SUMMER INTERNSHIP PROGRAM

at

SMS Super Speciality Hospital, Jaipur

From May 12, 2025, to July 21, 2025

Designing of a fire safety exit plan

Report by

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Masters of Business Administration

(Hospital and health management)

Roll number – 1964

2024-26

Under the mentorship of

Dr. Seema Mehta Professor

(SDG-SPH)

IIHMR UNIVERSITY

⊕ OFFICE MEDICAL SUPERINTENDENT ⊕
SUPER SPECIALITY HOSPITAL, JAIPUR(RAJASTHAN)
(Attached Hospital SMS Medical College)

No: ..... /F/SSH/2025 Dated:- ----------

Name of Institution:- Super Speciality Hospital, Jaipur.

Completion Certification from the Organization

CERTIFICATE

This is to certify that **Dr.Shreiya Shegal** of **(MBA-HM 29)** of **IIHMR University, Jaipur** has worked with our organization for her summer internship from **15 May 2025 to 29 July 2025.** The overall performance shown by her during the period was excellent/good/average.

Date :- 29.07.2025

(Signature of organization Mentor)

Name –

Designation –

Seal Stamp of the Organization.

चिकित्सा अधीक्षक
सुपर स्पेशियलिटी चिकित्सालय, जयपुर

IIHMR UNIVERSITY

IIHMR University Faculty Mentor Approval

This is to certify that **Dr. Shreiya Sehgal** 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: 30/07/2025

Dr. Seema Mehta
Professor
IIHMR University, Jaipur

IIHMR UNIVERSITY

POSTER TITLE: "From vulnerability to preparedness: Fire safety exit planning at SMS Super Specialty hospital, Jaipur"

SMS Super Specialty hospital, Jaipur

ABOUT:

SMS Super Specialty hospital, Jaipur is a major government hospital. It was established in the year 2022 and is a 311 bedded hospital catering to three main specialized services including gastro-enterology, nephrology and urology.

VISION:

Our vision is to be a global leader and being at the forefront of advancing healthcare for community wellbeing

MISSION: Our mission is to provide affordable and accessible health care services to all.

ORGANIZATIONAL STRUCTURE:

- Medical superintendent
- Additional medical superintendent
- Deputy medical superintendent
- Unit head
- Head of department
- Nursing in-charge

CHALLENGESS:

- Staff hesitancy
- Limited access to data
- Communication gaps

LEARNING

- Practical exposure to hospital infrastructure.
- Importance of inter departmental coordination.
- Importance of communication

LITERATURE REVIEW

- WHO – Importance of fire safety in health care (Safe hospitals in emergency and disasters: Structural, non structural and functional indicators, 2018)
  - Evacuation maps
  - Back up plan
  - Staff training
- National building code 2016 (Volume 2: Fire and Life safety, BIS)
  - ✓ Multiple unobstructed exit routes
  - ✓ Proper signages with emergency lighting
- NABH (Guidebook for entry level certifications-hospital, QCI)
  - ✓ Floor wise exit maps
  - ✓ Incident reporting and response documentation
- International best practices (Hospital safety and emergency preparedness standards, JCI) colour coded evacuation routes and simulation based staff training.

OBJECTIVES:

- To assess current fire safety measures and identify gaps.
- To design a comprehensive fire safety exit plan.

METHODOLOGY:

Study Design: Descriptive, interacted with the staff members.
Setting: Entire hospital prioritizing high risk areas like OT, ICU, oxygen plant, storage rooms.
Sample size: 10 including hospital facility manager, nursing supervisor, security staff, biomedical engineering team and fire safety officer.

