Dissertation Training

At

MyHealthcare Technologies Pvt Ltd.

Strengthening User Performance, Satisfaction, And Compliance:

A Study on The Effectiveness of HMIS Training Programs, New Feature Adoption, and User Satisfaction for The MyHealthcare System

By

Dr. Suditi Arora

Enroll No. - PG/21/115

Under the guidance of

Divya Aggarwal

PGDM (Hospital & Health Management) 2021-23

International Institute of Health Management Research

New Delhi

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The certificate is awarded to

Dr. Suditi Arora

in recognition of having successfully completed her

Dissertation in the Department of

EMR & CLINICAL TRANSFORMATION

and has successfully completed her Project on

Strengthening User Performance, Satisfaction, And Compliance:

A Study on The Effectiveness of HMIS Training Programs, New Feature Adoption, and User Satisfaction for The MyHealthcare System

On

25 May 2023

from

MyHealthcare Technologies Pvt Ltd

She comes across as a committed, sincere & diligent person

who has a strong drive & zeal for learning.

We wish her all the best in future endeavors.

Dr. Poorva Nandedkar
(AVP- Clinical Transformation)

Kuntal Sinh
(AVP-Human Resources)

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Dr. Suditi Arora** a student of **PGDM (Hospital & Health Management)** from the **International Institute of Health Management Research, New Delhi** has undergone Dissertation training at

My Healthcare Technologies Pvt Ltd

From **22nd February 2023 to**

25th May 2023.

The Candidate has successfully conducted the study designated to her during Dissertation training and her approach to the study has been sincere, scientific, and analytical.

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

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

Divya Aggarwal
Mentor
IIHMR, New Delhi

Certificate of Approval

The following dissertation titled **"Strengthening User Performance, Satisfaction, And Compliance: A Study On The Effectiveness Of HMIS Training Programs, New Feature Adoption, And User Satisfaction For The MyHealthcare System"** at **"Myhealthcare Technologies Pvt. Ltd."** 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	Signature
SHAGUFA HUSSAIN GOGIA	
DR. PANKAJ TALREJA	
DR. Suresh Kumar	

Certificate from Dissertation Advisory Committee

This is to certify that **Dr. Suditi Arora,** a graduate student of the **PGDM (Hospital & Health Management)** has worked under our guidance and supervision. She is submitting this dissertation **titled "Strengthening User Performance, Satisfaction, and Compliance: A Study on the Effectiveness of HMIS Training Programs, New Feature Implementation, Adoption, and User Satisfaction for the My Healthcare System"** at **"My Healthcare Technologies Pvt. Ltd"** in partialfulfillment 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.

Divya Aggarwal
Assistant Professor & Associate Dean
(Admission, Accreditation, and Marketing)
IIHMR Delhi

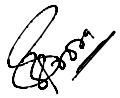
Dr. Poorva Nandedkar
AVP-Clinical Transformation
My Healthcare Technologies Pvt Ltd

INTERNATIONAL INSTITUTE OF HEALTH MANAGEMENT RESEARCH,

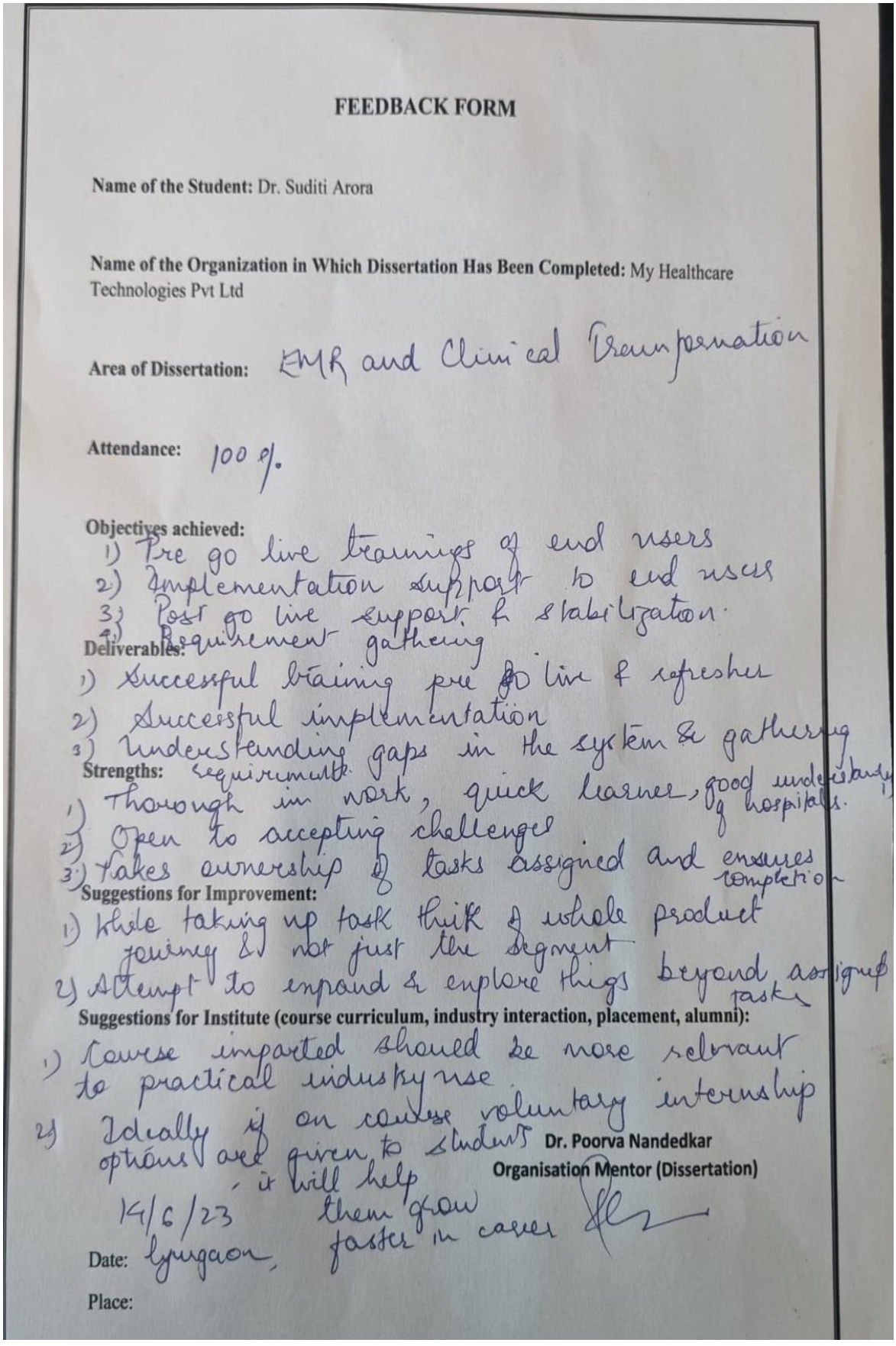
NEW DELHI

CERTIFICATE BY SCHOLAR

This is to certify that the dissertation **titled "Strengthening User Performance, Satisfaction, And Compliance: A Study On The Effectiveness Of HMIS Training Programs, New Feature Adoption, And User Satisfaction For The MyHealthcare System"** and submitted by **Dr. Suditi Arora** Enrollment No. **PG/21/115** under the supervision of Divya Aggarwal for the award of PGDM (Hospital & Health Management) of the Institute carried out during the period from 22/02/2023 to 25/05/2023 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. Suditi Arora

Name of the Organization in Which Dissertation Has Been Completed: My Healthcare Technologies Pvt Ltd

Area of Dissertation: EMR and Clinical Transformation

Attendance: 100 %

Objectives achieved:
1) Pre go live trainings of end users
2) Implementation support to end users
3) Post go live support & stabilization.
4) Requirement gathering

Deliverables:
1) Successful training pre go live & refresher
2) Successful implementation
3) Understanding gaps in the system & gathering requirements

Strengths:
1) Thorough in work, quick learner, good understanding of hospitals.
2) Open to accepting challenges
3) Takes ownership of tasks assigned and ensures completion

Suggestions for Improvement:
1) While taking up task think of whole product journey & not just the segment
2) Attempt to expand & explore things beyond assigned tasks

Suggestions for Institute (course curriculum, industry interaction, placement, alumni):
1) Course imparted should be more relevant to practical industry use
2) Ideally if on course voluntary internship options are given to students it will help them grow faster in career

Dr. Poorva Nandedkar
Organisation Mentor (Dissertation)

Date: 14/6/23

Place: Gurgaon

Acknowledgment

Completing a dissertation is a significant opportunity for professional growth and learning. I feel fortunate to have had the opportunity to undertake my project at **MyHealthcare Technologies**. The knowledge and experience I gained from the professionals in the organization have been invaluable.

I would like to express my heartfelt gratitude to the academic fraternity at **IIHMR DELHI** for establishing such a dedicated system that provides students like me with the opportunity to pursue their areas of interest and enhance their knowledge. The support and guidance provided by the faculty and staff at IIHMR DELHI have been invaluable throughout my academic journey. Their commitment to providing quality education and fostering a learning environment has greatly contributed to my personal and professional growth. I would like to extend my sincere gratitude to my mentor **Divya Aggarwal** for her invaluable guidance, expertise, and support throughout this research project.

I am particularly thankful to **Shyatto Raha, Divya Laroyia, and Dr. Poorva Nandedkar** for their in-depth discussions and guidance. Their timely support, inspiration, and unconditional assistance played a crucial role in shaping my study. I am immensely grateful to **Dr.Poorva**, Despite her busy schedule, she made the effort to listen to me, provide feedback, and offer insightful suggestions throughout the project. Her contributions were vital in making this project a reality.

I would also like to extend my gratitude to **Dr. Sakshi Ruhil and Dr. Ashiya Deswal** for their active cooperation and mentoring.

I would also like to express my appreciation to my colleagues and the entire staff at MyHealthcare Technologies for their attention to my work and their assistance. Their support significantly contributed to the success of my project. I am sincerely thankful to everyone involved.

Declaration

I hereby declare that all the data and images presented in this report have been obtained after obtaining due approval from the organization. The data and images used in this report are sourced from authorized channels within the organization and have been appropriately referenced and credited where required.

I assure you that no confidential or sensitive information that could compromise the organization's security or violate any legal agreements has been included in this report. All efforts have been made to maintain the integrity and confidentiality of the organization's data and information throughout the research process.

Furthermore, I take full responsibility for the accuracy and authenticity of the data and images presented in this report. Any errors or discrepancies, if found, are unintentional and do not undermine the overall findings and conclusions drawn from the research.

I understand the importance of respecting the organization's privacy and confidentiality policies, and I have strictly adhered to these guidelines throughout the research project. I am aware that any unauthorized use or disclosure of confidential information may have legal consequences.

Date: 28/05/23

Signature: 

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LIST OF ABBREVIATIONS

HMIS – Hospital Management Information System

OPD – Out-patient Department

IPD – In-patient Department

EMR – Electronic Medical Record

LIS – Laboratory Information System

RIS – Radiology Information System

OT – Operation Theatre

UAT – User Acceptance Testing

QA – Quality Assurance

Scope of the Project:

The rationale behind conducting this research project is to address the need for enhancing the functionality and user acceptance of the Hospital Management Information System (HMIS) software product of the MyHealthcare Enterprise Application. The study focuses on evaluating the impact of training programs and new features on the adoption and user satisfaction of the Hospital Management Information System (HMIS) in the MyHealthcare System.

The project will be implemented in the real-time operational setting of the MyHealthcare System, deployed within one of the enterprises of a renowned hospital group, where end-users extensively utilize the HMIS software for their daily operational needs. The study will involve collecting data through user experiences, feedback, and surveys to understand the challenges faced by end-users and identify areas for improvement.

Overall, the study seeks to enhance the product functionality and user acceptance of the HMIS software in the MyHealthcare System by addressing the needs and challenges faced by end-users. The findings of the research will provide insights for improving training programs, refining the software's features, and ensuring a seamless user experience. By bridging the gap between end-users and the HMIS, the project aims to optimize adoption, improve user satisfaction, and ultimately enhance the overall efficiency and effectiveness of healthcare operations in the MyHealthcare System.

Executive Summary:

Hospital Management Information Systems (HMISs) have transformed the healthcare industry by streamlining operations and enhancing the quality of patient care. This research project explores the implementation and acceptance of Hospital Information Systems (HISs) in the healthcare industry. HISs have become essential tools for managing administrative, clinical, and support aspects of hospitals, improving decision-making, and enhancing the quality of healthcare services. However, challenges related to training, user acceptance, and system usability hinder the successful utilization of HIS. The study aimed to evaluate the impact of training programs and new features on the adoption, user satisfaction, and compliance with the Hospital Management Information System (HMIS) in the MyHealthcare System. The research findings will help identify barriers to acceptance and propose strategies to enhance implementation and user satisfaction.

Methodology:

The study employed a cross-sectional study design and was conducted within the facilities of a selected enterprise belonging to a distinguished hospital group. Data collection took place in two stages: the pre-go-live phase and the post-go-live phase. Convenience sampling was utilized to gather data from a sample population of 246 end users of the MyHealthcare System (MHEA). A validated questionnaire was distributed through digital platforms like WhatsApp and email to collect the required data. The analysis encompassed descriptive statistics, quantitative analysis, qualitative analysis, and data visualization techniques utilizing Microsoft Excel.

Findings:

The study found that the training programs implemented for the HMIS were effective in enhancing user compliance and adoption of the system. Participants reported increased knowledge and confidence in utilizing the HMIS after undergoing the training programs. The integration of new features such as text blocks, voice-to-text functionality, save-as-care protocol, and favourites received positive feedback from users, contributing to improved user satisfaction and ease of work. However, some users encountered challenges related to user interface and navigation, which need to be addressed to optimize system usability.

Challenges faced:

User Resistance to Change: Some end users may initially resist the adoption of the MHEA system due to a fear of technology or a preference for traditional methods.

Participant Availability: Ensuring the availability of participants for data collection was another challenge. The busy schedules and varying shifts of healthcare

professionals made it difficult to schedule questionnaire sessions and interviews at convenient times for all participants. Flexibility and coordination were required to accommodate the availability of participants.

Recommendations:

Continuation of Training Programs: The hospital should continue offering regular training programs to both new and existing users to enhance their competence and confidence in using the HMIS effectively.

User Interface Enhancement: The HMIS should undergo user interface improvements to address the identified challenges and provide a more intuitive and user-friendly experience for end users.

Ongoing User Engagement: Establishing mechanisms for ongoing user engagement, such as feedback sessions and user forums, will enable continuous improvement and address user concerns or suggestions.

Limitations:

Time Constraints: The research was carried out within a defined timeframe, which could potentially hinder the ability to observe prolonged shifts in the acceptance, user contentment, and efficacy of the training initiatives and novel functionalities.

Convenience Sampling: The study utilized a convenience sampling technique, which may introduce selection bias. Participants who volunteered to participate may have different characteristics or experiences compared to those who did not participate, leading to potential biases in the findings.

External Factors: The study did not account for external factors that may influence the adoption and user satisfaction of the MHEA system, such as changes in healthcare policies, technological advancements, or organizational culture.

Conclusion:

The research project showcased the beneficial outcomes of training programs and the incorporation of new features on the acceptance and contentment of users with the MHEA system in a hospital setting. By implementing the suggested measures, the hospital can effectively address the existing gaps in the HMIS, augment user proficiency and satisfaction, and enhance the overall effectiveness of healthcare procedures. The study's findings contribute to the ongoing enhancement and optimization of the MyHealthcare System, ultimately benefiting healthcare providers and patients alike.

About the Industry:

The Hospital Management Information System (HMIS) is a comprehensive software solution designed to streamline and automate various administrative, financial, and clinical processes in healthcare organizations. It serves as a central repository for storing and managing patient information, medical records, financial data, inventory, and other critical data related to the healthcare facility.

