



PERCEPTION OF FRONTLINE USERS TOWARDS IMPLEMENTATION OF HMIS

Advisor

Dr P R SODANI

SUBMITTED BY

Dr AYUSHI GOEL

1083



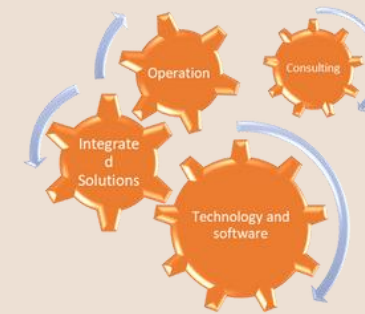


Table of Contents

I	Research Background & Motivation	3
II	Literature Review	6
III	Methodology	9
IV	Research Results	10
V	Conclusion & Discussions	12



RESEARCH BACKGROUND & MOTIVATION



Although the HMIS has been advanced version of manual patient data recording incorporating newest innovations. However, if these innovations and upgradations result in confusion to healthcare users then HMIS is of no use. Hence the system should be designed in a user-friendly manner and trainings should be arranged for users on a regular basis

Any efficient HMIS should deliver advantages like:

- Improves the integrity of information
- Errors made through transcription are reduced
- Entries that are duplicated can be reduced
- TAT of reports are better optimized



PURPOSIVE STATEMENT AND support to purposive statement



India's twelfth five-year plan from year 2012-2017 discusses on the improvement of HMIS all over the nation with an investment of \$200 billion for National digital Health Mission. As per the Prime minister of India Narendra Modi, Covid-19 crisis led to creation of platform for unanimous adoption of NDHM. The transformation will be driven aiming the six themes revolving around Information transparency, Standardized claim processing, Prescription digitization, Playground for innovations, from episodic to wellness-oriented care, from service-based to value-based healthcare

Barriers	Brazil [49]	Sub-Sahara Africa [50]	Tanzania [9]	India [11]	Malaysia [12]	United States [44]
1. Access to internet	✓	✓				✓
2. Computer availability	✓					
3. Availability of IT team/unit	✓					
4. Electricity supply		✓	✓			
5. Infrequent IT use	✓					
6. User's computer skills		✓		✓		
7. Workload			✓		✓	
8. Employee turnover					✓	
9. Lack of training in IT			✓		✓	
10. Resistance of change						✓
11. Budget constraints		✓				✓
12. Security						✓
13. Lack of planning, project management				✓	✓	✓
14. Lack of financial incentives		✓				✓
15. Lack of technology support					✓	✓
16. Loss of Productivity						✓
17. Lack of functions, not meet the practice needs						✓
18. Lack of System maintenance						✓

RESEARCH AIM AND OBJECTIVES

When a patient comes in for treatment and is admitted to a hospital, the system should be menu-driven and have a user-friendly graphical user interface where all tasks to be completed are listed. If a medical store issues medications to patients, the stock status should be reduced and all jobs to be completed should be stated. It should be able to handle patient test reports completed in the hospital's pathology lab; inventory should be updated automatically whenever a transaction is completed; and the system should be able to sound an alarm if the stock level of particular drugs falls below a specified threshold. The hospital's accounting should be incorporated into the new system, so this task can be outsourced. External doctors' data and fee information should be kept separate from internal doctors' record

RESEARCH OBJECTIVES

- i. To understand the workflow of the HMIS in a selected private hospital of Pune named Rising Medicare
- ii. Determine the managerial decision's perception of hospital information management systems in that hospital
- iii. Determine the issues that frontline users in the selected hospitals encounter while using hospital information management systems.
- iv. Investigate options for improving the utilisation of the hospital information management system in both facilities

II LITERATURE REVIEW

Research Paper 1	Research Paper 2	Research Paper 3	Research Paper 4
Bridging the gaps in the Health Management Information System in the context of a changing health sector	Challenges of using Hospital Information Systems by nurses: comparing academic and non-academic hospitals	Barriers and challenges to Primary Health Care Information System (PHCIS) adoption from health management perspective	Experiences of implementing hospital management information system (HMIS) at a tertiary care hospital, India

Research Gap

The research gap noted through literature review is that the perception at user level is not focused earlier. The hospital administration has always been the contact point while researching whereas the doctors, nurses and paramedic staff's attitude and perception is neglected

III RESEARCH METHODOLOGY

RESEARCH QUESTION

What is the perception of frontline users towards harnessing the power of digital technology in a selected private hospital of Pune and understanding the associated challenges or barriers towards implementation of hospital management information system at user level?



Descriptive study
(Desk Review)



A non-systematic
random, virtual,
digital study

SAMPLE SIZE CALCULATION

Population size = 135
Confidence interval = 95%
(0.95)
Sample proportion = 50%
(0.5)
Z-Score = 1.64

The calculated sample size for the study is = 101 healthcare workers



March to June
2022



Surveys, In depth
interview,
company
websites, articles

SAMPLING TECHNIQUE

Random stratified sampling technique was adopted to describe the characteristics of subgroups chosen for the study

Purposive sampling technique was adopted to describe the characteristics of managerial doctors chosen for the study



Search engine
Keywords and
Booleans

III RESEARCH METHODOLOGY- STUDY INSTRUMENTS

QUANTITTATIVE STUDY

For the research purpose, the distribution of the **pre-designed questionnaires** containing **30 close ended question** was done among the healthcare workers chosen for the interest of the study belonging to different wards of the private hospital