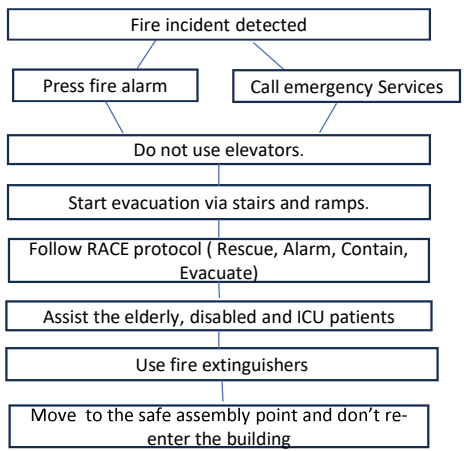
SWOT

STRENGTHS
- Highly qualified medical staff
- Best quality services
- High patient satisfaction

WEAKNESS
- Lack of space management
- Shortage of staff
- No digital record keeping
- Lack of fire exit plan

OPPURTUNITY
- Growing healthcare demand
- Government schemes in health sector

THREATS
- Changes in health technologies
- Staff and patient dissatisfaction



SUGGESTIONS

- Clearly marked emergency exits.
- Emergency lighting and floor cues.
- Conduct monthly mock drills and training.
- Display of evacuation maps in every ward and corridor.
- Colour coded evacuation routes

Presented by- Dr. Shreiya Sehgal
Under the guidance of Dr. Seema Mehta

Compiled Summary of Summer Internship

The first week of my summer internship comprised of a detailed orientation program, which provided me a basic knowledge of hospital structure and functioning. I was given a hospital tour starting from the basement to the seventh floor. I was given a briefing about the overall workflow of various departments within the hospital, including both clinical and non-clinical departments. These included intensive care units (ICU), Outpatient Department (OPD), Operation Theatre (OTS), inpatient department (IPDs), emergency services, clinical services, biomedical, diagnostics, sample collection room, IT department and central drug store. Orientation program gave me a basic understanding about the patient flow process - from entry to discharge. During this week, I also observed the basic sanitation quality being maintained in the hospital and saw the application of hospital management principles in areas such as patient registration, triage system, infection control, waste management and documentation protocols. In the second week, I started auditing various departments to understand their work flow and identify gaps if any in the functioning of the respective department. Firstly, I visited the out-patient door department to observe patient flow. It was found that there were four different lanes comprising of two for males and a separate lane for women and people with disability and elderly hence complying with the state government norms. Here I observed the entire registration process was being done smoothly on the IHMS portal. Next, I visited the in-patient door and lab billing counters where I observed the entire billing procedure being done for every patient treatment. Here the patient is searched for through the unique HID number to make the overall process easy and smooth. Being a government hospital, it had a footfall of more than 1000 patients daily, but during my evaluation it was observed that there is no appropriate mechanism for the crowd management in this area leading to fights among the patients for their turn. My suggestion for overcoming this shortcoming comprised of implementation of the digital token system. The last department that I evaluated in this week was the admission and the discharge department. Here I observed appropriate implementation of all the government schemes including the MAA yojana for all the domiciles of Rajasthan. The only lapse that caught my attention was that there was no online discharge system for the patients from outside the state of Rajasthan making it difficult for the doctors to access the patient data online in such a case.

I began auditing the IT department of the hospital. I talked to the incharges regarding the functioning of the IHMS portal that linked various departments together. It was observed that the portal allows for the patient verification through five different ways including mobile number, Adhaar number, HID

number, Jan Adhaar number and ABHA number. With the help of this patient account is created online where all their details, treatment records and the diagnostic reports are available. The portal is also functional at inquiry desk and the billing counter along with admission and discharge counter. The porta also has a feature of searching various lab tests to be conducted by names as well as an assigned code. The portal also has a feature of uploading the patient diet online but during the evaluation it was found that there is no provision of data correction window making the process rigid. Overall, there were issues of server being down multiple times which needs immediate attention and was communicated to the required authorities. I visited the medical record room where I studied different documents. There was a need for additional infrastructure to keep the records safely. Next day I visited the sample collection room to observe the work process. I gained insight into different types of reagents being used for different procedures. It was observed that the hospital did not have their own testing facility and hence the samples are sent to Dhanvantari hospital for testing. A batch of samples is being sent every forty-five minutes but there is no delay in availability of reports as they are available in the same evening. A significant lapse found during evaluation was that infection control procedures were not being followed properly as sample was being taken without use of gloves.

