Internship Training

At

Indraprastha Apollo Hospitals, New Delhi

(February 2nd to May 10th, 2018)

Study Title

A study on Doctor's user satisfaction with an electronic medical record system "DNA Med-Mantra" in Outpatient department

By

Dr. Pooja Singh
PG/16/34

Under the guidance of

Ms. Divya Aggarwal
Assistant Dean & Assistant professor

Post Graduate Diploma in Hospital and Health Management
2016-2018

International Institute of Health Management Research
New Delhi

ACKNOWLEDGMENT

I take this opportunity to express my profound sense of gratitude and indebtedness to all those who helped me throughout the duration of the project.

I would like to acknowledge, First and foremost **Ms Divya Aggarwal** (Asst. Professor IIHMR, Delhi) for showing confidence in me and for constant support and guidance throughout my dissertation period. I would also like to thank to all the Consultants who gave their time for filling the questionnaire.

I am highly thankful to **Mr.Vishal Gupta (CIO)** for his aspiring guidance, invaluably constructive suggestions and friendly advices during my tenure at Apollo. I am sincerely grateful for giving me incredible opportunities to gain knowledge about management of a healthcare organization. I am also indebted to him for sharing his valuable experiences and giving his truthful and illuminating views on several issues related to management.

I express my warm thanks to **Mr.Sreekant Mishra (Project team leader)** for his constant support and guidance throughout my conduct at Apollo

I would also whole heartedly thank the entire staff at Indraprastha Apollo Hospital, New Delhi for being so supportive and helpful and taking out some time from their hectic schedules and giving all the required information.

I would also like to thank my project head **Ms Puja Monga (Senior manager)** for her constant supervision and support in completing the projects

At the end, I am thankful to God and my heartfelt gratitude to my parents and friends who supported me throughout the course

DECLARATION

I do hereby declare that I am a student of 2nd year Healthcare IT, Post Graduate Diploma in Hospital and Health Management, IIHMR Delhi, session 2016-2018.
I would like to state that I have done the project on "Doctor's user statisfaction with an Electronic Medical Records System DNA Med-Mantra in outpatient department" under the guidance of. Mr Sreekant Mishra (Project Team Leader) at Indraprastha Apollo Hospital, New Delhi for the completion of the degree of Post Graduate Diploma in Hospital and Health Management

I also declare that this work is my own project and it has not been submitted to any of the other University or organization for the purpose of award of any degree.

Dr.Pooja Singh

Pg/16/34

IIHMR Delhi

TABLE OF CONTENT

INDRAPRASTHA APOLLO HOSPITALS, NEW DELHI

OVERVIEW

In 1971, Dr. Reddy (Father of Apollo Group) left his successful clinical practice in Boston and came back to India. On his return from Boston, he founded that the medical horizon in India was full of loopholes in organization structure, services, delivery of the services and affordability to the patients. Situation took a turn when his young patient died who did not have enough money to go abroad for his own treatment. This incident marked impact in his life and enhanced his determination to get best quality healthcare to India. He made design to build India's first tertiary care hospital.

Unconcerned and unfazed about the hurdles he has to face, Apollo Hospitals unlocked its ways in 1983 and ever since encouraged a goal which read as "Our mission is to bring healthcare of international standards within the reach of every individual. We are committed to the achievement and maintenance of excellence in education, research and healthcare for the benefit for humanity".

In these 30 years, it has been stated as one of the most glorious stories of success that India has never seen. Not only is the Apollo Group being one of the major cohesive healthcare groups in the whole country, it also catalyzed the private healthcare uprising in the India. Apollo has made every characteristic of their patronizing mission into a reality. The journey has affected and supplemented 42 million patients who came from 120 different countries.

THE JOURNEY OF APOLLO HOSPITALS

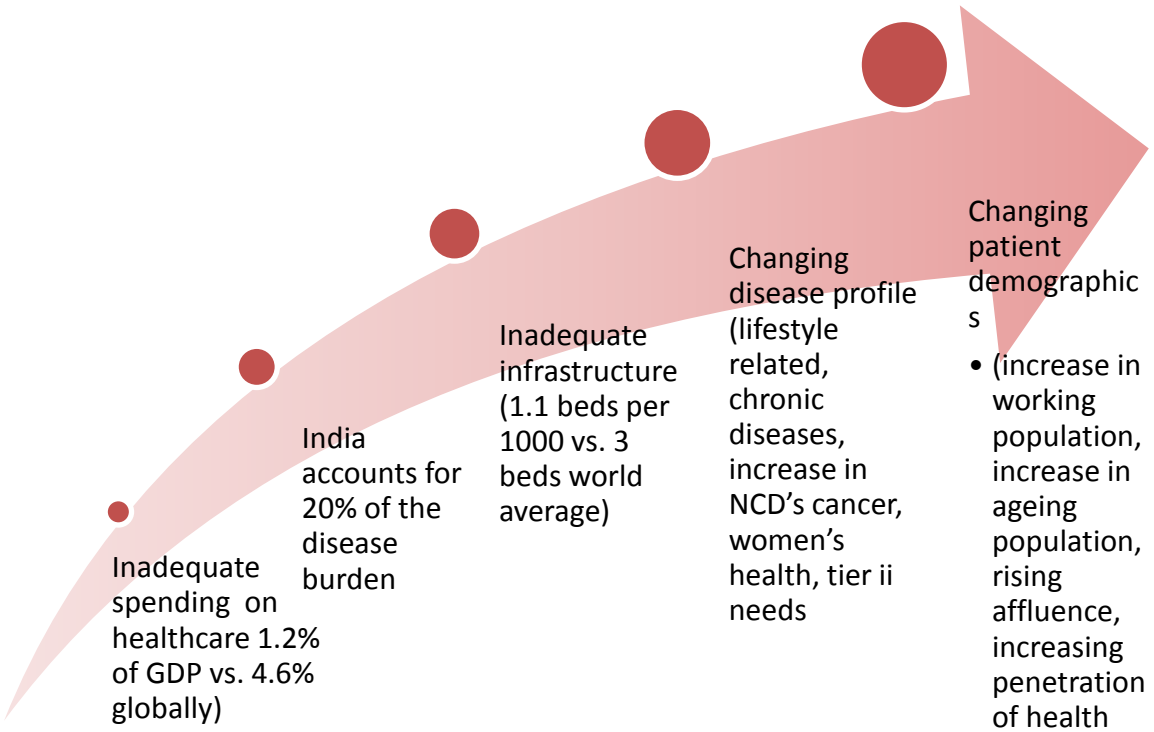
- The Apollo Hospitals Group was started by Dr. Prathap C. Reddy in 1979.
- The Group started its first hospital at Chennai in 1983 with the initial bed strength of 150.
- The bed strength today stands at over 9000.
- With over 54 owned hospitals, Apollo today is Asia's largest Corporate Hospitals Group.

Apollo Bhubaneswar 2010
Apollo Aragonda 2000
Apollo Vishakhapatnam 1999
Apollo Madurai 1997
Apollo specialty Chennai 1993
Indraprastha Apollo Delhi 1996
Apollo Chennai 1983
Apollo Hyderabad 1988

54 locations in India and outside India, over 9000 beds, more than 55,000 employees and serving its millions of patients across the world

Apollo Bilaspur 2001
Apollo Ahmadabad 2003
Apollo Dhaka 2005
Apollo Ludhiana 2005
Apollo Agra 2006
Apollo Bangalore 2007
Apollo Kakinada (AP)
Apollo Kolkata

GROWTH DRIVERS (PRESSING DEMANDS)



ACCREDITATION

NABL

JCI

NABL - National Accreditation Board for Testing and Celebrations Laboratories.

JCI - Joint Commission International

COMMITEES AT APOLLO

The Committees that guide the smooth functioning of the hospital and help building the painstaking attitude in the employees:

- Quality Steering Committee
- Infection Control Committee
- Safety Committee

- ❖ Credentialing Committee
- ❖ Authorization Committee
- ❖ Appraisal Committee
- ❖ Medical Audit Committee
- ❖ Ethical Committee for Clinical Trials
- ❖ Ethics Committee
- ❖ Code Blue Committee
- ❖ Drug Committee
- ❖ Transfusion Committee
- ❖ Death Review Committee
- ❖ OT Committee

CODES

Blue:	Individual disaster	Call 66
Grey:	Internal disaster	Call 5555, 1926, 1983
Pink:	Baby disaster	Call 5555, 1926, 1983
Purple:	Fight likely	Call 5555, 1926, 1983
Black:	Bomb Threat	Call 5555, 1926, 1983
Red:	External Disaster	CMO to Activate
Orange:	Indication of deterioration in patient's condition	Call 66

FIRE SAFETY

Upon determining a fire, Noise out the code word - Code Grey

In case of fire, first inform 5555 and then remember the pneumonic:**RACE**

R : Rescue

A : Alarm

C : Confine the fire

E : Extinguish (if trained) and evacuate

Type of Extinguishers:

1. **WATER CO_2 TYPE–**

   Used for ‘A’ CLASS FIRE – Used for general fire by wood, Cloth & Paper**.**

2. **CO_2 TYPE–**

   Used for ‘BCE’ CLASS FIRE – Used for fire by Flammable Liquid, Burnable Gas, Metals &Electrical appliances.

