SUMMER INTERNSHIP PROGRAM

at

CK BIRLA HOSPITAL | RBH, JAIPUR

From 12/05/2025 to 21/07/2027

A REPORT BY

YAMINI TIWARI

Master of Business Administration

(Health and Hospital Management)

2115

2024-26

under the Mentorship of

S. P. CHATTOPADHYAY

(Assistant Professor)

IIHMR UNIVERSITY

CK Birla Hospitals
RUKMANI BIRLA HOSPITAL

RBH/2025/Jul/HRD/6863

Date: 21 Jul 2025

TO WHOM SO EVER IT MAY CONCERN

This is to certify that **Yamini Tiwari** has successfully completed her internship in the **Medical Services** Department from 12 May 2025 to 21 Jul 2025.

Her behavior was respectful, punctual, and in alignment with hospital policies. She showed enthusiasm to learn, adapt, and communicate effectively with staff members, while maintaining a professional attitude throughout the program.

We commend her dedication and discipline during the tenure and believe she has gained valuable exposure to the work culture and expectations of a healthcare environment. We wish a continued success in all future academic and professional pursuits.

For **CK Birla Hospital – RBH**

Ravi Kumar
Unit Head | Human Resources

IIHMR UNIVERSITY

IIHMR University Faculty Mentor Approval

This is to certify that **Dr. Yamini Tiwari** of the academic year **2024–2026** of **Institute of Health Management Research** has prepared a poster with respect to her summer internship held during **12th May to 21st July 2025**.

She has carried out work as per the guidelines. Her poster is approved for presentation.

Date: 29/7/2025

S. P. CHATTOPADHYAY

(ASSISTANT PROFESSOR)

OPTIMIZING LABORATORY TURNAROUND TIME & ENHANCING HIS USABILITY

Presented by- Dr. Yamini Tiwari
MBA HM 29, Roll No. 2115

Organization Mentor: Dr. Nimi Thadeshwar
University Mentor: S.P. Chattopadhyay

ORGANIZATION HISTORY

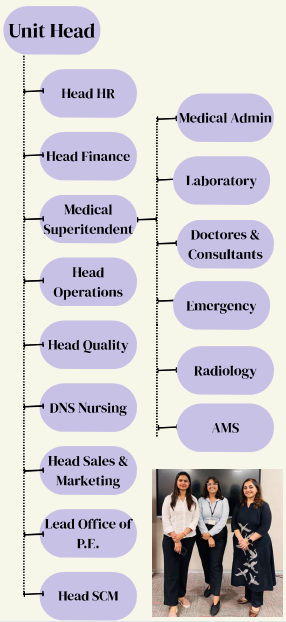
RBH WAS KOLKATA'S FIRST PRIVATE HOSPITAL FOUNDED IN 1969, BY B M BIRLA AND Y B CHAVAN. OVER THE DECADES, IT EXPANDED ITS SPECIALTIES, INTRODUCED CUTTING-EDGE TECHNOLOGY, AND ESTABLISHED A RENOWNED CARDIAC CENTRE. BY THE YEAR 2016, RBH LAUNCHED A PROGRESSIVE HEALTHCARE FACILITY IN JAIPUR. THE HOSPITAL'S JOURNEY IS MARKED BY INNOVATION, QUALITY CARE, AND A COMMITMENT TO SERVING ALL SECTIONS OF SOCIETY.
THE CK BIRLA HOSPITAL | RBH, JAIPUR IS A 230-BEDDED MULTI-SPECIALTY HOSPITAL OFFERING COMPREHENSIVE INPATIENT AND OUTPATIENT SERVICES, GROUNDED IN CLINICAL EXCELLENCE, ETHICAL PRACTICES, AND A PATIENT-CENTRIC APPROACH. THE FACILITY ENSURES THE WELL-BEING OF PATIENTS AND THEIR FAMILIES THROUGH A DEDICATED TEAM OF EFFICIENT DOCTORS, CARING NURSES, ORGANISED HOUSEKEEPING, AND EFFECTIVE BACK-OFFICE MANAGEMENT.

VISION AND MISSION

VISION:
TO PROVIDE BEST OF PATIENT SERVICE & CLINICAL EXCELLENCE.