During the third week of internship, my work focused on visiting the central drug store, ECG room and it also gave me an opportunity to be a part of the inspection team from the government of Rajasthan that visited our hospital. The routine visit to the central drug store provided me the understanding of functioning of the E-Aushadhi portal as to how the demand is generated and how near expiry drugs are handled. The lead time for the replenishment of the drugs was observed to be less than twenty-four hours. The portal has a system of colour flagging the near expiry drugs at least three months before so that they can be stocked out first. During the observation, a need was felt for introduction of an inter hospital inventory dashboard for better communication regarding utilization of near expiry drugs and their easy procurement. Also, there was a need for better cold chain management of the required drugs. The ECG department brought a better understanding of the procedure and how it is conducted smoothly. Since the ECG was not found to be integrated with the IHMS portal the reports were unavailable online hence creating an ambiguity. On 30th May the inspection team from the department of medical education inspected the hospital and I fortunately was a part of the team. As per their final report there were slight discrepancies in the sanitation area as well as the parking facility was found to be unsatisfactory.

Week four provided me the opportunity to visit and review the work processes and the patient flow in the clinical areas like Gastric wards, Gastric ICU along with the biomedical waste department. During interaction with the ICU in-charge, I found that the ICU is eight bedded with 90 percent occupancy rate. The nurse patient ratio was found to be below the required standards. There was no certain fixed protocol for inter departmental transfers creating room for confusions. Major issue discovered was that of very limited infection control. The inspection of gastrology wards revealed the absence of medical staff at all times which is a cause of concern. I interacted with the doctors, who confirmed that the patient diet was not calorie based. Next the biomedical waste department was audited. I visited various departments to check for waste segregation protocols being followed properly. There were issues of waste being mixed despite clear signages regarding waste disposal. I inspected the register maintained for any injury reporting and found that every month had a minimum of two such cases. On talking with the head of this department I found that there was no real time tracking of the biomedical waste raising a concern regarding its theft and safe disposal.

In the fifth week, I was accompanied by the sanitation in-charge to the sewage and water treatment plants of the hospital. I inspected the sewage treatment plant and found that the type of STP being used was the sequential batch reactor. The water was being tested for the various quality indicator. I went through the report and it included parameter like pH, chemical and biochemical oxygen demand, oil and Greece, e. Coli and ammoniacal nitrogen the report revealed that water was fit to be re used for various bathroom purposes. The record of plant functioning was also maintained on a daily basis. There was no separate facility for sludge storage. I visited water treatment plant where it was found to be eighty thousand litres. I inspected the softening plant. It was found during inspection that in case of borewell failure there is no separate water connection. During my inspection of Nephrology ICU I interacted with the in-charge. It was found that there is no dedicated trained staff for ICU and no training is provided to them. During this week, in started working on my project regarding

“**Designing a fire safety exit plan: Stepping forward in the direction of a safer hospital infrastructure”**

On hospital examination, I observed that SMS Super Speciality hospital lacks a comprehensive, documented and mapped fire safety exit plan posing a severe risk to life and property in case of an emergency. There were no visible evacuation maps or directional signages to guide the people towards emergency

exits. The absence of the fire exit plan violates the norms under “National Building Code 2016”.

The objectives behind the study include:

- To assess the current fire safety measures and gaps at SMS Super Speciality hospital.
- To design a comprehensive fire safety exit plan in accordance with NABH and NBC standards and the local fire safety regulations.
- To improve awareness and preparedness among staff regarding emergency evacuation.

Before designing a fire safety exit plan, I conducted a **literature review** which included

- WHO on importance of fire safety in health care settings.
- National building code of India 2016
- NABH guidelines
- International best practices
- Lessons from various hospital incidents
  - AMRI hospital fire, Kolkata
  - Bhandara district hospital, Maharashtra

I conducted a floor wise walk through to understand the existing structural layout hence identifying the gaps. I classified areas based on the fire risk potential prioritizing operation theatres, ICU’s, electrical rooms, storage rooms and oxygen supply plant. I interacted with the hospital facility manager, biomedical engineering team, nursing supervisor, security staff and fire safety officer regarding the existing practices and response chain and to check their preparedness in an event of a fire incident. On investigating I found that there was a sense of confusion among the official regarding their roles and responsibilities in such an event.