3. **Dry Chemical Powder (DCP) Type –**

   Used in any type of fire including gaseous / electrical /fire.

INTRODUCTION

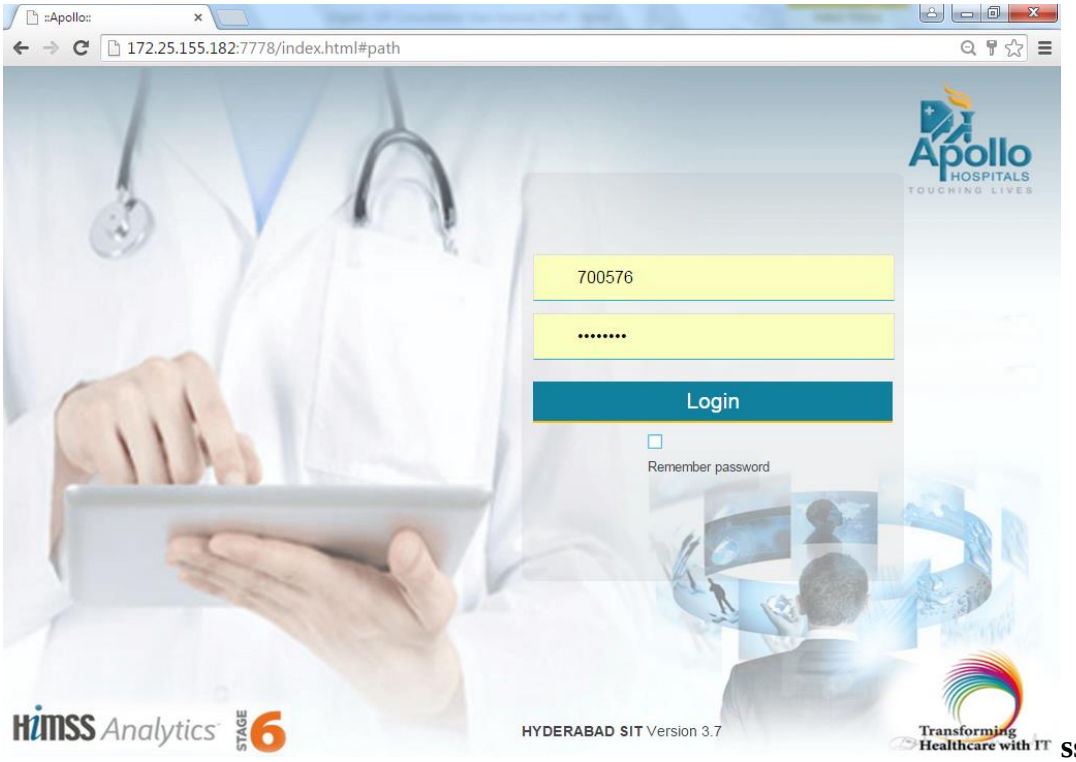
An always advancing healthcare sector with a demand for a healthy population has seen a rapid advancement in healthcare services and levels of care which are current requirement for healthcare policy makers. Cost of medical expenses has increased exponentially due to unhealthy lifestyle.

Due to increased demand for excellence in service provided, hospital needs to improve the service quality provided to a patient. To achieve a standard delivery of care in hospitals, many leading tertiary care hospitals have switched electronic medical record system. The use of medical record system can reduce clinical errors, support healthcare professional's decision making, increase the efficiency and quality of patient care. Therefore, for better transparency and visualization as per the government norms, it is mandatory for all Healthcare institutions to digitalize their services.

Tata consultancy services (TSC) being the player in the software industry was given the task to build and develop online EMR application and named as "MED-MENTRA" to enable the tracking of patient's records at the digital platform. The mutual agreement by Indraprastha Apollo Hospital and Tata Consultancy (TCS) to develop user friendly application for ease towards Hospital Digitalization and networking within the available service o Hospital.

The live operation is being currently monitored through Chennai and Hyderabad location whereas Delhi being the next epi-center for the advancement in terms of the digital doctor's prescription.

OVERVIEW FOR MED-MANTRA



SSS

Med mantra includes both OP and IP Consultation Module

Overview of OP consultation

The OP consultation is an integrated patient management system. The system consist of the patient administration functions, to provide better and efficient patient care sevices.

The doctor dashboard module is accessed by the doctors.

Logging in and Logging out

Access to the doctor dashboard module is limited only to authorised users. To access the module, login to app with authorised User ID and Password.

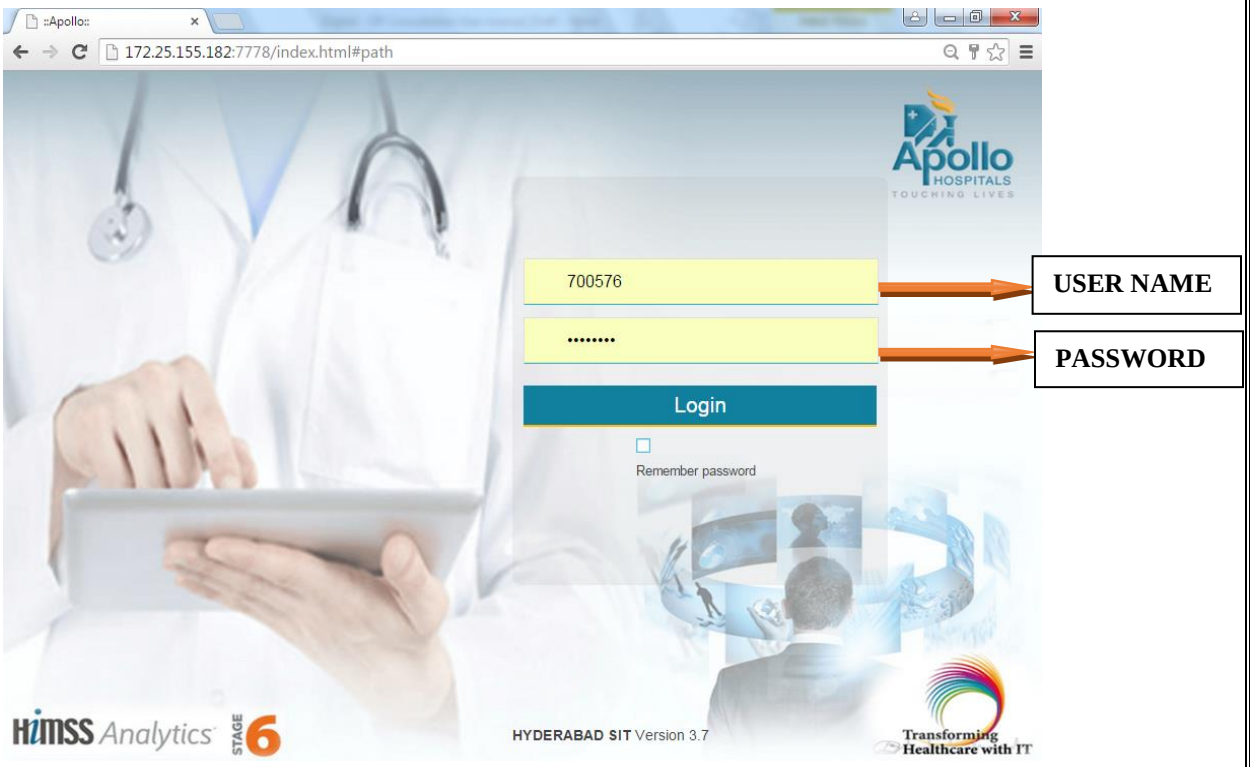
Logging into Med Mantra

Click the **Apollo** icon on the computer systems. The Login screen will be displayed.

Enter your **User Name**.

Enter your **Password**.

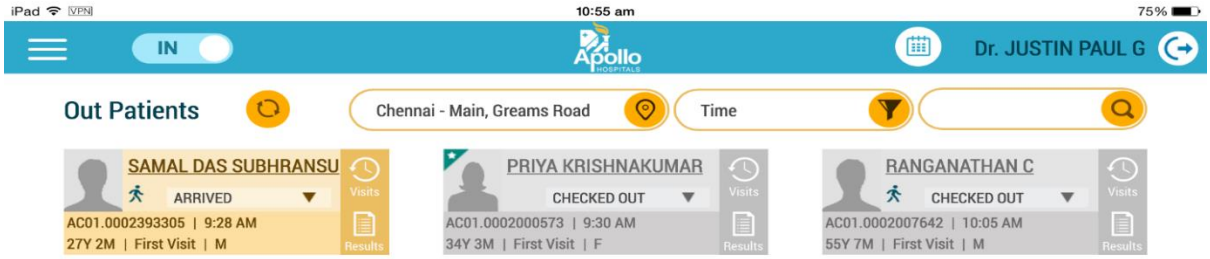
Click **Login**. The doctor dashboard page will be displayed.



The login screen

Logging out to Med-Mantra

Click the Logout link placed at the top right of the doctor dshboard. You are logged out of doctor dashboard.



