

Synopsis

1. TITLE

QR-Based Digital Transformation in Hospital Linen Management: A Study on Improving Uniform Distribution Efficiency at CK Birla Hospital, Jaipur

2. INTRODUCTION

Efficient linen management is a crucial yet often overlooked component in hospital operations. At CK Birla Hospital, a 230-bed multi-specialty facility in Jaipur, timely and accurate uniform distribution is vital for maintaining staff hygiene, patient satisfaction, and operational excellence. Traditionally, this process relied on manual logs and verbal communication, leading to frequent delays, size mismatches, and misplacement of uniforms.

To address these inefficiencies, a QR-based linen management solution was introduced, allowing digital tracking of uniform issuance and returns. This study evaluates how QR-enabled tools such as digital uniform distribution forms and shift-based room cleaning checklists can improve turnaround time (TAT), enhance traceability, and promote accountability among hospital staff.

3. RESEARCH QUESTION

Can a QR code-based uniform distribution system reduce turnaround time and improve accountability in the linen department of CK Birla Hospital?

4. OBJECTIVES

To assess the average turnaround time (TAT) for uniform distribution before and after QR code implementation.

To identify common bottlenecks and errors in manual uniform distribution.

To evaluate the impact of QR-based tools on staff satisfaction and service efficiency.

To propose a scalable model for QR-based linen management across other hospital support departments.

5. HYPOTHESIS

Implementing a QR code-based linen distribution system significantly reduces turnaround time and

improves accuracy and accountability compared to manual processes.

6. MATERIAL AND METHODS

Study Design: Descriptive observational study with a before-and-after analysis.

Setting: CK Birla Hospital (RBH), Jaipur Linen and Laundry Department.

Study Population: Hospital staff involved in uniform issuance and return processes.

Inclusion Criteria: Employees using the uniform distribution system.

Exclusion Criteria: Temporary staff or departments not included in QR implementation.

Study Tools: Google Forms, QR scanner-enabled devices, audit dashboard.

Duration of Study: 4 weeks.

Sample Size: 388 transactions recorded.

Sampling Technique: Convenience sampling.

Data Collection: QR scans before uniform issuance/returns; timestamps, size, and department details recorded.

Operational Definitions: TAT (uniform request to fulfillment time), QR-Based System (QR-enabled digital tool usage).

7. DATA ANALYSIS PLAN

Software: Microsoft Excel, Google Sheets. Descriptive metrics, before-and-after comparison. Staff feedback via Likert scale.

8. ETHICAL CONSIDERATIONS

Informed consent obtained. No personal data stored. Data security ensured. Results used only in aggregate form.

9. IMPLICATIONS OF RESEARCH

The QR-based system is low-cost, improves TAT, enhances traceability, and reduces disputes. It can be scaled to dietary and housekeeping services.

10. REFERENCES

1. CK Birla Hospital. Departmental Overview. Jaipur: CK Birla Group; 2024.
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Birla Hospital; 2025.

3. WHO. Guidelines on core components of infection prevention and control programmes. Geneva: WHO; 2016.

4. MoHFW. Indian Public Health Standards (IPHS). New Delhi: Ministry of Health; 2020.

QR Code for Uniform Distribution Form