I designed the fire safety exit plan which comprised of:

- General instructions to be followed.
- Developed a roles and responsibilities chart for the staff members.
- Gave signage recommendations including-
  - Glow in the dark directional signage.
  - Emergency floor cues and lighting.

This fire safety plan has been made to comply with the best practices and the standards as followed by the WHO, NABH AND as per norms under National Building Code 2016. These include:

- Multiple unobstructed exit routes.
- Fire exits with signage and emergency lighting.
- Floor wise exit maps.
- Colour coded evacuation routes.
- Regular staff training and fire drills.

It is expected that implementation of this fire safety exit plan would result in –

- ✓ Reduced response time during fire emergencies.
- ✓ Increased staff Awareness and preparedness.
- ✓ Enhanced fire safety compliance

In the Sixth week of my internship, I visited the central store and the urology wards. The central store visit gave me an insight into the procurement process of the supplies. I inspected the manual records maintained for them regularly. The urology wards in-charge informed that the diet was not based on calorie and there is shortage of staff in the department. In the seventh week, I audited the nephrology wards and urology ICU. There I witnessed various records related to patient documentation. The documentation was regular but manual.

During the week eight, I reviewed gastro liver ward, drug distribution centre, and visited skin bank. On observation it was found that there was no dedicated isolation room for infectious patients. During the inspection, it was found that there is shortage of staff and need hiring. The inventory management was completely manual and time consuming. During the ninth week, my focus was on understanding the work process in the radiological and imaging department. It was observed that there was absence of an onsite radiologist for report interpretation and limited infection control protocols being followed. There was an absence of patient safety training to the staff members. During the last week of my internship, I visited the operation theatre and the emergency department. There are six modular operation theatres where robotics surgery is being performed. The equipment is checked after every procedure for any potential damage. Proper training sessions are conducted prior to the procedure. On analysing the functioning of emergency department, shortage of beds was observed.

The week also involved a final quality review of all the components of the report, ensuring that each section was complete. The finished key sections include:

• Introduction: Describing the problem statement and objectives of the study.

- Literature review: includes review from WHO, NABH AND NBC 2016

• Methodology: details the gap analysis, interviewing the stakeholders, prioritizing the departments, Qualitative analysis of the data collected and designing the fire safety exit plan.

• Recommendations: Suggestions to improve Compliance with fire safety

• Expected outcomes: details on how the implementation of this plan can help prevent loss of life and property.

Reporting Format (Week 1)

Name of the Organisation: Sawai Maan Singh super speciality hospital

Area/ Department/ Project of Summer Internship Program: Department of medical education

Name of the Student: Shreiya Sehgal

Roll no: 1964 Stream: Hospital and Health management

Week no:1 From:15th May to 17th May

Activity Done	I went on a Hospital Tour from basement to the 7th floor and visited various departments like urology, nephrology and gastro enterology. I met various key personnel associated with the department. And had an introductory session.
Linking theory (Classroom learning) with practice at your organisation	Planning of the hospital
Gaps identified on the working area.	Limited space management Shortage of man power Poor sanitation in the ramp area
Suggestions for improvement	Improve space management. Needs more human resource Improved sanitation
Plan for the next week	I will be visiting the OPD and IPD of various departments I will be talking to the heads of departments I will be observing patient and work flows.

Signature of the Student Shreiya Sehgal

Approved by the IIHMR University's Mentor

Reporting Format (Week 2)

Name of the Organisation: Sawai Maan Singh super speciality hospital

Area/ Department/ Project of Summer Internship Program: Department of medical education

Name of the Student: Shreiya Sehgal

Roll no: 1964 Stream: Hospital and Health management

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

Activity Done	I visited the OPD registration counter, lab and billing counter and admission and discharge counter. I visited the I.T. department I visited the sample collection room.
Linking theory (Classroom learning) with practice at your organisation	Space management Digitisation of hospital processes.
Gaps identified on the working area.	No manual record maintenance when server is down Less sitting space in the OPD area Crowd management needs improvement No provision for online discharge of patients from outside the state No provision for a data correction window Sample collection without the use of gloves by some technicians.
Suggestions for improvement	Manual record maintenance in case of technical glitches to prevent patient discomfort. Provision of department-based windows integrated with the token system to prevent crowding. Online discharge system for the patients from outside the state. Option of data correction window in the IHMS portal Strict adherence to the infection control protocols by the lab technicians
Plan for the next week	visit the central drug store and the OPD Of various departments.