1

Logging out

DOCTOR DASHBOARD

1. Performing OP Consultation

a) Once logged in, Out Patient dashboard screen will be loaded.

b) Patient list whose appointment is booked on that day will appear (only credit card payment).

c) Patient list appearing will include all patients with all status (Arrived, checked in and Checked Out)

Fig 1: Doctor Dashboard for OP Consultation (only credit card payment patients)

➢ OP Dashboard menu items

a) Click on the icon in the left corner

b) The menu items will be appearing. On click on that link the respective screen will be appearing.

CLICK ON THIS ICON

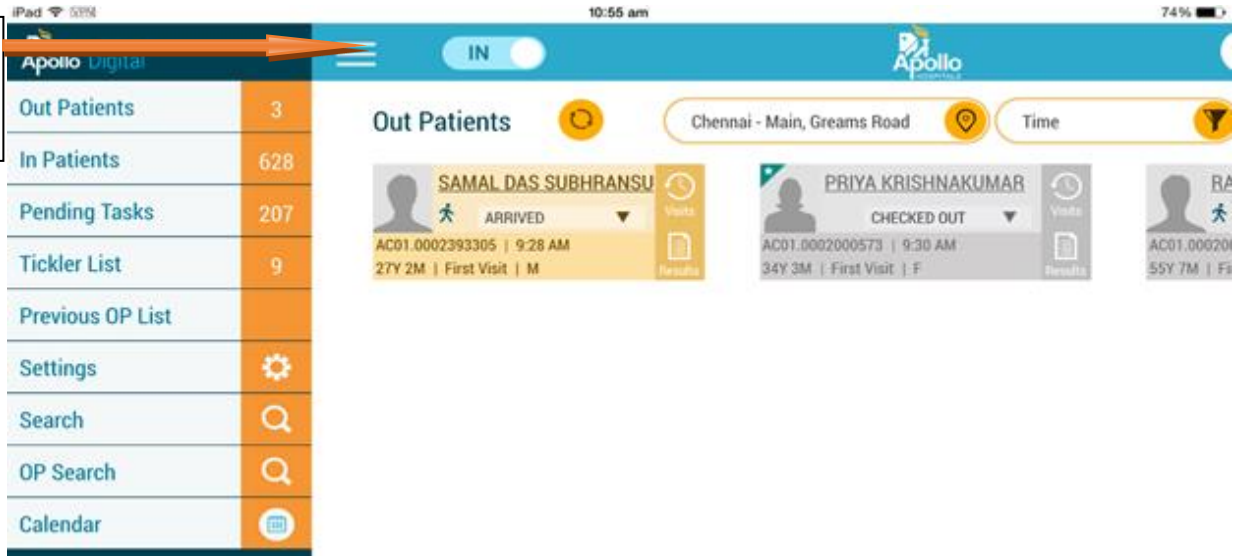


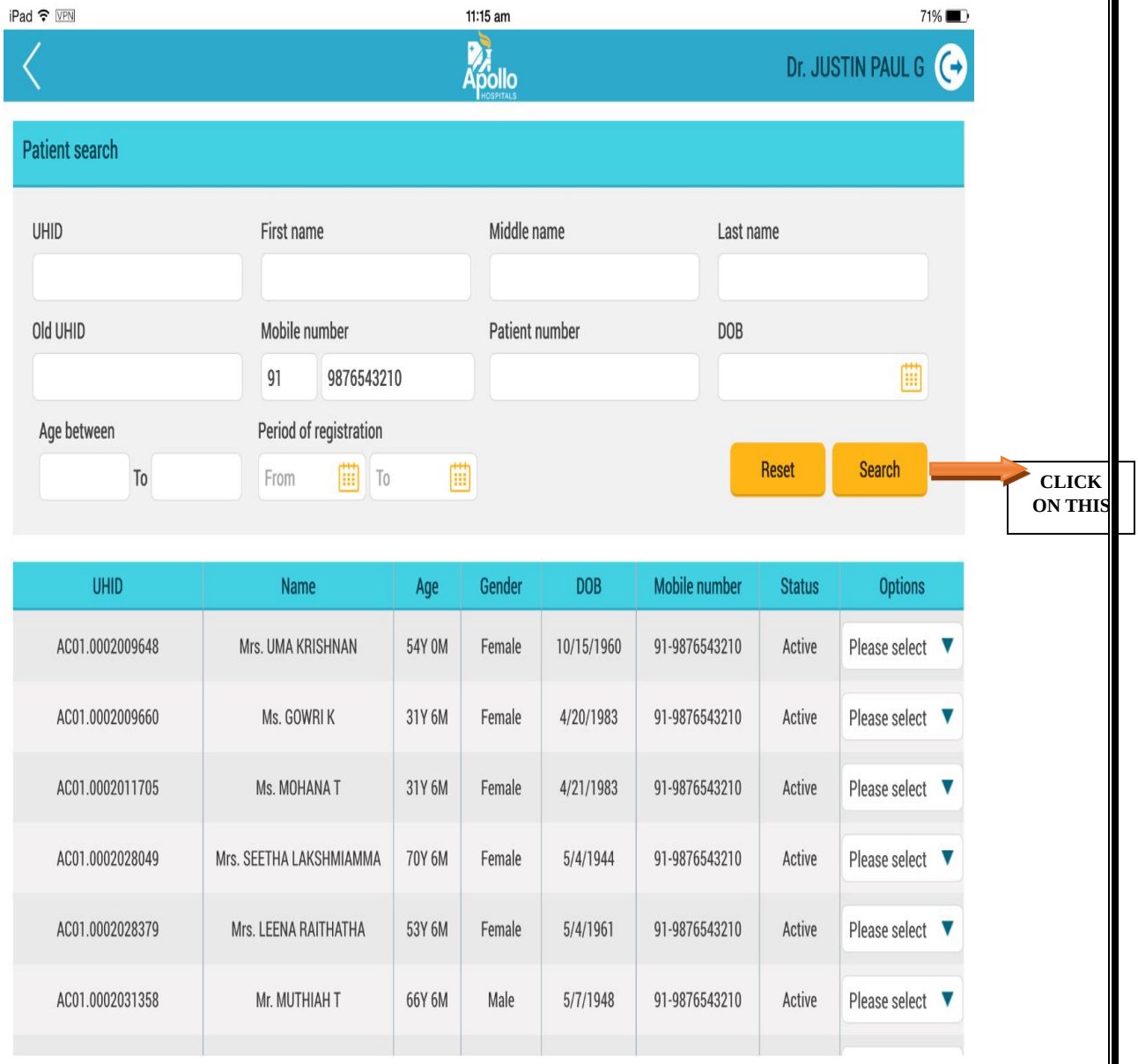
Fig 2: Menu items

➢ Patient Search (Cash Payment)

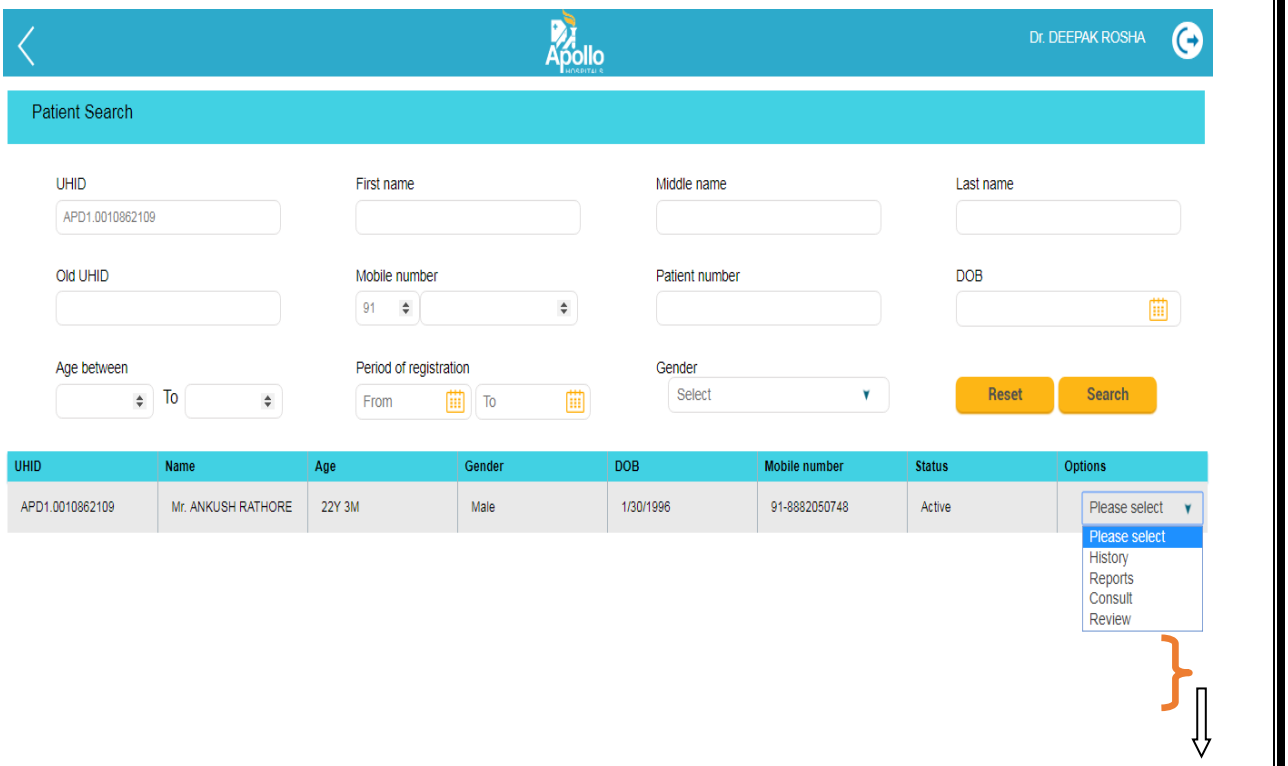
1) Click on Patient search to search all patients (specially cash payment).
2) Enter any patient details like name, age. UHID, mobile number and click on search

