SUMMER INTERNSHIP PROGRAM

at

NARAYANA INSTITUTE OF CARDIAC SCIENCES, BENGALURU

From 12th May 2025 to 25th July

A REPORT BY
Dr. Divya Rani

Master of Business Administration

Hospital and Health Management

Roll no. 1944

2024-26

under the Mentorship of

Dr. Sarthak Sengupta

Narayana Health

NH/HR/25/344

25th July 2025

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Dr. Divya Rani** student at **IIHMR University Jaipur** pursuing **Hospital & Healthcare Management**, she has completed her internship at **NH-Bangalore Cardiac** from **12th May 2025** to **25th July 2025.**

During her internship period she was assigned in **Operations and Radiology Department** in **Narayana Institute of Cardiac Science, Bangalore**, she has made noteworthy contributions on the topic assigned.

We wish her good luck in her future endeavors.

For Narayana Hrudayalaya Ltd.

Manu Thomas
Manager
Human Resources

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IIHMR UNIVERSITY

IIHMR University Faculty Mentor Approval

This is to certify that **Dr. Divya Rani** of academic year 2024-26, **Institute of Health Management Research** has prepared a poster with respect to her summer internship held during May-July 2025.

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

Date: 29/07/2025

Dr. Sarthak Sen Gupta

Assistant Professor

IIHMR University, Jaipur

SIP - NARAYANA INSTITUTE OF CARDIAC SCIENCES

University Mentor - Dr. Sarthak Sengupta
Organisation Mentor - Mr. K Seenu

Presented By - Dr. Divya Rani (1944, HM-29)
Stream : MBA (Hospital and Health Management)

Brief history about N H

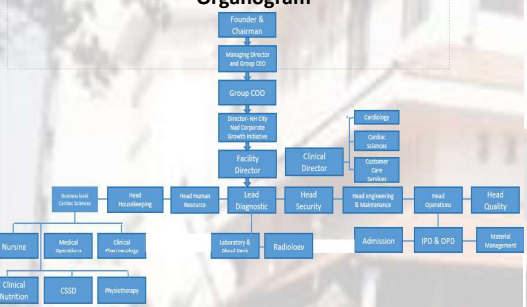
Accredited by JCI and NABH for international standards in healthcare, a home to multiple super-specialty institutions.

- 2000 – Founded by Dr. Devi Shetty with a 280-bed cardiac hospital in Bengaluru
- 2008 – Received NABH accreditation
- 2013 – Rebranded from Narayana Hrudayalaya to Narayana Health
- 2016 – Listed on BSE and NSE
- 2019 – Emmanuel Rupert appointed as MD & Group CEO
- 2022 – Announced plans for a 1000-bed super-specialty hospital in Kolkata

Vision: High quality healthcare with care and compassion at an affordable cost on a large scale.

Mission: Dream of making quality healthcare available to the nurses worldwide.a

Organogram



ACTIVITIES DONE

1. observed operations across various hospital departments.
2. Conducted project on Turnaround Time (TAT) and patient feedback.
3. Interacted with few managers for departmental insights
4. Group interaction with radiology nurses to understand work challenges
5. Met Learning & Development team to give them insights-related feedbacks of patients and nurses.
6. Assisted departmental teams as and when needed.

AIM: To asses the efficiency and quality of radiology services perceived by patients by analyzing TAT and patient feedbacks respectively.

OBJECTIVE: 1. To evaluate and analyze the Turnaround Time (TAT) of patients visiting the OPD between 8:00 AM and 8:00 PM from 12th May to 20th May.
2. To identify causes of delay in turn around time and to findout solutions to reduce it.
3. To evaluate and analyze patient satisfaction for radiology services through patient feedback. (using likert scale for evaluating satisfaction level)

RESEARCH DESIGN: DESCRIPTIVE CROSS-SECTIONAL STUDY DESIGN

RESEARCH TYPE: MIXED METHOD RESEARCH (QUANTITATIVE AND QUALITATIVE)

SAMPLE SIZE (TAT): 359 patients

SAMPLE SIZE (Patient Feedback): 90 patients

SAMPLING METHOD (TAT): TIME BASED CONSECUTIVE SAMPLING METHOD

TIME FRAME: 12TH MAY TO 20TH MAY 8am to 8pm (OPD duration)

