

SUMMER INTERNSHIP PROGRAM

at

UMAID HOSPITAL, JODHPUR

From 15/05/2025 to 29/07/2025

A REPORT BY

ABHISHIL SUMEDH MESHRAM

Master of Business

Administration

HEALTHCARE

ANALYTICS

Roll no: 0014

2024-26

under the Mentorship of

Dr. Sarthak Sengupta



UMAID HOSPITAL, JODHPUR

Completion Certification from the Organization CERTIFICATE

This is to certify that **Mr. Abhishil Sumedh Meshram** of batch **2024-26** of **IIHMR University, Jaipur**, has worked with our organization for his summer internship from **15/05/2025 to 29/07/2025**.

The overall performance shown by him during the period was Excellent.

Date :- 29/07/2025

प्रशिक्षण अधिकारी
सुमेध चिकित्सालय
जोधपुर

Jush

(Mentor)

Dr. Hitesh Bhansali

Deputy Director

UMAID Hospital, Jodhpur

प्रमुख
चिकित्सक
जोधपुर

Mohan

(Medical Superintendent)

Dr. Mohan Makwana

Medical Superintendent

UMAID Hospital, Jodhpur

IIHMR University Faculty Mentor Approval

This is to certify that **Mr. Abhishil Sumedh Meshram** of academic year 2024-26 **School of Digital Health** has prepared a poster with respect to his summer internship held during May-July 2025.

He has carried out work as per the guidelines. His poster is approved for presentation.

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Date: 30/07/2025

Dr. Sarthak Sengupta
Assistant Professor

An IPD Admission Trend and Forecast Analysis (January 2020 - May 2025)

About Project

Organization

Umaid Hospital is a major government healthcare center in Jodhpur, Rajasthan, known for its wide-reaching services in maternal and child health. As a referral-level tertiary care facility, it handles a high volume of in-patient admissions every year, especially in departments like Obstetrics & Gynaecology and Pediatrics. The hospital serves a large section of the rural and urban population and plays a key role in state healthcare schemes. With its focus on accessibility and service delivery, Umaid Hospital supports both emergency care and specialized treatments, making it a critical part of the region's public health system.

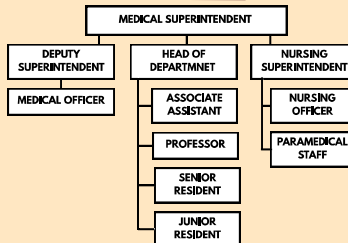
Vision

To become a reliable and accessible public healthcare center that delivers quality care especially in maternal and child health while using data and technology to improve hospital planning and patient outcomes.

Mission

- To deliver free and timely healthcare services to maternal and child health.
- To ensure that no patient is denied treatment due to financial limitations.
- To use hospital data effectively for better planning of doctors, staff, medicines, and beds.
- To actively support state and national health programs, improving access and outcomes for underserved communities.

Organisation Structure



Key Insights :

- OBG Department :**
 - Handled the highest patient load over 2.65 lakh admissions (~69% of total admission)
 - Reflects Umaid's primary role in maternal healthcare
- Pediatrics Department :**
 - Second-highest admissions with 95,000+ child patients (~25%)
 - Highlights critical role in neonatal and child health services

Objectives :

- Analyze IPD admission trends (Jan 2020–May 2025) by department, age, and gender
- Identify peak months and high patient-load areas.
- Create interactive dashboards for real-time insights.
- Support planning of hospital staff, beds, and resources.
- Build a foundation for future healthcare analytics projects.

Methodology :

- Data Source: 5.5 years of IPD admission data from Umaid Hospital, Jodhpur (Jan 2020–May 2025).
- Tools Used: Excel, Power Query, & Power BI.

Steps Followed:

- Cleaned and standardized raw data.
- Created dashboards showing trends and forecasts.
- Used Power BI for time-series forecasting and visual storytelling.