3) The patient details will be appearing in a grid

The status of the patient will also be appearing in the grid



Status of the patient will appear in the grid

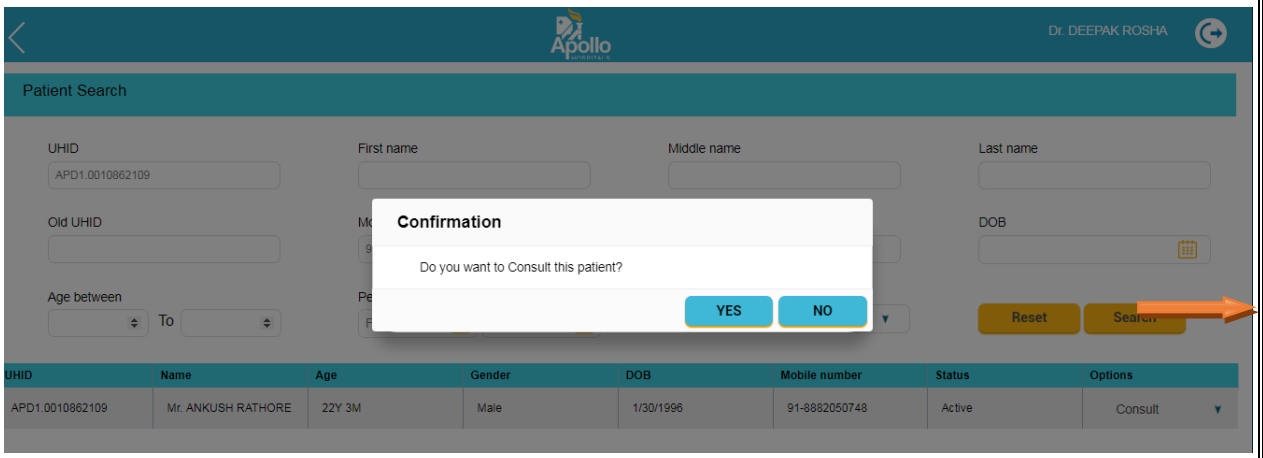


CLICK ON THESE

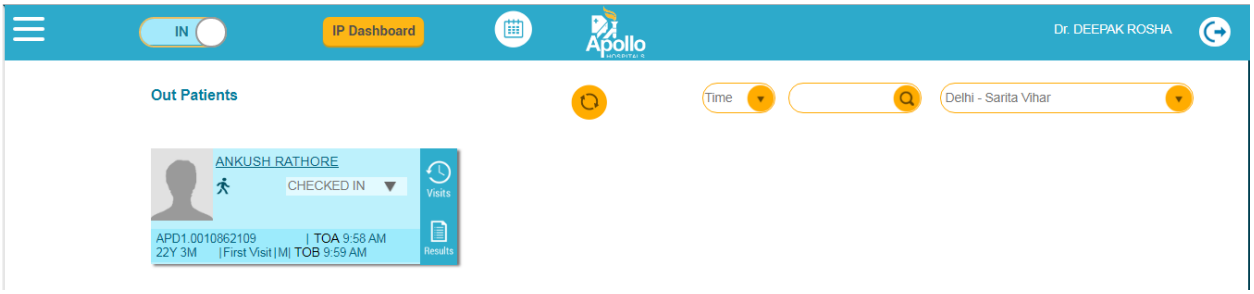
View patients Appointment Details

The section 'Options' includes four options like- History, Reports, Consult, Review.

The doctor will select the given option according to the patient's visit.

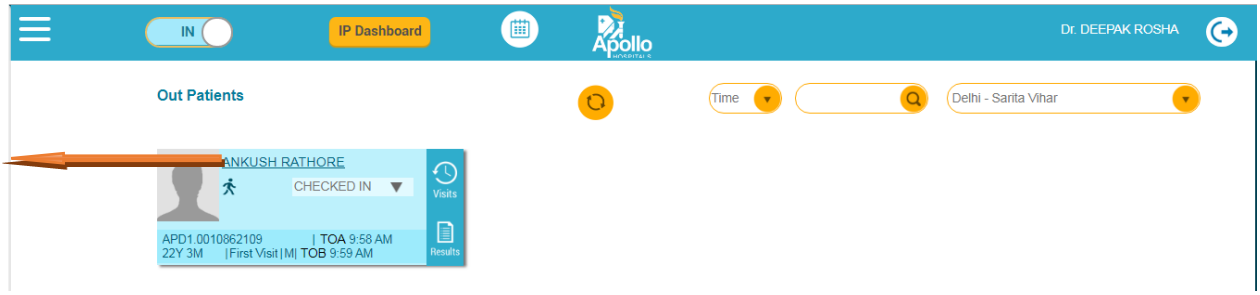


For The Consultation of the patient click on the "yes" icon



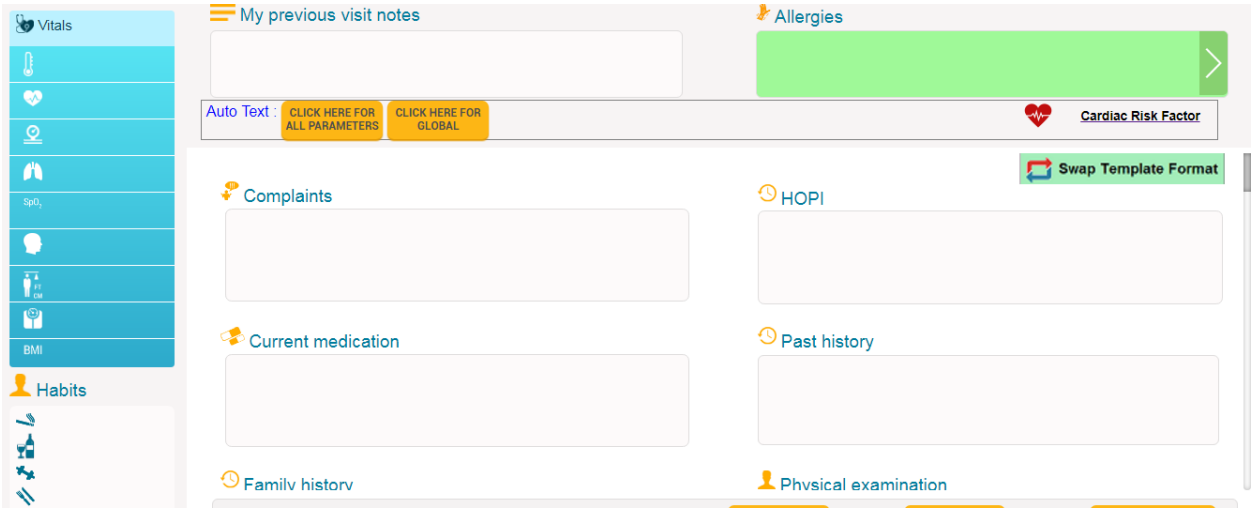
Patient will Appear on the doctor's dashboard (cash payment)