MISSION:
TO CREATE CLINICAL CENTRES OF EXCELLENCE ON A STRONG BACKBONE OF RESEARCH, ACADEMICS AND EVIDENCE-BASED MEDICINE FOR BEST CLINICAL AND PATIENT OUTCOME.

ORGANIZATION STRUCTURE



OBJECTIVES OF PROJECTS

TIME MOTION STUDY IN LAB:
- TO ANALYSE THE END-TO-END TAT OF SAMPLES, FROM BILLING TO FONAL REPORT ACCROSS OPD, IPD & ER.
- TO IDENTIFY GAPS AND TIME DELAYS.
- TO PINPOINT OUTLIERS AT EACH STEP OF SAMPLE PROCESSING.
- TO PERFORM RCA FOR DELAYS DUE TO STAFFING, PROTOCOL, TECHNICAL OR DATA ENTRY ISSUES.
- SUGGEST PROCESS IMPROVEMENTS TO REDUCE TAT AND IMPROVE PT. SATISFACTION AND DIAGNOSTIC EFFICIENCY.

CHALLENGES OF HIS (SURVEY):
- UNDERSTAND FREQUENCY AND EXTENT OF HIS USAGE AMONG JR'S AND SR'S.
- TO IDENTIFY COMMON TECHNICAL GITCHES AND BARRIERS TO EFFECTIVE HIS UTILIZATION.
- TO PROPOSE IMPROVEMENTS IN HIS FUNCTIONALITY, INTERFACE DESIGN AND STAFF TRAINING TO ENHANCE SYSTEM ADOPTION AND OPERATIONAL EFFICIENCY.

THEORETICAL VS PRACTICAL KNOWLEDGE

Learnt about the codes and zoning of hospital theoretically.	Saw in real time use of codes and analysed zoning principles applied in hospital practically.
Theoretical knowledge helped in understanding fundamental concepts and principles.	Practical exposure helped in real time application of theoretical knowledge.
Theoretical Knowledge enhanced the analytical skills and understanding.	Practical exposure developed skills such as problem solving, decision making, teamwork, adaptability and communication skills.

METHODOLOGY

TIME MOTION STUDY IN LAB:
- STUDY DESIGN- OBSERVATIONAL TIME MOTION ANALYSIS.
- SAMPLE SIZE- 1010
- SAMPLE DEPARTMENTS- OPD, IPD, ER
- PROCESS MAPPING-

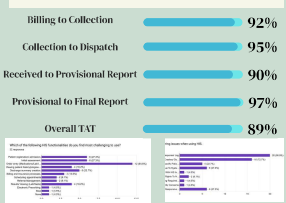
BILLING TO COLLECTION (25 MINS)
COLLECTION TO DISPATCH (25 MINS)
DISPATCH TO RECEIVING (10 MINS)
RECEIVED TO PROVISIONAL REPORT (1.5 HRS)
PROVISIONAL TO FINAL REPORT (30 MINS)
BILLING TO FINAL REPORT- OVERALL TAT (3 HRS)
- METHODOLOGY ANALYSIS: COMPARED ACTUAL TIME TAKEN AT EACH STEP AGAINST BENCHMARKS AND IDENTIFIED OUTLIERS AND PROCESS GAPS BY:

○QUANTIFYING FREQUENCY, PATTERN, AND TYPE OF DELAY.
○COLLATING HIS VS MANUAL ENTRY DISCREPANCIES.

CHALLENGES OF HIS (SURVEY):
- DATA COLLECTION TOOL: GOOGLE FORM SURVEY.
- TARGET GROUP: JR'S, SR'S, AND OTHER STAFF
- TOTAL RESPONSES: 22
- KEY SECTIONS OF SURVEY:

○HIS USAGE FREQUENCY.
○USABILITY AND TRAINING FEEDBACK.
○TECHNICAL ISSUES AND CHALLENGES.
○SUGGESTIONS FOR IMPROVEMENT.