Software & Tools Used :

- Microsoft Excel – For initial data collection and sorting
- Power Query – For cleaning, transforming, and preparing hospital data
- Power BI – For dashboard creation, visualizations, and forecasting

DATASET OVERVIEW :

- Source: IPD admission records from Umaid Hospital, Jodhpur
- Time Period Covered: January 2020 – May 2025 (5.5 Years)
- Total Records: 3,85+ lakh patient entries
- Departments Covered: Obstetrics & Gynaecology, Pediatrics, Emergency, Pediatric Surgery
- Key Data Fields:
 - Department & Ward Name
 - Age & Gender (Adult/Child – Male/Female/Others)
 - Total Admissions
 - Month & Year

SWOT Analysis

Strengths

- Handled a large dataset with over 3.85 lakh patient records across 5.5 years
- Developed user-friendly Power BI dashboards for clear decision-making
- Identified seasonal peaks and high-load departments using real hospital data.

Opportunities

- Clean data can improve accuracy in hospital planning and forecasting
- Scope to expand analytics into areas like cost tracking and patient feedback
- Strong base to adopt EHR systems and real-time dashboards for smarter management

Weaknesses

- Raw data had entry mistakes and inconsistencies, especially in gender and department tags
- Lack of OPD and discharge data limits complete patient journey analysis
- Manual data processes reduce efficiency and increase chances of human error

Threats

- Resistance from staff to shift from traditional methods to data-driven tools
- Poor data practices may affect reliability and long-term digital transformation
- Limited infrastructure and manpower could struggle during peak patient load.

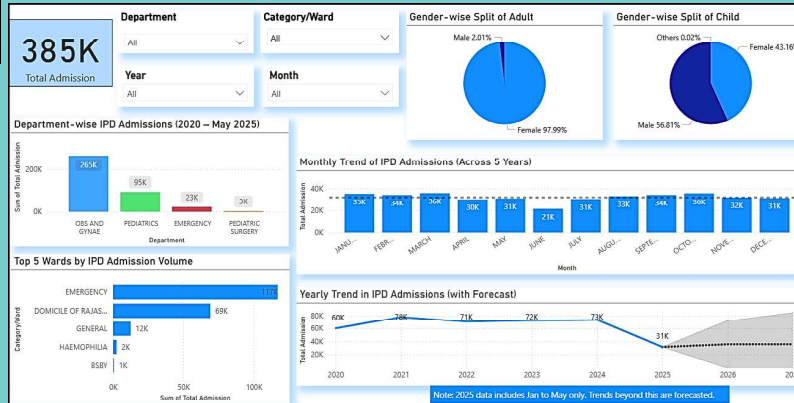
Challenges

- Raw data had missing entries, wrong gender tags, and inconsistent department names
- Extra time was spent fixing errors before starting analysis.
- Standardizing categories (e.g., "OBG AND GYNAE" vs "OBG") was critical for dashboard accuracy.
- Couldn't analyze full patient journey or length of stay & disease.
- Insights were limited to admissions only, not treatment outcomes.
- Coordination with departments for clarification was time-consuming.
- No automation tools in use at the hospital.

Sr.	Theoretical understanding	Practical understanding
1	Based on case studies, models, and structured lessons.	Real-time problem-solving with hospital data.
2	Clean, ideal datasets used for teaching.	Raw, unstructured data with real-life errors and inconsistencies.
3	Learned tool concepts (Excel, Power BI, SQL)	Applied tools for live dashboards, forecasting, and data cleaning.
4	Theoretical models and assumptions.	Data-driven decisions aligned with hospital needs and workflow.
5	Simulated classroom assignments.	Fast-paced work under deadlines, teamwork, and mentor reviews.

Outcomes of the Project :

- Converted 3.85 lakh+ raw records into actionable insights
- Developed a dashboard used for identifying high patient load and peak months
- Provided forecast models to help Umaid Hospital plan staffing and resources
- Created a base for future analytics like OPD trends, cost tracking, and patient satisfaction



Learnings :

- Gained hands-on experience in cleaning, transforming, and analyzing real hospital data.
- Improved skills in Excel, Power BI and Power Query.
- Understood how to identify trends, peak periods, and department-wise workloads.
- Learned how to build interactive dashboards for decision-making.
- Explored forecasting techniques to support resource planning.