QUANTITTATIVE STUDY

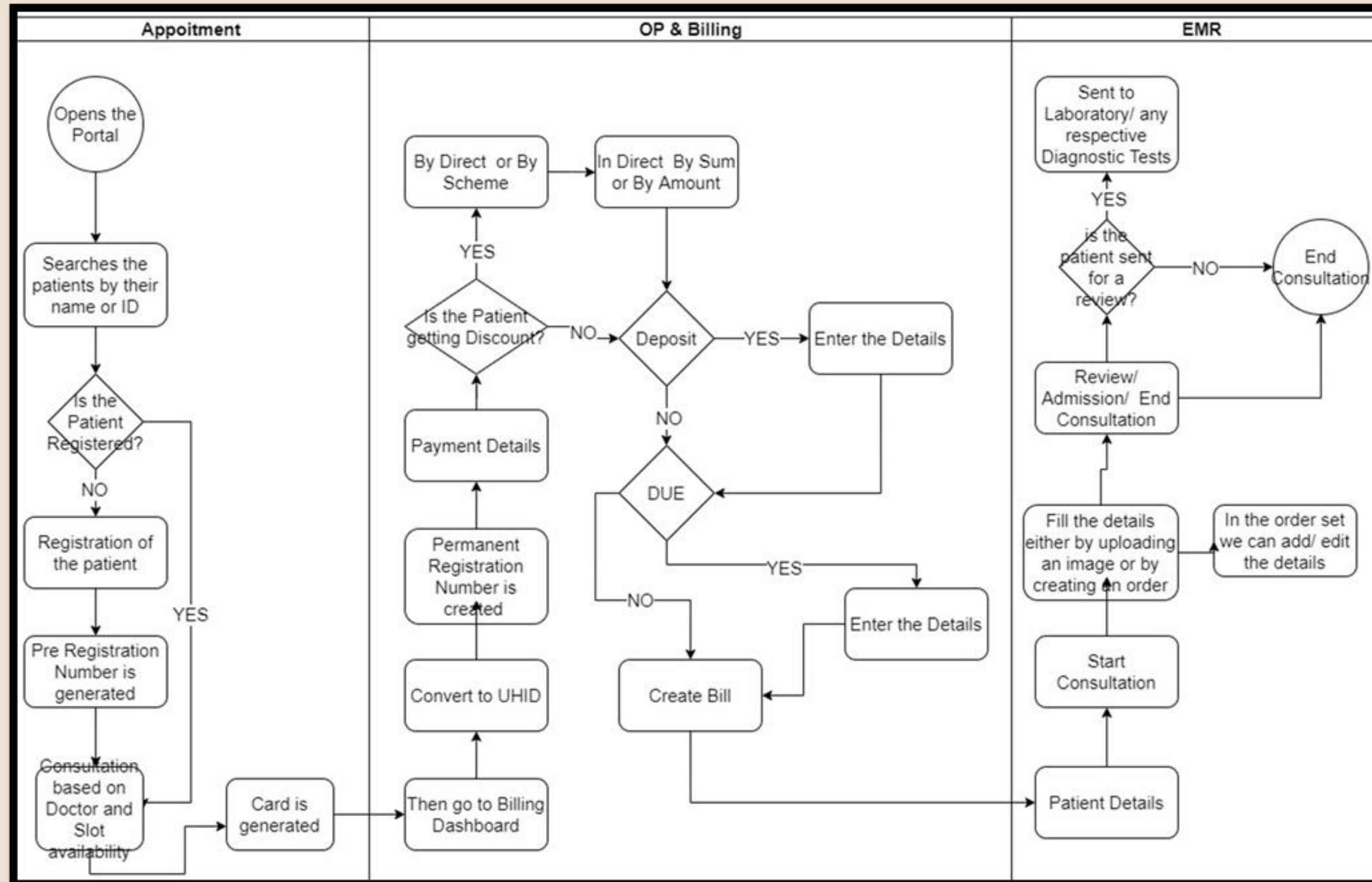
The qualitative study was done to understand the opinion and experience of the **5 doctors at managerial position** with help of **Rapid Assessment Process** that is previously adopted for similar type of studies.

The questionnaire prepared for in-depth interview was based on the **Human, Organization, Technology fit Model (HOT-fit)** and **Individual technology and task framework (ITT)**.

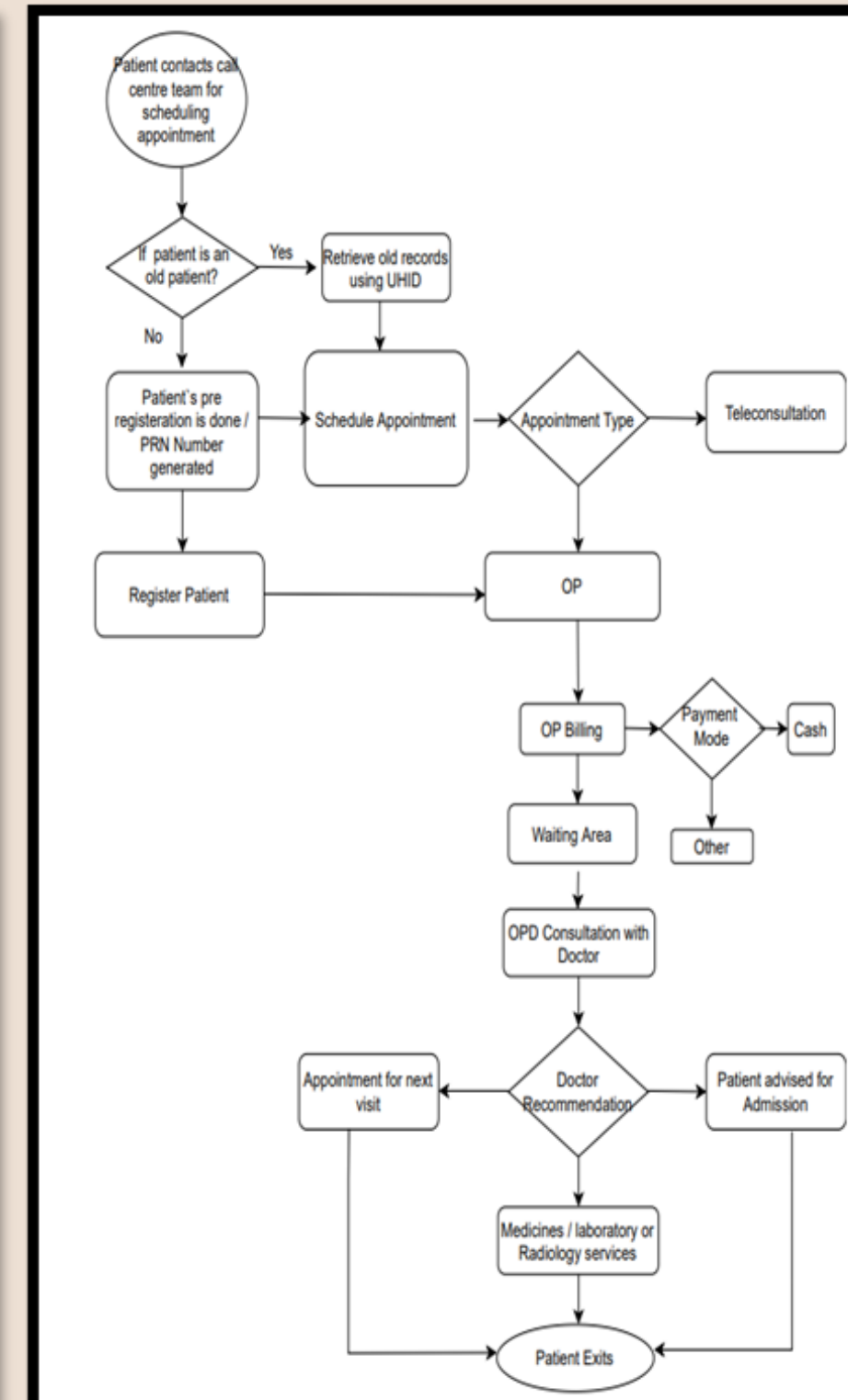
DIMENSIONS	CRTIERIA
Human factor	• Time consuming work with HIS • Poor interest to work on computer • Not many skills to work on the technology such as HMIS • Lack of comprehensive understanding about the HMIS • Resistance to transitioning from manual to automated processes • Uncertainty about the system's utility
Human environment	• Reduced interaction with patients • Reduced communication with colleagues • Colleagues' negative attitude about HIS • Society's negative attitude regarding using HIS
Organizational factors	• Clinical work pressure resulting in less time to HMIS • Inadequate training about HIS • Failure to entirely repair the system • Lack of space in workplace • Lack of frontline user contribution in the designing of HMIS • Not in coordination with the organizational culture • Lack of technical staff when necessary
Hardware factors and System characteristics	• Network failure • Lack of computers in hospitals • Low speed of computer • Legal problem issues can be raised while working on HMIS • Loss of confidentiality of information