CLICK ON THE PATIEN'S NAME



Click on the patient's name for the e- prescription writing

Credentials for the e-prescription writing



Attachments

Image Name

Diagnosis

Previous diagnosis

Diagnosis	Doctor	Episode type	Date
No previous diagnosis found			

Current Diagnosis

Diagnosis	Side	Location	Type

View & Select Result

Investigation Results

Requests

Service name	Comments

Other Tests

Medicines

Medicines	Comments

Procedures Performed

Advice

Referred to

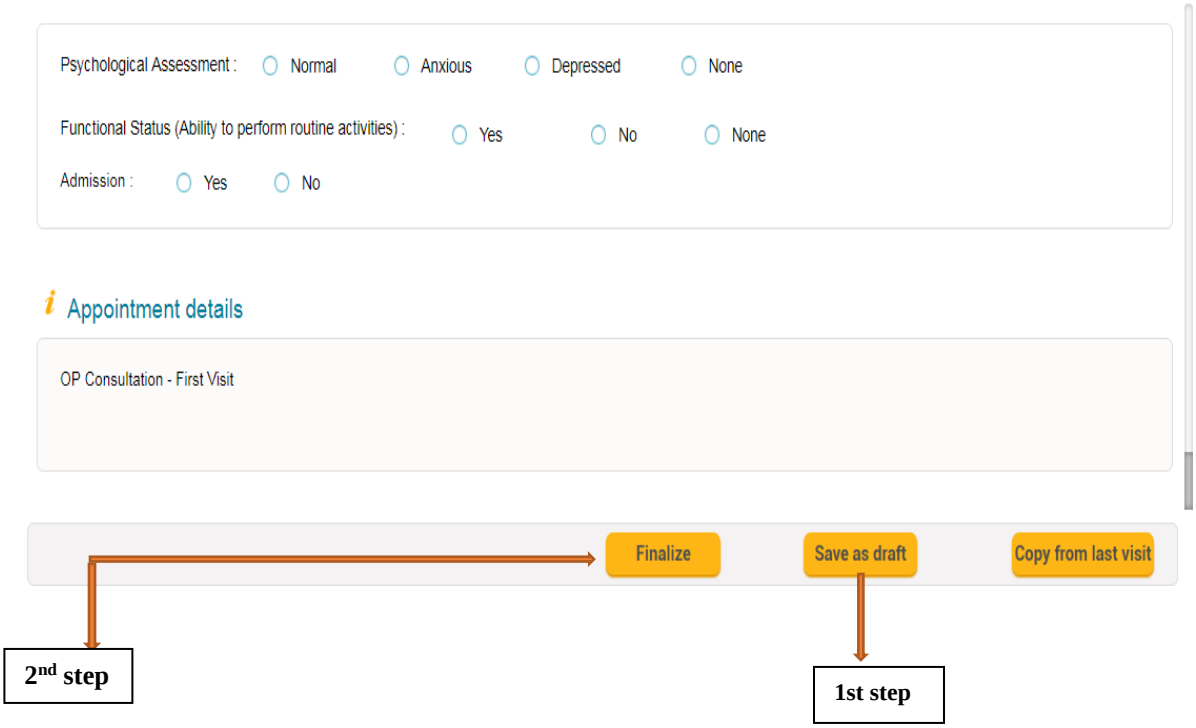
Plan

Follow up

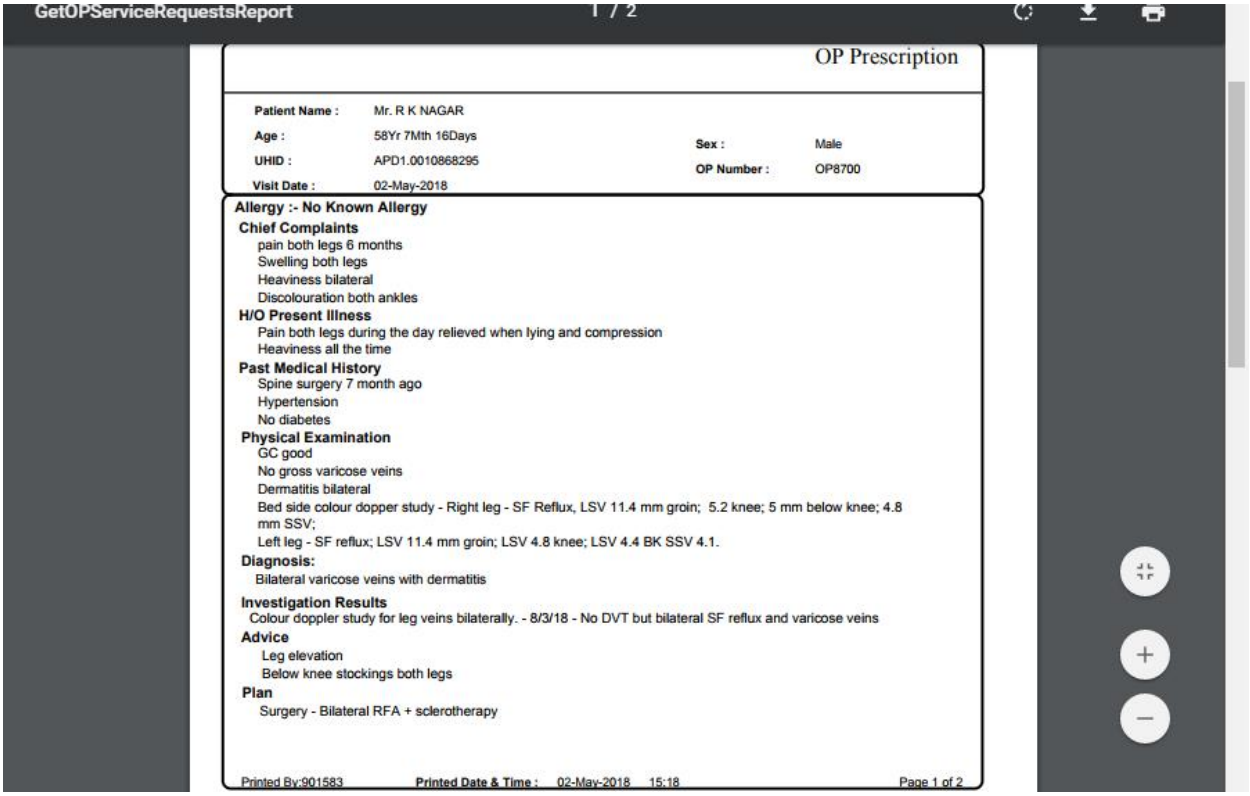
Note to secretary

Special note for next visit

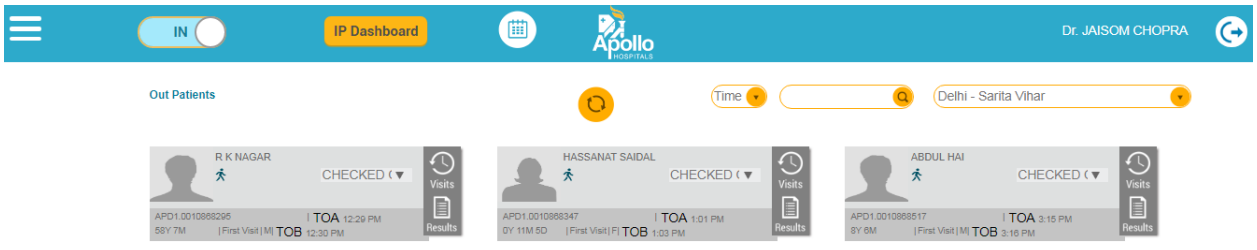
Others



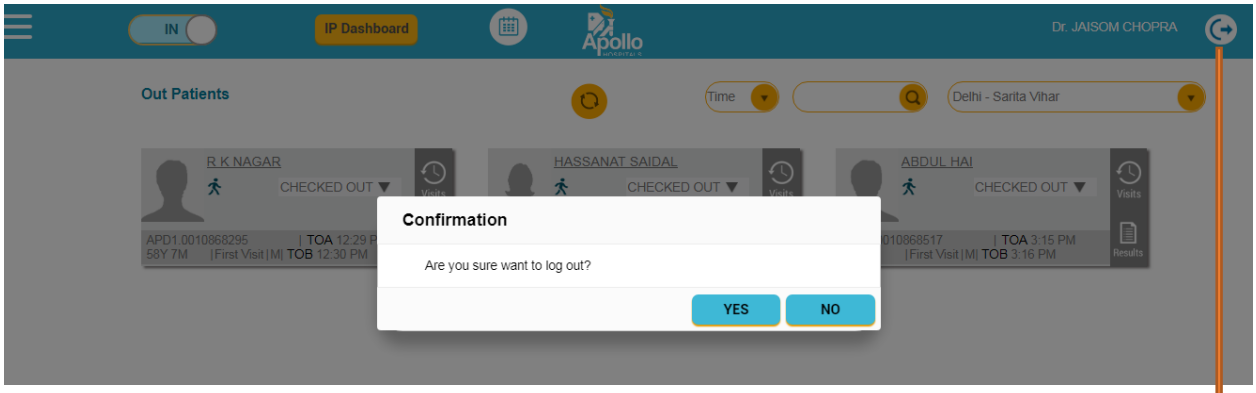
click on OP Summary to get e-prescription



Printed E-Prescription



Once Doctor finalize the e-prescription, the patient status will change from checked-in to checked out



Click here to log out Doctor's dashboard

LITERTURE REVIEW

- A study titled Physician client fulfillment with an electronic medical records system framework in essential medicinal services focuses was directed in Al Ain. Their goal was to watch doctor fulfillment level with an electronic medical records (EMR) framework, and to recognize the fundamental impediments of the framework. This spellbinding investigation was led in essential social insurance focuses (PHC) in United Arab Emirates (UAE). Test estimate was 23 doctors, utilizing same EMR framework.

  It was discovered that Physicians were happy with the EMR and have a positive discernment in regards to the utilization of the framework. A few topics developed amid this examination that should be considered to improve the EMR framework. They were likewise happy with the electronic medicine work, expressing that it lessened mistakes and spared time.

- Hana Alharth and Adel Youssef in 2014 led an examination on Physician fulfillment with electronic therapeutic records in a noteworthy Saudi Government healing facility. Their goal of this investigation were to quantify doctor fulfillment with an as of late presented electronic therapeutic record (EMR) framework and to figure out which of the individual qualities of EMR were identified with doctor fulfillment.

One year after presentation of an EMR framework, doctors in an inpatient office were requested to answer a self-directed review. A sum of 115 doctors addressed the study. Just 40% were happy with the framework general The best indicators of general fulfillment were execution as speed, coordination with work process, and patient data, for example, precision, culmination and opportuneness. The examination presumed that the Physicians were by and large not happy with the framework.