HMIS plays a crucial role in the healthcare industry by improving operational efficiency, enhancing patient care, and facilitating better decision-making. Some key features and benefits of HMIS include:

1. Patient Management: HMIS allows healthcare providers to efficiently manage patient registrations, appointments, admissions, and discharge processes. It enables easy access to patient records, medical history, and diagnostic reports, promoting better coordination and continuity of care.
2. Electronic Health Records (EHR): HMIS facilitates the creation, storage, and retrieval of electronic health records, eliminating the need for paper-based records. EHRs provide a comprehensive view of patient health, including medical history, medications, allergies, and test results, enabling healthcare professionals to make informed treatment decisions.
3. Clinical Decision Support: HMIS incorporates clinical decision support tools that provide healthcare providers with real-time alerts, reminders, and clinical guidelines based on evidence-based medicine. This assists in reducing medical errors, improving patient safety, and enhancing the quality of care.
4. Financial Management: HMIS includes modules for managing billing, invoicing, insurance claims, and financial transactions. It helps healthcare organizations streamline revenue cycles, monitor financial performance, and ensure accurate billing and reimbursement processes.
5. Inventory Management: HMIS enables effective management of medical supplies, equipment, and pharmaceuticals. It tracks inventory levels, automates reordering processes, and ensures the timely availability of essential items, minimizing stockouts and reducing costs.
6. Reporting and Analytics: HMIS generates comprehensive reports and analytics on various aspects of healthcare operations, including patient outcomes, resource utilization, financial performance, and quality indicators. This data-driven approach assists in identifying trends, making informed decisions, and improving overall efficiency and patient care.

HMIS (Hospital Management Information System) prevalence in India has been increasing steadily in recent years. The Indian healthcare industry has recognized the importance of adopting technology-driven solutions to improve healthcare delivery, streamline operations, and enhance patient care.

Government Initiatives:

The Government of India has taken several initiatives to promote the implementation of HMIS across healthcare facilities in the country. The National Health Mission (NHM), a flagship program of the government, has played a significant role in driving the adoption of HMIS in public healthcare facilities. Under NHM, various states and union territories have been encouraged to implement HMIS to improve health information management and monitoring systems.

Private Sector Adoption:

The private healthcare sector in India has also recognized the benefits of HMIS and has been actively implementing HMIS solutions in its facilities. Large corporate hospitals, multi-specialty clinics, and diagnostic centres have adopted HMIS to streamline their operations, enhance patient care, and improve overall efficiency.

About the Organization:

MyHealthcare Technologies is a digital health tech company that focuses on building an integrated, digital patient care ecosystem. The company collaborates with hospitals and clinics to create a comprehensive healthcare platform centered around patient-centric care delivery. The platform encompasses various aspects of healthcare, including doctor consultations (both physical and virtual), home diagnostics, pharmacy services, home healthcare, remote patient monitoring, preventive health, vaccination programs, and more.

One of the key goals of MyHealthcare is to bridge the gap in healthcare delivery using the latest advancements in digital technology. The company aims to create a data-driven care continuum process that enhances patient engagement and empowers individuals to manage their own healthcare needs and those of their families.

The MyHealthcare ecosystem revolves around the concept of a structured repository of a patient's clinical data and longitudinal history. It integrates all interventions and services offered through the platform, providing a comprehensive overview of the patient's healthcare journey. This approach allows for better coordination and continuity of care.

Headquartered in Gurgaon (Delhi NCR), MyHealthcare has technology centres in Bangalore and Dehradun. The company also maintains sales offices across several countries, including India, Malaysia, Thailand, Singapore, Indonesia, Philippines, Vietnam, and Hong Kong.

The digital healthcare ecosystem provided by MyHealthcare includes a 360-degree clinical management system for doctors and nurses. This system encompasses various platforms such as practice management, patient management, and electronic medical records (EMRs). EMRs are available for different specialties, including General Physician/Internal Medicine, Paediatrics, Endocrinology, and Cardiology. Additional EMRs for specialties such as Obstetrics & Gynaecology, Oncology, Dentistry, Ophthalmology, and Neurology are planned to be available soon.

The cloud-based solution offered by MyHealthcare enables clinicians, doctors, and nurses to manage patient care through web and mobile platforms. It incorporates a built-in virtual consultation platform, allowing doctors to securely conduct video or audio consultations with their patients. The platform also facilitates remote prescription management and review of patient records. Augmented intelligence and

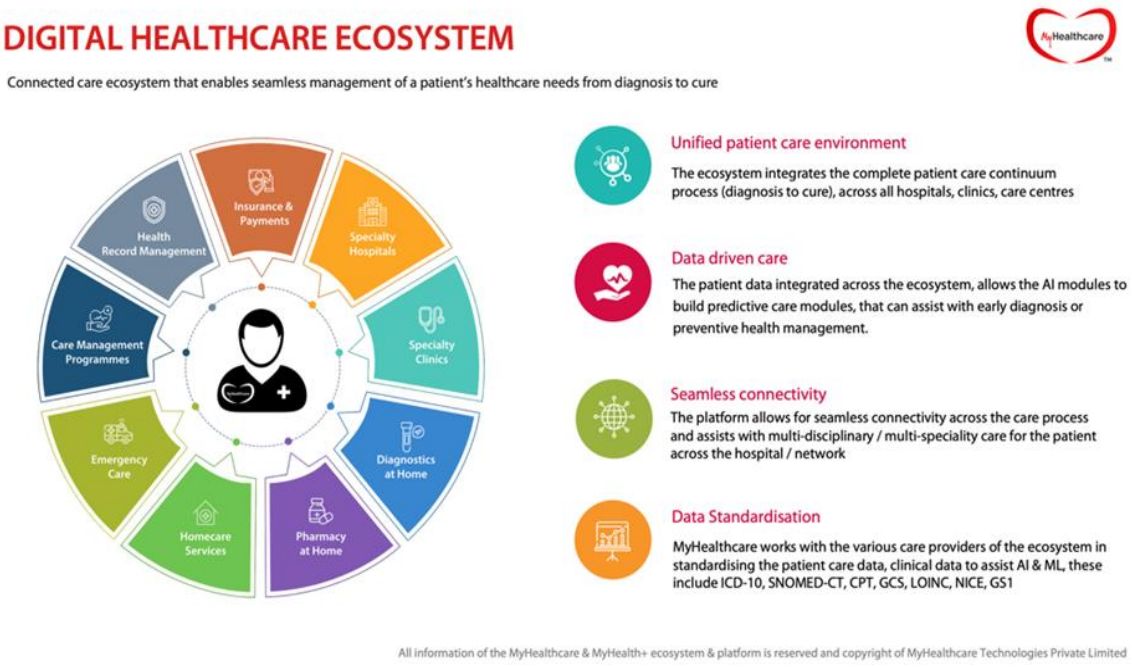
artificial intelligence are integrated into the EMR ecosystem to analyze a patient's clinical history, map diagnoses to global standards such as ICD-10 and SONMED-CT and enhance the efficiency of managing patient care.

MyHealthcare ecosystem includes a comprehensive library of care protocols and encompasses attributes for over 19,000 drugs. The availability of a patient's longitudinal history helps in managing emergency care needs, while the integrated care platform aims to improve patient experience and deliver better clinical outcomes.

Furthermore, MyHealthcare offers the MyHealthcare@Home ecosystem, which provides a connected care platform for managing patients from a centralized command centre. This scalable platform enables the monitoring of a large pool of patients from a single location, including remote patient monitoring and home isolation monitoring.

MyHealthcare AI utilizes clinical data, treatment protocols, and big data generated from partner hospitals to develop augmented intelligence modules. These modules assist in diagnosing conditions and offer complete cure process protocols, leveraging the power of artificial intelligence and data analytics.

Fig.1



The MyHealthcare platform incorporates various core platforms and features to provide a connected care ecosystem. These include:

Patient Ecosystem (Web and Mobile): Patients can connect with doctors, seek appointments for virtual or in-person consultations, upload documents and notes, and receive post-consult prescriptions.

Hospital Portal: A patient support platform for the hospital team to manage patient-related activities and information.

Doctor/Nurse EMR & Practice Management: Web, mobile, and tablet platforms for doctors and nurses to manage electronic medical records (EMRs), practice management, and patient care.

MyHealthcare@Home Command Centre: A web-based platform that enables centralized monitoring and management of patients, including remote patient monitoring and home isolation monitoring.

Homecare nursing platform: Web and mobile platforms for managing homecare nursing services.

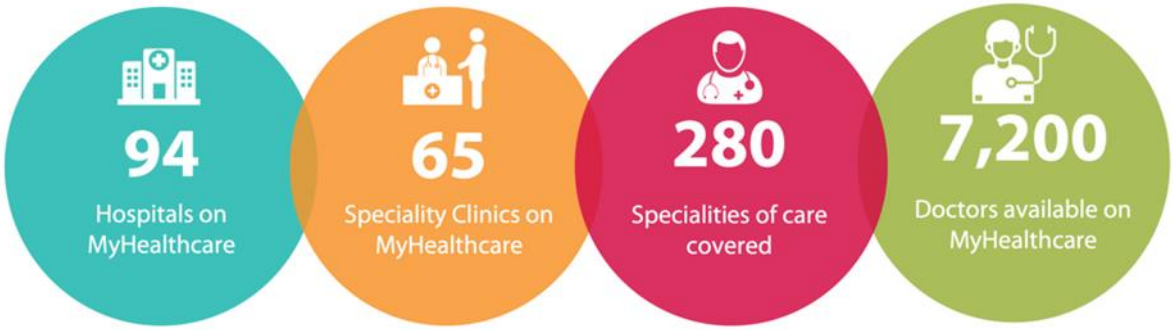
Remote patient monitoring: Web and mobile platforms for monitoring patients remotely, including vital signs and health data.

Queue Management System (mobile): A mobile application to manage patient queues and appointments efficiently.

Experience Feedback System: A system to collect and analyse patient feedback to improve the healthcare experience.

Lead Management System (CRM) - web: A web-based system to manage leads and customer relationship management for healthcare providers.

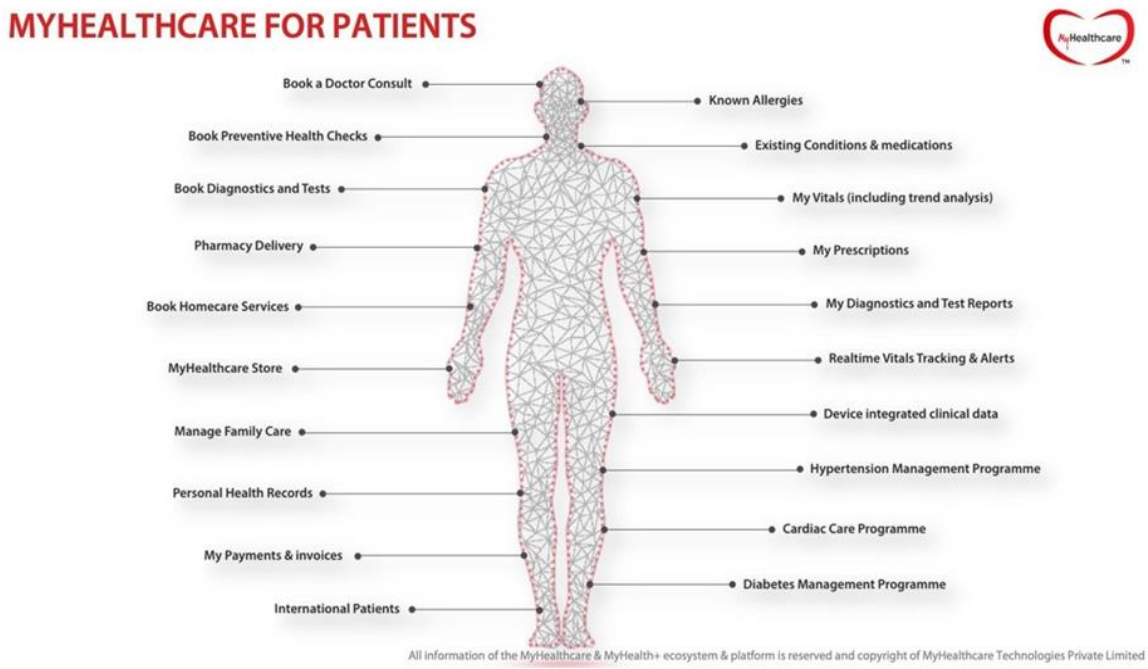
Fig.2:



The MyHealthcare Patient Platform allows patients from various regions to connect with doctors, seek appointments for virtual consultations or in-person visits, upload documents and notes, receive prescriptions, and manage their healthcare needs. The platform supports services such as diagnostics at home, pharmacy services at home, home care, remote patient monitoring, and home isolation monitoring.

The virtual consultation platform provided by MyHealthcare ensures high levels of security and encryption. Patients access video consultations through the MyHealthcare patient mobile apps. During virtual consultations, doctors have access to the patient's complete medical records, relevant test reports, past clinical history, and real-time documents uploaded by the patient.

Fig.3:



MYHEALTHCARE PATIENT APPLICATION

The MyHealthcare Patient Application is an integrated ecosystem that allows patients and their families to manage their healthcare needs. It provides features such as patient registration, appointment booking for consultations, secure video consultations, centralized storage of prescriptions and reports, booking diagnostic tests and health check-up packages, homecare service booking, e-pharmacy orders, profile management, family member registration, online payment options, coupon codes for promotions, tracking of bookings, document uploads, management of allergies and existing conditions, patient history management, personal health records (PHR), vitals tracking, device integrations for monitoring, viewing family prescriptions, invoice delivery, and a loyalty and rewards program.

Overall, the MyHealthcare platform offers a comprehensive and user-friendly experience for patients to access healthcare services, manage their health records, and engage in virtual consultations and remote monitoring, among other features.

MYHEALTHCARE DOCTOR OPD EMR

The MyHealthcare Doctor Platform helps doctors manage their virtual consultation and OPD consultations seamlessly, from a user-friendly web or mobile platform. The MyHealthcare Doctor Platform is integrated with all clinical platforms of a hospital such as the Hospital Information System (HIS), Laboratory Information System (LIS), Radiology Information System (RIS) and Picture Archiving and Communication System (PACS). The MyHealthcare Doctor ecosystem is integrated with the MyHealthcare patient platform, MyHealthcare@Home platform, the Queue Management System and Doctor Referral platform.

The MyHealthcare Doctor EMR allows the doctor to view all patient demography details, test reports, clinical documents, patient uploaded documents, and patient notes uploaded prior to the consult. The doctor can use the platform to view the patient journey from the time they book an appointment, arrival at the hospital, their clinical assessment and delivery of an e-prescription. The MyHealthcare Doctor EMR is a cloud-based solution, using the best-in-class data security protocols, ready masters for drugs, tests, templates, copy from previous prescription and voice enabled. The MyHealthcare Doctor Platform comes with Speech to Text EMR. This allows the doctors to dictate the prescription notes, medicines, and tests. The platform has been launched for the first time in India and is able to decipher clinical terms, medicine names, diagnostics tests, etc. By implementing EMR, patient data can be tracked and analysed over an extended period by associated healthcare providers. It also helps them to boost the quality and safety of patient care by

implementing best practices such as care protocol and real-time clinical decision support system.

The MyHealthcare Doctor Platform helps providers better manage care for patients and provide better health care by:

- Providing accurate, up-to-date, and complete information about patients at the point of care
- Enabling quick access to patient records for more coordinated, efficient care
- Securely sharing electronic information with patients and other clinicians
- Helping providers more effectively diagnose patients, reduce medical errors, and provide safer care
- Improving patient and provider interaction and communication, as well as health care convenience
- Enabling safer, more reliable prescribing
- Helping promote legible, complete documentation and accurate, streamlined coding and billing.
- Enhancing privacy and security of patient data
- Reducing costs through decreased paperwork, improved safety, reduced duplication of testing, and improved health.

A. Functional Features MyHealthcare EMR Doctor Platform includes:

1. My Doctor Profile (view and edit details except Doctor Registration Number, Speciality, Mobile Number and Designation)
2. Calendar view of all appointments (virtual and OPD)
3. Create new appointment for registered patients (SMS will go with payment link; appointment will be held for 30 mins and get confirmed only upon successful payment)
4. Cancel appointments (as per configurable business logic)
5. Task based user journey for patient management.
6. Status view – Upcoming Appointments; Missed Appointments; Cancelled and Completed Appointments
7. Ability to connect with Patients from Missed Appointments
8. View patient notes and uploaded images, documents
9. View patient section on Known Allergies
10. View Existing Conditions, as provided by patient.
11. View / Edit / Update Patient's Family History and Social History
12. View patient's diagnostics reports (pathology available with trends analysis). This is subject to LIS / LIMS integration.
13. View patient's radiology reports from RIS, with sorting as per patient history. This is subject to RIS integration.

