

# Enhancing Patient Care & Operational Efficiency with Dietary Application

Category: Digital Excellence

Focus Area: Implementation and effective use of Clinical Applications

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## Problem Statement / Digital Challenge

Before implementing the Dietary App, inpatient dietary management at PSG Hospitals relied on paper-based documentation and telephone communication between nursing units, dietitians, and kitchen staff. This manual process led to delays in communicating patient admissions, transfers, discharges, and physician-prescribed diet changes. Nurses and dietitians spent considerable time on administrative coordination, reducing the time available for direct patient care. The lack of real-time visibility increased the risk of incorrect diet delivery, delayed therapeutic nutrition, communication errors, food wastage, and inefficient resource utilization.

A digital solution was required to automate and standardize dietary workflows, integrate dietary services with the Hospital Information System (HIS)/Electronic Medical Record (EMR), and provide real-time communication among clinical and dietary teams. The objective was to ensure the right therapeutic diet reached the right patient at the right time, while reducing manual errors, improving operational efficiency, and enabling data-driven monitoring of dietary services.

The primary stakeholders impacted were patients, who benefited from timely, safe, and personalized therapeutic diets; nursing staff, who experienced reduced documentation and coordination workload; and the dietary department, which achieved streamlined meal planning, improved communication, and reduced food

wastage. Hospital administration also benefited through enhanced operational visibility, productivity monitoring, and better resource utilization.

The initiative strengthened key NABH quality aspects, including Patient Safety, Patient-Centred Care, Clinical Effectiveness, Timeliness of Care, Communication and Care Coordination, Continuity of Care, Operational Efficiency, Resource Utilization, and Continuous Quality Improvement through an integrated, paperless, and data-driven dietary management system.

## **Digital Tool / Solution Implemented**

The Dietary App is an in-house developed, web-based application integrated with the Hospital Information System (HIS)/Electronic Medical Record (EMR) to digitize and automate the complete inpatient dietary management process. It enables real-time electronic diet orders from nurses and physicians, while dietitians create personalized meal plans based on patients' clinical conditions, allergies, and nutritional requirements. The system instantly communicates updated diet orders to the kitchen, ensuring timely and accurate meal preparation and delivery.

Key features include real-time HIS/EMR integration, automated meal planning, patient-wise diet summaries, meal production reports, inventory forecasting, meal tracking, and patient safety checks for therapeutic diets and allergies. Interactive dashboards and KPI reports monitor meal turnaround time, staff productivity, food wastage, and operational performance. The paperless workflow improves coordination among nursing, dietitians, and kitchen staff, reduces manual errors, enhances patient safety, optimizes resource utilization, and supports continuous

quality improvement in line with NABH digital health standards.

## Digital Implementation Highlight

The Dietary App was implemented over six months using a structured, phased approach to ensure seamless adoption and minimal disruption to clinical services. The project commenced with workflow analysis, stakeholder consultations, and requirement gathering involving the Dietary Department, Nursing Services, Information Technology (IT), Kitchen Services, and Hospital Administration. This was followed by application development, HIS/EMR integration, configuration, testing, and pilot implementation in selected inpatient wards before hospital-wide deployment.

More than 500 users, including dietitians, nursing staff, physicians, kitchen personnel, dietary service assistants, and IT support staff, were trained through role-based hands-on sessions, user manuals, and on-site support. The solution was rolled out across all inpatient departments, ensuring standardized dietary management throughout the hospital.

The initiative was led by a multidisciplinary team comprising the Chief Information Officer (CIO), Clinical Nutrition & Dietetics Department, Nursing Services, Hospital Information System (HIS) team, Kitchen Services, Quality Department, and hospital leadership. Departmental champions played a key role in user training, workflow validation, change management, and continuous feedback.

Post-implementation monitoring, performance reviews, and user feedback enabled

continuous optimization of the application, resulting in high user adoption, improved operational efficiency, enhanced patient safety, and sustainable digital transformation aligned with NABH Digital Health standards.

## Digital Impact

The Dietary App transformed inpatient dietary services by replacing manual, paper-based workflows with an integrated digital platform linked to the HIS/EMR. Real-time electronic diet orders, automated meal planning, and seamless communication between nursing, dietitians, and kitchen staff significantly improved operational efficiency. The solution reduced administrative workload, improved staff productivity by 30%, shortened diet response time by 50%, minimized food wastage through accurate meal forecasting, and optimized inventory management.