KEY FINDINGS



CHALLENGES

TIME MOTION STUDY IN LAB:
- DELAY IN SAMPLE PROCESSING DUE TO BATCHING PARTICULARLY BIOCHEMISTRY TESTS.
- PATIENT DIVERSIONS CAUSED SCHEDULING DISPERSIONS.
- PROTOCOL-DRIVEN SAMPLES (GLUCOSE PP) ARE UNAVOIDABLY LATE.
- MULTIPLE CHANNELS (MANUAL VS HIS) LEAD TO LOGGING INCONSISTENCIES.
- OCCASIONAL STAFF SHORTAGES/LUNCH BREAKS DELAY TEST LONGING OR RESULT VALIDATION.
- URINE SAMPLES ARE DELAYED DUE TO TRANSPORTATION FROM PATIENTS TO COLLECTION ROOM.

CHALLENGES OF HIS (SURVEY):
- SYSTEM SLOWNESS AND TECHNICAL GLITCHES HAMPERED EFFICIENT WORKFLOW.
- MANY STAFF WERE UNCLEAR ABOUT THE ESCALATION ROUTES FOR HIS-RELATED ISSUES.
- TRAINING WAS INCONSISTENT (MOSTLY FOR NEW STAFF <1 YEAR IN WORKING)
- FREQUENT COMPLAINTS ABOUT UNFRIENDLY USER INTERFACE AND REPETITIVE DATA ENTRY.

SUGGESTIONS

TIME MOTION STUDY IN LAB:
- DEFINE PRIORITY ESCALATION PROCESS FOR URGENT/STAT REQUESTS.
- FLAG PROTOCOL-DRIVEN TESTS SEPARATELY IN TAT AUDITS (CREATE "CLINICAL" AND "PROCESS" OUTLIER LISTS).
- IMPROVE PATIENT PREP/SCHEDULING SO ALL DIAGNOSTICS BEFORE LAB BILLING; CREATE A CHECKLIST OR ROUTING SLIP.
- INTEGRATE SCANNERS/AUTO-TIMERS AT EVERY TOUCHPOINT TO UNIFY MANUAL AND HIS RECORDS.
- OPTIMIZE ANALYZER BATCH SCHEDULES BALANCING EFFICIENCY AND TIMELINESS.
- REGULARLY TRAIN FRONT-DESK AND LAB STAFF FOR OPERATIONAL BEST PRACTICES.
- URINE SAMPLES SHOULD BE TRANSPORTED VIA PATIENTS TO THE COLLECTION ROOM.

CHALLENGES OF HIS (SURVEY):
- IMPROVE SPEED AND SYSTEM STABILITY (REDUCE CRASHES AND SLOWNESS).
- ENHANCE USER INTERFACE FOR EASIER NAVIGATION.
- PROVIDE COMPREHENSIVE TRAINING FOR ALL STAFF.
- REDUCE REPETITIVE DATA ENTRY.

SWOT ANALYSIS

Strengths
- NABL-compliant Lab practices with well defined protocols.
- Skilled and trained lab technicians.
- Efficient standard lab processes for most tests.
- High adoption of HIS across departments.

Weakness
- Delays due to batching and Pt. scheduling conflicts.
- Discrepancy between HIS and Manual entries.
- Protocol-driven TAT breaches not accounted as process flaws.
- Interface complexity and lack of HIS training.

Opportunity
- Integration of barcode scanners and auto-log tracking to minimize manual entries.
- Enhancement of analyzer batch schedules for time efficiency.
- Rising demand for faster diagnostic offers scope to lead in TAT compliance.

Threats
- Increasing patient volume may strain existing LAB workflows.
- HIS system limitations can disrupt Lab-Log sync.
- Competition from other NABL accredited private labs.

KEY LEARNINGS

- PROCESS INSIGHT: UNDERSTOOD THAT EVEN WELL-DESIGNED HOSPITAL WORKFLOWS REQUIRE CONSTANT REFINEMENT AND REAL-TIME MONITORING.
- REAL-TIME RCA: GAINED HANDS-ON EXPERIENCE IN APPLYING ROOT CAUSE ANALYSIS TECHNIQUES TO LIVE HOSPITAL PROBLEMS.
- DIGITAL GAPS: DISCOVERED THAT SYSTEM ADOPTION DEPENDS NOT JUST ON TECHNOLOGY BUT ALSO ON USER TRAINING, DESIGN SIMPLICITY, AND FEEDBACK LOOPS.
- INTERDEPARTMENTAL COORDINATION: REALIZED THE CRITICAL NEED FOR SYNCHRONIZED DIAGNOSTICS, BILLING, AND REPORTING TO MAINTAIN TAT.
- PROFESSIONAL SKILLS: IMPROVED ANALYTICAL THINKING, COMMUNICATION, OBSERVATION, AND REPORTING SKILLS BY ENGAGING DIRECTLY WITH STAFF AND PATIENTS.