14. View of patient's past history through all past prescriptions (for appointments done via the MyHealthcare Platform)
15. Consult options: video consultation, audio consultation using dialler feature of the phone and physical OPD consultation.
16. Ability to upload up to 4 pages of prescriptions via images, camera capture, or one pdf file
17. MyHealthcare Voice.ai: Speech to Text EMR (available on MyHealthcare Doctor Web, iOS and Android platforms)
18. Copy from the previous prescription – allows the doctors to copy previous prescription of the same patient to complete a follow-up consult in no time
19. Doctor in-app notification 15 minutes prior to a consult
20. Late Alert: Doctors can send alerts to their patients if they are running late (15, 30, 45, 60 mins) – to all or selected patients only
21. Failover option of doctor being able to use dialler to call patient.

B. Core Features of the MyHealthcare SOAP EMR Doctor Platform includes:

1. SOAP based – allows doctors and nurses to navigate screens and create orders based on their role and requirements. The benefits of the task based EMR – allows for higher configurations, mapping it closer to the workflows required for each practice.
2. Voice.ai – MyHealthcare offers a voice based EMR flow, where clinical notes, clinical orders, etc can be dictated instead of typing. The Voice.ai EMR is trained to understand clinical terminologies, medicine names, test names, etc.
3. Dashboard – The Dashboard screen allows the doctors to navigate between multiple facilities, if applicable. Each facility is shown in a card with - Name of the facility, Doctor OPD timings, Total number of appointments booked for the day, Total number of patients arrived in OPD (including walk-in) as of now.
4. Search Patient - allows the doctor to search a registered patient using either their Name, Mobile number or UHID
5. Late Alert - allows the doctor to announce any delay in starting the OPD to his team and/or impacted patients with configurable auto rescheduling of appointments and relevant communication to patients
6. Care Protocols– reducing the number of clicks, the EMR allows the doctors to create/edit disease wise clinical templates (care protocols), which includes disease details (mapped automatically to ICD10 codes), medicine list with dosage details, tests advised, patient advisory notes, etc. In a SINGLE CLICK, the entire template can be processed.
7. Order Sets – allows the doctor to create/edit Order Sets of medicines and tests – a group of orders than can be placed on a SINGLE CLICK. This saves time and clicks for doctors to be able to place a set of order quickly.

8. Patient Queue – allows the doctor to manage his/her queue in auto or manual mode (based on configuration) tightly integrated with OPD workflow. Timeline view helps the doctors in understanding the waiting time for the patients and manage them accordingly.
9. Start/stop practice – allows the doctors to manage their time in case they need to step out of the OPD for any emergency or otherwise

SOAP Configurator –

allows the doctor to self-configure the SOAP sections, based on their requirement and care protocol management. The SOAP configurator allows for auto setup of SOAP processes applicable for his/her patients and enable/disable the content for printing in prescription. SOAP configurator also helps the management to define minimum data set requirement for each consult to standardise the EMR data capturing across the organization.

10. SOAP based record entry – allows doctors to adopt best practices of using configurable Subjective, Objective, Assessment and Plan based record entry for his/her patients.
    - Subjective (Chief complaint of the patient, History of present illness and Review of systems (voice enabled)
    - Objective (Vitals, Allergies, Existing Conditions, Patient History,
    - Assessment (Diagnosis – auto mapped to ICD10, image attachment with annotation)
    - Plan (Order medicine with augmented intelligence for dosage calculations, route, frequency, option for dosage tapering, ordering tests, usage of templates and order sets (which may be linked to diagnosis), instructions for patient, doctor referrals and follow up)

11. Copy from previous prescription – allows the doctors to copy previous prescription of the same patient to complete a follow-up consult in no time

12. Continue Treatment – allows the doctors to continue treatment protocol for long terms care patients with a SINGLE CLICK.

13. Drug allergy alert – if the doctor prescribes a drug patient is allergic to. The alert works for all the brands for a given generic (integration with CIMS available)

14. Past Visits – allows a doctor to review longitudinal patient records in a timeline view

15. PHR – allows the doctors to review various clinical documents uploaded by the patients using the integrated patient app and patient portal

16. Poly pharmacy alert - when more than 8 active medication is prescribed

17. Duplicate drug order prevention – by stopping the doctor from selecting same drug for ordering again

18. Device data integration – the MyHealthcare EMR allows the doctor to view all patient data from device integrations for ECG, Heart Rate, Blood Pressure, Pulse Rate and Blood Sugar.

C. MyHealthcare Doctor Practice Management Platform includes:

a. Calendar – allows doctors to view their complete calendar for the day (OPD, Virtual consults and patient list for the day)
b. Book appointments – the doctor can give out consult appointments from his own calendar in 3 clicks
c. Block / Unblock slots – doctor can block or unblock his schedule in the event of emergencies, surgeries, other such engagements. Any appointments will be alerted to the hospital team for rescheduling
d. Mark leave – doctors can mark leave on the system, which automatically blocks their appointment / OPD schedule
e. New Patients – register and book new patients with simple registration process

MYHEALTHCARE IPD EMR

EMR for In-Patient Department (IPD) manages hospital functions for admitted patients. Integrated firmly with the hospital HIS, LIS, PACS and other integral systems of the hospital. EMR IPD systematises processes related to the treatment.

Key components of IPD- EMR are mentioned below:

1. **IPD- EMR for Doctors:**

a) Order Management (CPOE): Doctor can order, acknowledge result, and edit or cancel any order e.g., Lab test.
b) Order sets for easy selection & placement of clinical orders
c) Medication review – hold/ resume, stop or renew medication order
d) Core attributes mapped for over 19,000 drugs (with salt, strength, route, frequency, schedule, dose and form)
e) Allergy alerts: for any patient medication where there is an allergy to the salt is highlighted to clinicians
f) Placement of diagnostics, radiology & procedure orders from masters
g) Duplicate order alerts

h) LASA alerts for all medications
i) Substitute recommendation based on item nature and payor configuration
j) View events of the past 24 hours
k) View laboratory and radiology report status. Radiology PACS images also on view as image
l) Patient longitudinal history view across all encounters (OPD, IPD, ER, Homecare)
m) Critical result / alert notification
n) Forms Builder (including progress notes), for creating customised forms
o) Medication Management: Manages medication reconciliation and provides doctors with patient's drug history.
p) Operation Theatre: Schedule, reschedule or cancel patients' surgical processes.
q) Clinical Notes: Doctor can create, edit and delete clinical notes for patient. additionally, he/she can view old notes details and form builders.
r) Configuration to auto post Admitting practitioner visits, Referral visits based on note recorded
s) Referral workflow: Initiate, accept, forward and complete referral
t) Patient Discharge: Doctor can initiate or cancel patient's discharge using this tool. It also highlights patient discharge timeline.
u) SMART discharge summary which is configurable: Doctor can define summary formats as they like. This allows summary to automatically populate as configured and eliminates need to type it from scratch
v) Patient History: Provides doctor with patient's history and allows him to view trend graphs of his ongoing or past treatments
w) ICD 10 Diagnosis – full text search enabled ICD Codes based diagnosis recording
x) Alerts & Notifications – Provides timely alert based on highly configurable notification engine.

2. IPD- EMR for Nurses:

a. Order Management: Nurse can view, track, amend and even cancel the orders. Access control based.

b. Supplies: Acknowledge, ward supplies, return or approve return of drugs

c.Medication Administration Record: EMR IPD allows nurse to administer medication records and perform below mentioned activities:

- Administer Now
- Delay the task
- Unable to Administer
- Administer Missed Dose
- Start Infusion

- Complete Infusion
- Change Infusion Rate
- Administer from ward stock.

d. Patient Discharge: Give nursing clearance, view pending orders, view patient's discharge timeline, and send discharge cancellation intimations.

e. Patient Transfer flow: Transfer request, approval, transfer out and transfer in

f. Operation Theatre:

- Prepare transfer for the procedure
- Prepare transfer checklist.
- Surgery Request
- Schedule or reschedule surgery.
- Check-in to OR
- Surgery Timeout
- Operative Notes, Anaesthetist's Notes, Nursing Notes
- Surgical Safety Checklist
- Checkout from OR
- Ward transfer port surgery

g. Charting: Vital, I/O charting and ICU charting.

h. Notes: Can create, edit and delete clinical notes for patient. Additionally, he/she can view old notes details and form builders.

i. Blood Transfusion: Complete transfusion and activities related to blood transfusion such as.

- Barcoded Initiation of Blood Transfusion
- Complete or Stop Transfusion
- Adverse Events
- Return Blood Bag
- View Order Detail

MYHEALTHCARE EMERGENCY EMR

i. Complete management of Ambulance starting from call receiving to dispatch, real-time tracking, and in-transit management of patients from command centre.

ii. Remote patient monitoring through device integrations, including on-demand virtual consultation.

iii. Single click Registration for Emergency and bulk patient registration.

iv. Triage and Vitals tracking: with clinical markers, clinical alerts

v. Single screen ER workbench to order and monitor service status, report tracker, capture clinical notes, medicine administration, referral tracking and length of stay.

vi. Template and protocol-based order execution enabling faster and intime delivery of services for critical cases.

vii. Admission request tracker starting from the point of admission advice from the practitioner till the arrival in ward, which also helps track conversion.

viii. Discharge Initiation, ER Visit Summary with configurable templates which can be automated, Nursing clearance and discharge.

MYHEALTHCARE ENTERPRISE APPLICATION (MHEA)

MyHealthcare Enterprise Application (MHEA) is a highly configurable, workflow, task-based healthcare information management system, integrated with MyHealthcare OPD, IPD, and Emergency EMRs. MHEA is built on open-source technology, using the latest technology advancements in machine learning, process automation, and data security. The architecture is delivered as a cloud-based SaaS platform to its hospitals. The open-source stack helps reduce the operating costs for hospitals as the recurring costs for database licenses, use of proprietary licenses, etc are removed. MHEA helps deliver increased efficiency in hospital operations through its six core pillars:

1. Workflow configurator – allows a hospital to tweak the system workflows simply by enabling or disabling non-mandatory steps of operational/clinical processes.
2. Worklist and Task Engine – facilitates personalized worklist for each user to be able to complete his/her day-to-day tasks from a single screen.
3. Dynamic Forms builder – provides the capability to create access-controlled custom-designed forms using extremely powerful tools to comply with document standardization requirements.
4. Alert and Notification Centre – generates real-time and meaningful alerts and notifications for appropriate users to stay aware and take real-time informed action.
5. Compliance with coding and hospital accreditation standards such as ICD Codes, LOINC, SNOMED CT, MDDS Standards (India), JCI, NABH
6. Operational and Strategic Dashboards for each department for quick decision-making and course correction.

MyHealthcare Enterprise Application (MHEA) is the core engine which helps systemise processes, implement SOPs and best practices across all departments not only for their internal working but also inter-departmental interactions specially in scenarios where one department triggers the feed for the next departments functioning.

It is world's first Single Screen HIMS with robust yet highly configurable workflow engine which enables each user with single screen to complete all the activities without having to navigate through the menus.

By implementing MHEA, it is not only patient data which can be tracked and analyzed over a period but also the functioning of each department can be monitored very closely to achieve the highest level of efficiency. It also helps to boost quality and patient satisfaction by implementing best practices and SOPs across all departments. The efficient functioning of the non-clinical support department like the Pharmacy, dietetics, F&B and most importantly patient billing go a long way to achieving patient satisfaction and delivering services with optimal utilization of the available resources with the usage of data and technology and reducing the operational cost.

Given below is the list of various modules in the MyHealthcare Enterprise:

Table1:

Sr No	Module
1	Application Masters
2	User Management & Access Control
3	Workflow Engine
4	Workflow Configurator
5	My Desk
6	Magic Search
7	Registration & Master Patient Index
8	ADT
9	Patient Identification Management
10	OPD Billing
11	IPD Billing
12	Pharmacy Billing
13	Insurance & Payor Management
14	Purchase Management
15	Inventory Management
16	Pharmacy Stock Management
17	OPD EMR
18	OPD Speciality EMRs (Paeds, Obs & Gynae, Endocrinology)
19	IPD EMR

20	ER Dashboard
21	Emergency EMR
22	Speciality Diagnostics
23	Operation Theatre
24	Dietetics
25	F & B
26	Transfusion Medicine
27	Blood Donor Management
28	Laboratory (LIS)
29	In-Hospital Sample Collection
30	Radiology (RIS)
31	Forms Builder
32	SMART Discharge Summary Editor
33	Discharge Summary
34	Accounts Receivable
35	Business Dashboards (as per SRS requirements)
36	Operations Dashboards (as per SRS requirements)
37	Device Integrations (AccuCheck, Kardia ECG, Omron)
38	Nursing Care Plan
39	Medical Document Management System
40	Medical Records Management System
41	Hospital Portal (Front Office, Co-Ordinators & Call Centre)
42	Appointment Management System (Consult & Services)
43	Queue Management System (software only)
44	MHC Patient App (iOS and Android) / white labelled optional
45	Patient Portal
46	MH Doctor web portal
47	MH Doctor App (iOS and Android)
48	Virtual Consultation Platform

MyHealthcare Enterprise Application helps manage better patients care and implement efficient processes by:

- Providing a Single Screen worklist-based task for each user
- Providing accurate, up-to-date, and complete information about patients at the point of care
- Compliance with various healthcare IT standards helps the seamless transmission of data across multiple systems and as a result achieves a faster and more accurate flow of information.
- Real-time monitoring of TATs helps achieve faster and timely and early delivery of services to the patient.
- Improving patient and provider interaction and communication, as well as healthcare convenience
- Reducing costs through decreased paperwork, and faster and easier access to data online through mobile devices
- Workflow-based task – allows users to navigate across screens and manage tasks based on their roles and responsibilities.
- TAT and Escalation alerts – Auto escalation of activities that exceed the TAT time and require immediate action for faster closure of activity.
- Notifications – Auto notification on task completion
- Provide faster and more accurate claim processing from Payers/Insurance with reduced deductions and disallowed payment achieving better returns.

Core module salient features of MyHealthcare Enterprise Application (MHEA) are:

1. Application Masters

a) Screen configurator to define mandatory nature of fields wherein applicable.
b) Custom field configurators to help create custom fields wherein and whenever required to enable future readiness.
c) Payer Plan Management – Single configuration engine to manage and build payer plan, billing rules, and MOU
d) MOU configurator for the marketing staff to create payer plans on the go.
e) Multiple Tariff handling with the feature of fall-back tariff
f) Service Master – setup to incorporate service billing configurations and business rules based on gender, age group, specialty, provider, etc.
g) Billing Package Configuration – Master to create preventive health packages and multiple visit packages like
h) Single encounter health check-up packages

i) Multi-encounter OPD packages
j) Multi-encounter OPD to IPD packages
k) IPD Medical management packages
l) IPD Surgery packages
    a. Service Charge Setup to define and build the point of charge posting for each of the patient encounter type.
    b. Template based Discount setups and coupon management both for self-pay and payer patients.

2. Patient Registration

i. Patient registration with a rule engine to capture patient data based on registration type and capture mandatory data specific to each registration type.

ii. Merge patient registration data based on data element comparatives.

iii. Configuration Engine to prompt and reduce duplicity of patient records.

iv. Online real-time OTP-based data validation and integration with the country-specific citizen data repository.

v. Patient document management – feature to scan and upload patient records for future reference.

vi. Magic Search - allows all application users to search for a registered patient using either their Name, Mobile number, or UHID and proceed with the desired action from the search screen itself without the need to move across multiple screens.

vii. Staff and dependent registration based on HR approval mechanism.

viii. Single screen Graphical Bed Management - allows the bed manager to allocate beds, handle bed transfer requests, and monitor overall bed status.

ix. Bill Estimation – Template-based, and data-driven bill estimation helps create more accurate estimates.

x. Pre-authorisation – allows to capture credit approvals and compare and prompt for credit limit extension from the payers.

3. Outpatient Billing

a. Configurable pre- and post-consult bills for the out-patient process.

b. Single screen out-patient billing to manage consultation (walk-in / with appointment), investigations, health package billing, and many more.

c. Configure setup to manage deductibles and co-pays for insurance patients.

d. Refund and cancellations based on approval matrix.

e. Advance payment management with provision for adjustment of advance for specific services tagged to the advance type of configuration.

