

Internship Training at

TRIO TREE TECHNOLOGIES Pvt. Ltd.

OPTIMIZING HIS UTILIZATION: EVALUATING PHYSICIAN-DRIVEN
IMPROVEMENTS FOR IMPROVED WORKFLOW EFFICIENCY

by

Name: Shivang Bhama

Enroll No. PG/23/111

Under the guidance of

Dr. Sumesh Kumar

PGDM (Hospital

& Health

Management)

2023-25



International Institute of Health Management Research New Delhi

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International Institute of Health Management Research New Delhi

Completion of Dissertation from respective organization

The certificate is awarded to

Mr. Shivang Bhama

in recognition of having successfully completed his internship in the department of
Functional Department

and has successfully completed his Project on

**'OPTIMIZING HIS UTILIZATION: EVALUATING PHYSICIAN-DRIVEN
IMPROVEMENTS FOR IMPROVED WORKFLOW EFFICIENCY'**

Date: 31/05/25

Trio Tree Technologies Pvt. Ltd.

He comes across as a committed, sincere & diligent person who has a strong drive & zeal for learning. We wish him/her all the best for future endeavors.

Training & Development

Authorized Signatory

TO WHOMSOEVER IT MAY CONCERN

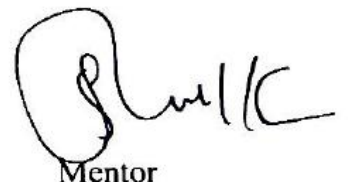
This is to certify that Shivang Bhama student of PGDM (Hospital & Health Management) from International Institute of Health Management Research, New Delhi has undergone internship training at Trio Tree Technologies Pvt. Ltd. from 1 March 2025 to 31 May 2025.

The Candidate has successfully carried out the study designated to him during internship training and his/her approach to the study has been sincere, scientific and analytical.

The Internship is in fulfillment of the course requirements. I wish him all success in all his future endeavors.



Dr. Sumesh Kumar
Associate Dean, Academic and Student Affairs
IIHMR, New Delhi



Mentor

IIHMR, New Delhi

Certificate of Approval

The following dissertation titled **Optimizing HIS Utilization: Evaluating Physician-Driven Improvements for Improved Workflow Efficiency in Hyderabad at IIHMR Delhi** is hereby approved as a certified study in management carried out and presented in a manner satisfactorily to warrant its acceptance as a prerequisite for the award of **PGDM (Hospital & Health Management)** for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed or conclusion drawn therein but approve the dissertation only for the purpose it is submitted.

Dissertation Examination Committee for evaluation of dissertation.

Name

DR. MUKESH R. RAUSHAN. (Asst. Prof)

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Certificate from Dissertation Advisory Committee

This is to certify that **Mr./Dr. Shivang Bhama**, a graduate student of the **PGDM (Hospital & Health Management)** has worked under our guidance and supervision. He/She is submitting this dissertation titled **"OPTIMIZING HIS UTILIZATION: EVALUATING PHYSICIAN-DRIVEN IMPROVEMENTS FOR IMPROVED WORKFLOW EFFICIENCY"** at **"Trio Tree Technologies Pvt. Ltd."** in partial fulfillment of the requirements for the award of the **PGDM (Hospital & Health Management)**.

This dissertation has the requisite standard and to the best of our knowledge no part of it has been reproduced from any other dissertation, monograph, report or book.



Dr. Sumesh Kumar
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**INTERNATIONAL INSTITUTE OF HEALTH MANAGEMENT
RESEARCH,
NEW DELHI**

CERTIFICATE BY SCHOLAR

This is to certify that the dissertation titled **“OPTIMIZING HIS UTILIZATION: EVALUATING PHYSICIAN-DRIVEN IMPROVEMENTS FOR IMPROVED WORKFLOW EFFICIENCY”** and submitted by (Name) Mr. Shivang Bhama Enrollment No. PG/23/111 under the supervision of Dr. Sumesh Kumar for award of PGDM (Hospital & Health Management) of the Institute carried out during the period from 1 March to 31 May 2025 embodies my original work and has not formed the basis for the award of any degree, diploma associate ship, fellowship, titles in this or any other Institute or other similar institution of higher learning.



Signature

FEEDBACK FORM

Name of the Student: Dr. Shivang Bhamra

Name of the Organisation in Which Dissertation Has Been Completed:

Trio Tree Technologies Pvt Ltd.

Area of Dissertation: Functional Department

Attendance: 88/90 Days

Objectives achieved:

- End-user training, evaluated clinical modules
- BRD creation and implementation of new functions
- Client Handling

Deliverables:

- Presented useful insights that were helpful to hospital IT and clinical team

Strengths:

He communicated well with both technical and clinical teams, He was self-motivated and had good understanding of HIS workflow.

Suggestions for Improvement:

Need to understand product more in detail

Suggestions for Institute (course curriculum, industry interaction, placement, alumni):

- More practical sessions with HIS tools, Regular interactions with healthcare companies
- Involve Alumni interactions for guiding students

Signature of the Officer-in-Charge/ Organisation Mentor (Dissertation)

Date: 25/07/25

Place: Noida



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Shivang Bhama

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ABSTRACT/ EXECUTIVE SUMMARY

Background: Healthcare Information Systems (HIS) have transformed hospital operations by digitizing medical records, streamlining workflows, and enhancing patient care. These systems, including Electronic Medical Records (EMR), enable efficient documentation, real-time access to patient data, and improved clinical decision making. However, the efficiency of HIS depends on how seamlessly physician can interact with its various clinical modules. At present, most of the Indian hospitals are adopting HMIS as a way of automation and digitalization of their health-care records.

At a **Multi-Specialty Hospital, Hyderabad, Trio Tree Technologies** is implementing an EMR, with the focus on evaluating the usability of key HIS clinical modules like **Physician, Nursing (OP & IP), Discharge Summary & Templates**.

Although HIS enhances documentation and decision-making, its **efficiency for doctors** depends on its usability, system responsiveness, and adaptability to clinical workflows. Challenges such as complex interfaces, slow system responses, and workflow mismatches can **hinder adoption and efficiency**. This study aims to assess how efficiently doctors utilize these clinical modules, identify key challenges, and evaluate how modification suggested by physicians improve HIS usability.

Objective

- 1) To evaluate the usability of clinical modules in the Hospital Information System (HIS).
- 2) To find out the gaps in the HIS related to clinical Modules.
- 3) To do intervention to fulfil the gaps in HIS and improve physician satisfaction.

Methodology: This Descriptive, Survey based study was conducted at a Multi-Specialty Hospital, Hyderabad to assess the impact of physician-driven HIS Modifications. Data were collected from 95 physicians using a 20-questions Pre and Post Interview survey on a 5 Point Likert Scale, supported by interviews. Interventions included screen redesign, template customization and targeted training. Comparative analysis of mean scores measured improvements in usability, documentation time, and workflow alignment.

Key Findings: Lack of quantity of systems, Inadequate knowledge on systems to some of the staff, slowness of network or system, non-satisfactory for some of the menus in modules, providing inadequate information during requirements gathering.