IV DATA ANALYSIS AND INTERPRETATION

The first objective of the research study was to understand the workflow of the HMIS in the hospital



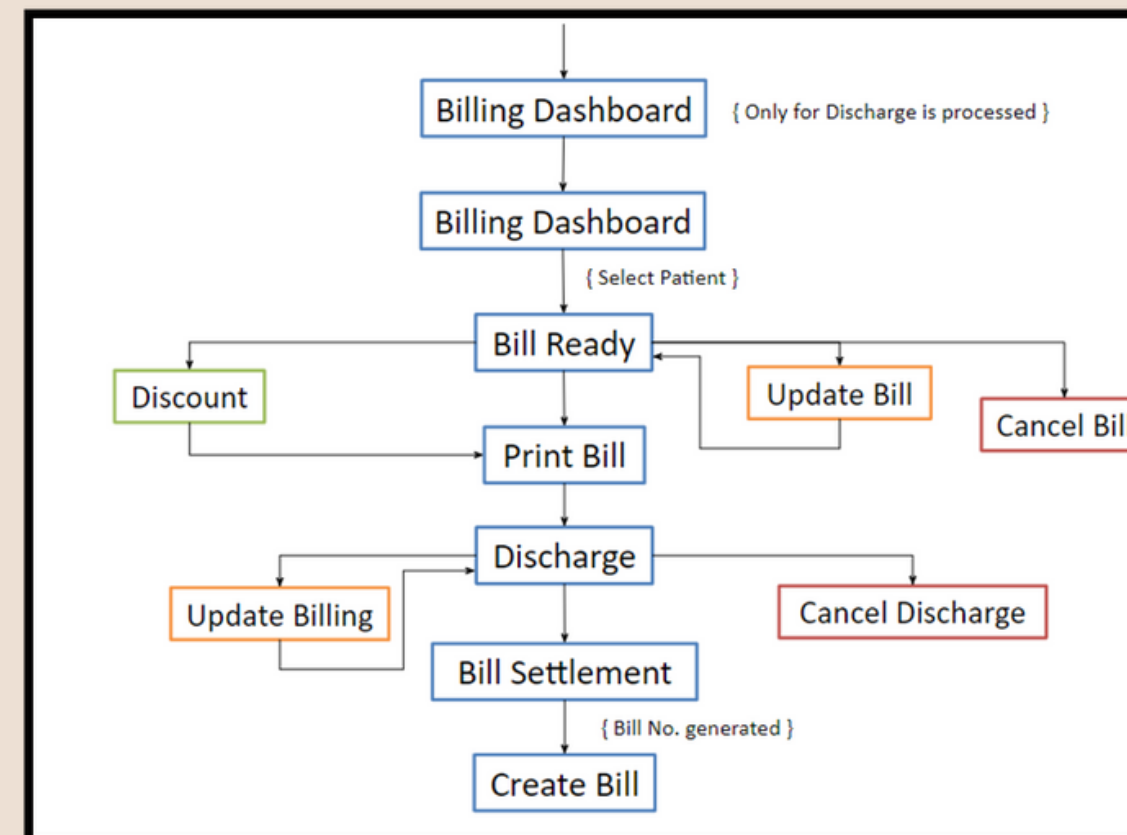