4. Inpatient Billing

a. Matrix-based minimum advance management.

b. Single screen billing with real-time bill status of the patient.

c. Capability to handle PSU, CGHS, Insurance, and International patient billing.

d. Multiple currency billing with real-time exchange rate status.

e. Facility to manage multiple bill templates.

f. Auto ordering of services based on rule engine.

g. Co-payment and exclusions based on payer configurations enabling reduced billing time.

h. Real-time patient's financial status.

i. Feature to handle both paper claims and e-claims.

j. Bill dispatching and tracking.

k. Cashiers scroll management.

l. Audit trail for all transaction edits and cancellations.

m. Account receivable and aging.

n. Realtime dashboards and MIS reports.

5. Dietetics and Kitchen

a) Diet Ordering based on patient's therapeutic requirement, food habits & preferences etc.
b) Patient diet planner based on season, cuisine, diet category, meal type and dietary restrictions facilitating the dietician for faster menu planning.
c) Kitchen ticket ordering enabling faster delivery of non-scheduled diet orders with TAT and alerts.
d) RT & Liquid diet planning and tracking.
e) Mobile App for patient's attendant diet ordering including payment gateway.
f) Dashboard screen for real-time order tracking and TAT management.

6. Inventory Management

a) Taxation and charges based on a template configurator with provision to handle any new taxation or statutory requirements.
b) Department Indents based on i) consumption pattern for a defined period ii) Reorder level iii) auto scheduled department indents on a set frequency with a workflow-based approval process.
c) Barcoded stock allocation and picklist generation using mobile app reducing batch error and efficient stock issue.
d) In-transit tracking of stock.
e) Conversion of department indent to purchase requisition and further facilitating creation of Purchase requisition through i) consumption pattern ii) Reorder level.
f) Purchase order based on Quotation, rate contract and paper purchase approval.
g) Provision for Centralized and distributed purchase process with value-based approval matrix.
h) Vendor portal for the online submission of item quotation for comparative and technical and commercial evaluation.
i) Goods receipt note with inspection process facilitating accurate stock intake.
j) Consignment stock process with single screen to convert consignment to patient issue, consignment Goods receipt note and purchase order.
k) Physical stock check through online auditor worklist allocation, mobile app-based stock count and stock corrections based on approval matrix.

7. Pharmacy Management

a) Integrated Pharmacy and OP EMR with e-prescription capabilities.
b) Ability to allocate batch through mobile app picklist.
c) Prescription review with recommendation based on drug-to-drug interaction inputs or patient condition and other conflicting parameters like age-group, vitals etc.
d) Barcoded patient medicine issue to reduce batch mismanagement.
e) Single screen outpatient sale to handle OP EMR issues as well as OTC sale.

Title:

"Strengthening User Performance, Satisfaction, And Compliance: A Study On The Effectiveness Of HMIS Training Programs, New Feature Adoption, And User Satisfaction For The MyHealthcare System"

-Dr. Suditi Arora

Abstract

Hospital Management Information Systems (HMIS) play a pivotal role in improving healthcare operations and patient care outcomes. The adoption and utilization of Hospital Management Information Systems (HMIS) play a crucial role in improving healthcare delivery and enhancing patient outcomes. However, the full benefits of HMIS can only be realized when end-users are competent, satisfied, and compliant with the system.

This research project aimed to assess the impact of training programs and new features on the adoption and user satisfaction of the MyHealthcare Application System (MHEA)deployed within one of the enterprises of a renowned hospital group. The study employed a cross-sectional study design, collecting data from end users of the MHEA system in two phases: pre-go live and post-go live. The sample population consisted of 246 on-role staff members actively using the MHEA system. Convenience sampling was used to select participants, and a validated questionnaire on HIMS acceptance was administered using online survey tools.

RESULTS: The results indicated that the training program for the new HMIS platform had a positive impact on user competence and satisfaction. Most participants found the training to be effective, with a significant proportion reporting improved understanding and confidence. Challenges identified included data entry, navigation, and data retrieval. However, participants found aspects such as learning system navigation and inputting patient data to be useful. Overall, participants felt adequately prepared for the go-live of the HMIS platform, and a majority expressed satisfaction with the training program.

In the post-go live phase, participants reported high adoption rates of new features such as the SAVE AS CARE PROTOCOL option, voice-to-text feature, and favourite's feature. User satisfaction with the platform's usability and meeting their needs for health data management was high. However, perceptions regarding data security were divided, indicating the need for further reassurance. Participants also highlighted challenges related to data accessibility, time-consuming processes, and user interface/navigation issues.

Conclusion: The study concluded that the MyHealthcare HMIS platform had a positive impact on healthcare delivery, improving work efficiency and patient care outcomes. The findings emphasize the importance of comprehensive training, user-friendly interfaces, continuous support, and addressing user concerns for successful adoption and user satisfaction.

Keywords:

HMIS, MyHealthcare, User Satisfaction, Hospital Information Systems, Hospital, User satisfaction, HISs

Introduction:

In recent years, the healthcare industry has witnessed a rapid transformation driven by advancements in technology and a growing need for efficient and high-quality patient care. Hospital Information Systems (HISs) have emerged as comprehensive software applications designed to manage the administrative, clinical, and support aspects of hospitals. The implementation of HISs has become increasingly essential for healthcare institutions to streamline operations, enhance decision-making, and improve the overall quality of healthcare services.

HISs serve as massive, integrated systems that store, manipulate, and retrieve information pertaining to the administrative and clinical aspects of hospitals. They support the comprehensive information requirements of hospitals, encompassing patient management, clinical documentation, ancillary services, and financial operations. The utilization of HISs enables hospitals to shift from traditional paper-based medical records to digital records, which are more accessible, manageable, and efficient.

The benefits of implementing HISs are extensive and encompass various stakeholders within healthcare institutions. For hospital management staff and doctors, HISs offer enhanced healthcare service quality, streamlined workflows, and improved decision-making capabilities. HISs facilitate accurate and real-time access to patient information, enabling healthcare providers to make informed decisions regarding diagnosis, treatment, and care. Moreover, HISs contribute to cost reduction, increased efficiency, and the delivery of high-quality healthcare services.

However, the successful implementation and acceptance of HISs pose significant challenges. Lack of user training and inadequate knowledge about HIS functionalities often hinder the effective utilization and efficient implementation of these systems. Hospital staff members need comprehensive training to adapt to the changes brought about by HIS implementation and to fully leverage the capabilities of the system. Without proper training, HISs may not fulfil the original expectations, resulting in suboptimal outcomes.

Furthermore, the acceptance and adoption of HISs among healthcare professionals and staff play a crucial role in the successful implementation and operation of these systems. Attitudes toward technology, familiarity with computer interfaces, and user-friendliness of the system can influence the acceptance and usage of HISs. Identifying the barriers and determinants of HIS acceptance among users is essential for developing strategies that promote positive attitudes and facilitate smooth implementation.

MyHealthcare Enterprise Application (MHEA) is a comprehensive healthcare information management system designed to systemize processes, implement standard operating procedures (SOPs), and facilitate inter-departmental interactions within healthcare organizations. It serves as the core engine that enables departments to streamline their workflows and ensures efficient functioning.

One of the key features of MHEA is its Single Screen HIMS, which provides users with a unified interface to perform various activities without the need to navigate through multiple menus. This design enhances user productivity and simplifies the completion of tasks.

By implementing MHEA, healthcare organizations can not only track and analyse patient data over time but also closely monitor the functioning of each department. This level of monitoring enables organizations to achieve the highest level of efficiency by implementing best practices and SOPs across all departments. Additionally, MHEA contributes to boosting the quality of care and patient satisfaction by leveraging data and technology, optimizing resource utilization, and reducing operational costs.

MHEA is built on open-source technology, utilizing advancements in machine learning, process automation, and data security. It is delivered as a cloud-based Software-as-a-Service (SaaS) platform, which helps hospitals reduce operating costs by eliminating recurring expenses for database licenses and proprietary licenses.

The benefits of implementing the MyHealthcare Enterprise Application include:

- Single Screen Worklist-Based Task: Each user is provided with a consolidated task list on a single screen, enabling efficient task management.

- Point-of-Care Information: MHEA offers accurate, up-to-date, and comprehensive patient information at the point of care, facilitating informed decision-making.

- Compliance with Healthcare IT Standards: MHEA ensures seamless data transmission across multiple systems by adhering to healthcare IT standards, resulting in faster and accurate flow of information.

- Real-time Monitoring of Turnaround Times (TAT): MHEA allows real-time monitoring of TATs, enabling faster and timely delivery of services to patients.

- Improved Patient and Provider Interaction: MHEA enhances communication and interaction between patients and healthcare providers, improving healthcare convenience.

- Cost Reduction: MHEA reduces paperwork, provides faster and easier access to data online through mobile devices, and contributes to overall cost reduction.

- Workflow-Based Task Management: Users can navigate across screens and manage tasks based on their roles and responsibilities, enhancing workflow efficiency.

- TAT and Escalation Alerts: MHEA automatically escalates activities that exceed TATs and require immediate action, ensuring prompt closure of tasks.

- Notifications: Automated notifications are sent upon task completion, improving communication, and keeping users informed.

- Streamlined Claim Processing: MHEA facilitates faster and more accurate claim processing from payers/insurance providers, resulting in reduced deductions and disallowed payments, ultimately achieving better financial returns.

Overall, MyHealthcare Enterprise Application (MHEA) aims to enhance patient care, optimize processes, and improve operational efficiency within healthcare organizations through its configurable workflow engine and advanced technology stack.

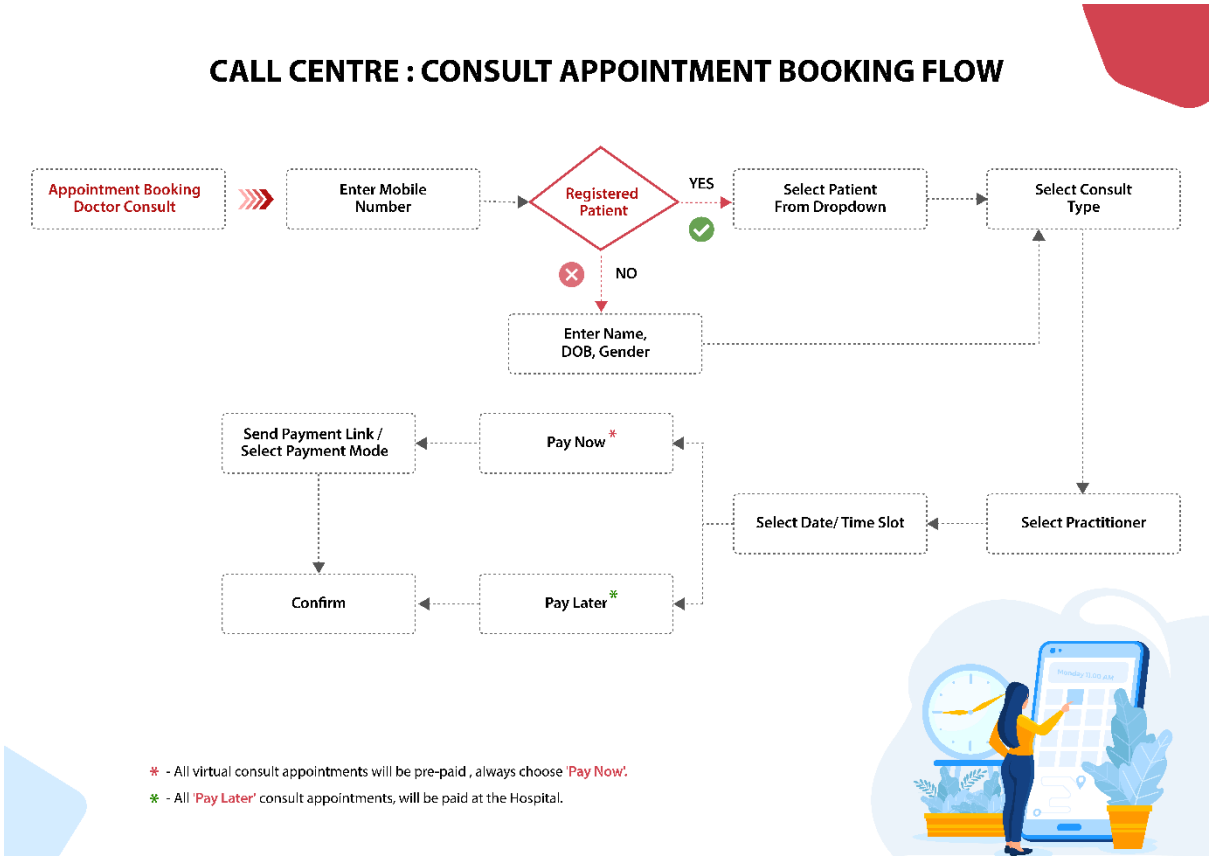
The focus of the project is to evaluate the efficacy of training programs in equipping end-users with the necessary skills and knowledge to efficiently utilize the Healthcare Management Information System (HMIS). Additionally, it seeks to gauge the influence of incorporating new features into the HMIS on user satisfaction and acceptance. This article aims to investigate the acceptability level of HIS among healthcare professionals and staff in a hospital setting. By assessing their attitudes, knowledge, and training needs, this study seeks to identify barriers to HIS acceptance and propose strategies for enhancing implementation and user satisfaction. The project aims to bolster the adoption and satisfaction of the HMIS within the MyHealthcare System, ultimately enhancing the overall effectiveness and quality of healthcare services provided.

The implementation of Hospital Information Systems holds great potential for improving healthcare service quality, streamlining operations, and enhancing decision-making capabilities. However, to ensure successful adoption and usage, it is crucial to address the challenges related to training, user acceptance, and system usability. By understanding the factors influencing HIS acceptance and implementation, healthcare institutions can develop targeted strategies to optimize the benefits derived from these systems and ultimately improve patient care outcomes.

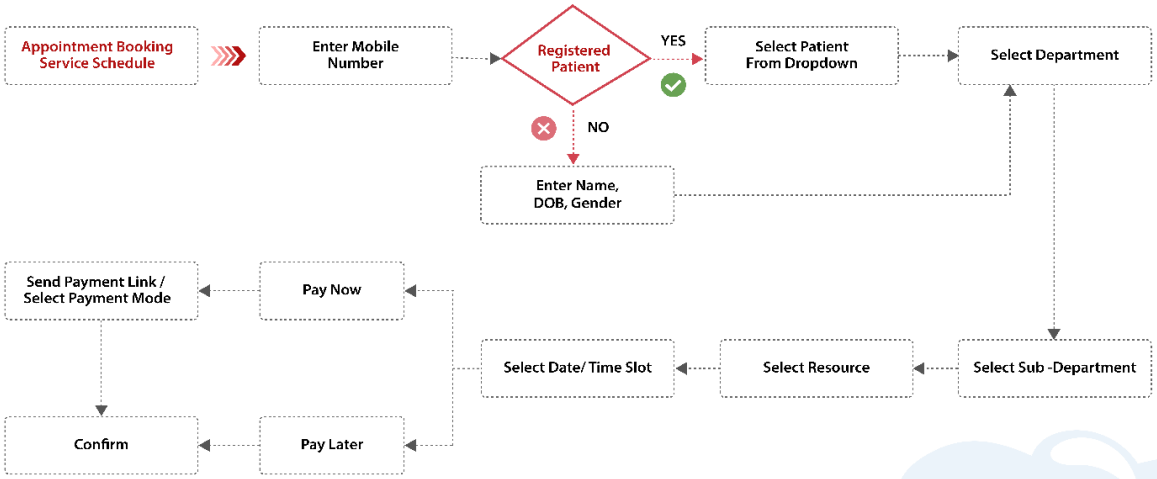
The project ultimately aims to enhance the adoption and user satisfaction of the HMIS within the MyHealthcare System. By improving the adoption rate and satisfaction levels, the project expects to contribute to the overall efficiency and quality of healthcare services provided by the organization. The evaluation of training programs and the assessment of new features will provide valuable insights into the strengths and areas for improvement of the HMIS. This feedback can then be used to refine training strategies, enhance user support, and further optimize the HMIS to better meet the needs of end-users and the healthcare organization.