- A study titled 'Assessment of EMR Implementation in a Private Hospital from User's Perspective' was led in 2013. This investigation meant to survey doctors and medical caretakers' perspectives on the utilization, quality and client fulfillment with EMR at a tertiary care focus in Karachi, Pakistan. A cross-sectional overview was directed utilizing a self-regulated survey to assess utilize, quality and client fulfillment with EMR. The poll surveyed: 1) PC related involvement; 2) recognitions in regards to EMR utilize; 3) nature of EMR framework and 4) level of fulfillment with EMR framework. The reaction rate was 75% medical caretakers and 61% doctors. It was discovered that 80% of the respondents utilized EMR to get aftereffects of patients' examinations and test reports. 81.6% respondents were of the conclusion that the EMR System gives the required data about patients and detailed their fulfillment with the exactness of the framework.

  Concerning client fulfillment with EMR, 94.6% of EMR clients trusted that EMR is a helpful framework and 90.8% concurred on its criticalness for the better care of the patients. Kind of respondents rose as a critical connect with general clients' fulfillment ($p < 0.05$). 90% respondents accentuated on an easy to use EMR framework and sufficient preparing on its use. Other than respondents, sexual orientation and PC related experience have additionally essentially associated with different parts of utilization, quality and client fulfillment with EMR ($p < 0.05$). They were not able correspond age with fulfillment with an EMR. EMR usage emphatically impacts work process and practice effectiveness in a healing facility. This study gives a methodical assessment of different measurements of EMR and its relates which is basic to comprehend reasons and hindrances for progress, and techniques to expand accomplishment in EMR usage. Clinic administration ought to

guarantee the accessibility of specialized skill alongside satisfactory preparing of HMIS staff.

- In an investigation (Leonie Heyworth, Fang Zhang, 2009) ' Physician Satisfaction Following Electronic Health Record Adoption in Three Massachusetts Communities' an aggregate of 163 doctors finished a sent review when EHR usage through a statewide pilot venture in Massachusetts. In the wake of finishing study, they didn't discover any relationship between fulfillment following EHR appropriation and doctor age, hone size or possession, doctors' patient volume, or number of years practically speaking. The nearness of money related motivations for EHR reception was not related with post-selection fulfillment in this investigation. They found that male doctors were significantly less liable to report being fulfilled after EHR execution.

  The biggest investigation of female doctors, the Women Physicians' Health Study, found that 84% of respondents detailed being "generally," "quite often," or "constantly" fulfilled. Another examination showed that male doctors report more noteworthy employment disappointment, work-life stress, and disconnection in their workplace. General they found that doctor fulfillment diminished in the vicinity of 2005 and 2009 may by watching that 92% of doctors announced feeling extremely fulfilled or fulfilled in 2005, and 75% revealed feeling exceptionally fulfilled or fulfilled in 2009

- In an investigation by Robert H. Mill operator and Ida Sim titled as "Doctors Use Of Electronic Medical Records: Barriers And Solutions" they researched that the electronic therapeutic record (EMR) is an empowering innovation that permits doctor practices to seek after more capable quality change programs than is conceivable with paper-based records. In any case, accomplishing quality change through EMR utilize is neither ease nor simple. In view of a subjective investigation of doctor hones that had executed an EMR, they found that quality change depends vigorously on doctors' utilization of the EMR—and not paper—for the greater part of their day by day assignments. They distinguished key hindrances to doctors' utilization of EMRs, at that point they proposed approach intercessions to defeat

these boundaries, including giving work/hone emotionally supportive networks, enhancing electronic clinical information trade, and giving money related prizes to quality change.

- Abdullah Al-Mujaini and Yahya Al-Farsi detailed an examination named as "Satisfaction and Perceived Quality of an EMR System in a Tertiary Hospital in Oman". The goal of study was to assess the information, state of mind and routine with regards to doctors towards the Electronic Medical Record (EMR) framework. They completed a cross-sectional review including doctors from different clinical claims to fame. A current survey was adjusted to evaluate the KAP of doctors towards the EMR framework. Data was breaking down utilizing Statistical Package for Social Sciences (SPSS) programming.

  They found that Out of 200 appropriated surveys, 141 (70.5%) reactions were gotten. Generally speaking, just 22 doctors (15.6%) evaluated the current EMR framework as a successful apparatus. A generous extent (29.4%) of respondents considered EMR not worth the time and exertion required to utilize it. The dominant part (67.4%) announced expanding trouble with the execution of work in the wake of applying the EMR framework. The general nature of work was seen not to have changed (41.2% of the respondents) or declined (27.4% of the respondents). The low fulfillment and underperformance was observed to be related with more youthful age (p=0.032), junior assignment (p=0.041), and low nature with PCs (p=0.047). In general the examination closed low fulfillment and saw nature of work among doctors in our establishment with the current EMR framework. Toward the end they found that Inappropriate and insufficient use of the framework the fundamental driver of the hidden poor fulfillment.

OBJECTIVE

GENERAL OBJECTIVE

- To determine the satisfaction level of the doctor using with the electronic medical records system.

SPECIFIC OBJECTIVES

- To improve the satisfaction level among users of Med-mantra
- To study the views of Physician towards EMR
- To submit recommendations to address these limitations.

METHODOLOGY

RESEARCH METHODOLOGY*

1. **Study Location:** Out Patient Department (OPD) of Indraprastha Apollo Hospitals.
2. **Study Population:** Doctor in Out Patient Department (OPD) of Indraprastha Apollo Hospitals.
3. **Study Design:** Cross-sectional (Descriptive Study).
4. **Study Duration:** 3 Months.
5. **Sampling Technique:** Purposive sampling
6. **Sample size:** 100 min.
7. **Data Collection**
   1) **Data collection tool:**

- Checklist – on the basis of observation and interview with OPD consultants and staff.

2) Data collection method:

- Reviewing of MED-MANTRA manual, Polices, Digital Network Apollo (DNA).
- Interactions with hospital's staff and consultants.

8. Selection criteria –

➢ **Inclusion Criteria: -**

- OPD Physicians and Consultants
- Departments- Doctors of Oncology, Cardiology, Internal medicine, General surgery, Gastroenterology, Endocrinology, Orthopedic, Respiratory, Dermatology departments

➢ **Exclusion Criteria: -**

- IPD Doctors
- Visiting consultants
- Resident doctors
- Department- Doctors of Dental, Psychiatry, Gynecology, Pediatrics, Geriatrics, ENT, Plastic surgery departments.

DATA ANALYSIS & INTERPRETATION

1.1 Acceptability of EMR system layouts by the OPD Doctors-

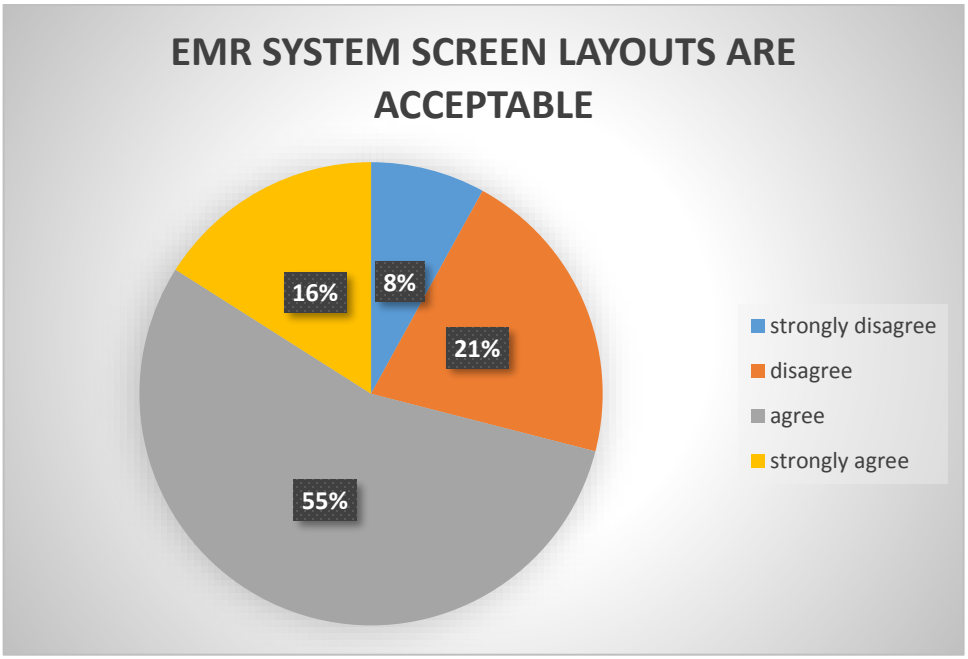


Figure 1.1

Figure 1.1 is showing the percentage of doctors in terms of EMR system screen lay out acceptability

From the above figure 1.1, it is inferred that out of 100 doctors 55% of the doctors are agree with the EMR screen layouts, 21% of the doctors fall in disagree parameter, and 16% of the doctors are strongly agree with the EMR layouts while only 8% of doctors are strongly disagree with the layouts. The compatibility and feasibility of the layouts of EMR system requires more sustainable approach as per the user requirement