The application enhanced patient safety by ensuring timely delivery of the correct therapeutic diet based on physician orders, allergies, and dietary restrictions. Manual documentation errors were reduced to 2-3%, while complete digital traceability improved audit readiness and compliance with clinical nutrition protocols. Nursing and patient satisfaction improved by approximately 70% due to faster service delivery and better coordination.

The Dietary App has been submitted as a best practice for the NABH Digital Health Excellence Awards. It supports NABH Digital Health standards by enabling paperless workflows, HIS/EMR interoperability, patient safety, digital documentation, performance monitoring, and continuous quality improvement. The initiative demonstrates how digital innovation can enhance patient-centred care while

improving operational efficiency, governance, and quality of healthcare delivery.

## **Key Enablers / Innovations**

The successful implementation of the Dietary App was driven by strong leadership support, multidisciplinary collaboration, and seamless integration with the Hospital Information System (HIS)/EMR. Active participation from the Information Technology, Nursing, Clinical Nutrition & Dietetics, Kitchen Services, Quality, and Hospital Administration teams ensured that the solution was aligned with clinical and operational workflows. A phased rollout, comprehensive user training, continuous stakeholder engagement, and post-implementation support facilitated smooth adoption across all inpatient departments.

The key innovation is the end-to-end digitization of the dietary workflow, enabling real-time electronic diet orders, personalized therapeutic meal planning, automated meal production reports, inventory forecasting, and digital tracking of meal delivery. Integration with the HIS/EMR ensures instant updates for patient admissions, transfers, discharges, allergies, and diet modifications, improving patient safety and operational efficiency.

The major challenges included transitioning from paper-based processes, managing change among users, standardizing diet protocols, and ensuring data accuracy. These challenges were successfully addressed through workflow redesign, pilot implementation, role-based training, departmental champions, and continuous monitoring and user feedback.

## Key Learnings & Sustainability

The implementation demonstrated three key learnings: (1) successful digital transformation requires strong clinical leadership, multidisciplinary collaboration, and active user engagement; (2) seamless integration with the HIS/EMR is essential to ensure real-time, accurate dietary information and improve patient safety; and (3) continuous training, monitoring, and user feedback are critical for sustained adoption and workflow improvement.

Hospitals adopting similar solutions should first standardize dietary workflows, establish multidisciplinary governance involving clinicians, nurses, dietitians, IT, and quality teams, and implement the solution through a phased rollout with comprehensive user training and change management.

The Dietary App is sustainable as it is fully integrated into routine hospital operations and supported by real-time dashboards that monitor meal turnaround time, productivity, food wastage, compliance with therapeutic diets, and operational performance. Supporting evidence includes workflow diagrams, system screenshots, dashboards, SOPs, training records, implementation reports, and before-and-after performance indicators, which demonstrate measurable improvements and support continuous quality improvement.

## Reference Sources (If Applicable)

The case study is based on the implementation and outcomes of the in-house developed Dietary App at PSG Hospitals. The following documents and standards were referred to during the design, implementation, and evaluation of the solution:

NABH Accreditation Standards for Hospitals (5th Edition) – National Accreditation Board for Hospitals & Healthcare Providers (NABH), Quality Council of India.

NABH Digital Health Excellence Awards 2026 – Submission Guidelines and Evaluation Framework.

Hospital Information System (HIS)/Electronic Medical Record (EMR) workflow documents and integration specifications.

PSG Hospitals Dietary Department Standard Operating Procedures (SOPs) and Clinical Nutrition protocols.

Dietary App Functional Requirement Specification (FRS), System Design Documents, User Manuals, and Training Materials.

Implementation documents, including workflow maps, User Acceptance Testing (UAT) reports, change management records, and project documentation.

Hospital quality indicators, audit reports, and operational dashboards measuring diet turnaround time, patient satisfaction, staff productivity, food wastage, and manual error reduction before and after implementation.

Internal Quality Improvement Committee reports and performance review meetings that monitored the effectiveness and sustainability of the solution.

No external commercial frameworks or research publications were used. The results presented are derived from PSG Hospitals' operational data, internal quality monitoring, and implementation experience.