MAJOR WORKFLOWS OF MYHEALTHCARE HMIS:

Fig.4:



CALL CENTRE : SERVICE APPOINTMENT BOOKING FLOW



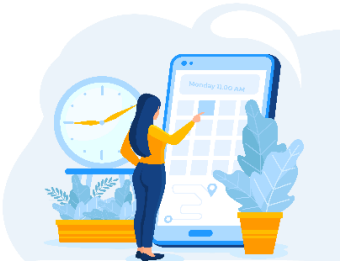
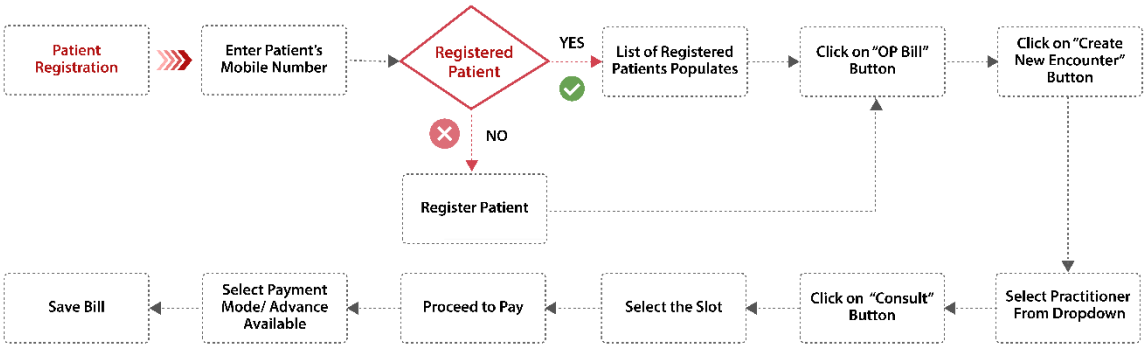


Fig.5, Fig.6:

OP CONSULT BILLING WORKFLOW



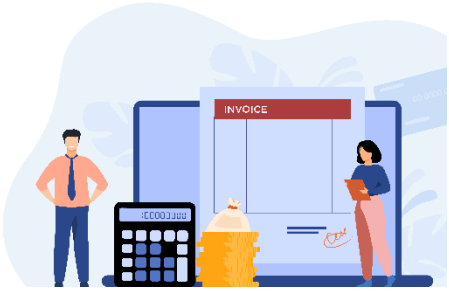


Fig.7:

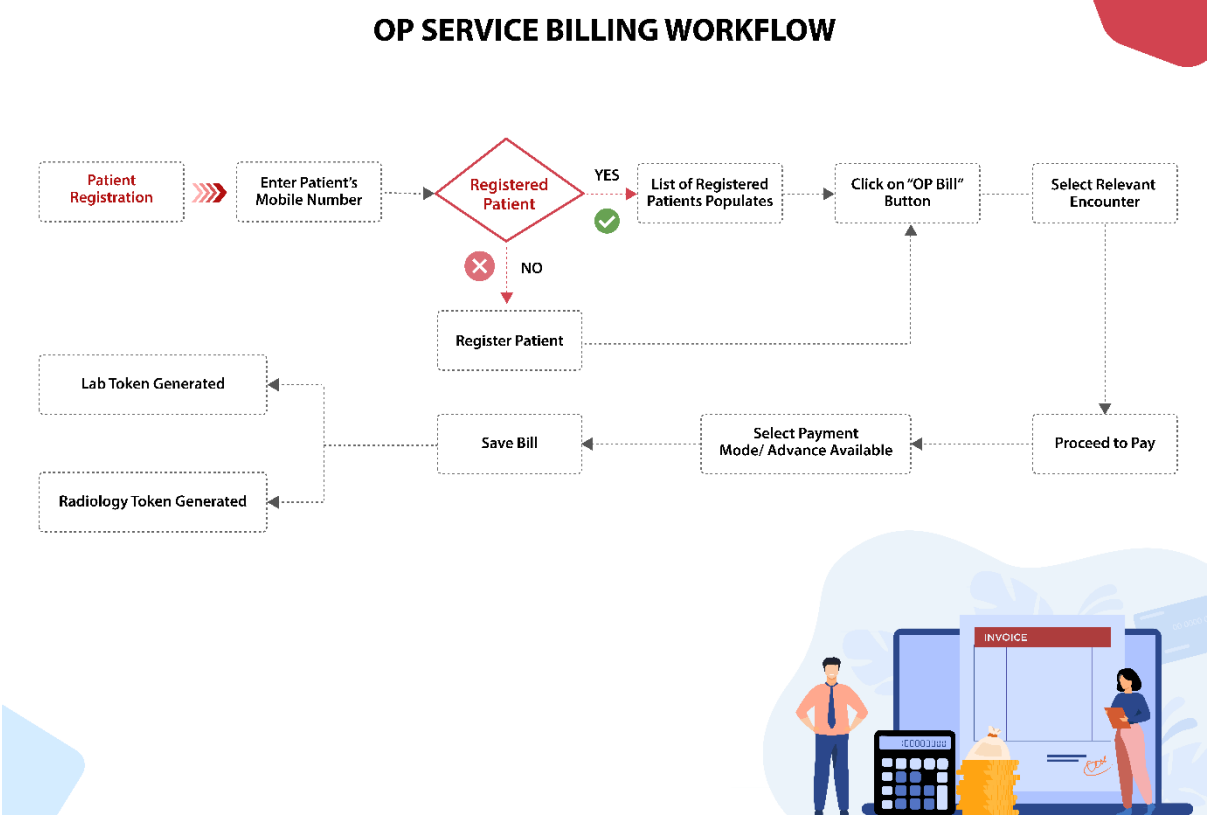

OP SERVICE BILLING WORKFLOW
Patient Registration
Enter Patient's Mobile Number
Registered Patient
YES
NO
List of Registered Patients Populates
Click on "OP Bill" Button
Select Relevant Encounter
Register Patient
Lab Token Generated
Radiology Token Generated
Save Bill
Select Payment Mode/ Advance Available
Proceed to Pay
INVOICE

Fig.8:

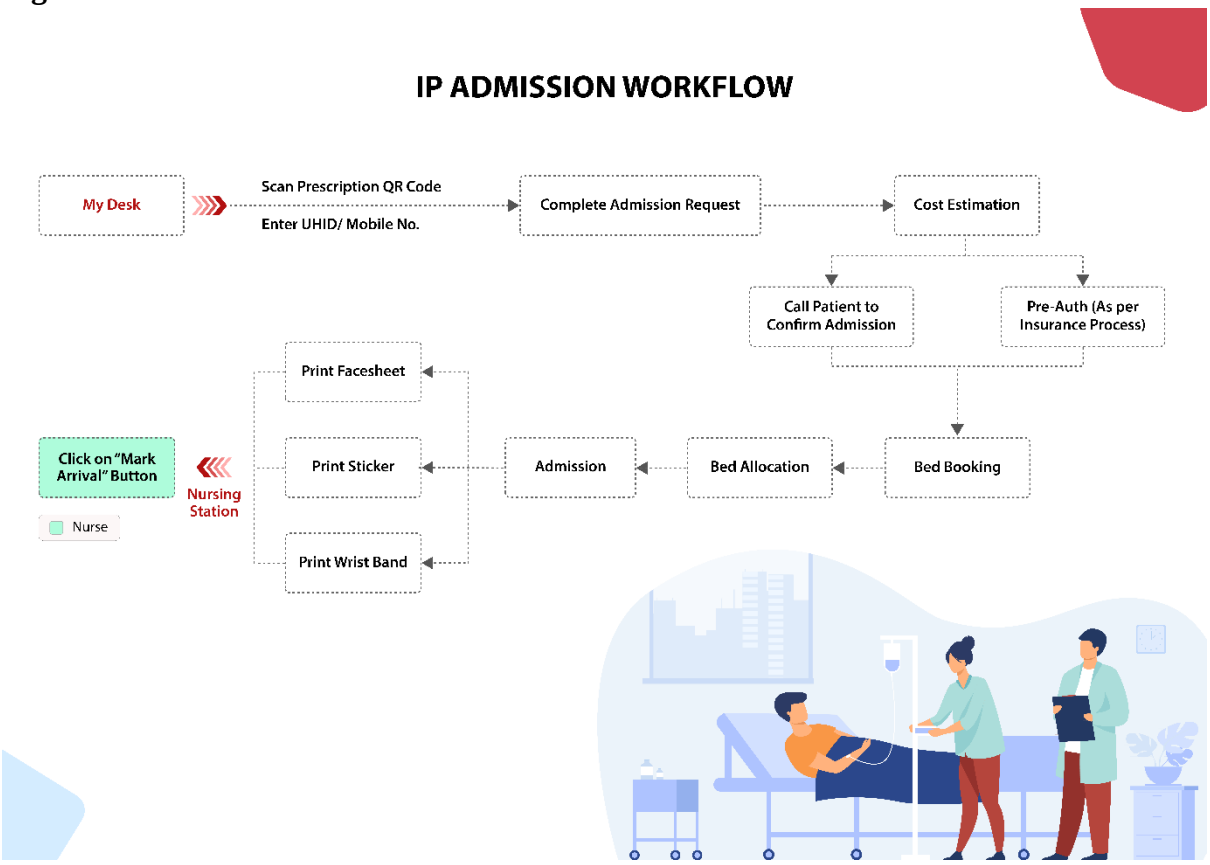

IP ADMISSION WORKFLOW
My Desk
Scan Prescription QR Code
Enter UHID/ Mobile No.
Complete Admission Request
Cost Estimation
Call Patient to Confirm Admission
Pre-Auth (As per Insurance Process)
Bed Booking
Bed Allocation
Admission
Print Facesheet
Print Sticker
Print Wrist Band
Nursing Station
Click on "Mark Arrival" Button
Nurse

Fig.9:

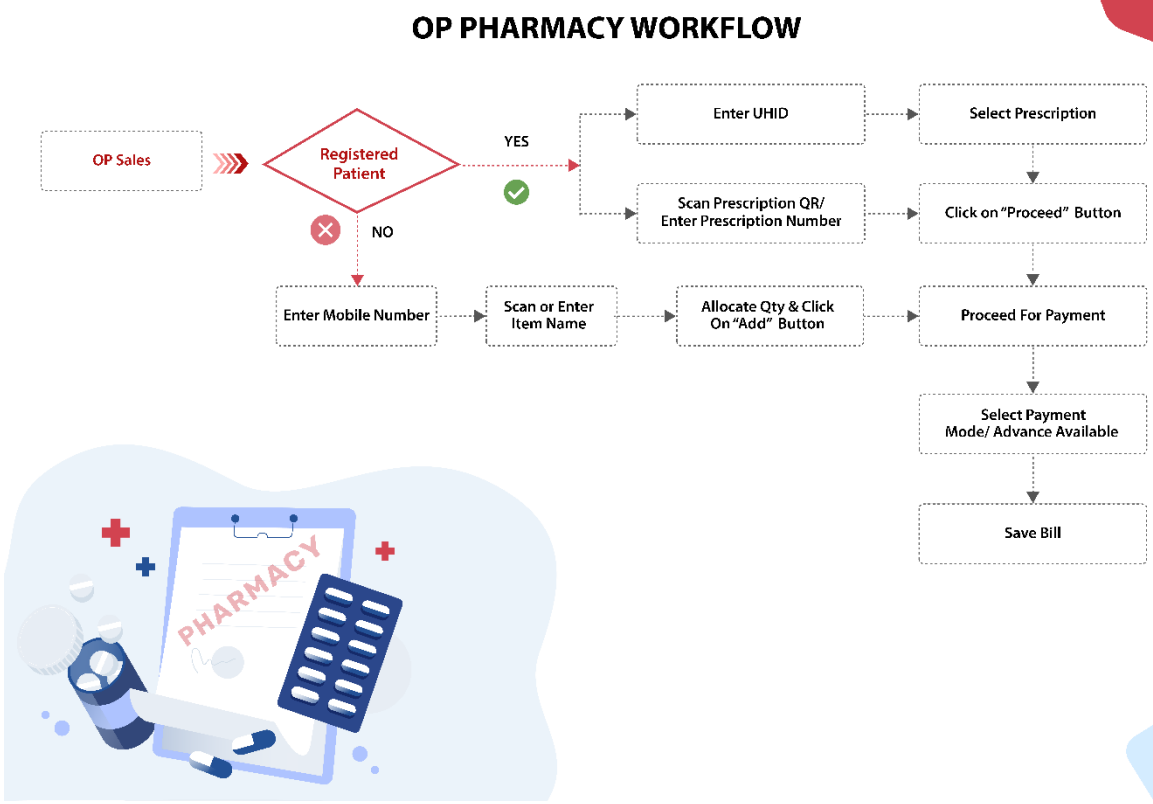

OP PHARMACY WORKFLOW
OP Sales
Registered Patient
YES
NO
Enter UHID
Select Prescription
Scan Prescription QR/ Enter Prescription Number
Click on "Proceed" Button
Enter Mobile Number
Scan or Enter Item Name
Allocate Qty & Click On "Add" Button
Proceed For Payment
Select Payment Mode/ Advance Available
Save Bill
PHARMACY

Fig.10:

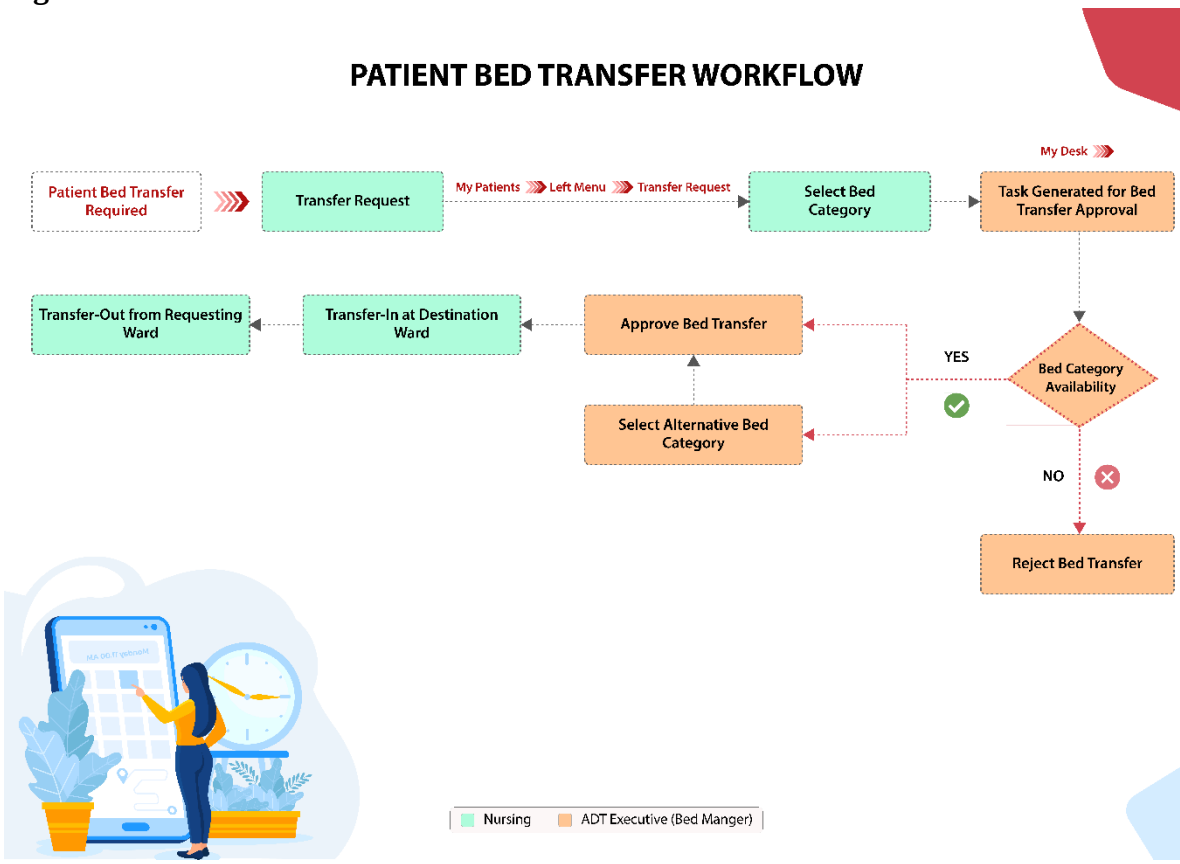
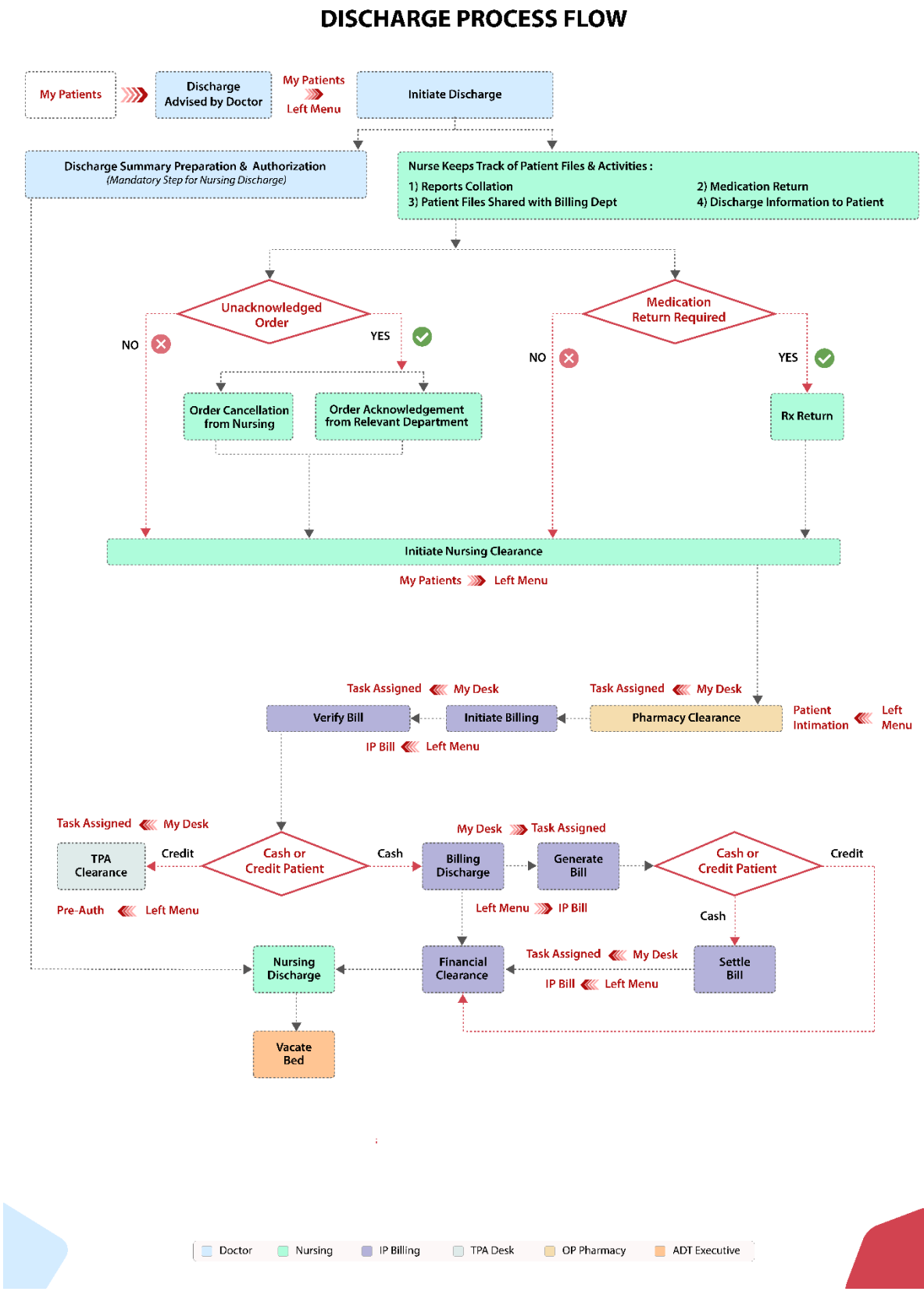