PATIENT WAIT TIME	FROM ARRIVAL (hh:mm)	FROM APPOINTMENT (hh:mm)
AVERAGE	1:06	0:47
STANDARD DEVIATION	0:39	0:53
95% CONFIDENCE INTERVAL	1:02, 1:10	0:41, 0:53

AVERAGE SCAN DURATION	00:07

OBSERVATIONS (FEEDBACK)

1. Patient satisfaction can increase by 10–15% through proper interaction and making them feel heard.
2. Some patients missed instructions (e.g., fasting) due to language barriers, despite explanations at reception.
3. Patients are more satisfied when informed in advance about waiting time.
4. Over 80% of patients came through positive word of mouth from relatives who previously used the service.

OBSERVATIONS (TAT)

Elevated heart rateFirst-time scan anxiety
Delay in IV cannulation/ preparation
Patient unpreparedness

File mismanagement
Priority cases
Creatinine report
Sudden arrival of number of walkin patients

SUGGESTIONS

Nurses can be trained for the better communication.
A pamphlet of brief instructions in various languages can be handed to patients.
Report generation can be expedited.
Process of the scan can be explained properly to anxious patient.
Patients coming for the scan can be made aware about the health package.

SWOT ANALYSIS

STRENGTHS
1. Advanced imaging tech
2. High patient footfall
3. Strong positive word of mouth

OPPORTUNITIES
1. Staff training programs
2. Digitalize paperwork
3. Tech integration & upgrades

WEAKNESSES
1. Limited trained front desk staff
2. Occasional report delays
3. Language barrier in communication

THREATS
1.Equipment downtime risk.
2.Nearby diagnostic center competition.
3. Small waiting area → crowding & pricing debate

THEORETICAL UNDERSTANDING
1. Basic understanding of hospital setup, departments, and their functions.
2. NABH and JCI standards required for hospital accreditation.

PRACTICAL UNDERSTANDING
1. Practical exposure gave insights into hospital departments, their functions, and front/back stage operations.
2. Observed audits, equipment checks, staff training, and procedure timings to improve efficiency and ensure NABH/JCI compliance.

CHALLENGES

1.Busy staff made doubt clarification difficult without waiting.
2. Language barrier affected communication with staffs,

MAJOR LEARNINGS

1. Practically, management goes beyond rules and systems.
2. Buildng good rapport with major key holders ensures smoother management operations.

Report (Week 1)

Name of the Organization: Narayana Institute Of Cardiac Sciences, Bengaluru

Area/ Department/ Project of Summer Internship Program: Operations

Name of the Student: Divya Rani

Roll no: 1944 **Stream:Hospital and Health Management**

Week no:1 **From: 12 May to 17th May**

Activity Done	Observation of the system and procedures: 1.Executive OPD 2.General OPD 3.Estimation Department 4.Pediatric Cardiology OPD 5.Linen store room
Linking theory (Classroom learning) with practice at your organization	**Observed the practical application of:** 1.Electronic Health Records 2.Hospital Information System (Athma, Aadi, Namah) 3.Mobile Application (N H Care) 4.Remote Monitoring (All the vitals if the admitted patient on the floor are observed on the same monitor)
Gaps identified on the working area.	1. There was **no sign/information board** at reception area which guides the patient for sequence of procedures and direction of the rooms and departments. This creates confusion and crowd at the reception area, as for these small queries they come to the reception desk. 2. There was **no effective utilization of the kiosk** due to unawareness and also lots of feature needed to be updated in kiosk according to hospital's system.