Reporting Format (Week 01)

Name of the Organization: CK BIRLA HOSPITAL | RBH, JAIPUR

Area/ Department/ Project of Summer Internship Program: Medical Services and Administration

Name of the Student: DR. YAMINI TIWARI

Roll no: 2115 **Stream: Hospital and health management**

Week no: 01 **From- 12/05/25 to 18/05/25**

Activity Done	- Visited all the departments in hospital. - Attended induction sessions on safety procedures and hospital protocols. - Observed TAT, working protocols, safety procedures, NABH guidelines, services and gaps, role of administration and management in departments.
Linking theory (Classroom learning) with practice at your organization	- Learnt about hospital infrastructure, layout, staffing process, safety protocols, emergency and fire exit, zoning, functioning of departments.
Gaps identified on the working area.	- Delays in discharge from IPD. - Lack of GDA in ER. - Long waiting time and overcrowding in OPD and Pharmacy. - Lack of digital compliance.
Suggestions for improvement	- A discharge checklist can be implemented while coordinating with the other departments. - Back-up staff and shift wise duty rosters can be implemented and optimize the manpower allocation. - Training staff on HIS should be mandatory.
Plan for the next week	- Plan on discussion with mentor and to start working on summer internship project.

Signature of the Student

Reporting Format (Week 02)

Name of the Organization: CK BIRLA HOSPITAL | RBH, JAIPUR

Area/ Department/ Project of Summer Internship Program: Medical Services and Administration

Name of the Student: DR. YAMINI TIWARI

Roll no: 2115 **Stream: Hospital and health management**

Week no: 02 **From- 19/05/25 to 25/05/25**

Activity Done	- Initially started with project on patient step down process in critical care units. - Subsequently started working on Pre-op ALOS.
Linking theory (Classroom learning) with practice at your organization	- Learnt time management from doctors and nursing staff. - Learnt team management and problem solving from hospital staff
Gaps identified on the working area.	- Communication breakdown between surgical teams, ward staff, diagnostic teams contributing to transfer delays. - Inconsistent pre-op admission timings leading to last minute rushes or extended patient stays. - Delayed response of nursing staff or GDA staff to patient call bells.
Suggestions for improvement	- Training nursing staff on time management and prioritization for patient care. - Establishment of service level agreements for diagnostic tests in cases of pre-op tests while keeping track of TAT.
Plan for the next week	- Creating a pre-op checklist. - Data collection for the project.

Signature of the Student

Reporting Format (Week 03)

Name of the Organization: CK BIRLA HOSPITAL | RBH, JAIPUR

Area/ Department/ Project of Summer Internship Program: Medical Services and Administration

Name of the Student: DR. YAMINI TIWARI

Roll no: 2115 **Stream: Hospital and Health Management**

Week no: 03 **From: 26/5/2025 to 01/6/2025**

Activity Done	- Created checklist and initiated data collection. - Due to some challenges in obtaining admission data from OPD hindered with projects progress. Discussed with Organization mentor and revised the project. New focus in summer internship project will be on Time motion study in Laboratory.
Linking theory (Classroom learning) with practice at your organization	- Understood patient flow, resource utilization and identifying bottlenecks in healthcare quality improvements.
Gaps identified on the working area.	- Incomplete pre-op documents. - Communication gaps in cases of OPD admissions. - Inefficient IPD diagnostics.
Suggestions for improvement	- Conducting pre-op audits and mandating the protocols. - Optimization of preadmission diagnostics.
Plan for the next week	- Meeting with laboratory staff and understanding laboratory structure, sub-departments and workflow. - Obtain a detailed list of commonly prescribed tests and their defined TAT. - Preparing a data collection sheet.