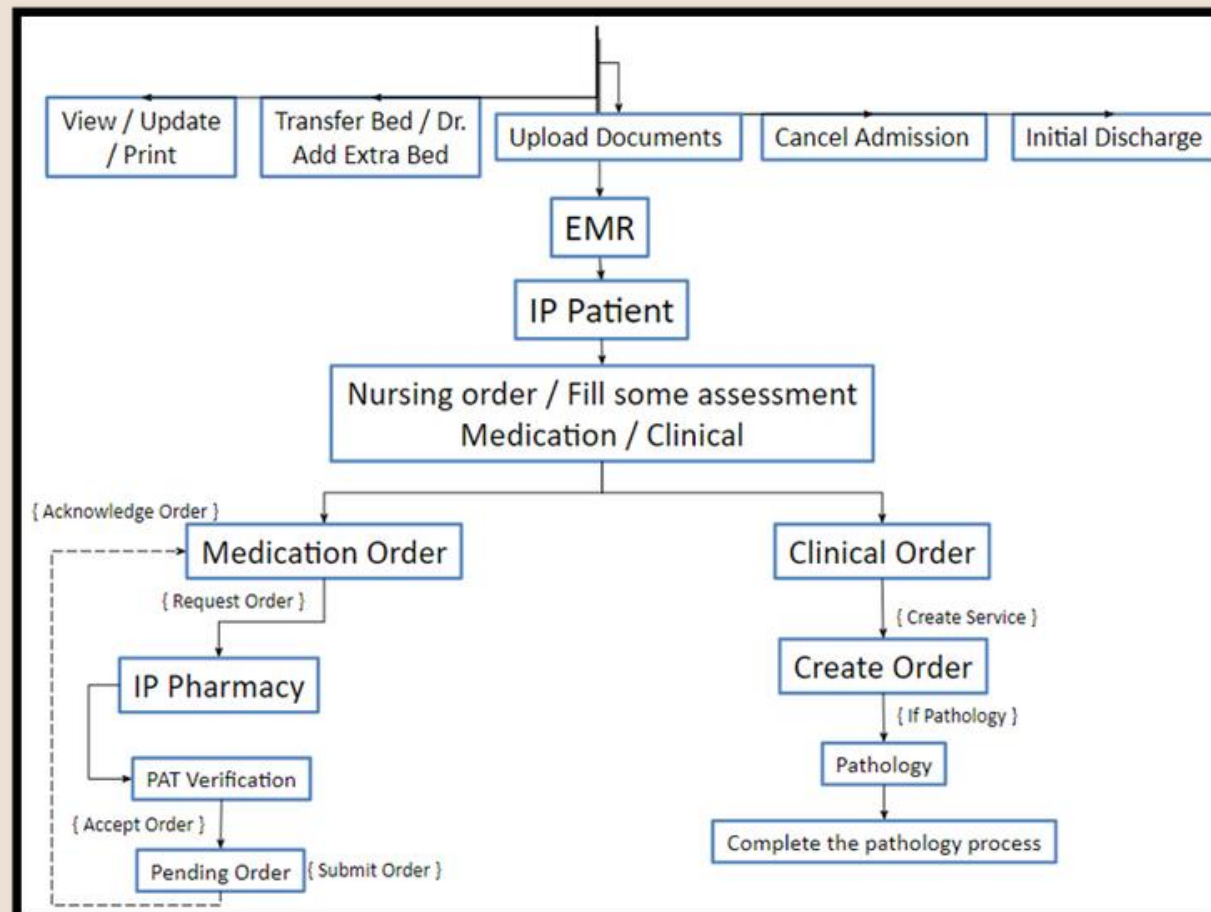
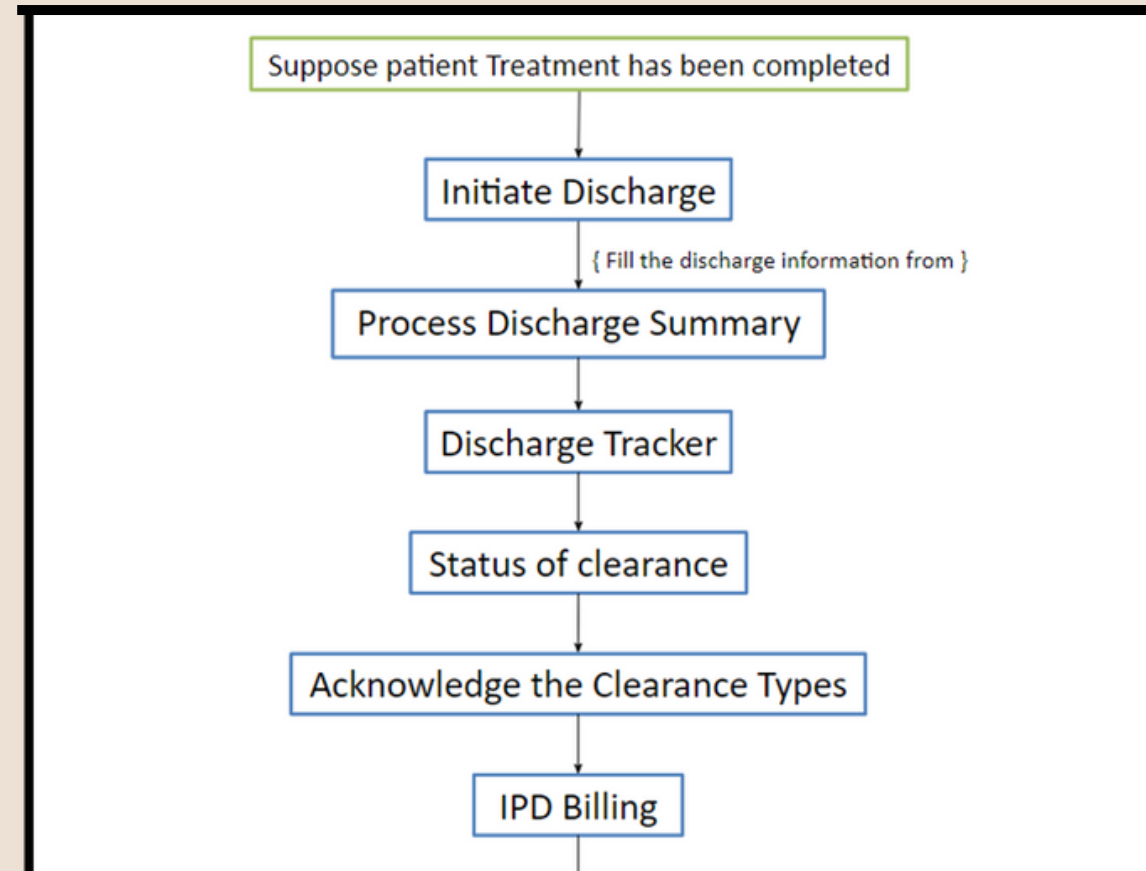
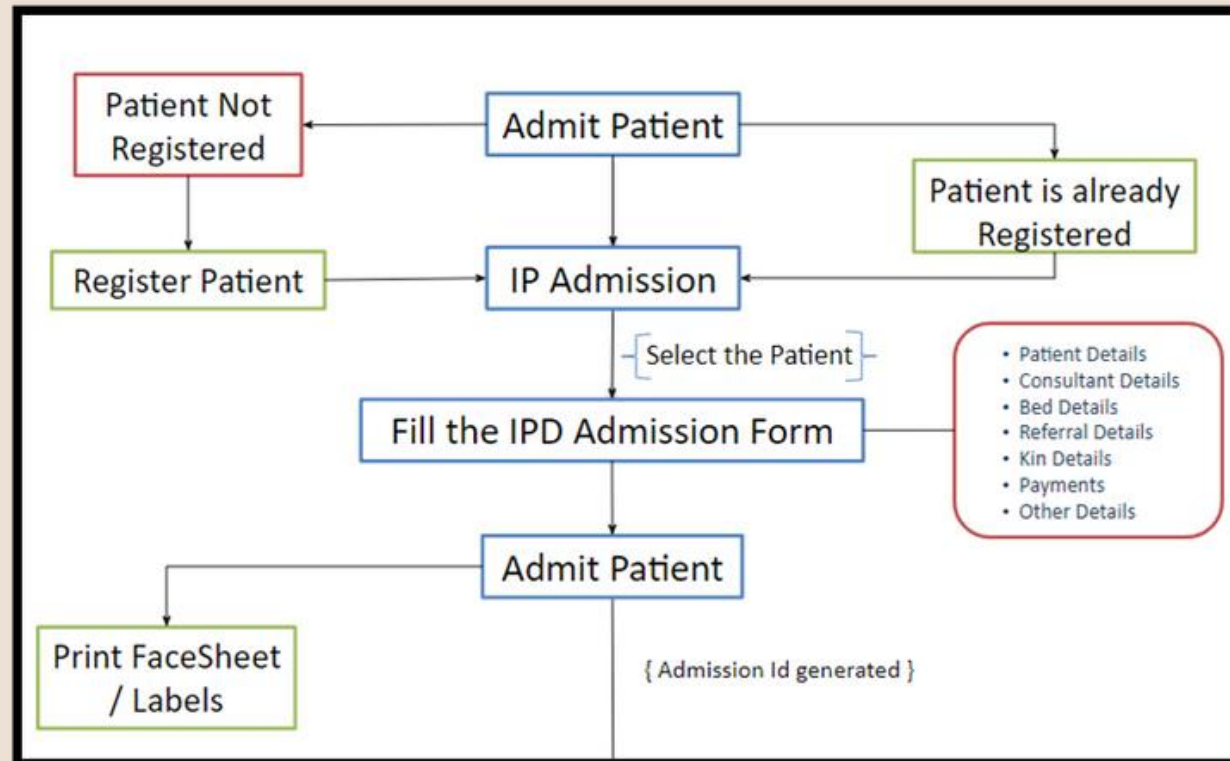
OPD workflow in HMIS implemented in hospital