3. Gender Distribution :

- 98% adult admissions were female (due to maternity care)
- Child admissions: 57% male, 43% female

4. Months:

- March & October saw the highest patient inflow (~36,000 each)
- June had the lowest admissions (~21,000)

5. Forecast Insights:

- 2026 projected admissions: ~72,000
- 2027 forecast: ~85,000 — showing growing demand

1st Week Report

Name of the Organisation: UMAID HOSPITAL, JODHPUR

Area/ Department/ Project of Summer Internship Program: Data Analysis, IHMS

Name of the Student: Abhishil Sumedh Meshram

Roll no: 0014

Stream: MBA Healthcare Analytics

Week no: 01

From: 15/05/2025 to 24/05/2025

Activity Done	Day 1: We visited major hospital departments (OPD, IPD, Lab, Pediatrics, etc.). Understood patient flow and departmental functions at Umaid Hospital. Day 2: I met with hospital superintendent Dr. Mohan Makwana and Dr. Hitesh Tej Bhansali sir for a project discussion. And collected key performance data, 1.Avg. patient waiting time (registration, lab, consultation) 2.Maa Yojna claims (submitted & rejected) 3.Bed occupancy and availability data. Day 3: I met with IHMS operator and project engineer Mrs. Chandrika Dave in the IT department. Then I started a staff data collection survey: Employee ID, name, contact, job details, supervisor info, photo, email. Day 4: Sunday Day 5: Participated in initial orientation and observed the hospital's administrative flow and patient registration process. Understood the organizational structure and role of IHMS in daily hospital operations. Day 6: Explored the Electronic Health Record (EHR) module within IHMS. Observed how patient details, clinical data, and treatment history are entered, updated, and retrieved. Day 7–8: Worked with the department team to understand daily workflow involving patient admissions, service allocation, and discharge processing. Studied how data flows between departments and how IHMS supports interdepartmental coordination. Day 9: Initiated a formal request to access patient flow data through IHMS. Focused on collecting data related to patient waiting time at various service points (e.g., pediatric ward, drug distribution counter). Day 10: Submitted the application to the IHMS project engineer for permission to access required datasets. Discussed data availability, confidentiality protocols, and reporting structure.
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Linking theory (Classroom learning) with practice at your organisation	Concepts of healthcare analytics and data management were effectively applied in the first week. Real-time data collection on patient flow, waiting times, and bed occupancy helped me understand practical challenges in hospital management.
Gaps identified on the working area.	Gaps were observed in digital record-keeping, delayed data entry, and lack of real-time monitoring, that's why lot of patients were seen in the waiting line.
Suggestions for improvement	Though there is an IHMS there is queue, implementing a centralized digital system for real-time data entry, and regular training for staff on data handling can enhance overall efficiency and accuracy.
Plan for the next week	Working on survey further as a data entry part, And I will have a discussion on some project ideas by me with Superintendent sir and IHMS operator.



Signature of the Student

Approved by the IIHMR University's Men

2nd Week Report

Name of the Organisation: UMAID HOSPITAL, JODHPUR

Area/ Department/ Project of Summer Internship Program: Data Analysis

Name of the Student: Abhishil Sumedh Meshram

Roll no: 0014

Stream: MBA Healthcare Analytics

Week no: 02

From: 26/05/2025 to 31/05/2025

Activity Done	Day 1: Received IPD patient data in Excel format through the hospital team. Initiated the data cleaning process and identified key inconsistencies, including missing timestamps for admission and consultation, which highlighted critical data quality gaps for analysis. Day 2: Sorted the dataset and identified departments with irregular records. Held a discussion with the hospital superintendent regarding data issues and future workflow support. Was also informed about upcoming staff hiring activities for the new IPD building. Day 3: Visited the newly constructed IPD building as part of a team task to assist in staff hiring planning. Observed the infrastructure and collaborated with hospital staff to estimate the number and type of healthcare personnel required for operational readiness. Day 4: (Maharana Pratap Jayanti – Holiday) Utilized the time to work remotely on understanding the Department of Medical Education's framework on IHMS module usage across Rajasthan government hospitals. Day 5: Conducted on-site visits to various departments including Admissions, OPD, Lab, and Pharmacy. Observed real-time processes of patient data entry, record management, and inter-departmental data flow within IHMS. Day 6: Based on insights from the IPD dataset and departmental visits, initiated a new project titled 'An IPD Admission Trend and Forecast Analysis (January 2020 - May 2025) in IPD Services'. The project focuses on identifying service bottlenecks and improving operational efficiency through data-driven insights.
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Linking theory (Classroom learning) with practice at your organisation	I applied classroom concepts like data sorting, project management, and healthcare operations in real tasks. From data cleaning to staff hiring visits and departmental work, the experience helped me connect theory with practice and deepen my practical understanding.
Gaps identified on the working area.	Identified gaps such as delays flags and timestamp in during data sorting, limited staff availability for key tasks, and a need for better coordination between departments to improve workflow and efficiency.
Suggestions for improvement	Improving inter-departmental communication to ensure smoother workflow and better efficiency. And Implementation of more modules of IHMS in hospital so that can help to deploy the delay flags.
Plan for the next week	I will do further work on project of 'Admission trend Analytics' will find more key insights and, I will work on making of a report regarding to task assigned by superintendent related to staff hiring for new IPD dept.