Signature of the Student

Reporting Format (Week 04)

Name of the Organization: CK BIRLA HOSPITAL | RBH, JAIPUR

Area/ Department/ Project of Summer Internship Program: Medical Services and Administration

Name of the Student: DR. YAMINI TIWARI

Roll no: 2115 **Stream: Hospital and Health Management**

Week no: 04 **From: 02/6/2025 to 08/6/2025**

Activity Done	- Stayed in sample collection for the week and analyzed TAT for sample collection after billing and identified associated outliers.
Linking theory (Classroom learning) with practice at your organization	- TAT analysis - Process Mapping - Outlier identification and investigating the reasons behind. - Learnt in detail about HIS and data driven decision making.
Gaps identified on the working area.	- GDA unavailability in period of 8am-9am in collection area. - Discrepancy in dispatch timing manually vs HIS.
Suggestions for improvement	- Provide a GDA staff by adjusting shifts to cover morning sample dispatch.
Plan for the next week	- Begin mapping end-to-end process for commonly prescribed tests and identify the key steps. - Prepare data collection sheets. - Begin collection of primary data.

Signature of the Student

Reporting Format (Week 05)

Name of the Organization: CK BIRLA HOSPITAL | RBH, JAIPUR

Area/ Department/ Project of Summer Internship Program: Medical Services and Administration

Name of the Student: DR. YAMINI TIWARI

Roll no: 2115 **Stream: Hospital and Health Management**

Week no: 05 **From: 09/6/2025 to 15/6/2025**

Activity Done	- Learnt about the laboratory sub departments and machinery, its compliance to HIS and TAT of the tests via manual, semi-automatic, automatic machines. - Prepared a data collection sheet with the breakdown process.
Linking theory (Classroom learning) with practice at your organization	- TAT analysis - HIS Integration - Laboratory department structuring - Data collection and process mapping.
Gaps identified on the working area.	- Intermittent HIS connectivity & data inaccuracy. - Frequent malfunctions of certain analyzers of biochemistry department. - Discrepancy between manual and HIS timestamps.
Suggestions for improvement	- Identify and resolve the points of failure in connectivity. - Establishment of a maintenance schedule for the breakdowns or malfunctions.
Plan for the next week	- Collection of data by mapping end to end process of the tests.

Signature of the Student

Reporting Format (Week 06)

Name of the Organization: CK BIRLA HOSPITAL | RBH, JAIPUR

Area/ Department/ Project of Summer Internship Program: Medical Services and Administration

Name of the Student: DR. YAMINI TIWARI

Roll no: 2115 **Stream: Hospital and Health Management**

Week no: 06 **From: 16/6/2025 to 22/6/2025**

Activity Done	- Continued with data collection of commonly prescribed tests in laboratory, tracked associated delays and outliers.
Linking theory (Classroom learning) with practice at your organization	- Tat analysis with research methodology and HIS. - Test protocols for the commonly prescribed tests.
Gaps identified on the working area.	- Intermittent HIS connectivity & data inaccuracy. - Discrepancy between manual and HIS timestamps.
Suggestions for improvement	- Identify and resolve the points of failure in connectivity. - For HIS timestamps staff should be trained or scanners should be provided.
Plan for the next week	- In depth process mapping and Root Cause Analysis by detailed process walk through and data collection. - Interaction with Laboratory staff for data analysis and resource analysis.

Signature of the Student

Reporting Format (Week 07)

Name of the Organization: CK BIRLA HOSPITAL | RBH, JAIPUR

Area/ Department/ Project of Summer Internship Program: Medical Services and Administration

Name of the Student: DR. YAMINI TIWARI

Roll no: 2115 **Stream: Hospital and Health Management**

Week no: 07 **From: 23/6/2025 to 29/6/2025**

Activity Done	- Continued with my project on time motion study in laboratory by breaking down TAT at every step to identify the delays in process, tracked associated delays and outliers/gaps.
Linking theory (Classroom learning) with practice at your organization	- Concepts of process mapping. - Time motion study principles. - Quality management.
Gaps identified on the working area.	- Discrepancy between manual and HIS timestamps. - Staffing gaps during peak hours leading to reporting delays. - System and process synchronization delay.
Suggestions for improvement	- Implementing automated timestamping with HIS. - Finalization of reports need to be done as soon as provisional reports are ready.
Plan for the next week	- Continue working on data collection and RCA for the gaps and outliers. - Select a topic for secondary project and start working on the same.