1.2 User friendliness of EMR system –.

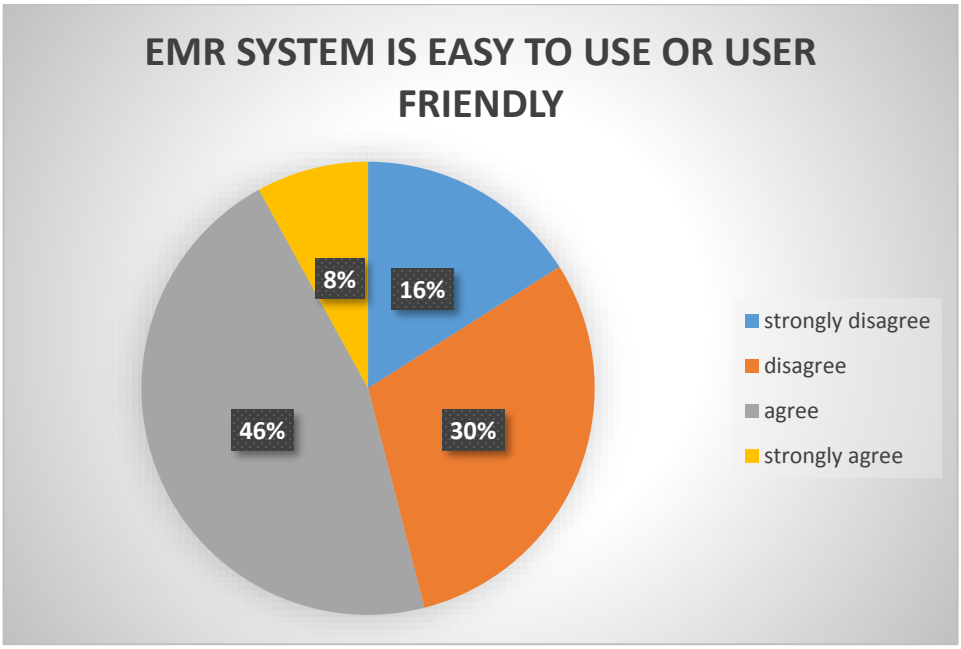


Figure 1.2

Figure 1.2 is showing the percentage of doctors in terms of user friendliness towards EMR system

From the above figure 1.2, it is inferred that out of 100 doctors 46% of the doctors are agree with the fact that EMR system is user friendly, 30% of the doctors are disagree with user friendliness of EMR system, and 16% of the doctors are strongly disagree while only 8% of doctors are strongly agree with the user-friendliness of EMR system. This shows that majority of the doctors are comfortable in using EMR system

1.3 EMR system provides updated information-

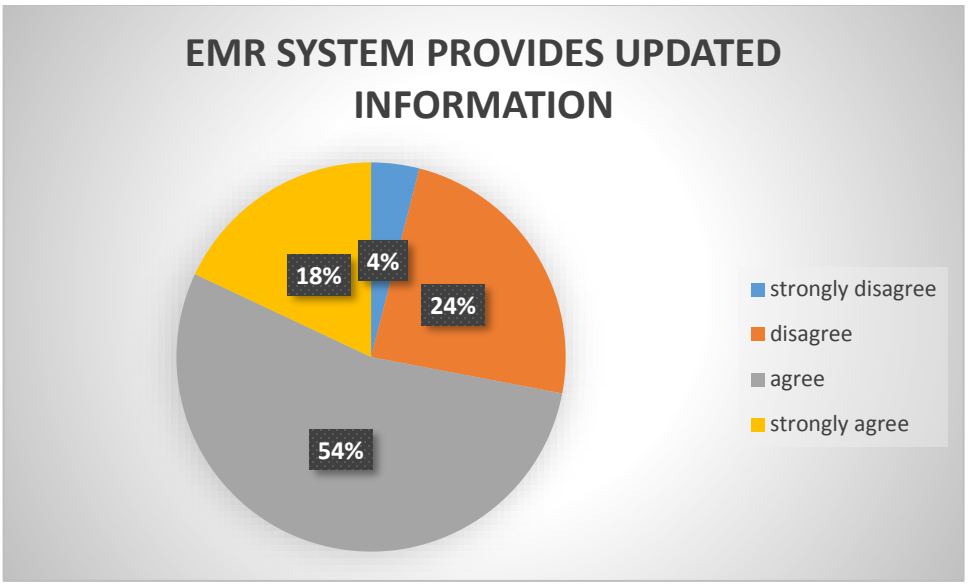


Figure 1.3

Figure 1.3 is showing the percentage of doctors in terms of EMR system being providing updated information

From the above figure 1.3, it is inferred that out of 100 doctors 54% of the doctors are agree with the fact that EMR system is providing updated information, 24% of the doctors are disagree and not satisfied with the provided information, 18% of the doctors are strongly agree while only 4% of doctors are strongly disagree with the updated information by EMR system.

1.4 HIS improves the quality of patient care process -

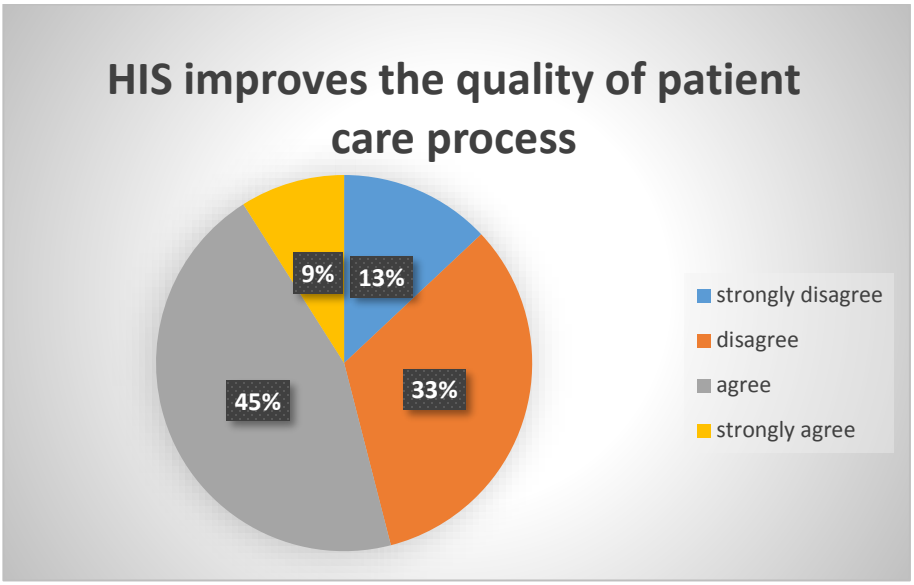


Figure 1.4

Figure 1.4 is showing the percentage of doctor's acceptance towards HIS that it improves the quality of patient care process

From the above figure 1.4, it is inferred that out of 100 doctors 45% of the doctors are agree and 9% of the doctors are strongly agree with the statement of HIS that it is helping and facilitating them in process of patient care. While 33% of the doctors are disagree and 13% of the doctors are strongly disagree that HIS is facilitating them in patient care process instead it is hampering patient care process.

1.5. EMR system performance speed is acceptable-

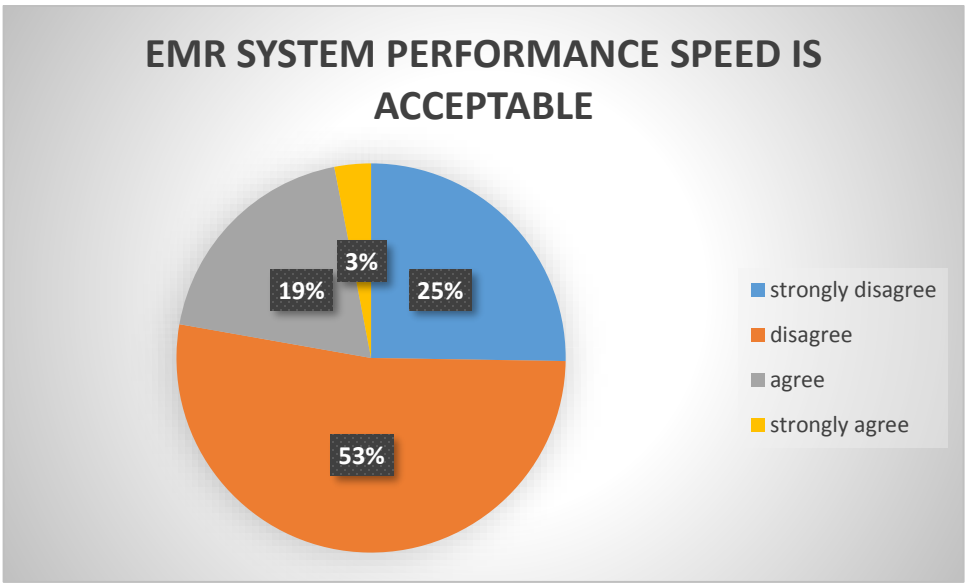


Figure 1.5

Figure 1.5 is showing the percentage of doctors in terms of acceptability of EMR system performance speed

From the above figure 1.5, it is inferred that out of 100 doctors 53% of the doctors are disagree with the EMR speed performance that shows speed of EMR system need to be improved, 25% of the doctors are strongly disagree, and 19% of the doctors are agree with the EMR system speed while only 3% of doctors are strongly agree with the speed performance of EMR. So majority of the doctors are not comfortable and satisfied with the speed of EMR