Signature of the Student

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3rd Week Report

Name of the Organisation: UMAID HOSPITAL, JODHPUR

Area/ Department/ Project of Summer Internship Program: Data Analysis, IHMS

Name of the Student: Abhishil Sumedh Meshram

Roll no: 0014

Stream: MBA Healthcare Analytics

Week no: 03

From: 02/06/2025 to 07/06/2025

Activity Done	The primary focus of this week revolved around two major components: the hospital restructuring initiative under the Laqsay Program and the predictive modeling project titled ‘An IPD Admisssion Trend and Forecast Analysis Umaid Hospital (Jan 2020- May 2025)’. In the initial days, I worked collaboratively with hospital management students on the Laqsay restructuring program. This involved understanding existing workflows, documenting departmental processes, and contributing to the reporting structure for proposed improvements. Simultaneously, I received hands-on exposure to IHMS software, particularly modules related to Admissions, Lab, and Pharmacy. I observed digital workflow integration and the challenges associated with real-time hospital data capturing and inter-departmental coordination. Midweek, I finalized the scope, objectives, and methodology of my individual internship project and submitted the plan for mentor approval. The project focuses on analyzing IPD patient trends and improving hospital operational efficiency through data-driven insights. Post-approval, I began the data collection and cleaning process for the IPD dataset. Several inconsistencies such as missing consultation times and incomplete entries were noted, which required detailed data manipulation using Excel and Power BI.
Linking theory (Classroom learning) with practice at your organisation	Concepts such as data manipulation, measuring calculation, and report creation were applied during the predictive modelling project using power Bi and Excel.
Gaps identified on the working area.	Inconsistent data quality standards were very huge void for performing the project so I have to manipulate the data set with the timestamps like Consultation time and IPD admission time so that I can deploy the delay flags.

Suggestions for improvement	Working on a project that highlights the importance of timestamped data in improving patient flow and hospital efficiency i.e. 'An IPD Admission Trend and Forecast Analysis (January 2020 - May 2025).
Plan for the next week	I will further try to analyze more things on the ' Admission Trend and Forecast Analysis ' project.



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4th Week Report

Name of the Organisation: UMAID HOSPITAL, JODHPUR

Area/ Department/ Project of Summer Internship Program: Data Analysis

Name of the Student: Abhishil Sumedh Meshram

Roll no: 0014

Stream: MBA Healthcare Analytics

Week no: 04

From: 09/06/2025 to 14/06/2025

Activity Done	I submitted the staff hiring report for the work, which was assigned by medical superintendent sir and, I learned the IPD process for RGHS system on Day 1 . Due to a strike, no work was done on Day 2 , but I did further analysis work. From Days 3 to 5 , I focused on data sorting using pivot tables for IPD, On Day 6 , I explored additional insights that could be derived from the data.
Linking theory (Classroom learning) with practice at your organisation	Concepts like data sorting, grouping, and analysis using pivot tables covered in our data analytics coursework were directly applied to real OPD, IPD, and discharge datasets. Additionally, understanding healthcare workflows such as the IPD process aligned well with our theoretical modules on hospital operations and health system.
Gaps identified on the working area.	Inconsistent data quality standards which I manipulated because of that only the delay flag got mentioned successfully and got effective insights from the dataset.
Suggestions for improvement	I am working on a project that highlights the importance of timestamped data in improving patient flow and hospital efficiency. So that hospital considers this as a suggestion for improvement in IHMS module standard format.
Plan for the next week	I will further work on project to get more insightful things from the dataset.



