

# DIMS “ Drug Information Management System

Category: Digital Excellence

Focus Area: Implementation and effective use of Clinical Applications

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## Problem Statement / Digital Challenge

Before implementing the Drug Information Management System (DIMS), clinicians faced significant challenges in accessing accurate, up-to-date medication information during the prescribing process. Drug formularies, inventory status, therapeutic alternatives, and clinical guidelines were maintained across multiple disconnected sources, including printed manuals, spreadsheets, and pharmacy communications. This fragmented approach resulted in frequent non-formulary prescriptions, treatment delays, increased medication costs, and avoidable prescribing errors.

A digital solution was essential to integrate medication intelligence directly into the Electronic Medical Record (EMR), enabling clinicians to make evidence-based prescribing decisions at the point of care. The objective was to eliminate manual communication between physicians and pharmacists, improve formulary compliance, provide real-time inventory visibility, support generic substitution, and embed clinical decision support into routine workflows.

The primary stakeholders affected included physicians, who required instant access to reliable medication information; pharmacists, who spent considerable time clarifying prescriptions and recommending alternatives; nursing staff, who experienced delays in medication administration due to prescription modifications;

hospital administrators responsible for controlling medication expenditure and

inventory; and ultimately patients, whose treatment could be delayed by unavailable or inappropriate medications.

The initiative directly supported several NABH quality indicators, including medication safety, rational drug use, formulary compliance, reduction in medication errors, patient safety, antimicrobial stewardship, pharmacy operational efficiency, inventory optimization, cost-effective care, clinical governance, and standardized evidence-based prescribing practices. These quality improvements aligned with the hospital's strategic objective of delivering safer, more efficient, and digitally enabled healthcare services.

## **Digital Tool / Solution Implemented**

The hospital developed and implemented DIMS (Drug Information Management System) as an in-house digital solution, seamlessly integrated with the Electronic Medical Record (EMR). DIMS functions as a centralized medication intelligence platform that delivers real-time drug information and clinical decision support directly within the physician's prescribing workflow, eliminating the need to consult multiple systems or contact the pharmacy.

Key features include real-time formulary status, generic and therapeutic alternative recommendations, live pharmacy inventory visibility, drug monographs, dosage guidance, drug–drug interaction checks, contraindication alerts, pregnancy and lactation information, adverse effects, administration guidelines, and institutional treatment protocols. The system also supports a fully digital non-formulary approval workflow, routing requests electronically to the Clinical Pharmacist and Pharmacy & Therapeutics Committee. In addition, DIMS provides comprehensive dashboards

and analytics for formulary compliance, prescribing trends, generic substitution, antimicrobial stewardship, medication expenditure, inventory optimization, physician prescribing patterns, and pharmacy KPIs, enabling data-driven clinical governance and continuous quality improvement.

## Digital Implementation Highlight

The implementation of the Drug Information Management System (DIMS) was executed in a phased approach over approximately 4–6 months, covering solution design, drug database standardization, EMR integration, pilot testing, user acceptance testing (UAT), staff training, and hospital-wide deployment. The phased rollout ensured minimal disruption to clinical operations while allowing continuous feedback and refinement before full-scale implementation. The solution was implemented across all major clinical departments, including Outpatient (OP), Inpatient (IP), Emergency, Intensive Care Units (ICUs), Operation Theatres, Pharmacy, Nursing Services, and Clinical Administration. More than 300 healthcare professionals, including physicians, pharmacists, nurses, and pharmacy support staff, received structured training through classroom sessions, hands-on demonstrations, workflow simulations, and post-go-live support to ensure successful adoption. A multidisciplinary implementation team led the initiative, comprising the Hospital Information Technology (IT) team, Clinical Pharmacy Department, Pharmacy & Therapeutics (P&T) Committee, Medical Informatics, Nursing Leadership, and clinician champions from key specialties. Executive sponsorship from hospital management and active participation from departmental "Digital Champions" accelerated user adoption and change management. Regular review meetings, feedback mechanisms, and continuous monitoring enabled rapid issue

resolution, optimization of clinical workflows, and sustained improvement in medication safety, formulary compliance, and prescribing efficiency across the organization.