Signature of the Student

Shreiya Sehgal

Approved by the IIHMR University's Mentor

Reporting Format (Week 3)

Name of the Organisation: Sawai Maan Singh super speciality hospital

Area/ Department/ Project of Summer Internship Program: Department of medical education

Name of the Student: Shreiya Sehgal

Roll no: 1964 Stream: Hospital and Health management

Week no: 3 From:26th May to 31st May

Activity Done	I visited the central drug store and the ECG room. There was an inspection on 30th may in our hospital by department of medical education.
Linking theory (Classroom learning) with practice at your organisation	Planning of the hospital
Gaps identified on the working area.	Absence of real time stock visibility across hospitals No audit or inspection mechanism ECG system is not integrated with IHMS portal No separate chambers for male and female
Suggestions for improvement	Presence of inter hospital inventory dashboard Internal audit mechanism for quality assurance. Integrate ECG with in IHMS portal 2 different chambers should be provided.
Plan for the next week	I will be visiting the central store and biomedical waste department to understand the work processes.

Signature of the Student

Shreiya Sehgal

Approved by the IIHMR University's Mentor

Reporting Format (Week 4)

Name of the Organisation: Sawai Maan Singh super speciality hospital

Area/ Department/ Project of Summer Internship Program: Department of medical education

Name of the Student: Shreiya Sehgal

Roll no: 1964 Stream: Hospital and Health management

Week no: 4 From:2nd of June to 7th of June

Activity Done	Visited the Gastric ICU, gastric wards and the biomedical waste department.
Linking theory (Classroom learning) with practice at your organisation	Planning of the hospital
Gaps identified on the working area.	Limited infection control protocol followed in the ICU Doctor patient ratio not upto the standard. Diet is not calorie based Patient is not recommended by the nurse for the procedures No real time tracking of the biomedical waste Incidents of injuries reported
Suggestions for improvement	Alcohol based wall mounted dispensers Need for proper doctor to patient ratio Calorie based diet for the patients in the ward Patient should be accompanied by the nurse for the required procedures Need for real time tracking of the biomedical waste as per the amended rules Strict adherence to the precautionary protocols while handling of the biomedical waste
Plan for the next week	I would be visiting the central store, Nephro ICU and wards to understand the work flow and the patient flow and identify the gaps if any

Signature of the Student

Shreiya Sehgal

Approved by the IIHMR University's Mentor

Reporting Format (Week 5)

Name of the Organisation: Sawai Maan Super speciality hospital

Area/ Department/ Project of Summer Internship Program: Department of medical education

Name of the Student: Shreiya Sehgal

Roll no: 1964 Stream: Hospital and Health management

Week no - 5th From:9th June to 14th June

Activity Done	I visited the sewage treatment plant, water treatment plant and nephrology ICU.
Linking theory (Classroom learning) with practice at your organisation	Planning of the hospital
Gaps identified on the working area.	No backup water supply in case of borewell failure Absence of a dedicated sludge storage area Absence of training for upskilling of the staff No provision for the special diet for the patients.
Suggestions for improvement	Required PHEd connection Dedicated sludge storage area required Regular training for staff upskilling Provision of a special diet for the patients
Plan for the next week	Visit the nephron wards Visit the Central store

Signature of the Student Shreiya Sehgal

Approved by the IIHMR University's Mentor

Reporting Format (Week 6)

Name of the Organisation: Sawai Maan Singh super speciality hospital

Area/ Department/ Project of Summer Internship Program: Department of medical education

Name of the Student: Shreiya Sehgal

Roll no: 1964 Stream: Hospital and Health management

Week no: 6 From:15th June to 21st June

Activity Done	I visited the central store and the urology wards to understand the work flows and the patient flows.
Linking theory (Classroom learning) with practice at your organisation	Planning of the hospital
Gaps identified on the working area.	No digital inventory management for the supplies procured. Demand generation by the department is manually done. Less manpower in the wards. Diet is not calorie based
Suggestions for improvement	There should be digital inventory management Digital demand generation More nurses in the ward Calorie based diet should be provided to the patients
Plan for the next week	I would be visiting the nephrology wards and the urology ICU to understand the patient flows and the workflows.