Suggestions for improvement	1. They can put **signage board at the reception/entrance** area of the hospital. 2. They can put **board for the functions of the kiosk** for the patient. This will make patient aware about the functions provided by the kiosk.
Plan for the next week	To observe departments; 1. IPD 2. Charitable wing 3. Panel and AHU room 4. Radiology department 5. Medico social work

Signature of the Student: Divya Rani

Report (Week 2)

Name of the Organization: Narayana Institute Of Cardiac Sciences, Bengaluru

Area/ Department/ Project of Summer Internship Program: Operations

Name of the Student: Divya Rani

Roll no: 1944 Stream: Hospital and Health Management

Week no:2 From: 19th May to 24th May

Activity Done	Observation of the system and procedures: 1. IPD 2. Charitable Wing 3. Overview of supply system of AITU and PITU 4. Radiology 5. General OPD
Linking theory (Classroom learning) with practice at your organization	**Observed the practical application of:** 1.Electronic Health Records (in radiology department) 2.Implementation of NABH guidelines 3. Concept of cross subsidization 4. Inventory management and SCM
Gaps identified on the working area.	1. The **online payment system** in radiology department but frequently error (3-4 times a week) occurs because of which patients have to go to billing desk and make the payment and can come back for further procedures. 2. There is no token number system in radiology.
Suggestions for improvement	1. They can update or can create proper convenient payment system for diagnostic procedures in radiology department. 2. Token number system can be initiated and digital board for the ongoing number can be installed which will give clarification about the waiting time to the patient. 3. Common information board in different languages can be placed for patient clarification.

Plan for the next week	To know about department: 1. Medico social work Start working on the decided project.

Signature of the Student: Divya Rani

Reporting Format (Weekly)

Name of the Organization: Narayana Institute of Cardiac Sciences

Area/ Department/ Project of Summer Internship Program: Operations

Name of the Student: Dr. Divya Rani

Roll no: 1944 Stream: MBA (Hospital and Health Management)

Week no: 03 From: 26/05/25 to: 31/05/25

Activity Done	1. Observations in: a) Medico Social wing b) Health Checkup Wing 2. Determining the focus area for the project 3. Started working on project
Linking theory (Classroom learning) with practice at your organization	Practical application of: (Health Checkup Wing) 1. Secondary prevention- routine checkups for early detection. 2. Primary prevention- Health promotion through doctor's consultation once the patient receives the report. 3. Operational management - In Health Checkup Wing and also through medico social work
Gaps identified on the working area.	Health Checkup Wing 1. Patient wait time was more in health checkup wing. 2. Online booking system was not in proper function. 3. Whole procedure is of two day procedure as doctor's consultation time is only till 2pm and patients do not get appointment on the same day.
Suggestions for improvement	Health Checkup wing: Can rectify and solve the issue of **online booking** system so that patient doesn't have to come and wait for long as they will book appointment through online system and they will be knowing their slot timings.

Plan for the next week	Work on the project..

Signature of the Student: Divya Rani

Report (Week 4)

Name of the Organization: Narayana Institute of Cardiac Sciences

Area/ Department/ Project of Summer Internship Program: Operations (Radiology Department)

Name of the Student: Dr. Divya Rani

Roll no: 1944 Stream: MBA (Hospital and Health Management)

Week no: 04 From: 2/06/25 to: 6/06/25

Activity Done	Started working on the project. Observing, collecting data and preparing excel sheet on that.
Linking theory (Classroom learning) with practice at your organization	Practical application of: 1. Maintenance of HER 2. Maintaining the quality of the functioning of the department by maintaining record of patient wait time.
Gaps identified on the working area.	Patient wait time which was getting recorded in the hospital's system was incorrect.
Suggestions for improvement	The scan start and end times should be entered into the system. A system can be programmed to automatically calculate the patient Turnaround Time (TAT) -from the scheduled appointment time to the actual time the patient is received for the scan.
Plan for the next week	Continue working on the project: 1. Completion of collection of required data sample. 2. Analyzing the data for the result.

Signature of the Student: Divya Rani

Report (Week 5)

Name of the Organization: Narayana Institute Of Cardiac Sciences, Bengaluru

Area/ Department/ Project of Summer Internship Program: Operations (Radiology Department)

Name of the Student: Divya Rani

Roll no: 1944 Stream: Hospital and Health Management

Week no:05 From: 9th June to 14th June

Activity Done	Collection of data for TAT calculation. Required calculations for the TAT done.
Linking theory (Classroom learning) with practice at your organization	**Observed the practical application of:** DMAIC framework (Define, measure, analyze, improve, control). TAT calculation falls under measure phase.
Gaps identified on the working area.	There is no written instructions written for preparedness for the scan. Because of verbal instructions, patient may not remember or may not be able to follow instructions properly. This lead the patient to take another appointment or wait for longer duration for the scan procedure.
Suggestions for improvement	Small pamphlet of instructions/instructions in digital form can be given to patient for the preparedness before the scan procedure while giving the appointment.
Plan for the next week	Further working on the project.