## Digital Impact

The implementation of the Drug Information Management System (DIMS) delivered significant improvements in operational efficiency, medication safety, and clinical governance. By integrating real-time formulary information, inventory visibility, and clinical decision support within the EMR, physicians were able to prescribe approved and available medications during the first attempt, reducing prescription clarifications and accelerating medication dispensing. Automated generic substitution contributed to a 15–20% reduction in medication expenditure, while improved inventory utilization minimized stock-outs and drug expiries. Pharmacy staff spent less time on manual interventions and more time supporting patient care and clinical pharmacy services. From a quality and patient safety perspective, DIMS significantly improved formulary compliance to over 95%, reduced prescribing errors, drug–drug interactions, duplicate therapies, dosing errors, and adverse drug events through embedded clinical decision support. The system also strengthened antimicrobial stewardship, standardized evidence-based prescribing, and provided comprehensive dashboards for audit readiness, prescribing analytics, formulary governance, and pharmacy performance monitoring. These capabilities enhanced documentation quality and enabled data-driven continuous quality improvement. The solution strongly supports NABH Digital Health requirements by promoting medication safety, clinical governance, digital documentation, traceable workflows, evidence-based prescribing, quality indicator monitoring, and continuous

performance improvement. Although the project has not yet received external awards, it has been submitted

## **Key Enablers / Innovations**

The implementation of DIMS demonstrated three key learnings. First, embedding clinical decision support directly within the EMR significantly improves clinician adoption compared to standalone applications. Second, sustained success depends on multidisciplinary collaboration among clinicians, pharmacists, nursing, and IT teams to ensure accurate, up-to-date medication information and continuous system refinement. Third, digital transformation is most effective when supported by strong governance, user training, and regular monitoring of quality indicators.

Hospitals planning similar initiatives should begin with a standardized formulary and medication master database, establish clear clinical governance through the Pharmacy & Therapeutics (P&T) Committee, engage end users early in the design process, and adopt a phased implementation with continuous feedback and optimization. Integration with the EMR and pharmacy inventory systems is essential to maximize patient safety and operational efficiency.

To ensure sustainability, DIMS is continuously updated with new medications, clinical guidelines, and formulary changes, while dashboards monitor prescribing patterns, formulary compliance, medication safety, antimicrobial stewardship, and pharmacy KPIs to drive ongoing quality improvement and support NABH Digital Health standards.

## Key Learnings & Sustainability

The implementation of the Drug Information Management System (DIMS) reinforced three key learnings. First, successful digital transformation requires strong clinical leadership and active collaboration between clinicians, pharmacists, nursing, and IT teams to ensure user acceptance and sustained adoption. Second, embedding clinical decision support directly within the EMR significantly improves medication safety, prescribing efficiency, and adherence to hospital formularies compared to standalone systems. Third, continuous monitoring of quality indicators, user feedback, and periodic updates to drug databases are essential for maintaining system relevance and effectiveness. To ensure long-term sustainability, DIMS is supported by a structured governance framework led by the Pharmacy & Therapeutics (P&T) Committee, with regular reviews of formularies, treatment guidelines, and medication safety alerts. Interactive dashboards monitor formulary compliance, prescribing trends, medication costs, antimicrobial stewardship, and pharmacy KPIs, enabling continuous quality improvement. Hospitals planning similar initiatives should adopt a phased implementation approach, invest in comprehensive user training, standardize medication

## Reference Sources (If Applicable)

The DIMS (Drug Information Management System) case study has been developed using the hospital's internal implementation documents, clinical workflows,

pharmacy policies, and Electronic Medical Record (EMR) integration specifications. The solution was designed in accordance with internationally accepted medication safety principles, national accreditation standards, and evidence-based clinical practices.

The following references guided the design, implementation, and evaluation of the solution:

National Accreditation Board for Hospitals & Healthcare Providers (NABH) – “Hospital Accreditation Standards (6th Edition), including Digital Health, Medication Management and Use (MMU), Information Management System (IMS), and Continuous Quality Improvement (CQI) standards.

World Health Organization (WHO) – “Medication Without Harm: WHO Global Patient Safety Challenge on Medication Safety, providing guidance on reducing medication-related harm through safer prescribing and medication management.

Institute for Safe Medication Practices (ISMP) – “Best practices for medication safety, high-alert medications, Look-Alike Sound-Alike (LASA) medicines, and safe prescribing recommendations.

Hospital-approved Drug Formulary, Pharmacy & Therapeutics (P&T) Committee policies, Medication Safety Manual, Antimicrobial Stewardship Program guidelines, and Standard Operating Procedures (SOPs).

Internal DIMS project documentation, including Functional Requirement Specifications (FRS), EMR integration design documents, user training materials, implementation plans, pharmacy dashboards, prescribing analytics, formulary compliance reports, and medication safety performance indicators.

The outcomes presented in this case study are based on hospital-generated data, EMR reports, pharmacy analytics, and quality improvement dashboards collected as part of routine operational monitoring and clinical governance.