PATIENT BED TRANSFER WORKFLOW
Patient Bed Transfer Required
Transfer Request
My Patients
Left Menu
Transfer Request
Select Bed Category
My Desk
Task Generated for Bed Transfer Approval
Bed Category Availability
YES
NO
Approve Bed Transfer
Select Alternative Bed Category
Transfer-In at Destination Ward
Transfer-Out from Requesting Ward
Reject Bed Transfer
Nursing
ADT Executive (Bed Manger)

Fig.11:


DISCHARGE PROCESS FLOW
My Patients
Discharge Advised by Doctor
My Patients
Left Menu
Initiate Discharge
Discharge Summary Preparation & Authorization
(Mandatory Step for Nursing Discharge)
Nurse Keeps Track of Patient Files & Activities :
1) Reports Collation
2) Medication Return
3) Patient Files Shared with Billing Dept
4) Discharge Information to Patient
Unacknowledged Order
NO
YES
Order Cancellation from Nursing
Order Acknowledgement from Relevant Department
Medication Return Required
NO
YES
Rx Return
Initiate Nursing Clearance
My Patients
Left Menu
Task Assigned
My Desk
Verify Bill
Initiate Billing
Task Assigned
My Desk
Pharmacy Clearance
Patient Intimation
Left Menu
IP Bill
Left Menu
Task Assigned
My Desk
TPA Clearance
Credit
Cash or Credit Patient
Cash
My Desk
Task Assigned
Billing Discharge
Generate Bill
Cash or Credit Patient
Credit
Pre-Auth
Left Menu
Left Menu
IP Bill
Cash
Nursing Discharge
Financial Clearance
Task Assigned
My Desk
IP Bill
Left Menu
Settle Bill
Vacate Bed
Doctor
Nursing
IP Billing
TPA Desk
OP Pharmacy
ADT Executive

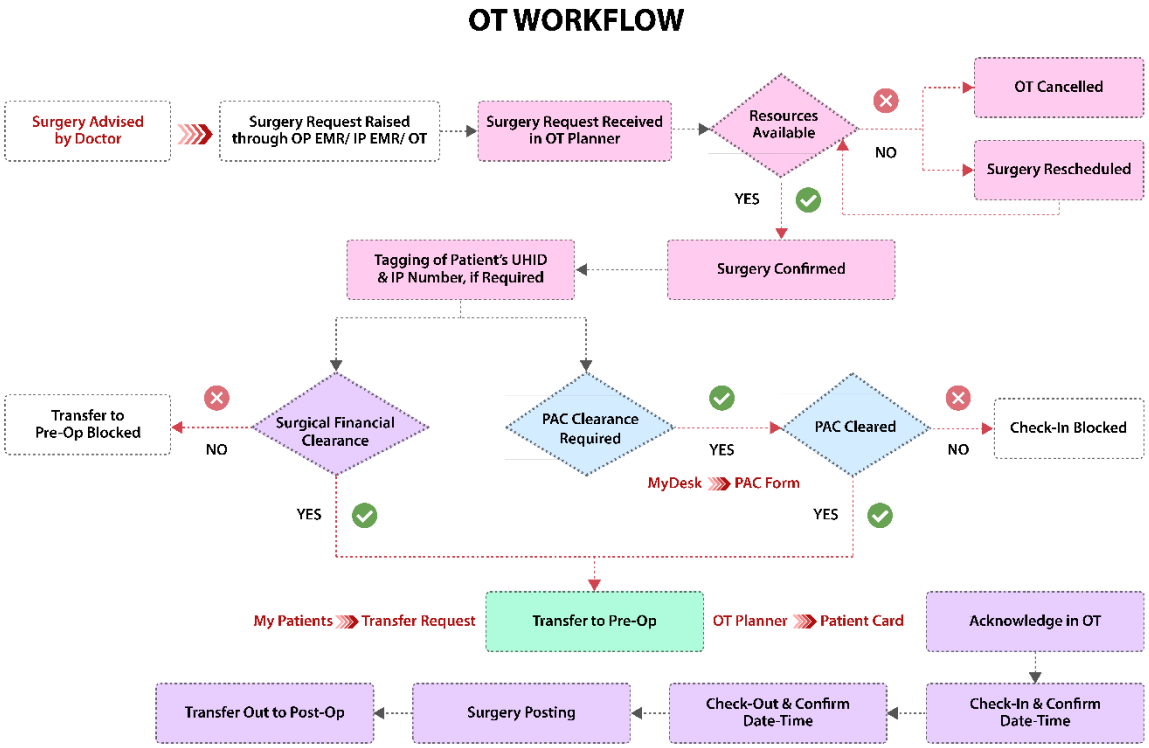
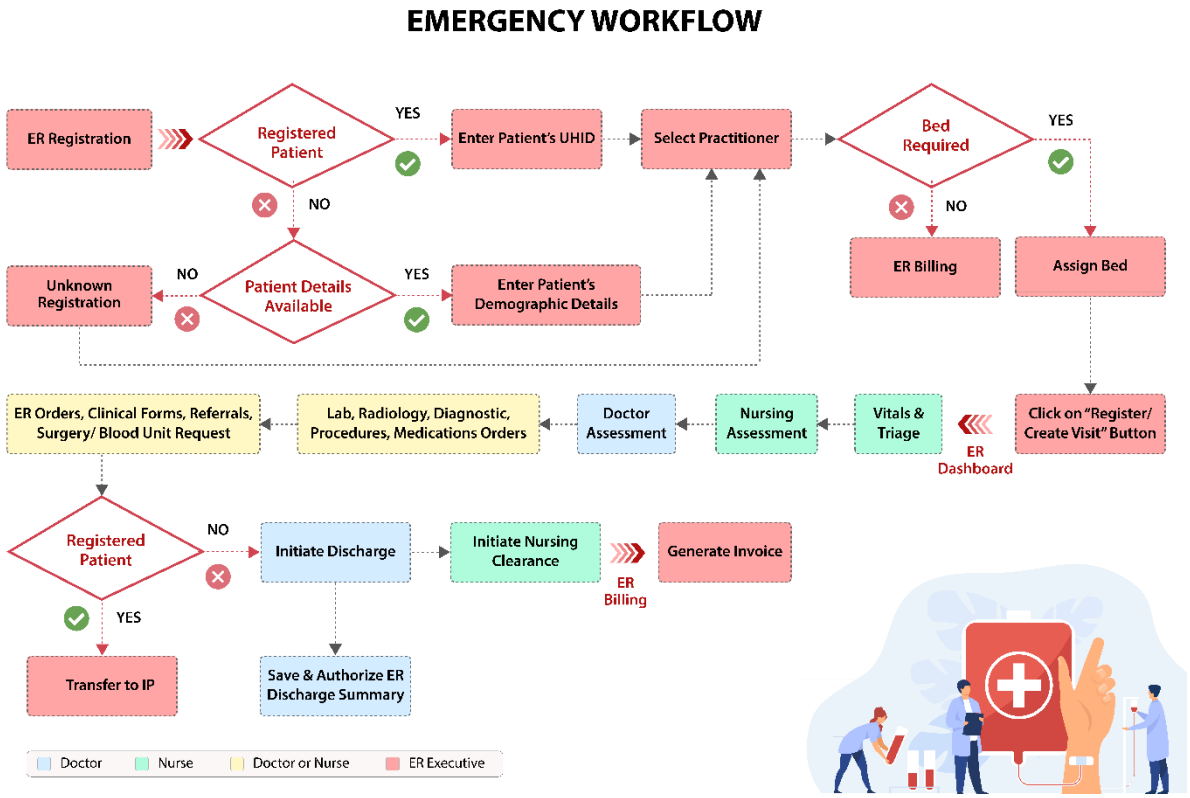


Fig.12(u), Fig.13(l):



Objectives

Primary Objective:

To evaluate the impact of training programs and the integration of new features on the adoption of the MyHealthcare Enterprise Application in a renowned Hospital .

Secondary Objectives:

To assess the level of user satisfaction with the HMIS software in terms of usability, functionality, and overall system performance.

To identify the key challenges and barriers faced by end-users in adopting and effectively utilizing the HMIS.

Review of Literature:

1. The study conducted by Sima Ajami et al. in 2012 focused on the impact of user training on the success of Hospital Management Information Systems (HMIS). The objective of the study was to highlight the importance of user training in ensuring effective HMIS implementation. It is important to note that this study was a review study and not conducted systematically.The researchers utilized various sources such as libraries, books, conference proceedings, data banks, and search engines like Google Scholar. They searched for literature related to training and its effects on user satisfaction and HMIS effectiveness. The findings of the study indicated that there are several significant factors that influence both user satisfaction and the overall success or failure of HMIS. Among these factors, the study emphasized that training plays a crucial role in achieving optimal HMIS performance. It was observed that untrained users tend to be apprehensive about the system, fearing the risk of job loss and resisting the necessary changes associated with HMIS implementation.

2. In 2014, B. K. Murthy et al. published research titled "A Case Study of PGIMER, Chandigarh: Implementation Challenges of Hospital Information System in Super Specialty Hospital." Despite efficient planning and phased implementation, there is still worry about the difficulties in using and implementing HIS. Technical issues such data security, unauthorized access, secret information, and the integration of medical software to prevent double entry are included here, as well administrative challenges like stakeholder involvement, user acceptance, lack of ownership, etc. This can be reduced by

using data entry operators or via offline and duplicate entries, however, these implementations fall short of the HIS's goals. The difficulties encountered when implementing HIS in a super specialty hospital are discussed in this research.

3. In 2018, Rully Sumarlin conducted a study titled "The Review of User Experience and User Interface Design of Hospital Information System." The study aimed to optimize the Hospital Information System software at Dewi Sri Hospital in Karawang, one of the city's oldest hospitals. The goal was to improve healthcare services provided by doctors and hospital management employees. The study employed user interviews and observations to assess the implementation and impact of the system on Dewi Sri Hospital's overall health service delivery. The research aimed to identify areas for improvement and enhance the system's effectiveness in supporting high-quality healthcare provision.

4. In a 2015 study conducted by Leila Ahmadian et al., titled "Challenges of Using Hospital Information Systems by Nurses," a comparison was made between academic and non-academic hospitals. The study utilized a cross-sectional investigation approach, with nurses from both types of hospitals in Kerman comprising the study's population. A questionnaire consisting of two parts was administered, gathering demographic data in the first segment, and addressing 34 questions about the difficulties encountered in using Hospital Information Systems (HIS) in the second segment. Data analysis was performed using descriptive and statistical methods, including t-tests and ANOVA, through the SPSS 19 program. The study found that in university hospitals, the most prevalent and significant challenges related to the human environment, particularly the "negative attitude of society about employing HIS.

5. A study by Chen et al. (2022) explored the impact of both training programs and new features on HMIS adoption and user satisfaction. The study included a sample of 400 healthcare professionals, and the results demonstrated that healthcare professionals who received comprehensive training and had access to new features reported significantly higher levels of HMIS adoption and satisfaction. Adoption rates increased by 30%, and user satisfaction scores improved by 1.5 points on a 5-point Likert scale [7]. This study highlights the combined impact of training programs and new features on enhancing HMIS adoption and user satisfaction.

6. A study by Zhang et al. (2020) examined the effects of a newly implemented feature, specifically a user-friendly interface, on the adoption and satisfaction

of an HMIS in a hospital setting. The study involved a sample of 150 healthcare professionals, and quantitative data analysis revealed a significant increase in user satisfaction after the introduction of the new feature. User satisfaction scores improved from an average of 3.6 to 4.4 on a 5-point Likert scale [6]. This study demonstrates the positive influence of new features on user satisfaction with HMIS.

7. A study by Liu et al. (2019) assessed the impact of a structured training program on the adoption of an HMIS in a large healthcare organization. The study utilized a pre-post design and collected data from 300 healthcare professionals. The findings revealed that after receiving the training program, there was a significant increase in the adoption of the HMIS, with 82% of the participants reporting improved usage and satisfaction with the system [5]. This quantitative data supports the notion that well-designed training programs have a positive impact on HMIS adoption and user satisfaction.

8. A study by Angelo S Nyamtema (2010) on bridging the gaps in the Health Management Information System in the context of changing health sector. This study utilized a cross sectional descriptive design in 11 health facilities in Kilombero in which 43 health workers were interviewed. The study showed that 81% of respondents had never received HMIS training, 65% incorrectly defined the system, 54% were unaware of the intended recipients of the information collected, and 42% did not use the information for planning, budgeting, or evaluating the delivery of services. Although 91% of the facilities had a good attitude towards the system, 25% to 55% of the facilities never finished the assessed HMIS booklets. Between clinicians and nurses, there were no appreciable variations in knowledge, attitude, or practise regarding HMIS. The delivery related HMIS booklets were the most frequently left blank (55%). These findings provide strong evidence for inadequate health data collection, lack of informed facility decision-making, and the need for improvement in the nation's HMIS were all identified by this study. It implies the need for fresh ideas, such as the inclusion of HMIS in ongoing reviews of the curricula for all cadres of healthcare providers, creation of a more user-friendly system, and application of the eight-step process developed by John Kotter based on evidence for successful change implementation in this system.[8]

RESEARCH METHODOLOGY:

Study Objective:

The main objective of this research project was to evaluate the effects of training programs and the incorporation of new features on the adoption and user satisfaction of the MyHealthcare Application System (MHEA) within a renowned hospital environment.