Signature of the Student: Divya Rani

Report (Week 6)

Name of the Organization: Narayana Institute Of Cardiac Sciences, Bengaluru

Area/ Department/ Project of Summer Internship Program: Operations

Name of the Student: Divya Rani

Roll no: 1944 Stream:Hospital and Health Management

Week no:06 From: 16th June to 21st June

Activity Done	1. Calculation and analysis of data collected till now. 2. Knowing and filtering out the areas where there is remarkable variation in the TAT. 3. Further collection of data for that particular area.
Linking theory (Classroom learning) with practice at your organization	**Application of the theories:** 1. DMAIC- this week measure and analysis of TAT data. 2. Bottle neck theory- finding out the reasons causing delay in TAT.
Gaps identified on the working area.	**Lack of pre-scan creatinine report advise** It was observed that in most of the cases doctor did not advise creatinine report prior to referring the patient for the scan which is prerequisite for the cardiac scan. As a result patient only discover the absence of required report only while booking the appointment for the scan in the radiology department. This causes unnecessary inconvenience to the patient as he/she has to return to the consultation area where laboratory is located, despite the radiology department being situated far form there. This back and forth movement causes unnecessary discomfort to the patients especially for those who are already unwell, highlights the gap in the prescan preparatory process.
Suggestions for improvement	Doctors can advise for blood test (creatinine report) before advising for the scan procedure.
Plan for the next week	Working on the solutions to reduce the TAT.

Signature of the Student: Divya Rani

Report (Week 7)

Name of the Organization: Narayana Institute Of Cardiac Sciences, Bengaluru

Area/ Department/ Project of Summer Internship Program: Operations (Radiology department)

Name of the Student: Divya Rani

Roll no: 1944 Stream:Hospital and Health Management

Week no:07 From: 23rd June to 28th June

Activity Done	1. Collection of data. 2. Providing hand in the work of receptionist. 3. Observing and tracing patient in the department. 4. Analyzing the recorded data.
Linking theory (Classroom learning) with practice at your organization	Linking theories: 1. Role theory(organization behaviour)- Understanding roles, expectations, and behaviour within a work setting. 2. Map process and identify bottlenecks.
Gaps identified on the working area.	Due to less man power (only 2 people in the reception), it is difficult to maintain the work flow, due to multiple work when one goes on leave. (Work of receptionist- Giving instructions to the patient, giving the appointment, collecting the report from different scan rooms, searching and handing over the report to the patient, clarify the queries of the patient.)
Suggestions for improvement	Available nurses in the radiology department can be trained for the few tasks of the receptionist in case when there is only one reception at the desk (one on leave).
Plan for the next week	Further working on project. Finding out solutions to manage delays.

Signature of the Student: Divya Rani

Report (Week 8)

Name of the Organization: Narayana Institute Of Cardiac Sciences, Bengaluru

Area/ Department/ Project of Summer Internship Program: Operations

Name of the Student: Divya Rani

Roll no: 1944 Stream: Hospital and Health Management

Week no:08 From: 30th June to 05st July

Activity Done	1. Tracking the patient and observing the procedure. 2. Providing helping hand in various work at reception in radiology department. 3. Took feedback from the patients. 4. Required calculations for collected data was completed.
Linking theory (Classroom learning) with practice at your organization	**Application of the theories:** Biostatistics- calculations: average, standard deviation learnt in biostats, confidence interval, lower bound, upper bound of the range and inference from those.
Gaps identified on the working area.	1. There were variation in the time displayed on the biomedical devices used in the different console room in radiology department. 2. There were less communication between patient and nurses attending them.
Suggestions for improvement	1. Variation in the time displayed on various biomedical devices got corrected by informing biomedical team of the hospital. 2. If patients recommend the name of the nurse who has well communicated/interacted with them will motivate the nurses for better interaction with the patient.
Plan for the next week	Collection of feedback of the patient regarding services of the department to know their satisfaction.