Conclusion: Hospital Management Information System is Implemented in a hospital for managing patient care and related administrative functions. And it has the potential to improve the efficiency of overall system through automation and generates necessary reports for managing operations, performance, quality, planning, decision making and reporting for the projects.

Keywords: Hospital information management system, Implementation, Quality.

CHAPTER 1 – Profile of the Organization

Trio Tree Technologies Pvt. Ltd.

Trio Tree Technologies Pvt. Ltd., founded in 2012 and headquartered in Noida, India, is a leading Healthcare IT solution provider, known for delivering **enterprise-grade digital platforms** tailored for healthcare institutions. With operations across **India, the UK, the Middle East, Africa, Malaysia, and Bahrain**, Trio Tree serves over **175+ healthcare clients** by providing **next-generation, modular, and integrated** HIS (Hospital Information System) platforms.

Their Flagship product, **HIS Tree**, is a comprehensive physician-driven platform that reimagines hospital operations through **Clinical depth, workflow automation, and real-time intelligence**. The solution is built with deep understanding of hospital ecosystems and enables healthcare organizations to move away from fragmented tools toward a **unified and interoperable digital infrastructure**.

HIS Tree is Trio Tree's end-to-end digital hospital management platform. It spans that entire operational and clinical spectrum, integrating various departments including outpatient, inpatient, diagnostics, pharmacy, finance, OT, ICU, emergency, housekeeping, MRD, and more.

The solution follows a **modular microservices architecture**, meaning hospitals can choose and implement only the components they need, while ensuring interoperability and smooth data flow.

HIS Tree is different from competition because it is:

- Developed **with and for physicians** to ensure real-world usability.
- Highly **configurable workflows** for each clinical specialty.
- Deployable both **on premises** and on **cloud**.
- Powered by real-time **dashboards, alerts, and clinical insights**.
- Seamless **Clinical-Administrative Integration**
- Flexible deployment in both **Private and Government Setups**
- Interoperability through **HL7, PACS, LIS, and Biometric Integration**
- Configurable workflows tailored to **department-specific use cases**
- Support for **Clinical Decision-making** and **patient safety**

While HIS Tree can be deployed **on-premises**, Trio Tree is increasingly offering its solutions in a **SaaS model** to support scalable, flexible, and cost-efficient implementations.

SaaS Benefits:

- Hospitals **pay a fixed monthly fee**.
- No need to invest in local servers or maintenance staff.
- Real-time Backups, **zero downtime**, and **auto-updates**.
- Centralized access across hospital branches and geographies.
- Fully **cloud-enabled**, with API-based integrations and data lakes.

The platform supports **clinical, financial, administrative, and analytical functions**, all with **multitenancy, interoperability, and data security**.

Trio Tree continues to expand its footprint across **India, Middle East, Africa, and Southeast Asia**, driven by a vision of enabling **affordable and quality healthcare through intelligent digital systems**. The company's R&D team is actively working on:

- **AI-powered voice-based clinical templates**
- **Multilingual documentation tools**
- **Smart hospital automation**
- **Digital consent systems**
- **IoT-based vitals integration**

Trio Tree Technologies Pvt. Ltd. Stands at the forefront of **healthcare digital transformation**, offering a well-orchestrated platform that merges **clinical intuitiveness, technical scalability, and modular flexibility**. With HIS Tree, Mobi HIS Tree, and their KIOSK systems, Trio Tree is empowering hospitals to deliver **seamless, efficient, and patient-centered care** across multiple settings and geographies.

To understand more, we must learn what SaaS is:

One way to distribute software as a service via the Internet is called Software as a Service (SaaS). Complicated software and gadget maintenance is no longer necessary because you may obtain software via the Internet rather than installing and maintaining it. SaaS programs are referred to as hosted software, web-based software, and on-demand software. Regardless of their name, SaaS apps are housed on a SaaS provider's servers. The application's performance, availability, and security are managed by the service provider.

The healthcare industry has started using SaaS to handle EMR in order to lessen the workload for internal IT staff, automate EMR technology maintenance, and enhance usability. Additionally, implementing EMR with cloud-based data management systems enhances scalability.

All of your medical records are kept in a single data lake, which is provided when you use EMR as a SaaS. Interoperability has the advantage of guaranteeing that physicians and other stakeholders can access a single view of the patient profile from the system. Because of this benefit, businesses may make better use of data and streamline procedures to increase return on investment (ROI). Medical professionals and other healthcare industry stakeholders can expand their operations with SaaS EMR since it eliminates the need to manually manage prescriptions, medical records, and other valuable data. Additionally, SaaS turns raw data into an accessible repository, doing away with the necessity for accurate reporting.

Product of Trio Tree:

1). Hospital Information System (HIS Tree): Major Functional Modules Across Clinical and Operational Domains seen in the main launchpad interface and they are:

- **Physician Module:** Central platform for doctors to view patient history, enter clinical notes, place orders (labs, drugs, imaging), and discharge summaries.
- **OPD/ IPD Nursing:** Records patient vitals, care plans, medication administration, and progress notes in real-time.
- **Lab Medicine & Diagnostics:** Integrated modules for managing lab workflows, result entry, analyzer interfacing, and report publishing.
- **ICU:** Captures critical parameters, device integration, daily rounds, and multi-hour clinical tracking.
- **Operation Theatre (OT):** Schedule surgeries, capture intra-operative events, record anesthesia notes, manage instruments, and sterilization.
- **Discharge Summary:** Auto-population yet editable format that includes diagnoses, clinical summary, medication, and follow-up advice.
- **Templates:** Ready-made clinical documentation templates to reduce repetition and support structured medical records.
- **Incident Report:** Captures medication errors, patient falls, device failures, etc., for root cause analysis and patient safety.
- **ADT (Admission, Discharge, Transfer):** Seamlessly tracks patient movements and room assignments across departments.
- **Front Office:** Handles patient registration, appointment scheduling, token generation, and inquiry resolution.
- **Pre-Admission & Daycare:** Manages pre-surgical approvals and daycare procedures for short-stay services like chemotherapy, dialysis, or Minor Surgeries.
- **Emergency:** Records Triage, Initial Assessment, ER prescriptions, transfer/admission from ER, and medico-legal cases.
- **Diet & Kitchen:** Assigns diet orders, tracks meal preferences and allergies, and links with kitchen workflows.
- **Housekeeping & Biomedical:** Ensures bed readiness, infection control, equipment maintenance, and service logs.
- **Sample collection & Transfusion Medicine:** Manages sample barcoding, blood bank inventory, donor information, and transfusion logging.
- **Rehabilitation:** Captures therapy sessions (physio, OT, Speech) and patient progress documentation.
- **Billing (OPD, IPD, Emergency):** Captures all patient charges automatically and integrates with insurance and TPA processing.
- **A/R (Accounts Receivable):** Manages receivables, collections, and outstanding dues from various payers.
- **Package & Plans:** Configures bundled service plans, corporate tariffs, insurance packages, and government schemes.
- **Pharmacy:** Drug inventory, prescription integration, stock alerts, purchase order automation, and narcotics tracking.
- **Inventory & Asset Management:** Tracks hospital supplies, reorder levels, purchase cycles, and maintenance of assets.
- **MIS Reports:** Offers executive dashboards and real-time key performance indicators (KPIs) for informed decision making.