Signature of the Student

Reporting Format (Week 08)

Name of the Organization: CK BIRLA HOSPITAL | RBH, JAIPUR

Area/ Department/ Project of Summer Internship Program: Medical Services and Administration

Name of the Student: DR. YAMINI TIWARI

Roll no: 2115 **Stream: Hospital and Health Management**

Week no: 08 **From: 30/6/2025 to 06/7/2025**

Activity Done	- Completed initial phase of sample collection for my primary project on time motion study in Laboratory on commonly prescribed tests. - Currently working on data collation, analysis, report preparation including root cause analysis to identify the underlying factors. - Initiated secondary project on MEWS audit.
Linking theory (Classroom learning) with practice at your organization	- Applied and learnt principles of work study techniques using methodologies for process observation, time management. - Root cause analysis draws upon problem solving and analytical skills. - Concepts related to patient safety, risk assessments.
Gaps identified on the working area.	- None (Working on RCA for time motion study in laboratory)
Suggestions for improvement	- None.
Plan for the next week	- My primary focus next week will be on data analysis, report compilation, PPT Preparation and working on Root Cause Analysis for TAT discrepancies. - For my secondary project I will pivot to new topic on Challenges of HIS with JR's and SR's via google form questionnaire survey.

Signature of the Student

Reporting Format (Week 09)

Name of the Organization: CK BIRLA HOSPITAL | RBH, JAIPUR

Area/ Department/ Project of Summer Internship Program: Medical Services and Administration

Name of the Student: DR. YAMINI TIWARI

Roll no: 2115 **Stream: Hospital and Health Management**

Week no: 09 **From: 7/7/2025 to 13/7/2025**

Activity Done	- Completed my primary project on Time Motin Study in Laboratory. - Started working on the presentation and root cause analysis. - Started working on google form preparation and data collection for secondary project on Challenges of HIS.
Linking theory (Classroom learning) with practice at your organization	- Learnt the system usability, and impact of technology on clinical workflows by the use of surveys and data collection as research methodologies.
Gaps identified on the working area.	- Variability in HIS training with a lack of feedback mechanism. - Gaps in HIS compliance/adherence.
Suggestions for improvement	- Conducting HIS compliance audits and performance reviews. - Establishment communication channels for HIS related issues. - Implementation of HIS training programs.
Plan for the next week	- My next week's focus will be on report compilation and ppt preparation for both my projects primary and secondary with the root cause analysis of the outliers.

Signature of the Student

Reporting Format (Week 10)

Name of the Organization: CK BIRLA HOSPITAL | RBH, JAIPUR

Area/ Department/ Project of Summer Internship Program: Medical Services and Administration

Name of the Student: DR. YAMINI TIWARI

Roll no: 2115 **Stream: Hospital and Health Management**

Week no: 10 **From: 14/7/2025 to 21/7/2025**

Activity Done	- Completed, prepared presentations with complete root cause analysis and presented both primary and secondary projects to the medical administration team and organization mentor.
Linking theory (Classroom learning) with practice at your organization	- Learnt time motion study techniques, quality management concepts helping in identification of the bottlenecks and in conducting RCA. - Methodologies for process mapping and benchmarking. - Knowledge of health information system management and organizational behavior. - Learnt human-computer interaction with research methodologies and data analysis.
Gaps identified on the working area.	- Project 1: Inconsistencies in manual vs HIS data, protocol driven delays, staffing and workflow coordination issues, Sample transportation delays. - Project 2: Insufficient training of staff and low compliance, system performance issues, challenging functionalities, repetitive data entries with uncertainty in technical support.
Suggestions for improvement	- Project 1: Prioritization of urgent/STAT requests, Use of scanners to unify manual and His data records, optimize analyzer batch schedules, training of the front desk staff for pt. education on timelessness, sample should be transported to collection. - Project 2: Prioritizing the improvement in speed and system stability, provide a complete hands-on training for the staff, focusing on improving the technical support and communication, upgrade system performance and enhance user interface.