call center and patient portal

IV DATA ANALYSIS AND INTERPRETATION

The first objective of the research study was to understand the workflow of the HMIS in the hospital



An IPD patient journey is captured like that of OPD in initial stages when it comes to registration. The patient gets registered on the system and an OPD patient can be converted to IPD patient through the system. Once the patient gets registered to the system, the patient is admitted to ward according to the billing category and allotted a room

IV DATA ANALYSIS AND INTERPRETATION

The second objective of the research study was to understand the perception of managerial level doctors towards the implementation of HMIS in the hospital



HUMAN RESOURCE, KNOWLEDGE, AND SKILL SET

The staff lacks commitment and diligence to understand the system. They are rigid about shifting to adoption of electronic medium for recording patient data and wish to continue with traditional manual recording system

IT INFRASTRUCTURE OF RISING MEDICARE HOSPITAL

The camps arranged outside the hospital, are difficult to record on computer. There are around 200 OPDs dealt in the camps and to register those patients in HMIS is impossible for healthcare staff. As there are certain related clinics outside the hospital with no IT infrastructure, it is difficult to manage this data

HOSPITAL ORGANIZATIONAL BEHAVIOR

We are hiring personnel's skilled in IT industry and planning on setting up a separate unit of IT team. We are also planning on keeping weekly trainings and examination to test the comprehensive level and knowledge gained by each user of HMIS. The hospital shall completely shift to HMIS within a year or so

PROCESS OF THE SOFTWARE IN THE HOSPITAL

The best part of the software is patient portal wherein the patients can themselves book appointment with the doctor in need, make payment and take the advantage of tele consultation sitting at home. The software is convenient for us as we do not have to ask for the prescription for patient anymore. As soon as we open the EMR tab and enter the patient's UHID or first name, the patient is visible in the system, and we get all the patient history directly

IV DATA ANALYSIS AND INTERPRETATION

The third objective of the research was to understand the challenges faced by the frontline users such as nurses, RMO, doctors, billing desk, Lab resources etc. towards the usage of HMIS in the

Characteristics	Value	Gender	
		Male	Female
Age group (years)			
	19 and below	0	4
	20-24	9	7
	25-29	14	29
	30-34	9	5
	35- 39	4	7
	40-44	1	2
	45 and above	1	
Educational degree			
	Associate	3	1
	Bachelors	20	33
	Master	15	20
Job profile in the hospital			
	Nursing	8	20
	Doctor	3	1
	Radiology	3	2
	Pathology	4	7
	RMO	7	4
	Pharmacy	2	5
	IT Department	3	1
	Registration	2	5
	Billing Desk	2	1
	Finance	2	2
	Human Resource	1	6
	Others	1	0
Work experience in healthcare industry (in years)			
	Less than 1 year	5	9
	1-2 years	12	13
	2-4 years	11	26
	5-10 years	8	5
	Over 11 years	2	1
Experience in using HMIS			
	Less than 1 year	18	36
	1-2 years	13	13
	2-4 years	4	3
	5 years and above	3	2