- **MRD (Medical Records Department):** Digitized central repository for scanned patient records, consents, MLC files, and discharge summaries.
- **HL7 Manager:** Enables secure messaging and integration with external systems like PACS, LIS, and third-party ERPs.
- **Security Module:** Role-based access control (RBAC), audit trails, and HIPAA-complaint user authorization.

2). Mobile App: Mobi HIS-Tree

Trio Tree has also developed **Mobi HIS Tree**, a **smartphone-compatible app** for physicians and clinicians to manage essential tasks on the go.

- Patient lookup and visit details
- Viewing test results and reports
- Writing brief clinical notes (SOAP Format)
- Placing medication and diagnostic orders
- Capturing vitals and assessment data
- Task reminders and alerts

Though not as detailed as the desktop HIS Tree, Mobi HIS Tree enables **point-of-care documentation** and **faster clinical responsiveness**-ideal for ICU rounds, emergencies, or quick updates.

3). KIOSK: Patient Self-Registration Portal

To further digitalize the patient journey, Trio Tree deploys **self-service KIOSKS** at client hospitals. These touch screen kiosks help reduce crowding and improve patient convenience by enabling:

- New & returning patient registration
- Real-time appointment booking
- Queue number generation
- Payment and Slip printing
- Patient ID card generation

This not only shortens patient waiting times but also **reduces front-office dependency** and enables **touchless workflows**-especially useful post-COVID.

While HISTree can be deployed **on-premises**, Trio Tree is increasingly offering its solutions in a **SaaS model** to support scalable, flexible, and cost-efficient implementations.

- Hospitals **pay a fixed monthly fee**
- No need to invest in local servers or maintenance staff
- Real-time backups, **zero downtime**, and **auto-updates**
- Centralized access across hospital branches and geographies
- Fully **cloud-enabled**, with API-based integrations and data lakes

The platform supports **clinical, financial, administrative, and analytical functions**, all with **multitenancy**, **interoperability**, and **data security**.

CHAPTER 2: DISSERTATION

“OPTIMIZING HIS UTILIZATION: EVALUATING PHYSICIAN-DRIVEN IMPROVEMENTS FOR IMPROVED WORKFLOW EFFICIENCY”

Introduction

One component of health informatics that primarily addresses the administrative requirements of hospitals is a hospital information system (HIS). In many cases, an HIS is a complete, integrated information system that is intended to handle every facet of a hospital's operations, including financial, legal, and medical administration matters as well as the associated service processes. Hospital management software (HMS) is another name for a hospital information system. Informatics uses IT as a fundamental resource to acquire, organise, validate, store, retrieve, integrate, analyse, communicate, and present information (Lifshitz et al., 2007; Sinard, 2006).

The term HMIS refers to the "computer system designed to improve the quality of healthcare and to make it easier to manage all of the hospital's medical and administrative information." (Fieschi and Degoulet, 1997) Information about an individual's health or the care they receive is referred to as health information. An EHR system is made up of "the longitudinal collection of electronic health information for and about persons." Electronic health records (EHR) kept by patients and providers are essential components of an EHR system.

Healthcare Information Systems (HIS) have transformed hospital operations by digitalizing medical records, streamline workflows, and enhancing patient care. These systems, including Electronic Medical Records (EMR), enable efficient documentation, real-time access to patient data, and improved clinical decision-making. However, the efficiency of HIS depends on how seamlessly physicians can interact with its various clinical modules. At present, most of the Indian hospitals are adopting HMIS as a way of automation and digitalization of their health care records.

At a Multi-Specialty Hospital, Hyderabad, Trio Tree Technologies is implementing an EMR, with the focus on evaluating the usability of Key HIS clinical Modules:

- Physician
- Nursing (OP & IP)
- Discharge Summary
- Templates

Although HIS enhances documentation and decision-making, its efficiency for doctors depends on its usability, system responsiveness, and adaptability to clinical workflows. Challenges such as complex interfaces, slow system responses, and workflow mismatches can hinder adoption and efficiency. This study aims to assess to how efficiently doctors utilize these clinical modules, identify key challenges, and evaluate how modifications suggested by physicians improve HIS usability.

Review of Literature

- According to a study by Arora and Ikbal, the implementation of HIMS in developed nations has been fraught with difficulties, such as managing infrastructure, integrating, dealing with interdepartmental issues, technical requirements, data and software issues, end-user contribution, standardizing terminology, training requirements, and a lack of knowledge about hospital administration. HMIS is "data-driven" rather than "action-driven" in poor countries because many medical personnel equate information systems with filling out endless registers, gathering data, and submitting reports without enough input.
- According to research by Becich et al. (2004) and Sinard and Morrow (2001), HMIS is crucial for addressing problems like growing laboratory volume through outreach initiatives, heightened EMR integration, and the ensuing requirement to integrate disparate information systems. Shortages of laboratory resources, patient safety, cost management, subspecialty centralization, growing demand for laboratory diagnostics, and tailored interventions. The average wait time for patients to receive laboratory findings was significantly reduced in this case study as well thanks to the HMIS-integrated EMR.
- According to studies by Galliers and Sutherland (1991), Lubitz and Wickramasinghe (2006), and Nolan, Norton, and CO (1992), key performance variables in the automation phase should have been strategically considered from a visionary standpoint before moving forward with HMIS implementation. The majority of senior staff members found the system more complicated and were averse to change. More over 50% of employees gave neutral or disagreeing answers when asked how easy it was to utilize HMIS.
- The digital transformation of healthcare processes is widely recognized as a pathway to improving efficiency, reducing administrative burden, and enhancing patient care. Studies highlight that traditional paper-based workflows in hospitals lead to time inefficiencies, data loss, and clinician dissatisfaction (Boonstra & Broekhuis, 2010; Menachemi & Collum, 2011).
- Modern Literature Supports the use of process automation tools-especially no-code platforms-as practical solutions for healthcare institutions with legacy symptoms and limited IT budgets (KPMG, 2020). The integration of such tools into existing platforms like Microsoft SharePoint enables incremental change without large-scale infrastructure overhauls (Greenhalgh et al., 2004)
- User-centered design and stakeholder buy-in are repeatedly emphasized as critical factors for successful health IT adoption (Cresswell & Sheikh, 2013). The FlowForma case study exemplifies this by involving clinicians in the design of digital workflows, resulting in increased adoption and improved outcome such as reduced documentation time and enhanced data accessibility.

HMIS is thought to be the most promising tool for raising the general effectiveness, safety, and efficiency of the healthcare system. When HMIS is widely and efficiently used, adverse events are reduced, medical costs are decreased, and administrative productivity is increased, all of which enhance the quality of healthcare. decrease paperwork and improve access to reasonably priced care. Digital access to original data is available through HMIS, and it can be a powerful tool in the hospital management's decision support system. Clinical applications of the HMIS data can improve diagnosis and therapy. Additionally, the hospital can use the HMIS data to improve scientific inventory management procedures and drug computations.