Signature of the Student: Divya Rani

Report (Week 9)

Name of the Organization: Narayana Institute Of Cardiac Sciences, Bengaluru

Area/ Department/ Project of Summer Internship Program: Operations

Name of the Student: Divya Rani

Roll no: 1944 **Stream:Hospital and Health Management**

Week no:09 From: 07th July to 12th July

Activity Done	1. **Collected 50 feedbacks** from the patients regarding their experiences of the services in the radiology department by interacting with the patients and building rapport with them. **2.** Observed and compared the ongoing TAT with the previously collected data **to know the TAT trend and waiting time.** 3. **Analyzed the collected feedbacks** and discussed with the Manager of the department. 4. **Observed the procedure flow in health checkup wing** which contributes good percentage of walkin patients in radiology department.
Linking theory (Classroom learning) with practice at your organization	**Equity theory** reflects in taking feedback from the patients about their experiences. According to the theory, people compare their inputs (what they give) and outcomes (what they get). Taking feedbacks will help us to know how satisfied are they with the outcomes (services they received throughout the scan procedure) for the inputs (efforts to reach the hospital, money, trust for the Narayana brand, time, hope for the best result etc.) they put in.
Gaps identified on the working area.	1. **Sequencing of the file sometimes get disorganized** when kept in CT room to call the patient for their turn for the scan. This leads to unnecessary delay for the patient who has arrived earlier than the other patients. 2. Due to **limited interaction between patient and department nurses**, patients often express their frustration over the lack of clear communication and

	information about the current status and upcoming procedures while waiting.
Suggestions for improvement	1. Files of the patient can be numbered according to the arrival of the patient. 2. Nurses can be instructed to be more interactive to remove dissatisfaction regarding information among the patients.
Plan for the next week	1. Collection of few more feedbacks and their analysis. 2. Presentation of all the works and analysis to the head of the department (Dr. Vimal).

Signature of the Student: Divya Rani

Report (Week 10)

Name of the Organization: Narayana Institute Of Cardiac Sciences, Bengaluru

Area/ Department/ Project of Summer Internship Program: Operations (Radiology department)

Name of the Student: Divya Rani

Roll no: 1944 Stream:Hospital and Health Management

Week no:10 From: 14th July to 19th July

Activity Done	1. **Collected another 50 more feedbacks** from the patients regarding their experiences of the services in the radiology department by interacting with the patients and building rapport with them. **2.** Observed and compared the ongoing TAT with the previously collected data **to know the TAT trend and waiting time.** 3. Visited diagnostic center, spoke to manager to understand about the procedures involved from sample collection to generation of the diagnostic reports. 4. Spoke to technician manager (Mr. Sasi) of and had a brief idea about his managerial work and role.
Linking theory (Classroom learning) with practice at your organization	**1.** Understanding interdepartmental functioning- **Hospital Management.** 2. Taking patient feedbacks which helps in knowing about the quality of services, opinion of patients regarding the hospital and improving it, hence maintainig positive word of mouth and loyalty of the patient to the hospital- **Marketing Management**
Gaps identified on the working area.	**Duration of serum creatinine report generation was long**: Few of the patients who came for the scan, took appointment and waited for the scan got their serum creatinine report so late that they missed their appointment slot and waited for the next available slot. This created dissatisfaction among them.

Suggestions for improvement	Report generation took so much time may be due to one of the following reasons: 1. Jam in the pneumatic tube for transferring blood samples during the peak hours. 2. Hospital experiencing down time with Athma/Server. 3. (Rare) Breakage/leakage of the blood sample tube. 4. Non availability of the person may be for particular duration who is responsible for the certification and uploading of the blood reports. Suggestions- 1. Expansion of pneumatic network and improving its efficiency. 2. Rectification of any technical glitch by the IT team as soon as possible.
Plan for the next week	Taking permission for the publication of the work from the hospital.