Signature of the Student

Shreiya Sehgal

Approved by the IIHMR University's Mentor

Reporting Format (Week 7)

Name of the Organisation: Sawai Maan Singh super speciality hospital

Area/ Department/ Project of Summer Internship Program: Department of medical education

Name of the Student: Shreiya Sehgal

Roll no: 1964 Stream: Hospital and Health management

Week no:7 From:23rd June to 28th June

Activity Done	Visited the nephrology ward and the urology ICU
Linking theory (Classroom learning) with practice at your organisation	Planning of the hospital
Gaps identified on the working area.	Insufficient nurse to patient ratio Generalized diet for all patients. No monthly training to the staff members Manual inventory management of supplies
Suggestions for improvement	Need more recruitment for nurses Diet should be calorie based. Training sessions should be held for staff members.
Plan for the next week	Would be working on a fire exit plan. Would be visiting other departments to understand patient flows and work flows

Signature of the Student

Shreiya Sehgal

Approved by the IIHMR University's Mentor

Reporting Format (Week 8)

Name of the Organisation: Sawai Maan Singh super speciality hospital

Area/ Department/ Project of Summer Internship Program: Department of medical education

Name of the Student: Shreiya Sehgal

Roll no: 1964 Stream: Hospital and Health management

Week no:8 From:30th JUNE to 5th JULY

Activity Done	I visited the gastro-liver ward Prepared a fire safety exit plan I visited the drug distribution centre I visited the skin bank.
Linking theory (Classroom learning) with practice at your organisation	Planning of the hospital
Gaps identified on the working area.	No dedicated isolation room increasing the risk of cross infections Insufficient staff allocation Manual inventory management Improper cold chain management No regular reporting to authorities
Suggestions for improvement	Need for a dedicated isolation room More staff allocation required Digital inventory management Proper cold chain management required There should be regular reporting to the higher authorities
Plan for the next week	I will be reviewing the diagnostic areas like Radiology, MRI and sonography rooms to understand their functioning and identify gaps if any.

Signature of the Student

Shreiya Sehgal

Approved by the IIHMR University's Mentor

Reporting Format (Week 9)

Name of the Organisation: Sawai Maan Singh super speciality hospital

Area/ Department/ Project of Summer Internship Program: Department of medical education

Name of the Student: Shreiya Sehgal

Roll no: 1964 Stream: Hospital and Health management

Week no: 9 From:7TH July to 12th July

Activity Done	I visited the radiology and imaging department including -X-Ray -MRI -Sonography
Linking theory (Classroom learning) with practice at your organisation	Planning of the hospital
Gaps identified on the working area.	No radiologist for report interpretation. Limited infection control measures. Lack of regular training
Suggestions for improvement	Hiring of an on-site radiologist. Better infection control protocols should be followed. Regular safety training should be given to the staff.
Plan for the next week	I will be visiting the emergency department and the operation theatre to understand the overall all patient flow and the work processes.

Signature of the Student

Shreiya Sehgal

Approved by the IIHMR University's Mentor

Reporting Format (Week 10)

Name of the Organisation: Sawai Maan Singh super speciality hospital

Area/ Department/ Project of Summer Internship Program: Department of medical education

Name of the Student: Shreiya Sehgal

Roll no: 1964 Stream: Hospital and Health management

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

Activity Done	I visited the emergency department and the operation theatre and talked to their incharges.
Linking theory (Classroom learning) with practice at your organisation	Planning of the hospital
Gaps identified on the working area.	Limited beds availability. Manual patient record documentation. No digital scheduling system.
Suggestions for improvement	More beds should be available. Digital patient record maintenance. Digital OT scheduling system.
Plan for the next week	I will be working on my poster and combined report.

Signature of the Student

Shreiya Sehgal

Approved by the IIHMR University's Mentor