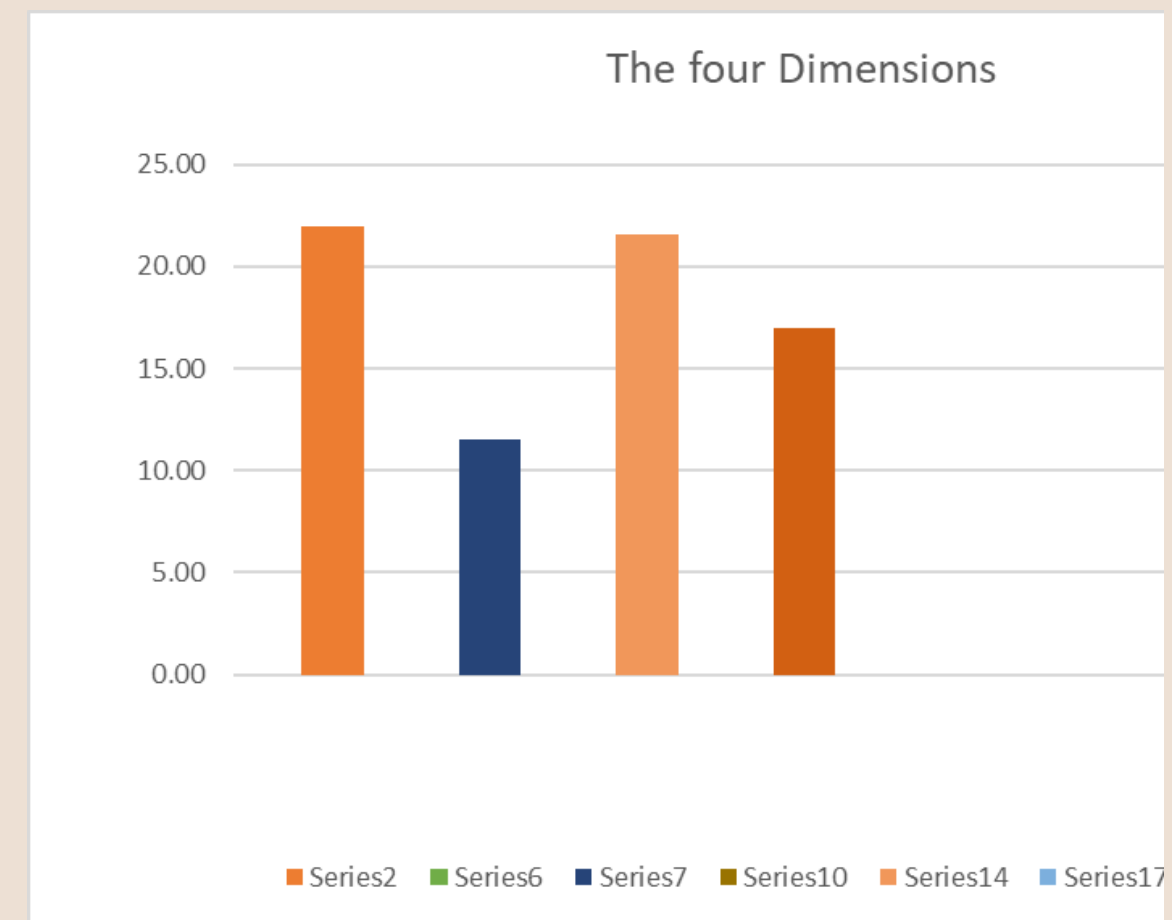
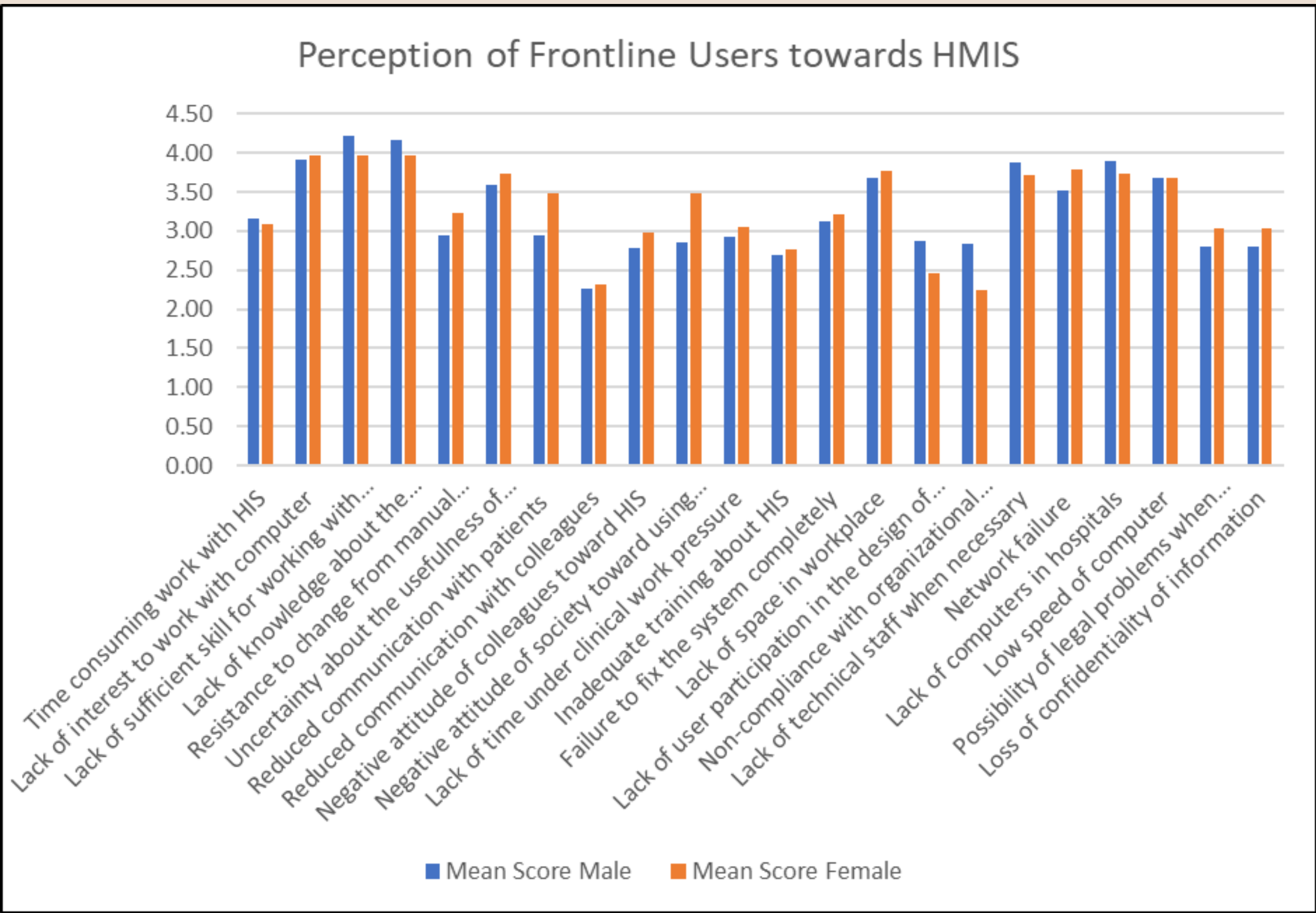
Demographic details of the

Dimensions	Criteria	Mean Score	
		Male	Female
Human factor	Time consuming work with HIS	3.17	3.08
	Poor interest to work on computer	3.91	3.97
	Not many skills to work on the technology such as HMIS	4.22	3.97
	Lack of comprehensive understanding about the HMIS	4.17	3.97
	Resistance to transitioning from manual to automated processes	2.94	3.24
	Uncertainty about the system's utility	3.59	3.74
Human environment	Reduced interaction with patients	2.94	3.47
	Reduced communication with colleagues	2.26	2.32
	Colleagues' negative attitude about HIS	2.78	2.97
	Society's negative attitude regarding using HIS	2.84	3.47
Organizational factors	Clinical work pressure resulting in less time to HMIS	2.93	3.05
	Inadequate training about HIS	2.69	2.76
	Failure to entirely repair the system	3.13	3.21
	Lack of space in workplace	3.69	3.77
	Lack of frontline user contribution in the designing of HMIS	2.87	2.46
	Not in coordination with the organizational culture	2.83	2.24
	Lack of technical staff when necessary	3.87	3.71
	Network failure	3.52	3.79
	Lack of computers in hospitals	3.89	3.74
Hardware and System characteristics	Low speed of computer	3.69	3.67
	Legal problem issues can be raised while working on HMIS	2.80	3.03
	Loss of confidentiality of information	2.80	3.03

Mean score of each criterion

The challenges faced by these frontline users were captured through the 30 close-ended questionnaire shared with them. During the analysis done, it was found that out of all the dimensions based on which the study was prepared, the most challenging dimension was human factor with a mean score of 21.99.