Signature of the Student

Compiled Report

Name of the Organization: CK BIRLA HOSPITAL | RBH, JAIPUR

Area/ Department/ Project of Summer Internship Program: Medical Services and Administration

Name of the Student: DR. YAMINI TIWARI

Roll no: 2115 **Stream: Hospital and Health Management**

Activity Done	- **Week 1:** Visited all hospital departments, attended induction sessions on safety procedures and hospital protocols. Observed TAT, working protocols, safety procedures, NABH guidelines, services and gaps, and the role of administration and management in departments. - **Week 2:** Initially started with a project on Patient step down process in critical care units, and subsequently started working on Pre-op ALOS. - **Week 3:** Created a checklist and initiated data collection. Due to challenges in obtaining admission data from OPD, the project progress was hindered. Discussed with the organization mentor and revised the project, with a new focus on Time Motion Study in Laboratory. - **Week 4:** Stayed in sample collection for the week and analysed TAT for sample collection after billing, identifying associated outliers. - **Week 5:** Learned about the laboratory sub-departments and machinery, its compliance to HIS, and TAT of tests via manual, semi-automatic, and automatic machines. Prepared a data collection sheet with the breakdown process.

	- **Week 6:** Continued with data collection of commonly prescribed tests in the laboratory, tracking associated delays and outliers. - **Week 7:** Continued with the primary project on time motion study in the laboratory by breaking down TAT at every step to identify delays in the process. Tracked associated delays, outliers, and gaps. - **Week 8:** Completed the initial phase of sample collection for the primary project on time motion study in the Laboratory on commonly prescribed tests. Currently worked on data collation, analysis, and report preparation, including root cause analysis to identify underlying factors. Initiated a secondary project on MEWS audit. - **Week 9:** Completed the primary project on Time Motion Study in Laboratory. Started working on the presentation and root cause analysis. Started working on Google Form preparation and data collection for the secondary project on Challenges of HIS. - **Week 10:** Completed, prepared presentations with complete root cause analysis, and presented both primary and secondary projects to the medical administration team and organization mentor.
Linking theory (Classroom learning) with practice at your organization	- **Week 1:** Learned about hospital infrastructure, layout, staffing process, safety protocols, emergency and fire exits, zoning, and functioning of departments. - **Week 2:** Learned time management from doctors and nursing staff, and team management and problem-solving from hospital staff.

	- **Week 3:** Understood patient flow, resource utilization, and identifying bottlenecks in healthcare quality improvements. - **Week 4:** Applied TAT analysis, Process Mapping, Outlier identification, and investigating the reasons behind. Learned in detail about HIS and data-driven decision making. - **Week 5:** Applied TAT analysis, HIS Integration, Laboratory department structuring, Data collection, and Process mapping. - **Week 6:** Applied TAT analysis with research methodology and HIS. Understood test protocols for commonly prescribed tests. - **Week 7:** Applied concepts of process mapping, time motion study principles, and quality management. - **Week 8:** Applied and learned principles of work study techniques using methodologies for process observation and time management. Root cause analysis draws upon problem-solving and analytical skills. Concepts related to patient safety and risk assessments were also learned. - **Week 9:** Learned about system usability and the impact of technology on clinical workflows by the use of surveys and data collection as research methodologies. - **Week 10:** Learned time motion study techniques, quality management concepts helping in identification of bottlenecks and in conducting RCA. Understood methodologies for process mapping and benchmarking. Gained knowledge of health information system management and organizational behaviour.

	Learned human-computer interaction with research methodologies and data analysis.
Gaps identified on the working area.	- **Week 1:** Delays in discharge from IPD, lack of GDA in ER, long waiting time and overcrowding in OPD and Pharmacy, and lack of digital compliance. - **Week 2:** Communication breakdown between surgical teams, ward staff, and diagnostic teams contributing to transfer delays. Inconsistent pre-op admission timings leading to last-minute rushes or extended patient stays. Delayed response of nursing staff or GDA staff to patient call bells. - **Week 3:** Incomplete pre-op documents, communication gaps in cases of OPD admissions, and inefficient IPD diagnostics. - **Week 4:** GDA unavailability in the period of 8 am-9 am in the collection area. Discrepancy in dispatch timing manually vs. HIS. - **Week 5:** Intermittent HIS connectivity & data inaccuracy. Frequent malfunctions of certain analyzers of the biochemistry department. Discrepancy between manual and HIS timestamps. - **Week 6:** Intermittent HIS connectivity & data inaccuracy. Discrepancy between manual and HIS timestamps. - **Week 7:** Discrepancy between manual and HIS timestamps. Staffing gaps during peak hours leading to reporting delays. System and process synchronization delay. - **Week 8:** No new gaps identified as the focus was on Root Cause Analysis for time motion study in the laboratory.