Signature of the Student: Divya Rani

Compiled Report

Name of the Organisation: Narayana Institute Of Cardiac Sciences, Bengaluru

Area/ Department/ Project of Summer Internship Program: Operations and Radiology department

Name of the Student: Dr. Divya Rani

Roll no: 1944 Stream: MBA HM

Activity Done	Over the course of eight weeks, I was involved in a variety of activities across different departments with a major focus on the Radiology Department. These included: • Departmental Orientation: – Observed processes in IPD, General OPD, Charitable Wing, AITU, PITU, and Radiology. – Understood the patient journey from registration to diagnosis and discharge. • Radiology Operations: – Assisted at the radiology reception: handling appointments, report dispatch, and guiding patients. – Observed patient flow and mapped delays in scan procedures. – Coordinated with nurses, technicians, and reception staff to understand workflow. • Turnaround Time (TAT) Project: – Collected and analyzed time data related to scan processes. – Identified delay points and calculated TAT for different procedures. – Applied statistical tools for analyzing trends and variations. • Patient Interaction & Feedback Collection: – Interacted with 100+ patients to collect feedback on service satisfaction. – Assessed patient perception of communication, waiting time, and service quality. • Interdepartmental Coordination: – Spoke to diagnostic center managers and technical heads to understand backend processes. – Understood challenges in lab report generation,

	especially serum creatinine delays.
Linking theory (Classroom learning) with practice at your organisation	• Operations & Quality Management: – DMAIC framework to study and optimize TAT. – Identified and addressed process bottlenecks. – Applied Role Theory to observe job stress and workflow challenges during staff shortages. • Biostatistics: – Used measures like mean, standard deviation, confidence intervals to derive insights from TAT data. – Supported findings with data interpretation for decision-making. • Marketing & Service Management: – Patient feedback helped in evaluating service quality and building patient trust and loyalty. – Developed an understanding of hospital branding through patient experience. • Hospital Information Systems: – Observed real-time data flow in EHR systems and noted the impact of IT glitches on service delays. – Understood dependencies on servers (Athma) and pneumatic networks for efficient operations.
Gaps identified on the working area.	• Digital & Communication Issues: – Repeated failure in online payment systems in radiology, leading to patient inconvenience. – Absence of token systems caused confusion and crowding in waiting areas. • Inadequate Pre-Scan Instructions: – Instructions were mostly verbal; patients often forgot key preparation steps. • Lack of Doctor Coordination: – Doctors failed to advise essential pre-scan tests (like serum creatinine), resulting in delayed or missed appointments. • Reception Staff Shortage: – Only two staff managed multiple tasks, causing backlogs, especially when one was on leave. • Patient Communication Deficiency: – Limited nurse-patient interaction caused dissatisfaction during scan processes.

	• Technical Delays: – Time mismatch in biomedical devices affected record accuracy. – Serum creatinine reports were delayed due to factors like: Pneumatic tube congestion IT server downtime Human resource unavailability Sample leakage or misplacement
Suggestions for improvement	• Technology & Systems: – Upgrade radiology's online payment system for smoother transactions. – Install a token system with a digital display to manage patient queues. • Patient Communication: – Provide printed/digital instructions for scan preparation at the time of appointment. – Use multi-language information boards in the department for better understanding. • Process Coordination: – Ensure referring doctors mention prerequisite tests (creatinine) during consultations. – Schedule periodic refresher sessions for clinical staff about standard diagnostic protocols. • Reception Staffing: – Cross-train radiology nurses to assist in basic reception tasks during shortages. • Motivating Staff: – Recognize and appreciate nurses named positively in patient feedback. • Operational & Technical Fixes: – Synchronize biomedical equipment clocks. – Improve pneumatic tube infrastructure and implement alert systems for sample blockage. – Strengthen coordination between labs and radiology to prevent appointment delays.
Key Learnings	• Gained comprehensive exposure to hospital operations with a special focus on radiology. • Learned to apply quality improvement methodologies like DMAIC and Lean in real scenarios. • Understood the importance of interdepartmental

	collaboration for smooth healthcare delivery. • Enhanced my skills in data collection, statistical analysis, and deriving actionable insights. • Learned how patient satisfaction is influenced by small process gaps and delays. • Developed soft skills like patient communication, empathy, and teamwork during feedback sessions. • Realized the critical role of digital health systems, their failures, and timely IT interventions. • Recognized how frontline workers and their efficiency impact hospital service perception.

Signature of the Student: Dr. Divya Rani

Approved by the IIHMR University's Mentor