CHAPTER 3: Objectives, Hypotheses and Daily Log Book

Objectives

The objectives are:

1. To evaluate the usability of clinical modules in the Hospital Information System (HIS).
2. To find out the gaps in the HIS related to clinical modules.
3. To do intervention to fulfill the gaps in HIS and improve physician satisfaction

Hypotheses

- H_0 : Physician-driven improvements in HIS do not significantly improve workflow efficiency.
- H_1 : Physician-driven improvements in HIS significantly improve workflow efficiency.

Daily logbook

Date	Time	Activities
20 February - February 28, 2025	9:00 AM to 7:00 PM	1. Internship Joining Formalities 2. Induction Training Program
1 March – March 31, 2025	9:00 AM to 7:00 PM	1. Searching Articles & Reviewing 2. Learning about Trio Tree Products 3. Attending the meetings and updating 4. Worked on HIMS modules
1 April -15 April, 2025	9:00 AM to 7:00 PM	1. Team stand-up meeting 2. Learning about Trio Tree Products 3. Attending meeting with the client and gathered all the requirements 4. Addressing Client Requirements with development team to build the HIMS software 5. Collecting feedback from Client regarding current hospital
16 April – 30 April, 2025	9:00 AM to 7:00 PM	1. Team stand-up meeting 2. Learning about Trio Tree Products 3. Manually testing the build HIMS product for errors 4. Addressing Errors to the development team and rectify those issues 5. Setting up newly made functionalities for end users
1 May – 15 May, 2025	9:00 AM to 7:00 PM	1. Team stand-up meeting 2. Learning about Trio Tree Product

		3. Training the end users and rectify errors in the build HIMS Software 4. Modifying newly made functionalities as per individual users request 5. New Functionalities came on patch update received on 1 May 2025
15 May – 31 May, 2025	9:00 AM to 7:00 PM	1. Team stand-up meeting 2. Clarifying doubts and resolving issues 3. Getting signatures from the client on the points received in new update and user training sign off document also 4. Submitted the signed documents to reporting manager 5. Collected data after new functionalities training has been given and end user are using them 100 percent as per reported by the hospital Medical Super-Intendent

CHAPTER 4: Methodology and Result

Methodology

Study Design

This is a **Survey-based** descriptive study to evaluate how effectively physicians utilize HIS clinical modules.

Duration of Study will be 1st March to 30th May 2025.

Study Setting

The research will be conducted at **Multispecialty Hospital, Hyderabad**, where HIS is implemented by **Trio Tree Technologies**. Physicians from multiple specialties will participate in assessing the system's efficiency.

Participants and Sampling:

- **Target Group:** Users actively using HIS Clinical modules.
- **Formula used for Sample Size calculation:** Cochran's formula.

Which is; $N = (Z^2 \times p \times (1-p)) / e^2$.

$$N_0 = (1.96) (1.96) (0.5) (1-0.5) / (0.05)^2 = 0.9604 / 0.0025 = 384.16$$

For an infinite population I would need 384 respondents.

Since my population is 120. Therefore,

$$N = (N_0) / (1 + N_0 - 1/N) = 384.16 / 1 + 3.193 = 91.6 \text{ or } 92 \text{ (Approx.)}$$

- **Sample Size:** Total 92 respondents would be selected based on the appropriate sampling formula.
- **Sampling Method:** Purposive sampling technique adopted to ensure representation from different clinical departments.

Data Collection Methods (*Semi-Structured Interviews*):

The 20 questions which were answered on the scale of 1 to 5 and the options were:

Very Difficult – Difficult – Moderately Helpful – Easy – Very Easy.

And; Following are the 20 questions which are categorized into 3 sections to meet the objectives: -

General HIS/ Usability:

1. How easy it is to navigate the HIS Clinical Modules during your workflow?
2. How easy is it to find frequently used features like patient charts, notes or discharge summaries?

3. How helpful is the interface layout in completing your daily documentation tasks?
4. How clearly is clinical information (vitals, history, notes) presented in the system?
5. How easy is it to move between different modules (e.g; Physician -> D/C summary)?
6. How responsive is the system while loading, saving, or switching between tasks?
7. How confident are you in using the HIS independently without support?

Documentation Time & Ease/ Gaps

8. How helpful are the templates in reducing the time needed for documentation?
9. How well do the existing templates meet your specialty-specific requirements?
10. How easy is it to update or correct data once entered in the HIS?
11. How clearly does the system guide you through what needs to be documented?
12. How helpful is the Favorites or quick access section in saving time?
13. How easy is it to complete a patient note without repeating the same information?
14. How satisfied are you with the availability and visibility of important patient information when needed?

Workflow Alignment & Efficiency/ Physician Satisfaction

15. How helpful is the HIS in reducing your documentation time overall?
16. How much does the current system support your typical clinical workflow?
17. How satisfied are you with how your feedback is considered in HIS improvements?
18. How Clearly can you see changes made in the system based on user input?
19. How much have the updates (if any) made your job easier and more efficient?
20. Overall, how satisfied are you with the HIS and its support for your daily tasks?

Result:**#) Gaps and Challenges Identified:****1) User Interface is Not Smooth****Description:**

Physicians reported difficult navigating the HIS interface due to cluttered design, inconsistent screen layouts, and lack of intuitive flow. Important features are buried under multiple tabs, making it harder to locate and use them efficiently during clinical work.

Impact:

- Increases time spent on each patient interaction
- Leads to user frustration and lowers satisfaction
- Reduces focus on patient care due to system-related distractions.

Underlying**Cause:**

The interface was designed without sufficient physician input, resulting in a system not aligned with real-world clinical workflows.

2) Too Many Clicks to Complete a Process**Description:**

Several routine tasks (e.g; placing orders, filling discharge summaries, or accessing previous notes) require excessive steps and repetitive actions, which adds to documentation fatigue.

Impact:

- Slows down clinical workflows
- Reduces efficiency and increases documentation time
- Increases the risk of missing critical steps or entering incorrect data

Underlying**Cause:**

Over Rigid process flows and lack of shortcut features or automation.

3) Difficulty in Adopting to change in Technology**Description:**

Some Physicians, especially senior consultants, struggles to adapt to new screen flows, templates, and digital documentation practices.

Impact:

- Delays in using new features
- Hesitation to adopt upgraded HIS tools
- Increased dependency on manual workarounds or assistants

Underlying Cause:

Insufficient hands-on training and lack of user-specific customization.

4) Delayed or Missed Information**Description:**

Critical patient information (e.g; prior vitals, medication history, or investigations) is sometimes buried in different modules or requires navigating across screens, leading to missed clinical insights.

Impact:

- Compromised clinical decision-making
- Risk to patient safety due to overlooked data
- Duplication of investigations or miscommunication between departments

Underlying Cause:

Lack of real-time data visibility and disjointed module integration.

#) Interventions Implemented:**Intervention Implemented for Problem 1:**

- Redesigned the OP module from SOAP to SNAPSHOT view, presenting patient info in a consolidated single screen.
- Streamlined data presentation and reordered elements based on frequency of use.

Intervention Implemented for Problem 2:

- Introduced **Favorites** functionality to reduce steps in repetitive tasks.
- Enabled smart suggestions and dropdowns to auto-fill repetitive fields.