	- **Week 9:** Variability in HIS training with a lack of feedback mechanism. Gaps in HIS compliance/adherence. - **Week 10:** **Project 1:** Inconsistencies in manual vs. HIS data, protocol-driven delays, staffing and workflow coordination issues, and sample transportation delays. **Project 2:** Insufficient training of staff and low compliance, system performance issues, challenging functionalities, and repetitive data entries with uncertainty in technical support
Suggestions for improvement	- **Week 1:** A discharge checklist can be implemented while coordinating with other departments. Back-up staff and shift-wise duty rosters can be implemented to optimize manpower allocation. Training staff on HIS should be mandatory. - **Week 2:** Training nursing staff on time management and prioritization for patient care. Establishment of service level agreements for diagnostic tests in cases of pre-op tests while keeping track of TAT. - **Week 3:** Conducting pre-op audits and mandating the protocols. Optimization of pre-admission diagnostics. - **Week 4:** Provide GDA staff by adjusting shifts to cover morning sample dispatch. - **Week 5:** Identify the issues in connectivity and work on resolving the same. Establishment of a maintenance schedule for breakdowns or malfunctions.

	- **Week 6:** For HIS timestamps, staff should be trained, or scanners should be provided. - **Week 7:** Implementing automated timestamping with HIS. Finalization of reports needs to be done as soon as provisional reports are ready. - **Week 8:** No specific suggestions for improvement were noted, as the focus was on Root Cause Analysis. - **Week 9:** Conducting HIS compliance audits and performance reviews. Establishment of communication channels for HIS related issues. Implementation of HIS training programs. - **Week 10:** **Project 1:** Prioritization of urgent/STAT requests. Use of scanners to unify manual and HIS data records. Optimize analyzer batch schedules. Training of the front desk staff for patient education on timelessness. Sample should be transported to collection. **Project 2:** Prioritizing the improvement in speed and system stability. Provide a complete hands-on training for the staff. Focus on improving technical support and communication. Upgrade system performance and enhance user interface.
Key Learnings	- Understanding Hospital Ecosystem: Gained comprehensive insights into hospital infrastructure, departmental functioning, safety protocols, and the critical role of administration and management in healthcare delivery. - Data-Driven Decision Making: Developed skills in TAT analysis, process mapping, outlier identification, and using HIS for informed decision-making in various hospital processes.

	- Quality Management Principles: Applied and reinforced classroom learning on quality management concepts, time motion study, and root cause analysis to identify and address bottlenecks and inefficiencies. - Problem-Solving and Adaptability: Demonstrated ability to identify problems, conduct thorough analysis, and adapt project scope based on real-world challenges, as seen in the shift from initial projects to the time motion study. - Human-Computer Interaction and Technology in Healthcare: Understood the complexities of HIS integration, data accuracy issues, and the impact of technology on clinical workflows, including the importance of user training and technical support. - Communication and Teamwork: Learned the importance of effective communication between various departments and staff, as well as the need for robust communication channels for issue resolution. - Practical Implementation of Classroom Knowledge: Successfully linked theoretical concepts such as process mapping, benchmarking, and research methodologies (surveys, data collection) to practical application within a hospital setting. - Patient Safety and Workflow Optimization: Gained appreciation for the impact of operational efficiency on patient safety, reduced waiting times, and overall patient experience. - Project Management Skills: Developed skills in planning, data collection, analysis, report compilation, and presentation of findings for both primary and secondary projects. - Understanding Operational Challenges: Identified

	common operational challenges in a hospital, such as staffing gaps, communication breakdowns, and system inconsistencies, and formulated practical suggestions for improvement

Signature of the Student

Approved by the IIHMR University's Mentor