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5th Week Report

Name of the Organisation: UMAID HOSPITAL, JODHPUR

Area/ Department/ Project of Summer Internship Program: Data Analysis

Name of the Student: Abhishil Sumedh Meshram

Roll no: 0014

Stream: MBA Healthcare Analytics

Week no: 05

From: 16/06/2025 to 21/06/2025

Activity Done	On Day 1, the focus was on analyzing the overall patient flow specifically work on calculating the Admission trend by month and year. Day 2 involved identifying and examining across IPD the total admission by year and month. On Day 3, a pivot table was created to track month-wise patient counts and their exact timestamp so that the peak month & year can be identified to maximize the efficiency. Day 4 was dedicated to planning the data visualization approach, followed by initiating the visualization work on Day 5 and continuing it through Day 6 by using power bi.
Linking theory (Classroom learning) with practice at your organisation	Pivot table usage learned during academic coursework in healthcare analytics was directly applied to real-world hospital data. The use of data visualization tools further reinforced theoretical knowledge of effective communication and data storytelling.
Gaps identified on the working area.	Lack of Real-Time Data Integration these were the major gaps issues which are the voids for analyzing things perfectly. There was error during admission of patient by the operator and nurse.
Suggestions for improvement	I am working on a project that highlights the importance of timestamped data in improving patient flow and hospital efficiency. This may help to create a standard data set format which can be integrated with an IHMS system module which can help with the real time analysis.
Plan for the next week	I will work on a project to make the analysis visually perfect and better using the power BI software.



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6th Week Report

Name of the Organisation: UMAID HOSPITAL, JODHPUR

Area/ Department/ Project of Summer Internship Program: Data Analysis

Name of the Student: Abhishil Sumedh Meshram

Roll no: 0014

Stream: MBA Healthcare Analytics

Week no: 06

From: 23/06/2025 to 28/06/2025

Activity Done	On Day 1, all graphs were initially plotted using Power BI by using the same pivot tables which were plotted with the help of pivot tables. On Day 2, in the morning there was a team discussion held in that suggestions were given which involved refining these visuals. Work on the dashboard began on Day 3 and continued through Day 4 by using Power BI. On Day 5, a focused discussion was held to review the dashboard on ‘An IPD Admission Trend and Forecast Analysis (January 2020 - May 2025)’ with all proper visuals along with the slicers based on doctor and department. And finally, on Day 6, the dashboard was completed, refined and finalized.
Linking theory (Classroom learning) with practice at your organisation	Concepts such as data visualization, dashboard design, and iterative development learned during academic sessions were practically applied using Power BI. Each stage, from plotting graphs to refining and finalizing the dashboard, reflected theoretical knowledge being implemented to solve actual operational challenges, thereby strengthening analytical and decision-making skills which can be beneficial move in time management of Umaid Hospital.
Gaps identified on the working area.	some inconsistencies in data labeling and department names were observed, affecting readability which was still there when I imported the dataset in the Power BI which was a problem for plotting the graph visuals.
Suggestions for improvement	To enhance future projects, it's suggested to begin with a well-defined dashboard layout plan and clearer data mapping to avoid rework. In simple terms there is requirement of standard dataset which can be added to the IHMS module which will be helpful for getting key insights.
Plan for the next week	I will further work on projects and tasks. And I will be looking forward to getting new tasks and projects.