Study Design:

In this study, a cross-sectional study design was employed to collect data from end users of the MHEA system during the period of February to May 2023. The study was conducted in two distinct phases to gather comprehensive information.

Study Phases:

The study was conducted in two phases: the Pre-go live phase and the Post-go live phase. These phases were designed to assess the training effectiveness, end-user satisfaction, compliance level, adaptiveness to new features, and ease of work after using the system for a while.

During the Pre-go live phase, data were collected prior to the implementation of the MHEA system. This phase aimed to gather baseline information on the training effectiveness and end-user expectations. Questionnaires and interviews were used to assess the knowledge and skills of the end users, as well as their expectations and concerns regarding the system. This phase provided a benchmark for evaluating the impact of training programs on the end users' experience and satisfaction.

Following the system's implementation, the Post-go-live phase commenced. After 25 days of the post-go live (Implementation of the software) data was collected. This phase focused on evaluating the effectiveness of the training programs and assessing the end user satisfaction, compliance level, adaptiveness to new features, and ease of work after a period of system usage. Data collection methods such as surveys, interviews, and system usage logs were employed to gather feedback from the end users. This was aimed to examine any changes in their perceptions, performance, and overall experience with the MHEA system compared to the pre-go live phase.

By conducting the study in two phases, analyzing the impact of training programs and the adoption of new features over time was feasible.

Study Area:

The study was conducted within the selected enterprise belonging to the renowned Hospital group. This enterprise represented units where the MHEA system was effectively implemented and utilized. The chosen enterprise provided a representative sample for the study, offering valuable insights into the application and impact of the MHEA system within the hospital group.

Sample Population Size:

The sample population consisted of end users of the MHEA system representing a range of staff members who actively used the system. The sample size for the study was determined using the Open Epi tool. With a population size (N) of 400, a hypothesized % frequency of the outcome factor in the population (p) of 50%, a confidence limit (d) of 5%, and a design effect of 1.25, the calculated sample size was found to be **246**.

Sampling Technique:

A convenience sampling technique was employed to select participants for the study. This method involved selecting individuals who were easily accessible and willing to participate in the research. The selection was based on the inclusion criteria described below.

Data Collection Tool:

A validated questionnaire on HIMS acceptance was prepared. The data was collected using Microsoft Forms, an online survey tool.

Questionnaire Circulation Tool:

The questionnaire was distributed to the participants through digital channels such as WhatsApp and email. These platforms provided a convenient and efficient means of reaching the target population. Also, the QR code option was also utilised at the time of training so that at the end of sessions one can scan and fill up the form.

Ethical Consideration:

The informed written consent for participation in the study was taken from all the participants.

Analysis tools and techniques:

Microsoft Excel tool was used. To analyze the data collected from the end users of the MHEA system in a renowned Hospital setting, a comprehensive approach was taken, utilizing a combination of descriptive statistics, quantitative analysis, qualitative analysis, and data visualization techniques. This multifaceted analysis allowed for a comprehensive understanding of the data and provided insights into the adoption and user satisfaction with the MHEA system.

Inclusion Criteria:

The inclusion criteria for participants in this study were as follows:

On-role staff members employed by the renowned Hospital setting.

Active end-users of the MHEA system

Exclusion Criteria:

The exclusion criteria for participants in this study were as follows:

Contractual staff members

Inactive end-users of the health facility

Results:

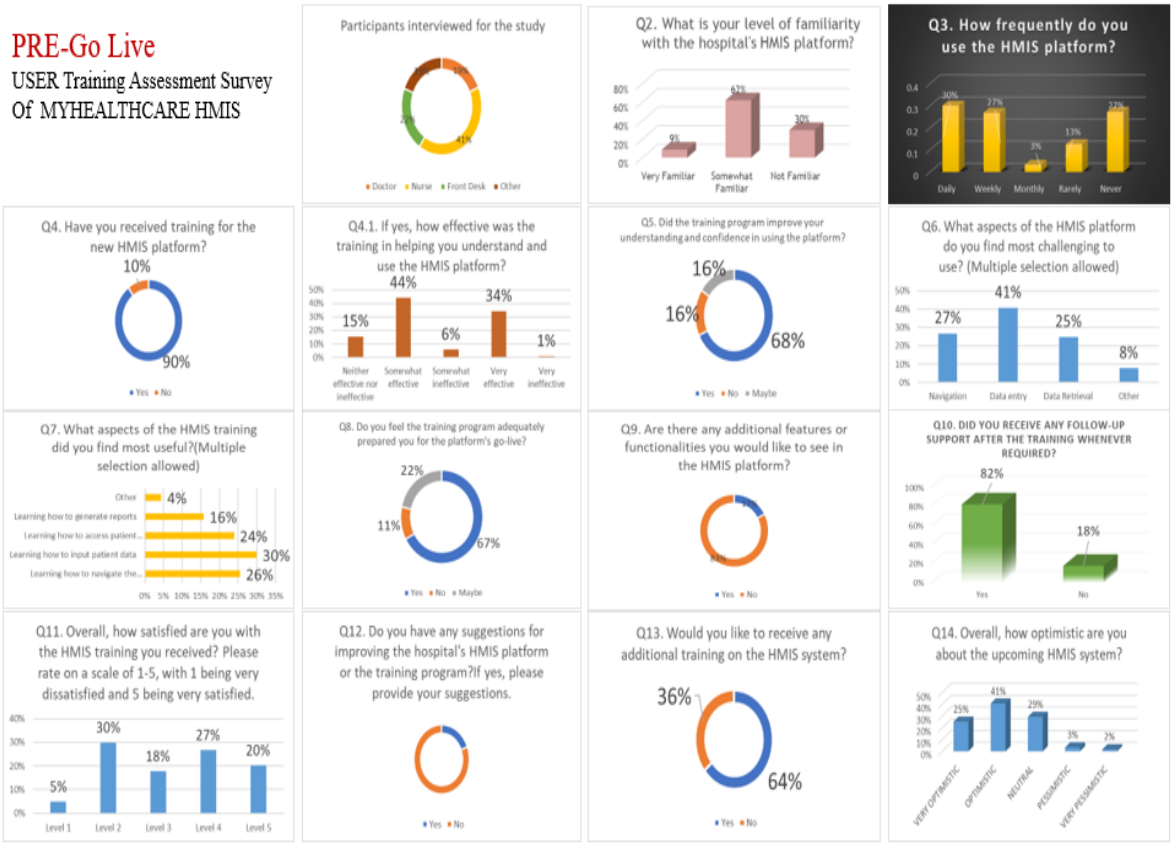
Both Pre-Go live and Post-go live study interviewed a total of 246 participants, including 46 doctors (19%), 100 nurses (41%), 53 front desk staff (22%), and 47 participants from other roles (19%). The distribution of participants across these roles reflects a diverse representation of end-users within the MyHealthcare System. Among the participants, 9% reported being very familiar with the hospital's HMIS platform, 62% claimed to be somewhat familiar, and 30% stated that they were not familiar with it. Participants reported their frequency of using the HMIS platform as follows: 30% used it daily, 27% used it weekly, 3% used it monthly, 13% used it rarely, and 27% never used it. Most of the participants (90%) received training for the new HMIS platform, while 10% did not receive any training. Among those who received training, 34% found it very effective, 44% found it somewhat effective, 6% found it somewhat ineffective, 1% found it very ineffective, and 15% found it neither effective nor ineffective. 68% of the participants reported that the training program improved their understanding and confidence in using the platform, while 16% did not feel any improvement, and 16% were uncertain about the impact. Participants found various aspects of the HMIS platform challenging to use, with 41% indicating data entry, 27% citing navigation, 25% reporting data retrieval, and 8% mentioning other challenges. Participants identified the following aspects of the HMIS training as most useful: learning how to navigate the system (26%), learning how to input patient data (30%), learning how to access patient data (24%), learning how to generate reports (16%), and other aspects (4%).67% of participants felt that the training program adequately prepared them for the go-live of the HMIS platform, while 11% disagreed, and 22% were uncertain about its adequacy. 17% of participants expressed a desire for additional features or functionalities in the HMIS platform, while 83% did not have any specific suggestions.82% of participants received follow-up support whenever required, while 18% did not receive any follow-up support.

Participants rated their overall satisfaction with the HMIS training on a scale of 1-5, with 1 being very dissatisfied and 5 being very satisfied.5% were very dissatisfied (Level 1), 30% were somewhat dissatisfied (Level 2), 18% were neutral (Level 3), 27% were somewhat satisfied (Level 4), and 20% were very satisfied (Level 5). Among the participants, 19% provided suggestions for improving the hospital's HMIS platform or the training program. 36% of participants expressed a desire for additional training on the HMIS system, while 64% did not express a need for further training. Participants' overall optimism about the upcoming HMIS system varied. 25% were very optimistic, 41% were optimistic, 29% were neutral, 3% were pessimistic, and 2% were very pessimistic.

Table 2: (Pre-Go Live Data)

S. No.	Question	Responses (Reply)	n=246	n(%)
1	Participants interviewed for the study	Doctor	46	19%
		Nurse	100	41%
		Front Desk	53	22%
		Other	47	19%
2	What is your level of familiarity with the hospital's HMIS platform?	Very Familiar	21	9%
		Somewhat Familiar	152	62%
		Not Familiar	73	30%
3	How frequently do you use the HMIS platform?	Daily	74	30%
		Weekly	66	27%
		Monthly	8	3%
		Rarely	31	13%
		Never	67	27%
4	Have you received training for the new HMIS platform?	Yes	221	90%
		No	25	10%
4.1	If yes, how effective was the training in helping you understand and use the HMIS platform?	Neither effective nor ineffective	38	15%
		Somewhat effective	108	44%
		Somewhat ineffective	14	6%
		Very effective	84	34%
		Very ineffective	2	1%
5	Did the training program improve your understanding and confidence in using the platform?	Yes	167	68%
		No	40	16%
		Maybe	39	16%
6	What aspects of the HMIS platform do you find most challenging to use? (Multiple selection allowed)	Navigation	66	27%
		Data entry	100	41%
		Data Retrieval	61	25%
		Other	19	8%
7	What aspects of the HMIS training did you find most useful?(Multiple selection allowed)	Learning how to navigate the system	63	26%
		Learning how to input patient data	74	30%
		Learning how to access patient data	59	24%
		Learning how to generate reports	39	16%
		Other	11	4%
8	Do you feel the training program adequately prepared you for the platform's go-live?	Yes	165	67%
		No	28	11%
		Maybe	53	22%
9	Are there any additional features or functionalities you would like to see in the HMIS platform?	Yes	43	17%
		No	203	83%
10	Did you receive any follow-up support after the training whenever required?	Yes	202	82%
		No	44	18%
11	Overall, how satisfied are you with the HMIS training you received? Please rate on a scale of 1-5, with 1 being very dissatisfied and 5 being very satisfied.	Level 1	12	5%
		Level 2	74	30%
		Level 3	44	18%
		Level 4	66	27%
		Level 5	50	20%
12	Do you have any suggestions for improving the hospital's HMIS platform or the training program?If yes, please provide your suggestions.	Yes	46	19%
		No	195	79%
		Better medicine prescribing method	2	1%
		During inter operative patient send immediate frozen test send to why did you send request in hmis system	2	1%
13	Would you like to receive any additional training on the HMIS system?	Yes	88	36%
		No	157	64%
14	Overall, how optimistic are you about the upcoming HMIS system?	VERY OPTIMISTIC	62	25%
		OPTIMISTIC	100	41%
		NEUTRAL	72	29%
		PESSIMISTIC	8	3%
		VERY PESSIMISTIC	4	2%

Fig.14



Then another survey which was conducted after the 25 days of go-live presented the following findings. Among the doctors interviewed, a majority (87%) reported using the SAVE AS CARE PROTOCOL option. This suggests a high level of adoption of this feature among doctors, indicating its relevance and usefulness in their clinical practice. The majority of participants (73%) reported that logging in to the HMIS platform was either extremely easy or somewhat easy. This indicates that the login process is user-friendly and does not pose significant barriers for users. The study found that a significant proportion (79%) of participants felt that the HMIS platform met their needs for managing health data. The majority of participants (94%) rated the usability of the HMIS platform as either good or excellent (rating 3 to 5). This indicates a high level of user satisfaction with the platform's ease of use, suggesting that it is intuitive and user-friendly. A large majority (88%) of participants reported that it is easier to access patients' data in the HMIS system whenever required. This indicates that the platform facilitates quick and efficient retrieval of patient information, improving workflow efficiency and patient care. Regarding data security, participants' opinions were divided. While 50% of participants believed that data security has increased with HMIS implementation, 11% felt it has decreased. However, a significant proportion (39%) remained neutral on this aspect, indicating a need for further investigation and reassurance on data security measures.

The study found a high adoption rate (82%) of the voice-to-text feature among participants. Most users (62%) reported finding it either extremely easy or somewhat easy to use, suggesting that this feature is perceived as a convenient and time-saving option. A substantial number of participants (75%) reported using the favourite's feature, and the majority (79%) found it helpful in quickly accessing frequently used items. This indicates that the favourite's feature contributes to efficient navigation and streamlined workflow for end-users. The study identified several challenges faced by users while using the HMIS software. The most common challenges reported include data accessibility (24%), time-consuming processes (21%), and user interface/navigation issues (33%). These findings highlight areas where improvements or additional support may be needed to enhance user experience and system efficiency. A majority of participants (79%) reported noticing improvements in work efficiency or patient care outcomes since using the MyHealthcare HMIS platform. This suggests that the platform has a positive impact on healthcare delivery, contributing to enhanced operational efficiency and patient care quality. Also 80% among these were using mark as favourite option which indicates this feature is contributing in increasing compliance.

Fig.15

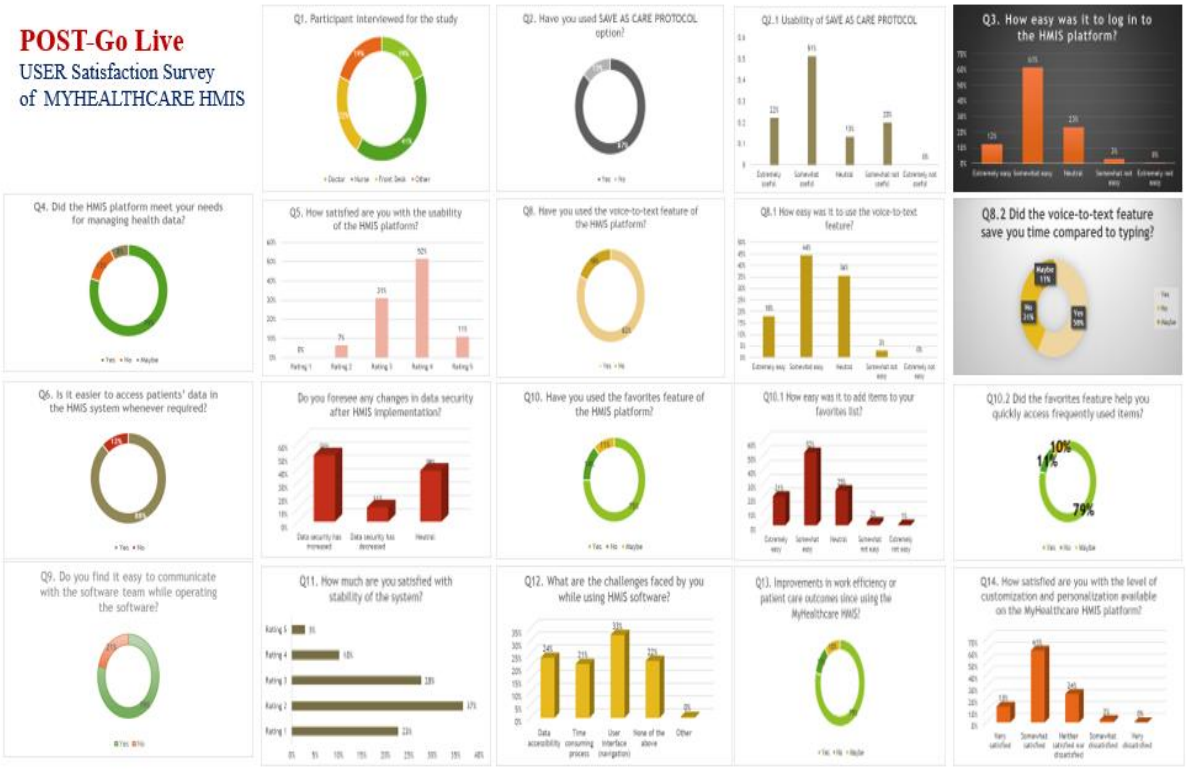


Table 3: (Post-Go Live Data)