Intervention Implemented for Problem 3:

- Conducted focused, **specialty-wise training sessions**.
- Provided **ongoing support** and quick-reference job aids.
- Simplified the user interface where possible.

Intervention Implemented for Problem 4:

- Integrated modules into a **unified SNAPSHOT view** for physicians
- Enabled **live updates** of vitals, labs, and medication history on a single screen
- Reduced screen toggling with tabbed design.

The Analysis of Each Question of the questionnaire:

Physician feedback obtained from a 20-question survey conducted both before and after the installation of certain treatments in the Hospital Information System (HIS) is compared in this study's pre- and post-modification tables. Three domains were identified from the responses: workflow alignment with physician satisfaction, documentation time and ease, and general usability of HIS modules.

Pre – Modification/ Interventions Analysis

How easy is it to navigate the HIS clinical modules during your workflow?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Difficult	16	16.8	16.8	16.8
	Easy	3	3.2	3.2	20.0
	Moderately Helpful	21	22.1	22.1	42.1
	Very Difficult	54	56.8	56.8	98.9
	Very Easy	1	1.1	1.1	100.0
	Total	95	100.0	100.0	
How easy is it to find frequently used features like patient charts, notes, or discharge summaries?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Difficult	29	30.5	30.5	30.5
	Moderately Helpful	14	14.7	14.7	45.3
	Very Difficult	49	51.6	51.6	96.8
	Very Easy	3	3.2	3.2	100.0
	Total	95	100.0	100.0	
How helpful is the interface layout in completing your daily documentation tasks?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Difficult	26	27.4	27.4	27.4
	Easy	2	2.1	2.1	29.5
	Moderately Helpful	19	20.0	20.0	49.5
	Very Difficult	47	49.5	49.5	98.9
	Very Easy	1	1.1	1.1	100.0

	Total	95	100.0	100.0	
How clearly is clinical information (vitals, history, notes) presented in the system?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Difficult	22	23.2	23.2	23.2
	Easy	3	3.2	3.2	26.3
	Moderately Helpful	13	13.7	13.7	40.0
	Very Difficult	55	57.9	57.9	97.9
	Very Easy	2	2.1	2.1	100.0
	Total	95	100.0	100.0	
How easy is it to move between different modules (e.g., Physician → D/C Summary)?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Difficult	18	18.9	18.9	18.9
	Easy	1	1.1	1.1	20.0
	Moderately Helpful	16	16.8	16.8	36.8
	Very Difficult	58	61.1	61.1	97.9
	Very Easy	2	2.1	2.1	100.0
	Total	95	100.0	100.0	
How responsive is the system while loading, saving, or switching between tasks?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Difficult	27	28.4	28.4	28.4
	Easy	1	1.1	1.1	29.5
	Moderately Helpful	11	11.6	11.6	41.1
	Very Difficult	55	57.9	57.9	98.9
	Very Easy	1	1.1	1.1	100.0
	Total	95	100.0	100.0	
How confident are you in using the HIS independently without support?					
		Frequency	Percent	Valid Percent	Cumulative Percent

Valid	Difficult	23	24.2	24.2	24.2
	Easy	2	2.1	2.1	26.3
	Moderately Helpful	18	18.9	18.9	45.3
	Very Difficult	52	54.7	54.7	100.0
	Total	95	100.0	100.0	
How helpful are the templates in reducing the time needed for documentation?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Difficult	22	23.2	23.2	23.2
	Easy	5	5.3	5.3	28.4
	Moderately Helpful	15	15.8	15.8	44.2
	Very Difficult	53	55.8	55.8	100.0
	Total	95	100.0	100.0	
How well do the existing templates meet your specialty-specific requirements?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Difficult	22	23.2	23.2	23.2
	Easy	2	2.1	2.1	25.3
	Moderately Helpful	15	15.8	15.8	41.1
	Very Difficult	54	56.8	56.8	97.9
	Very Easy	2	2.1	2.1	100.0
	Total	95	100.0	100.0	
How easy is it to update or correct data once entered in the HIS?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Difficult	24	25.3	25.3	25.3
	Moderately Helpful	19	20.0	20.0	45.3
	Very Difficult	50	52.6	52.6	97.9
	Very Easy	2	2.1	2.1	100.0
	Total	95	100.0	100.0	

How clearly does the system guide you through what needs to be documented?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Difficult	27	28.4	28.4	28.4
	Easy	4	4.2	4.2	32.6
	Moderately Helpful	23	24.2	24.2	56.8
	Very Difficult	40	42.1	42.1	98.9
	Very Easy	1	1.1	1.1	100.0
	Total	95	100.0	100.0	
How helpful is the Favorites or Quick Access section in saving time?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Difficult	20	21.1	21.1	21.1
	Easy	4	4.2	4.2	25.3
	Moderately Helpful	23	24.2	24.2	49.5
	Very Difficult	47	49.5	49.5	98.9
	Very Easy	1	1.1	1.1	100.0
	Total	95	100.0	100.0	
How easy is it to complete a patient note without repeating the same information?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Difficult	27	28.4	28.4	28.4
	Easy	3	3.2	3.2	31.6
	Moderately Helpful	14	14.7	14.7	46.3
	Very Difficult	50	52.6	52.6	98.9
	Very Easy	1	1.1	1.1	100.0
	Total	95	100.0	100.0	
How satisfied are you with the availability and visibility of important patient information when needed?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Difficult	24	25.3	25.3	25.3
	Easy	2	2.1	2.1	27.4

	Moderately Helpful	23	24.2	24.2	51.6
	Very Difficult	44	46.3	46.3	97.9
	Very Easy	2	2.1	2.1	100.0
	Total	95	100.0	100.0	
How helpful is the HIS in reducing your documentation time overall?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Difficult	24	25.3	25.3	25.3
	Easy	2	2.1	2.1	27.4
	Moderately Helpful	19	20.0	20.0	47.4
	Very Difficult	48	50.5	50.5	97.9
	Very Easy	2	2.1	2.1	100.0
	Total	95	100.0	100.0	
How much does the current system support your typical clinical workflow?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Difficult	20	21.1	21.1	21.1
	Easy	4	4.2	4.2	25.3
	Moderately Helpful	20	21.1	21.1	46.3
	Very Difficult	51	53.7	53.7	100.0
	Total	95	100.0	100.0	
How satisfied are you with how your feedback is considered in HIS improvements?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Difficult	27	28.4	28.4	28.4
	Easy	3	3.2	3.2	31.6
	Moderately Helpful	24	25.3	25.3	56.8
	Very Difficult	41	43.2	43.2	100.0
	Total	95	100.0	100.0	

How clearly can you see changes made in the system based on user input?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Difficult	26	27.4	27.4	27.4
	Easy	5	5.3	5.3	32.6
	Moderately Helpful	16	16.8	16.8	49.5
	Very Difficult	48	50.5	50.5	100.0
	Total	95	100.0	100.0	
How much have the updates (if any) made your job easier and more efficient?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Difficult	26	27.4	27.4	27.4
	Easy	1	1.1	1.1	28.4
	Moderately Helpful	15	15.8	15.8	44.2
	Very Difficult	52	54.7	54.7	98.9
	Very Easy	1	1.1	1.1	100.0
	Total	95	100.0	100.0	
Overall, how satisfied are you with the HIS and its support for your daily tasks?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Difficult	22	23.2	23.2	23.2
	Easy	1	1.1	1.1	24.2
	Moderately Helpful	18	18.9	18.9	43.2
	Very Difficult	53	55.8	55.8	98.9
	Very Easy	1	1.1	1.1	100.0
	Total	95	100.0	100.0	

While collecting Pre-Modification Data I Collected Doctors serious complaints about a number of HIS features during the pre-modification stage. The majority mentioned issues like difficult system navigation, confusing user interfaces, sluggish response times, and the need for a lot of steps to finish documentation tasks.