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7th Week Report

Name of the Organisation: UMAID HOSPITAL, JODHPUR

Area/ Department/ Project of Summer Internship Program: Data Analysis

Name of the Student: Abhishil Sumedh Meshram

Roll no: 0014

Stream: MBA Healthcare Analytics

Week no: 07

From: 29/06/2025 to 05/07/2025

Activity Done	Day 1: Started cleaning and standardizing the IHMS dataset to prepare it for integration with Power BI. Ensured all department names, patient categories, and timestamps followed a uniform structure. Day 2: Identified and corrected inconsistencies in field formats and filled missing values where applicable to maintain data integrity. Day 3: Created a relational data model that connected various tables such as patient records, service details. Day 4: Defined and calculated key metrics including Total Admission, Ward wise load, month & year admission for each department. Day 5: Mapped all relevant data sources to support slicers for department, doctor, and visit type within Power BI. Day 6: Finalized the optimized dataset, tested it within Power BI, and confirmed its compatibility with dynamic filtering and real-time reporting.
Linking theory (Classroom learning) with practice at your organisation	Concepts like data cleaning, relational modeling, and metric definition previously studied in class proved essential in structuring the data effectively for live dashboard reporting.
Gaps identified on the working area.	Inconsistent data entries across sources, missing values in key fields, and lack of standardized formats, which initially hindered smooth integration with Power BI.
Suggestions for improvement	Maintaining updated documentation on data sources and flow will also streamline future integration efforts. Lastly, periodic training sessions for staff involved in data handling can promote better data hygiene and accuracy.
Plan for the next week	Will further work on project and tasks.

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Signature of the Student

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8th Week Report

Name of the Organisation: UMAID HOSPITAL, JODHPUR

Area/ Department/ Project of Summer Internship Program: Data Analysis

Name of the Student: Abhishil Sumedh Meshram

Roll no: 0014

Stream: MBA Healthcare Analytics

Week no: 08

From: 07/07/2025 to 12/07/2025

Activity Done	Day 1: Cleaned and structured the IHMS dataset by creating standard fields such as Patient ID, Visit Type, Department, and all key timestamps (Registration, Consultation, Admission, and Discharge) in a consistent Date-Time format. Day 2: Calculated delay columns (e.g., Registration-to-Consultation, Admission-to-Discharge) to track bottlenecks and patient flow efficiency. Day 3: Integrated the cleaned dataset into Power BI and began developing visuals for patient journey tracking and department-wise bottlenecks. Day 4: Finalized the initial version of the Power BI dashboard and reviewed visual consistency and slicer functionality. Day 5: Presented the dashboard and insights to the Medical Superintendent; received feedback regarding visual clarity and layout improvements. Day 6: Implemented minor changes as per feedback and set up Excel based dynamic refresh for near real-time dashboard updating.
Linking theory (Classroom learning) with practice at your organisation	Classroom concepts like data preprocessing, visualization, and real-time analytics using tools like Excel and Power BI were effectively applied in this project.
Gaps identified on the working area.	Inconsistent data entry across departments, missing or incorrect timestamps, lack of real-time data integration, and limited use of analytics tools for decision-making
Suggestions for improvement	To improve patient flow and data reliability, it is suggested to implement automated timestamp capturing at key service points, ensure regular staff training on accurate data entry, and integrate IHMS with Power BI using real-time sync (via Excel/OneDrive or API).
Plan for the next week	Will further work on project and tasks.



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9th Week Report

Name of the Organisation: UMAID HOSPITAL, JODHPUR

Area/ Department/ Project of Summer Internship Program: Data Analysis

Name of the Student: Abhishil Sumedh Meshram

Roll no: 0014

Stream: MBA Healthcare Analytics

Week no: 09

From: 14/07/2025 to 19/07/2025

Activity Done	Day 1: Finalized Power BI visualizations, including charts for delay trends, bed occupancy rates, and discharge time analysis, ensuring each metric aligned with hospital KPIs. Day 2: Integrated interactive slicers and filters into the dashboard for dynamic reporting based on doctor, department, and selected time periods. Day 3: Drafted the internship presentation slides summarizing key insights and methodologies. Began designing the layout for the final poster. Day 4: Conducted a formal project presentation to the Medical Superintendent, highlighting critical bottlenecks and improvement areas using visual insights. Received feedback for further refinement. Day 5: Refined the poster design and finalized the dashboard with updated visuals. Compiled all reports, visuals, and documentation into a structured format. Day 6: Prepared final submission materials, including printed versions of the report, dashboard exports, and poster for IIHMR and hospital records.
Linking theory (Classroom learning) with practice at your organisation	Applied data visualization principles, dashboard storytelling techniques, and presentation skills. Used healthcare KPIs and Power BI functionality learned during coursework to create interactive reports and visual narratives.
Gaps identified on the working area.	Variability in department naming caused visual inconsistency. Lack of a standardized reporting format affected the initial design flow.
Suggestions for improvement	Recommend development of a master data dictionary for consistent data entry. Suggest using a pre-defined Power BI dashboard template for future projects to reduce design time and improve uniformity.
Plan for the next week	Will further work on post internship work.