S. No.	Question	Responses (Reply)	n=246	n(%)
1	Participants interviewed for the study	Doctor	46	19%
		Nurse	100	41%
		Front Desk	53	22%
		Other	47	19%
1	Have you used SAVE AS CARE PROTOCOL option? (Question only for Doctors =45)	Yes	39	87%
		No	6	13%
1.1	If Yes How useful it is for you?	Extremely useful	10	22%
		Somewhat useful	23	51%
		Neutral	6	13%
		Somewhat not useful	9	20%
		Extremely not useful	0	0%
2	How easy was it to log in to the HMIS platform?	Extremely easy	30	12%
		Somewhat easy	151	61%
		Neutral	57	23%
		Somewhat not easy	7	3%
		Extremely not easy	1	0%
3	Did the HMIS platform meet your needs for managing health data?	Yes	195	79%
		No	32	13%
		Maybe	19	8%
4	How satisfied are you with the usability of the HMIS platform?	Rating 1	0	0%
		Rating 2	16	7%
		Rating 3	76	31%
		Rating 4	127	52%
		Rating 5	27	11%
5	Is it easier to access patients' data in the HMIS system whenever required?	Yes	217	88%
		No	29	12%
6	Do you foresee any changes in data security after HMIS implementation?	Data security has increased	124	50%
		Data security has decreased	27	11%
		Neutral	95	39%
7	Have you used the voice-to-text feature of the HMIS platform?	Yes	202	82%
		No	44	18%
7.1	How easy was it to use the voice-to-text feature?	Extremely easy	37	18%
		Somewhat easy	91	44%
		Neutral	73	36%
		Somewhat not easy	6	3%
		Extremely not easy	0	0%
7.2	Did the voice-to-text feature save you time compared to typing?	Yes	119	58%
		No	63	31%
		Maybe	23	11%
8	Do you find it easy to communicate with the software team while operating the software?	Yes	194	79%
		No	52	21%
9	Have you used the favorites feature of the HMIS platform?	Yes	184	75%
		No	35	14%
		Maybe	27	11%
9.1	How easy was it to add items to your favorites list?	Extremely easy	38	21%
		Somewhat easy	95	52%
		Neutral	46	25%
		Somewhat not easy	4	2%
		Extremely not easy	1	1%
9.2	Did the favorites feature help you quickly access frequently used items?	Yes	145	79%
		No	21	11%
		Maybe	18	10%
10	How much are you satisfied with stability of the system?	Rating 1	56	23%
		Rating 2	90	37%
		Rating 3	68	28%
		Rating 4	25	10%
		Rating 5	7	3%
11	What are the challenges faced by you while using HMIS software?	Data accessibility	58	24%
		Time consuming process	52	21%
		User interface (navigation)	80	33%
		None of the above	55	22%
		Other	1	0%
12	Have you noticed any improvements in your work efficiency or patient care outcomes since using the MyHealthcare HMIS platform?	Yes	194	79%
		No	27	11%
		Maybe	25	10%
13	How satisfied are you with the level of customization and personalization available on the MyHealthcare HMIS platform?	Very satisfied	33	13%
		Somewhat satisfied	149	61%
		Neither satisfied nor dissatisfie	59	24%
		Somewhat dissatisfied	5	2%
		Very dissatisfied	0	0%

Discussion:

The findings from the research project provide valuable insights into the effectiveness of HMIS training programs, the adoption of new features, user satisfaction, and overall user competence.

Most participants reported at least some level of familiarity with the HMIS platform. However, a significant number of users still indicated a lack of familiarity, indicating the need for targeted training programs to bridge this gap. The fact that a portion of participants reported never using the HMIS platform suggests the importance of investigating the reasons behind this lack of engagement to encourage active usage. The research findings indicate that the training program for the new HMIS platform had a positive impact on user competence and satisfaction. Most participants received training and found it to be effective, with a significant proportion rating it as either very effective or somewhat effective. This underscores the importance of providing comprehensive training to users, enabling them to understand and utilize the HMIS platform more effectively. Participants identified data entry and navigation as the most challenging aspects of using the HMIS platform. These findings emphasize the importance of developing user-friendly interfaces and intuitive workflows to minimize user difficulties. Most participants felt adequately prepared for the HMIS platform's go-live, indicating the effectiveness of the training program in preparing users for the transition. However, a significant number of participants expressed uncertainty about their preparedness, highlighting the importance of continuous support and follow-up after the training phase. Overall, participants expressed a moderate level of satisfaction with the HMIS training they received. While many participants were satisfied, there is room for improvement to enhance user satisfaction further. However, the data also revealed a positive outlook and optimism among participants regarding the upcoming HMIS system, indicating a higher likelihood of successful adoption. While most participants did not express a desire for additional features or functionalities in the HMIS platform, a notable proportion indicated an interest in additional features. This suggests the need for ongoing evaluation and improvement of the system to cater to diverse user needs.

After the go-live (implementation) the survey was again conducted and the results indicate a positive response from participants regarding the adoption and utilization of HMIS features, as well as overall user satisfaction and usability of the MyHealthcare HMIS platform. The Save as Care Protocol option, voice-to-text feature, and favourite feature was well-received and demonstrated their value in improving efficiency and supporting users' needs.

The ease of logging in to the platform suggests a user-friendly authentication process. Furthermore, the HMIS platform met most participants' needs for managing health data, indicating its effectiveness in supporting their responsibilities. The high satisfaction ratings for usability and customization options reflect the platform's user-centric design and adaptability.While data security perceptions were divided,

the neutral response indicates the need for continued efforts to address user concerns and ensure robust data security measures.

Challenges reported by participants included data accessibility, time-consuming processes, and user interface/navigation issues. These findings highlight areas that require attention and improvement to optimize the system's performance and enhance user experience.

The reported improvements in work efficiency and patient care outcomes further validate the positive impact of the MyHealthcare HMIS platform on healthcare delivery.

Conclusion:

The study provides valuable insights into the effectiveness of HMIS training programs, new feature implementation, adoption, and user satisfaction within the MyHealthcare System. The results affirm the platform's positive reception among healthcare professionals while identifying areas for refinement and enhancement to better meet user needs and ensure a seamless user experience. Also, the post-go-live support following the implementation of any HMIS platform holds immense significance and plays a crucial role. It is during this phase that end users require continuous assistance, guidance, and troubleshooting to ensure a smooth transition and optimal utilization of the system. Effective post-go-live support ensures that any issues or challenges that arise after the initial implementation are promptly addressed, thus maximizing the benefits of the HMIS platform, and enhancing overall user satisfaction.

Limitations:

It is important to acknowledge certain limitations of the study. Firstly, the study was conducted in a specific healthcare setting, and the findings may not be generalizable to other healthcare contexts. Additionally, the study relied on self-reported data, which may be subject to biases such as social desirability or recall bias.

The study was conducted over a specific time, which may limit the ability to capture long-term changes in adoption, user satisfaction, and effectiveness of the training programs and new features. The study did not assess the long-term impact of the HMIS platform, and future research could explore the sustained benefits and challenges over time.

The study utilized a convenience sampling technique, which may introduce selection bias. Participants who volunteered to participate may have different characteristics or experiences compared to those who did not participate, leading to potential biases in the findings.

The study did not account for external factors that may influence the adoption and user satisfaction of the MHEA system, such as changes in healthcare policies, technological advancements, or organizational culture.

Recommendations:

Conduct thorough testing: Prior to each release, conduct comprehensive testing to identify and address any potential bugs or issues. This will help ensure the stability and reliability of the software during and after the updates.

Provide organizational support for users: Allocate additional time during working hours for users to learn and practice using the system following implementation or an upgrade. This will allow users to familiarize themselves with the changes and adapt to the updated software more effectively.

Offer training for new and experienced users: Provide training sessions for both new and experienced users to enhance their proficiency with the system. These sessions can cover new features, changes in workflows, and any other relevant information to ensure users are equipped to utilize the software optimally.

Gather user feedback: Regularly seek feedback from users regarding their experience with the software updates. This feedback can help identify any areas that require further improvement and inform future development and enhancement efforts.

System performance improvement: Allocate sufficient time and resources to improve system speed and responsiveness. This may involve optimizing database queries, refining code algorithms, or upgrading hardware infrastructure. Regular system maintenance and performance testing can help identify areas that require improvement.

System downtime and disruption: Making updates and improvements to the system can result in temporary system downtime or disruptions in regular operations. It is essential to carefully plan and communicate system maintenance schedules to minimize the impact on users and ensure that critical tasks can be performed during downtime.

Effective prioritization of bugs/ requirements will help in ensuring client satisfaction and influencing the attitude of the end users.

Effective new feature implementation should be focused on user needs, with sufficient training and support, as well as planned communication strategies that encourage user engagement and participation.

Effective communication through release notes and planning will help ensure client alignment and effective stakeholder management at the client site.

Organizations should measure and evaluate user adoption to identify areas for improvement and develop targeted strategies for increasing adoption and satisfaction.

Effective Go-live support: Users need ongoing support, guidance, and troubleshooting assistance during and after the implementation of HMIS. Accessible

helpdesk support, user manuals, and training materials can address users' questions and concerns and promote their confidence and proficiency.

Challenges Faced:

User Resistance to Change: Some end users initially resisted the adoption of the MHEA system due to a fear of technology, preference for traditional methods.

The busy schedules of staff during training sessions.

Low network bandwidth at the hospital slows down the HMIS system at times.

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Annexures:

1. Sample collection Tool: https://www.openepi.com/SampleSize/SSPropor.htm
2. Pre Go-Live Questionnaire: https://forms.office.com/r/VqNwRWPNdm

3. Post Go-Live Questionnaire: https://forms.office.com/r/VqNwRWPNdm

Fig.16
Voice to Text Feature

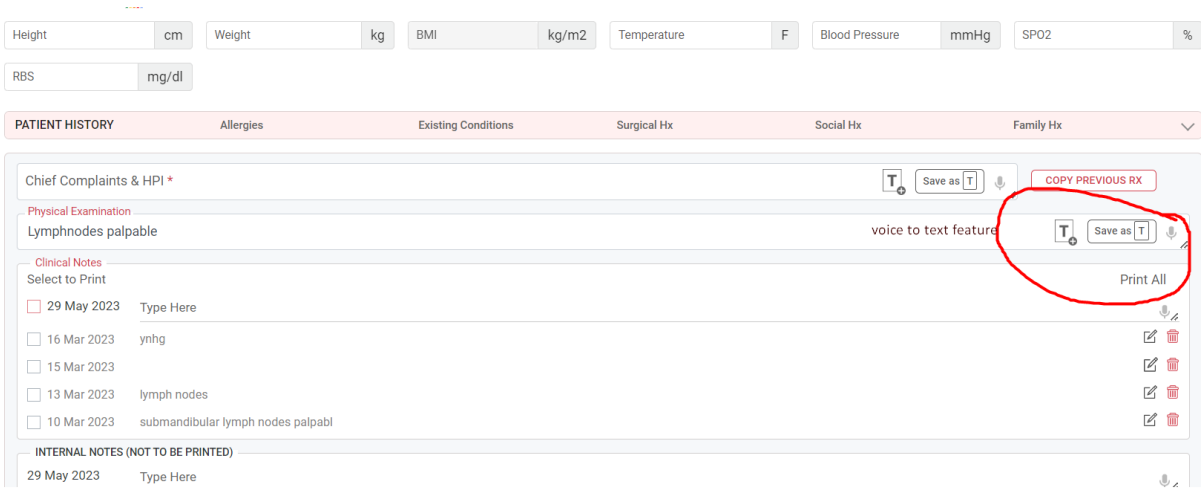


Fig.17

Favourites Feature

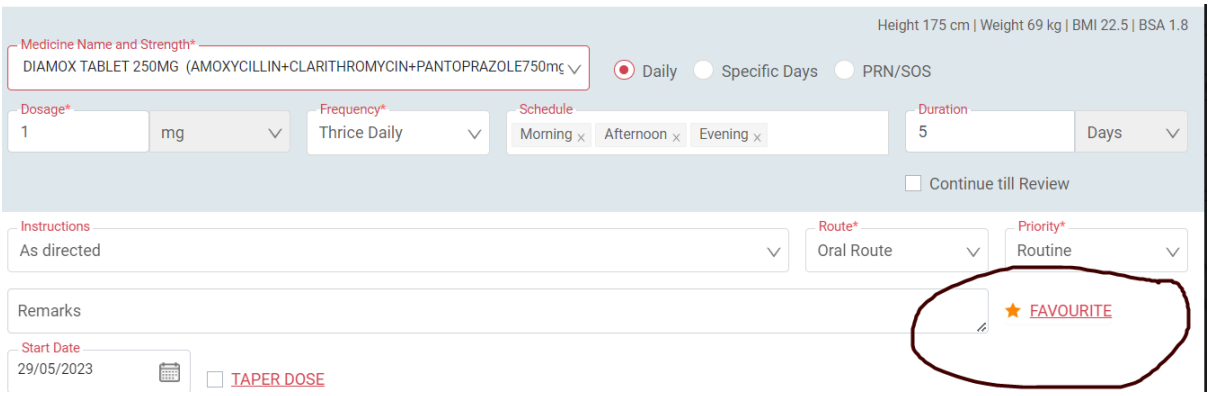
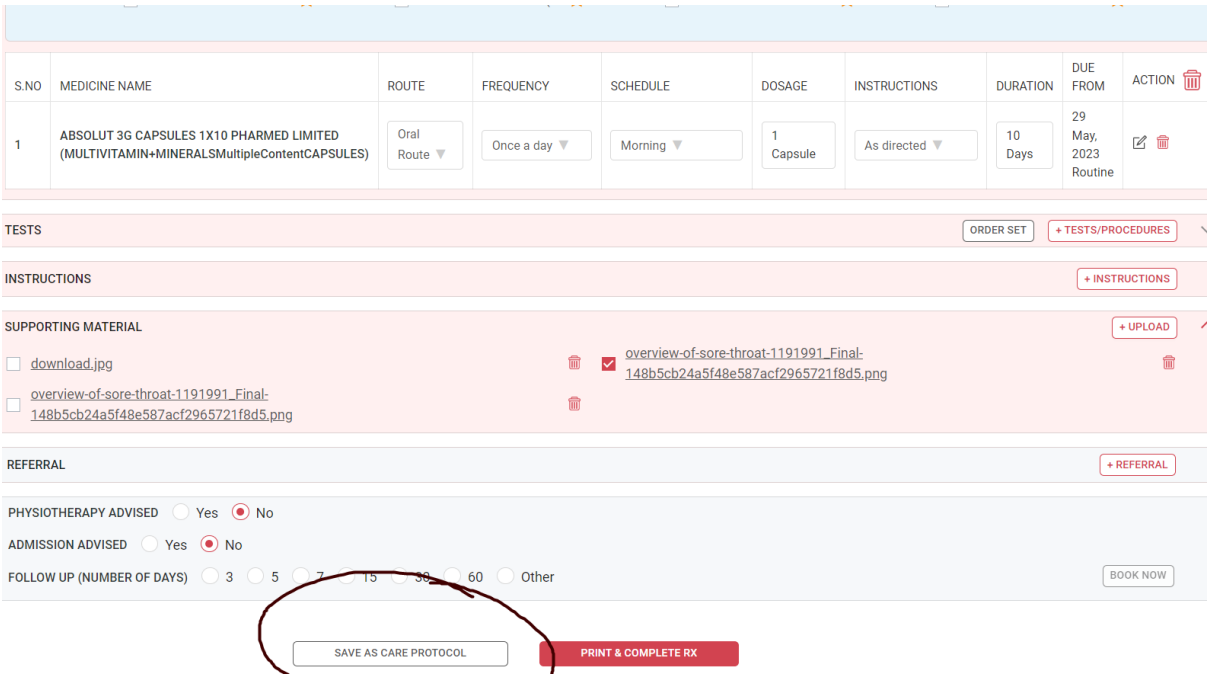


Fig.18

Save as Care Protocol Feature



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