Post- Modification/ Interventions Analysis

Physician-driven solutions were put in place to address the Doctors complaints regarding the software and the problems they faced. These included delivering targeted training sessions, redesigning user interfaces with a unified "Snapshot View," and adding Favourites and auto-fill features to cut down on repetitive data entry.

The post-intervention statistics showed a significant improvement in user experience after these changes. While the percentage of responses rated as "difficult" or "very difficult" fell to almost zero, the percentage of responses rated as "easy" or "very easy" climbed dramatically across all domains. This change demonstrates a significant improvement in HIS usability, less paperwork, and improved alignment with physician workflows, supporting the idea that clinician input and user-centred design are essential to the success of digital health systems.

How easy is it to navigate the HIS clinical modules during your workflow?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Easy	32	33.7	33.7	33.7
	Moderately Helpful	29	30.5	30.5	64.2
	Very Easy	34	35.8	35.8	100.0
	Total	95	100.0	100.0	
How easy is it to find frequently used features like patient charts, notes, or discharge summaries?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Easy	30	31.6	31.6	31.6
	Moderately Helpful	32	33.7	33.7	65.3
	Very Easy	33	34.7	34.7	100.0
	Total	95	100.0	100.0	
How helpful is the interface layout in completing your daily documentation tasks?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Easy	30	31.6	31.6	31.6
	Moderately Helpful	27	28.4	28.4	60.0
	Very Easy	38	40.0	40.0	100.0
	Total	95	100.0	100.0	

How clearly is clinical information (vitals, history, notes) presented in the system?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Easy	32	33.7	33.7	33.7
	Moderately Helpful	32	33.7	33.7	67.4
	Very Easy	31	32.6	32.6	100.0
	Total	95	100.0	100.0	
How easy is it to move between different modules (e.g., Physician → D/C Summary)?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Easy	32	33.7	33.7	33.7
	Moderately Helpful	29	30.5	30.5	64.2
	Very Easy	34	35.8	35.8	100.0
	Total	95	100.0	100.0	
How responsive is the system while loading, saving, or switching between tasks?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Easy	25	26.3	26.3	26.3
	Moderately Helpful	45	47.4	47.4	73.7
	Very Easy	25	26.3	26.3	100.0
	Total	95	100.0	100.0	
How confident are you in using the HIS independently without support?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Easy	25	26.3	26.3	26.3
	Moderately Helpful	33	34.7	34.7	61.1
	Very Easy	37	38.9	38.9	100.0
	Total	95	100.0	100.0	
How helpful are the templates in reducing the time needed for documentation?					
		Frequency	Percent	Valid Percent	Cumulative Percent

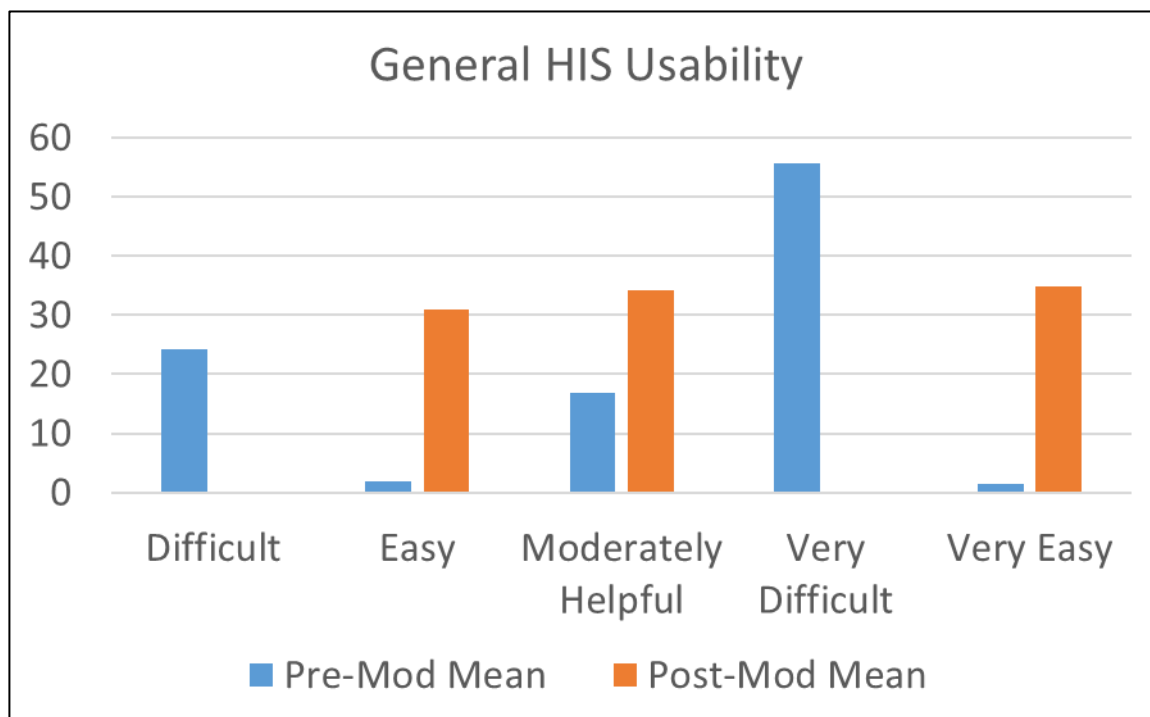
Valid	Easy	35	36.8	36.8	36.8
	Moderately Helpful	26	27.4	27.4	64.2
	Very Easy	34	35.8	35.8	100.0
	Total	95	100.0	100.0	
How well do the existing templates meet your specialty-specific requirements?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Easy	39	41.1	41.1	41.1
	Moderately Helpful	31	32.6	32.6	73.7
	Very Easy	25	26.3	26.3	100.0
	Total	95	100.0	100.0	
How easy is it to update or correct data once entered in the HIS?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Easy	34	35.8	35.8	35.8
	Moderately Helpful	30	31.6	31.6	67.4
	Very Easy	31	32.6	32.6	100.0
	Total	95	100.0	100.0	
How clearly does the system guide you through what needs to be documented?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Easy	33	34.7	34.7	34.7
	Moderately Helpful	38	40.0	40.0	74.7
	Very Easy	24	25.3	25.3	100.0
	Total	95	100.0	100.0	
How helpful is the Favorites or Quick Access section in saving time?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Easy	47	49.5	49.5	49.5
	Moderately Helpful	12	12.6	12.6	62.1
	Very Easy	36	37.9	37.9	100.0
	Total	95	100.0	100.0	