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Signature of the Student

Approved by the IIHMR University's Mentor

10th Week Report

Name of the Organisation: UMAID HOSPITAL, JODHPUR

Area/ Department/ Project of Summer Internship Program: Data Analysis

Name of the Student: Abhishil Sumedh Meshram

Roll no: 0014

Stream: MBA Healthcare Analytics

Week no: 10

From: 21/07/2025 to 29/07/2025

Activity Done	Day 1: Reviewed and refined Power BI visuals for clarity and consistency. Day 2: Improved slicer alignment and formatting for department and doctor filters. Day 3: Verified calculated metrics using Excel. Day 4: Designed internship poster using dashboard visuals and KPIs. Day 5: Collected feedback from the superintendent and made final edits. Day 6: Finalized and exported all visual assets for submission. Day 7: Holiday Day 8: Printed and reviewed final report, dashboard screenshots, and project poster. Day 9: Submitted final project materials to hospital and IIHMR; completed closure tasks.
Linking theory (Classroom learning) with practice at your organisation	Iterative visualization design and dashboard storytelling techniques were used to enhance clarity and communication. Final documentation practices and professional project handoff based on data analytics coursework
Gaps identified on the working area.	Minor labeling and design inconsistencies.
Suggestions for improvement	Use standardized dashboard templates for hospital analytics going forward.
Plan for the next week	Will further work on post internship work.



