Phase 2: The Sandbox Environment

To alleviate the fear of making catastrophic errors during the learning curve, a replica of the HIS was set up on a secure server. Staff were required to complete a mandated number of hours processing 'dummy' patients through this sandbox environment. This built muscle memory for digital workflows without compromising actual patient safety.

Phase 3: Phased Rollout & Shadowing

The 'Go-Live' was not a single event but a carefully orchestrated staggered rollout. OPD went live first, followed by diagnostics, then general wards, and finally the high-stress environment of the ICU. During the first two weeks of each phase, a 'shadowing' protocol was enforced where digital entries were double-checked against a temporary paper backup until absolute zero data-loss was verified.

6. Alignment with NABH APEX Standards

Achieving the gold standard status as the 3rd Digital NABH hospital in India required meticulous mapping of our technological capabilities against the stringent NABH APEX framework.

- **Data Security & Patient Privacy:** Implementation of End-to-End Encryption (AES-256), robust hardware firewalls, and stringent Role-Based Access Control (RBAC). Only clinicians actively assigned to a patient's care team can access their sensitive EMR data.
- **Patient Empowerment:** Launch of a secure mobile Patient Portal, allowing patients to book tele-consultations, access lab reports digitally, view billing transparency, and securely download discharge summaries.
- **Medication Safety:** 100% adoption of Computerized Provider Order Entry (CPOE) linked directly with the central pharmacy inventory, completely eliminating handwriting errors and phone-based clarifications.
- **Clinical Continuity:** Zero data loss during inter-departmental transfers via digital handoff protocols. The receiving team reviews the digital chart before the patient arrives physically.

7. Quality Management & Cyber Security Integration

To shift from retrospective auditing to proactive quality control, a digital QMS was deeply embedded into the daily workflow. The system automatically scrapes data from the HIS to populate real-time dashboards for all mandated NABH Quality Indicators (QIs), such as Door-to-Needle time for Myocardial Infarctions, Surgical Site Infection (SSI) rates, and Nursing reassessment compliance.

On the cybersecurity front, regular penetration testing and vulnerability scanning are conducted. We have established an automated fail-over server located in a

separate geographic zone to guarantee 99.99% uptime, ensuring that patient care is never disrupted due to a localized hardware failure.

8. Quantifiable Clinical & Operational Impact

The true vindication of our digital strategy lies in the transformative metrics achieved within eight months of full deployment. These numbers were rigorously audited during the Digital NABH assessment process, solidifying our gold standard status.

Performance Indicator	Pre-Digital Baseline	Post-Digital Achievement	Impact & Variance
Pharmacy Dispensing Errors (per 1000)	5.4	0.2	96% Reduction
Discharge Processing TAT	210 Minutes	65 Minutes	69% Improvement
Critical Lab Value Notification	45 Minutes	< 2 Minutes	Instantaneous
NABH Audit Prep Man-Hours	180 Hours / Month	12 Hours / Month	93% Time Saved
Patient Satisfaction (Out of 10)	7.4	9.4	27% Increase

Financially, the hospital observed a 14.5% reduction in consumable wastage due to digital inventory tracking (Kanban system integration), and a massive 85% drop in paper and printing costs, contributing directly to a vastly improved operational EBITDA margin.

9. Network Expansion: The Road to 10 Pipeline Facilities

The historic achievement at Ujala Cygnus: Maharaja Aggarsain Hospital, Panipat, is not an isolated victory; it is the proving ground for a much larger operational vision. As operations managers, our ultimate goal is the seamless standardization of clinical and digital care across all affiliated facilities.

Currently, the exact digital architecture, cybersecurity frameworks, and operational protocols validated in Panipat are being actively deployed across our robust pipeline of 10 upcoming and existing network hospitals. We are ensuring that the gold standard achieved here is replicated perfectly across the following facilities:

- Ujala Cygnus Kashmir Superspeciality Hospital, Srinagar
- Ujala Hospital Unit I, Kashipur
- Cygnus Super Speciality Hospital, Rewari
- Ujala Cygnus Rainbow Hospital, Agra
- Sanjiv Bansal Cygnus Hospital, Karnal
- Amritdhara – My hospital, Karnal
- Ujala Cygnus Central Hospital, Haldwani
- Ujala Cygnus Brightstar Hospital, Moradabad
- Cygnus Sonia Hospital, Nangloi
- Cygnus Super Speciality Hospital, Kurukshetra

By establishing Ujala Cygnus: Maharaja Aggarsain Hospital as the definitive 'Center of Excellence' for digital health, we have created a scalable, plug-and-play operational model. This ensures that every one of these 10 hospitals entering or upgrading within our network will operate at the pinnacle of digital efficiency and gold-standard NABH compliance from day one.

10. Future Scope, Scalability & Conclusion

10.1 Future Scope: AI and IoT

While achieving the 3rd Digital NABH gold standard accreditation in India is a monumental milestone, the nature of digital health is inherently dynamic. We are currently piloting AI-driven diagnostic tools integrated directly into our PACS. These algorithms are designed to provide 'second opinions' on complex radiology images, specifically highlighting early markers for oncological conditions.

Furthermore, the next phase of hardware integration involves the Internet of Things (IoT). We plan to deploy smart beds and continuous wearable vitals monitors in our step-down ICUs. This data will stream continuously into the central EMR, utilizing predictive analytics to alert the Rapid Response Team to patient deterioration hours before clinical symptoms manifest.

10.2 Conclusion

The journey of Ujala Cygnus: Maharaja Aggarsain Hospital, Panipat, to becoming the 3rd hospital in all over India to hold the gold standard in Digital NABH Accreditation is a testament to visionary leadership, disciplined operations management, and an unyielding commitment to patient safety.

By systematically dismantling archaic, paper-based workflows and replacing them with a highly integrated, intelligent digital ecosystem, we have fundamentally redefined the standard of care in the region. The success in Panipat now serves as the operational gold standard for our ambitious pipeline of 10 hospital projects.

This case study proves that with the right strategic approach, mid-tier and regional hospitals can not only meet but exceed the digital standards of metropolitan corporate hospitals. We proudly submit this extensive operational record for the NABH Digital Health Excellence Awards 2026 as definitive proof

of our dedication to building a future-ready, patient-centric healthcare network across India.

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