How easy is it to complete a patient note without repeating the same information?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Easy	30	31.6	31.6	31.6
	Moderately Helpful	33	34.7	34.7	66.3
	Very Easy	32	33.7	33.7	100.0
	Total	95	100.0	100.0	
How satisfied are you with the availability and visibility of important patient information when needed?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Easy	30	31.6	31.6	31.6
	Moderately Helpful	31	32.6	32.6	64.2
	Very Easy	34	35.8	35.8	100.0
	Total	95	100.0	100.0	
How helpful is the HIS in reducing your documentation time overall?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Easy	38	40.0	40.0	40.0
	Moderately Helpful	28	29.5	29.5	69.5
	Very Easy	29	30.5	30.5	100.0
	Total	95	100.0	100.0	
How much does the current system support your typical clinical workflow?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Easy	42	44.2	44.2	44.2
	Moderately Helpful	27	28.4	28.4	72.6
	Very Easy	26	27.4	27.4	100.0
	Total	95	100.0	100.0	
How satisfied are you with how your feedback is considered in HIS improvements?					

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Easy	32	33.7	33.7	33.7
	Moderately Helpful	41	43.2	43.2	76.8
	Very Easy	22	23.2	23.2	100.0
	Total	95	100.0	100.0	
How clearly can you see changes made in the system based on user input?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Easy	33	34.7	34.7	34.7
	Moderately Helpful	38	40.0	40.0	74.7
	Very Easy	24	25.3	25.3	100.0
	Total	95	100.0	100.0	
How much have the updates (if any) made your job easier and more efficient?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Easy	33	34.7	34.7	34.7
	Moderately Helpful	34	35.8	35.8	70.5
	Very Easy	28	29.5	29.5	100.0
	Total	95	100.0	100.0	
Overall, how satisfied are you with the HIS and its support for your daily tasks?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Easy	30	31.6	31.6	31.6
	Moderately Helpful	32	33.7	33.7	65.3
	Very Easy	33	34.7	34.7	100.0
	Total	95	100.0	100.0	

After a Mean score of both Pre and Post Intervention has been calculated for an Average Mean Score in the three Categories of 20 questions and found that:

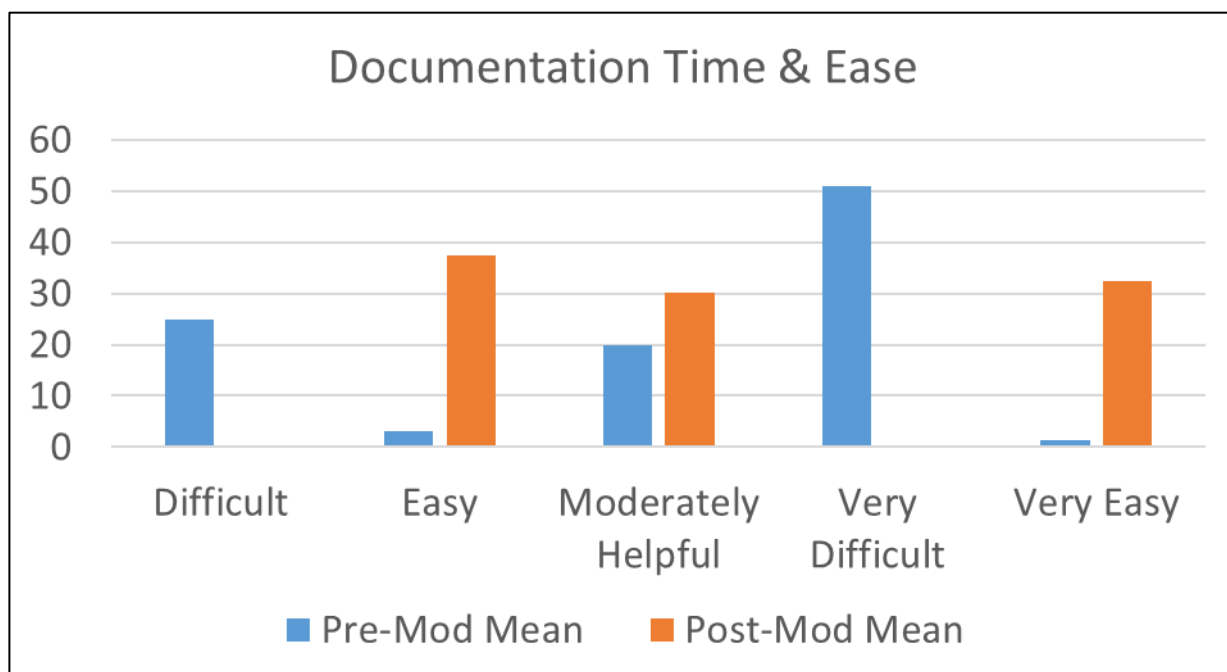
A). Usability of HIS Modules (Q1-Q7)



General HIS Usability (Feedback)	Pre-Mod Mean	Post-Mod Mean
Difficult	24.20601	0
Easy	1.82225	30.97744
Moderately Helpful	16.78646	34.13553
Very Difficult	55.64887	
Very Easy	1.5218	34.88721

Interpretation: Before intervention, **79.7%** rated HIS as either “Difficult” or “Very Difficult.” Post-modification, these dropped to **0%**, while “Easy” and “Very Easy” rose to a combined **65.87%**, showing major improvements in a navigation, clarity, and user confidence.

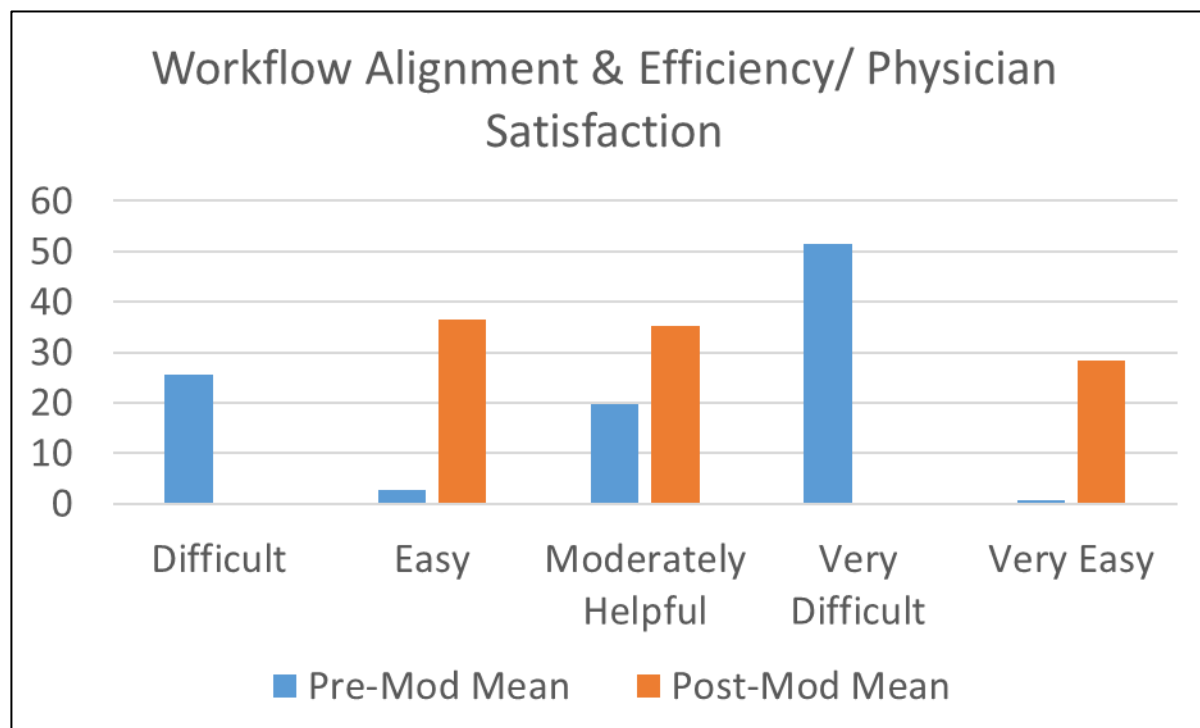
B). Documentation Time & Ease (Q8-Q14)