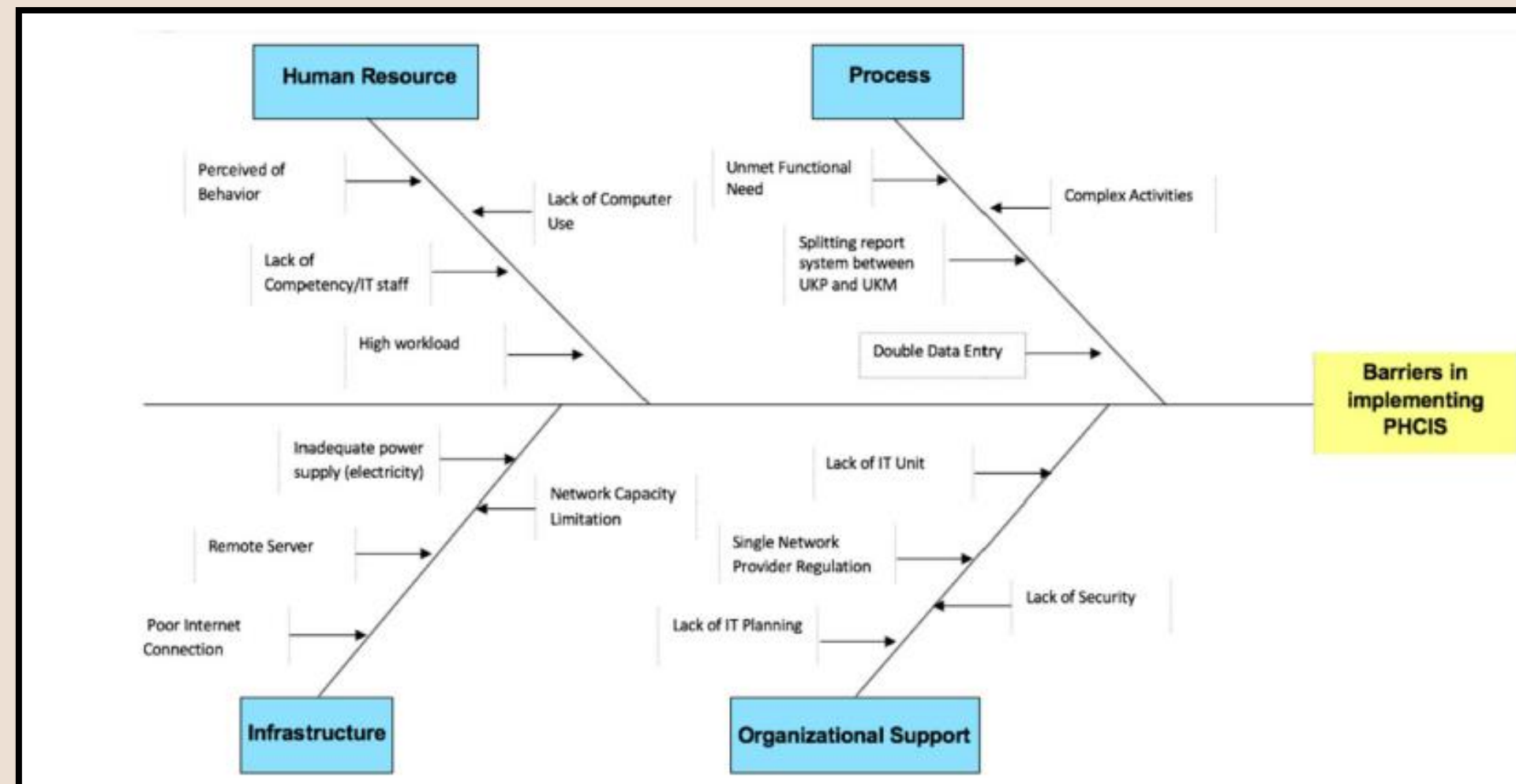
IV DATA ANALYSIS AND INTERPRETATION



: The highest bar of human factor and lowest of human environment

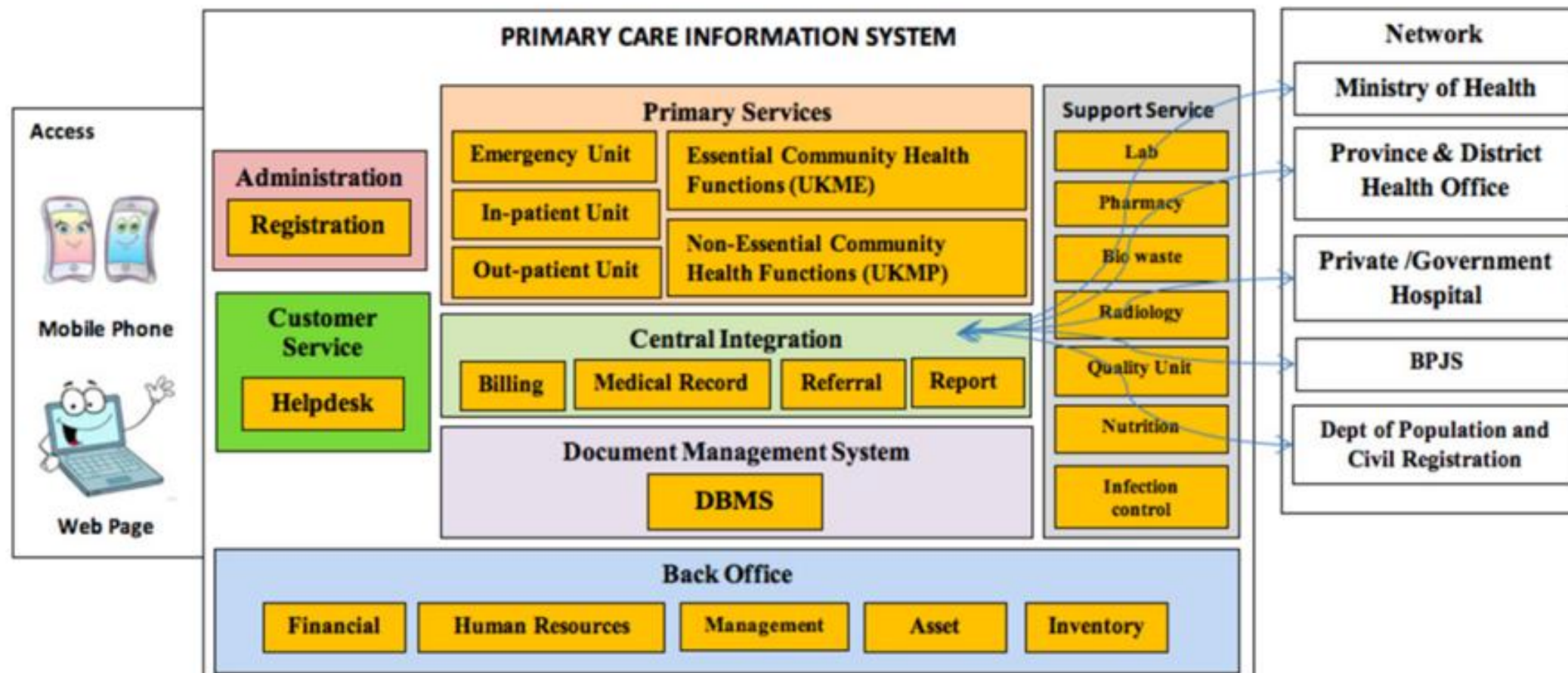
v CONCLUSION & DISCUSSIONS

The research has requisite the need of HMIS in the hospitals. Being a 50 bedded hospital, almost every practitioner believed that there is a need for transition from traditional manual recording of patient data to computerized data recording



Barriers in implementation of HMIS

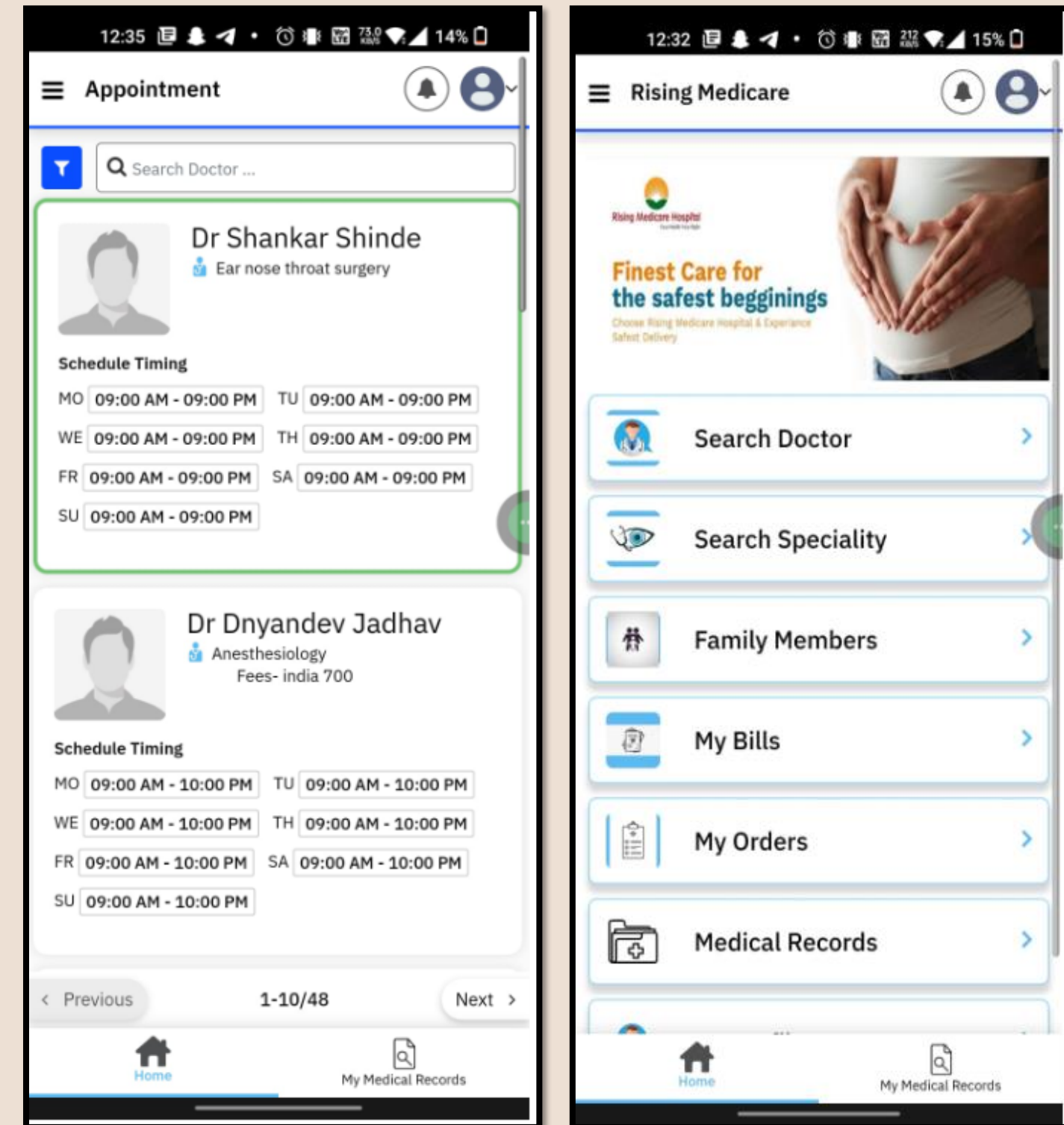
This study helps us determine that apart from technical infrastructure in hospital, it is necessary to have technical support and IT team in the hospital. The healthcare staff lacks the knowledge and skills to run computers and hence there is lack of commitment seen towards the implementation of HMIS



Architecture design for HMIS

✓ CONCLUSION & DISCUSSIONS

A well-integrated hospital information management system can efficiently manage all the information and data requirements of any hospital, allowing it to offer patients high-quality care. With this type of technology, financial requirements are effectively controlled, and financial misconduct is significantly reduced. When it comes to patient information, disease notifications, or epidemiological data, hospital information management systems can readily offer timely, accurate, and relevant data. With the aid of the hospital information management system, patient information security can be efficiently handled.



Thank you for listening!

Advisor

Dr P R SODANI

Student

Dr AYUSHI GOEL
1083