Signature of the Student

Approved by the IIHMR University's Mentor

Compiled Reporting Format

Name of the Organization: UMAID HOSPITAL, JODHPUR

Name of the Student: Abhishil Sumedh Meshram

Area/ Department/ Project of Summer Internship Program: IHMS, Data Analysis

Roll no: 0014

Stream: MBA Healthcare Analytics

Activity Done	During my internship at Umaid Hospital, I was involved in a comprehensive data-driven project focused on An IPD Admission Trend and Forecast Analysis (January 2020 - May 2025) and process improvement. Over the course of 10 weeks, I undertook various tasks involving departmental observation, data collection, cleaning, analysis, visualization, and dashboard creation. The internship gave me hands-on experience with hospital information systems, public health data, event coordination, and staff workflow understanding. The following summary outlines the week-by-week activities carried out during the internship. Week 1 (15–24 May) Visited major hospital departments (OPD, IPD, Lab, Pediatrics, etc.) to understand real-time patient flow. Collected performance data such as waiting times at registration and consultation counters, Maa Yojna claim records, and current bed occupancy. Initiated staff survey to gather data on employee roles, contact details, and reporting structure. Week 2 (26–31 May) Explored IHMS modules and EHR usage. Observed how data is captured and maintained across departments. Initiated request for access to patient flow data and focused on Pediatric and Pharmacy delays. Understood gaps in consultation and admission timestamps. Week 3 (2–7 June) Received IPD patient data and began cleaning. Identified irregular records and missing fields. Participated in IPD staff hiring planning and visited the newly constructed IPD building. Proposed 'An IPD Admission Trend and Forecast Analysis (January 2020 - May 2025)' project based on departmental delays and bottlenecks.
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	Week 4 (9–14 June) Supported restructuring activities under Laqsay Program. Finalized methodology and project design for "IPD Admission Trend and Forecast Analysis (Jan 2020–May 2025)." Started preparing and cleaning datasets, focusing on timestamp consistency and missing entries. Week 5 (16–21 June) Submitted staff hiring report. Due to a statewide strike, conducted remote analysis and organized OPD, IPD, and discharge datasets using pivot tables. Grouped data by delay flags and began deriving insights on departmental delays. Week 6 (23–28 June) Calculated overall patient flow percentages. Built pivot tables for daily volume with exact timestamps to identify peak months. Planned and began creating visuals using Power BI. Week 7 (30 June–5 July) Plotted initial graphs using Power BI and refined visuals based on team feedback. Created dashboard with slicers for doctor, department, and delay flag filters. Finalized the first version of the dashboard for internal review. Week 8 (7–12 July) Cleaned IHMS data thoroughly, ensuring standardized formats. Built a relational data model and mapped key metrics such as Bed Occupancy, and ward wise load. Optimized the dataset for dynamic slicing and Power BI compatibility. Week 9 (14–19 July) Structured the IHMS dataset with consistent timestamps (Registration, Consultation, Admission, Discharge). Added calculated columns for delay intervals. Integrated the dataset into Power BI and presented a working dashboard. Incorporated feedback for layout clarity and real-time Excel refresh integration. Week 10 (21–25 July) Exported to Excel and built time-series visuals in Power BI. Finalized slicers, dashboard visuals, project poster, and delivered the final presentation to hospital administration. Improved dashboard storytelling elements by refining slicers and comparative visuals. Adjusted Power BI appointment dashboard layout. Responded to feedback on visual clarity
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	and began preparing final submission materials including the revised poster. Compiled and consolidated the final project report. Made last refinements to the Power BI dashboard. Finalized internship PPT, printed final poster, and submitted completed documentation to IIHMR and hospital authorities.
Linking theory (Classroom learning) with practice at your organisation	During my 10-week internship, I got a chance to use the healthcare analytics concepts we learned in class. In the first week, I collected real-time data on patient flow, waiting time, and bed usage, which helped me understand how hospitals actually work. As the weeks went on, I applied what we learned about healthcare workflows, data systems, and analysis to real tasks. I worked on data cleaning, visited departments, and even saw staff hiring in action. I used Excel and Power BI to sort and analyze OPD, IPD, and discharge data. I also learned how to design dashboards, calculate measures, and show insights in a simple way. Using pivot tables and charts made it easier to understand hospital data and make better decisions. By the end of the internship, I was confident in using tools like Excel, and Power BI to turn raw hospital data into useful insights. This experience really helped me connect classroom learning with real-world healthcare problems.
Gaps identified on the working area.	Throughout my 10-week internship, I noticed several gaps in the hospital's data handling process. In the early weeks, I observed delays in data entry, missing or incomplete records, and no real-time tracking of patient information. There were also issues like inconsistent formats, wrong or missing timestamps, and different department names, which made the data confusing and hard to analyze. As I worked more closely with departments, I saw that coordination between them was weak, and data was often not shared properly. Many times, data was entered manually, leading to errors and delays. There was no standard way to flag delays or track them across systems. These issues made it difficult to use tools like Power BI effectively. Overall, the lack of standardized formats, real-time integration, and use of analytics tools created challenges in getting accurate insights and making timely decisions.

Suggestions for improvement	Over the 10 weeks of my internship, I came across many areas where improvements could really help the hospital run more smoothly. One major suggestion is to implement a centralized digital system for real-time data entry and provide regular training to staff on proper data handling. This would reduce delays and improve accuracy. It's also important to improve communication and coordination between departments, so that workflows become faster and more efficient. As I worked on projects, I saw how critical timestamped data is for tracking patient movement and improving hospital flow. Having a clear plan before building dashboards and keeping documentation updated can save time and reduce confusion. In the later weeks, I felt that automating timestamp collection and syncing IHMS data with tools like Power BI could give real-time insights. Overall, better digital systems, automation, and regular staff training will improve both data quality and hospital decision-making.
Key Learnings	During my internship, I got a hands-on understanding of how healthcare analytics works in a real hospital setting. I learned how to collect, clean, and analyze real-time patient data, including flow, waiting times, and departmental performance. Applying classroom concepts like data sorting, pivoting tables, dashboard design to actual hospital data helped me bridge the gap between theory and practice. I understood the importance of accurate and timely data entry, and how even small inconsistencies in format or naming can impact overall analysis. Working with tools like Excel and Power BI, I developed dashboards that not only visualized key metrics but also supported better decision-making. I also realized how essential interdepartmental coordination and real-time data integration are for smooth hospital operations. Along the way, I saw how structured data, clear communication, and proper digital systems can bring huge improvements in efficiency. This experience gave me a much deeper appreciation of data quality, hospital workflows, and the power of analytics in transforming healthcare management.



Signature of the Student

Approved by the IIHMR University's Mentor