Documentation Time & Ease/ Gaps (Feedback)	Pre-Mod Mean	Post-Mod Mean
Difficult	24.9624	0
Easy	3.00751	37.29323
Moderately Helpful	19.84962	30.22556
Very Difficult	50.82706	0
Very Easy	1.35338	32.4812

Interpretation: Before intervention, 75.97% of physician found documentation difficult. After implementing structured templates, checkboxes, and training. “Very Easy” and “Easy” scores rose to a combined 69.77%, reflecting drastic improvements in speed and ease of documentation.

C). Workflow Alignment & Physician Satisfaction (Q15-Q20)



Workflow Alignment & Efficiency/ Physician Satisfaction (Feedback)	Pre-Mod Mean	Post-Mod Mean
Difficult	25.43859	0
Easy	2.80701	36.49122
Moderately Helpful	19.64912	35.08771
Very Difficult	51.4035	0
Very Easy	0.70175	28.42105

Interpretation: Before intervention. The system was not aligned with physician workflows, as **76.84%** reported it as difficult or very difficult. After updates, **71.91%** rated it as “Easy” or “Very Easy,” showing improved satisfaction and smoother clinical process integration.

CHAPTER 5: Discussion and Conclusio

Discussion

The results of this study clearly affirm that physician-driven improvements to the Hospital Information System (HIS) at a Multispecialty Hospital, Hyderabad lead to significant enhancements in system usability, documentation efficiency, and clinical workflow alignment. This Discussion interprets those findings in the context of the research objectives, compares them with existing literature, and reflects on their implications for broader healthcare informatics practices. Before the intervention, physicians found HIS use cumbersome and time-consuming. The average usability ratings were below 3 (out of 5), indicating high dissatisfaction with features such as screen layout, navigation, and documentation processes. Key problems identified included the inefficient **SOAP screen**, **manual data entry**, and **Lack of clinical alignment** in templates. After implementing changes such as the **SNAPSHOT screen**, **Favorites**, and **specialty-specific template restructuring**, the average post-modification ratings rose to 4.2-4.6. This drastic improvement shows that physicians valued features that made their tasks more intuitive and reduced time-consuming steps. The complete elimination of “**Very Difficult**” **Ratings** post –modification strongly indicates success. Moreover, structure training helped overcome resistance to change and made physicians more confident in using the system. These outcomes are consistent with findings from prior studies, which emphasize that **user-centered design and feedback loops are critical to HIS adoption**.

Linking Back to Research Objectives:

Research Objective	Outcome Achieved
1. To Evaluate the usability of HIS modules	Usability improved from 2.6 to 4.3 average scores across 7 questions
2. To identify usability gaps	Key issues like navigation, template rigidity, and training gaps were found
3. To implement and assess improvements	Modifications led to >60 % improvement in usability and satisfaction

The strong alignment between objectives and outcomes confirms that involving users in system redesign leads to quantifiable improvements.

Lessons Learned

During the internship, I learned about how the implementation process works which I have learned in the waterfall model. It was important to be good in communicating with the clients, as we were the middlemen between the client and the development team, we must make sure that we can understand the client requirements correctly and the same has been reciprocated to our team.

As there were multiple things addressed at once, or parallelly it was important to stay organized and multi-task at different stages. The need to analyze and categorize the client requirement was also necessary. It was necessary to have through knowledge on the process and different teams responsible for the development and implementation and get the work done based on the priority and handle clients as per the need.

CHAPTER 6: Conclusion

Conclusion

This study concludes that physician-driven improvements in Hospital Information Systems (HIS) have a direct and measurable impact on workflow efficiency, documentation time, and overall usability. By evaluating physician interaction with HIS modules before and after implementing targeted interventions, the research demonstrates the power of **user-centered design in clinical software systems**.

Prior to the intervention, physicians at a Multi-Specialty Hospital Reported significant difficulties navigating the system, completing documentation, and aligning HIS functions with their clinical workflows. The average scores for usability, documentation ease, and satisfaction were below satisfactory thresholds, reflecting a mismatch between system design and practical needs.

Following the intervention – introducing the **SNAPSHOT view**, enabling **Favorites and Structures templates**, and delivering **Training Sessions** – the system’s perceived usability improved across all 20 parameters. “Very Difficult” and “Difficult” ratings dropped to near zero, while positive ratings (“Easy” and “Very Easy”) surged, indicating successful optimization.

The results not only support the initial research hypothesis but also echo broader findings in health informatics literature. They emphasized that **modest, physician-guided changes can lead to substantial improvements** in how systems are used on the ground. Moreover, continuous feedback loops, specialty-specific configurations, and simplified interfaces were critical enablers of this success.

In conclusion, the study underscores that HIS efficiency and adoption are not solely dependent on the technology itself, but on how well it adapts to the workflows of those who use it. Empowering physicians to contribute to system design is not just beneficial – it is essential for long-term success, better clinical documentation, and improved patient outcomes.

Limitations

While the findings of this study provide strong evidence supporting physician-driven improvements in HIS usability and workflow efficiency, several limitations should be acknowledged. These limitations may influence the generalizability of the results and highlight areas for further research and refinement.

Ethical Considerations:

- Participation in this study is entirely voluntary, and participants have the right to refuse or withdraw at any stage without any consequences.
- Informed consent will be obtained through a written form explaining the study's purpose, data use, and confidentiality; no data will be collected without signed consent.
- All participant identities will remain confidential, and no personal identifiers will be included in the final study or shared publicly.
- Data will be securely stored on password-protected systems or in locked storage and will be destroyed after the completion of the research.
- The study involves no physical or psychological harm, as it only includes interviews and feedback on HIS usage without collecting sensitive data.
- Ethical clearance for this study has been granted by the Scientific Review Board (SRB) of the institution.

Significance of the Study:

By focusing on physician-driven modifications, this study provides practical insights for hospitals and HIS developers to reduce documentation time, enhance usability, and Improve Physician Satisfaction & Adoption.

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