1.6. EMR system decreases the patients time-

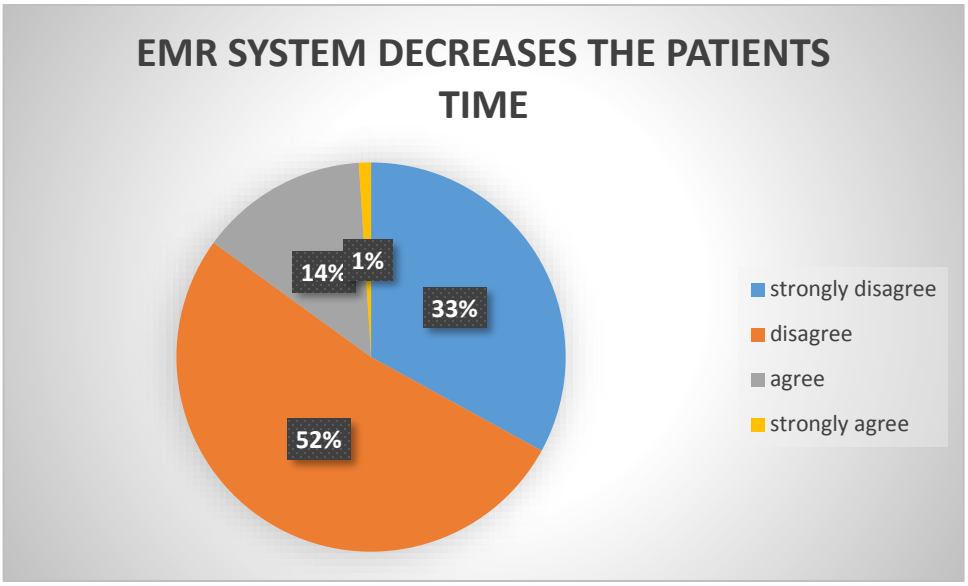


Figure 1.6

Figure 1.6 is showing the percentage of doctors in terms of user friendliness towards EMR system

From the above figure 1.6, it is inferred that out of 100 doctors 52% of the doctors are disagree with the fact that EMR system is decreasing the time spent on each patient and accepting that it is slowing down the patient process, 33% of the doctors are strongly disagree with this fact of EMR system, and 14% of the doctors are agree on this, while only 1% of doctors are strongly agree that this is helping in decreasing the time spent on each patient.

1.7. EMR system improves the quality of patient data and retrieval-

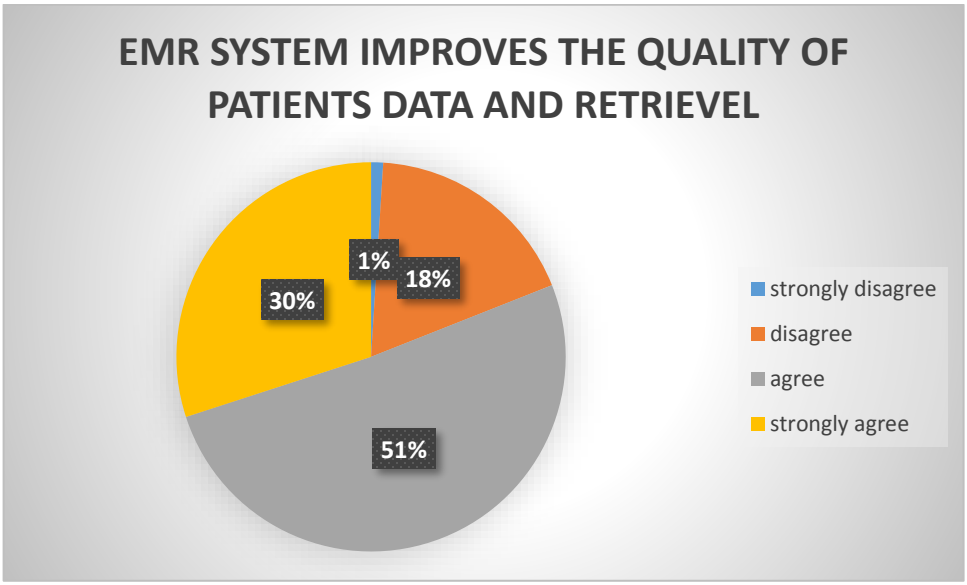


Figure 1.7

Figure 1.7 is showing the percentage of doctors in terms of user friendliness towards EMR system

From the above figure 1.7, it is inferred that out of 100 doctors 51% of the doctors are agree with the fact that EMR system is improving the quality of patient data and data retrieval, 30% of the doctors are strongly agree with this fact of EMR system, and 18% of the doctors are disagree on this, while only 1% of doctors are strongly disagree that this is helping in improving the quality of patient's data.

1.8. HIS fonts and characters are easy to read-

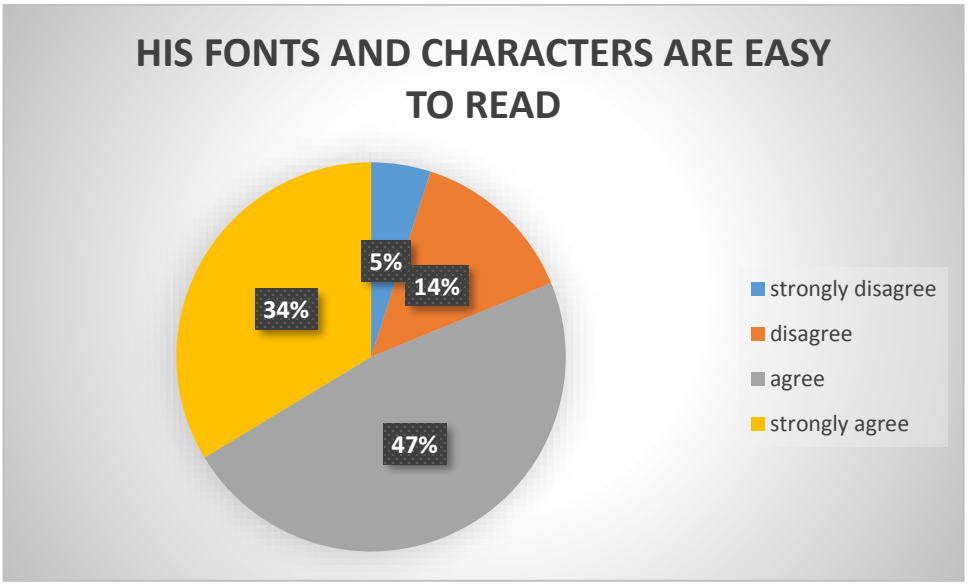


Figure 1.8

Figure 1.8 is showing the percentage of doctors in terms of acceptance towards fonts and characters of EMR system

From the above figure 1.8, it is inferred that out of 100 doctors 47% of the doctors are agree and 34% of the doctors are strongly agree with the fact that, HIS fonts are easily scalable, while 14% of the doctors are disagree and 5% are strongly disagree that fonts and characters are easy to read in EMR system.

1.9. Satisfaction with the layouts of printed prescription

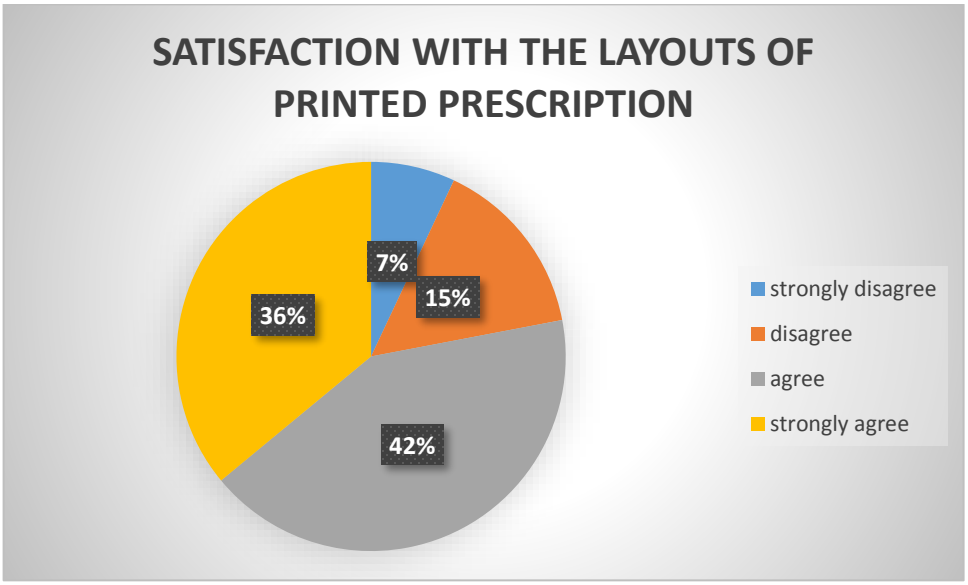


Figure 1.9

Figure 1.9 is showing the percentage of doctor's acceptance with the layouts of printed prescription.

From the above figure 1.9, it is inferred that out of 100 doctors 42% of the doctors are agree and 36% of the doctors are strongly agree with the e-prescription layouts and accepting the printed prescription, while 15% of the doctors are disagree and 7% of the doctors not satisfied with the layouts of e-prescription.

1.10. 0verall satisfaction with the EMR system

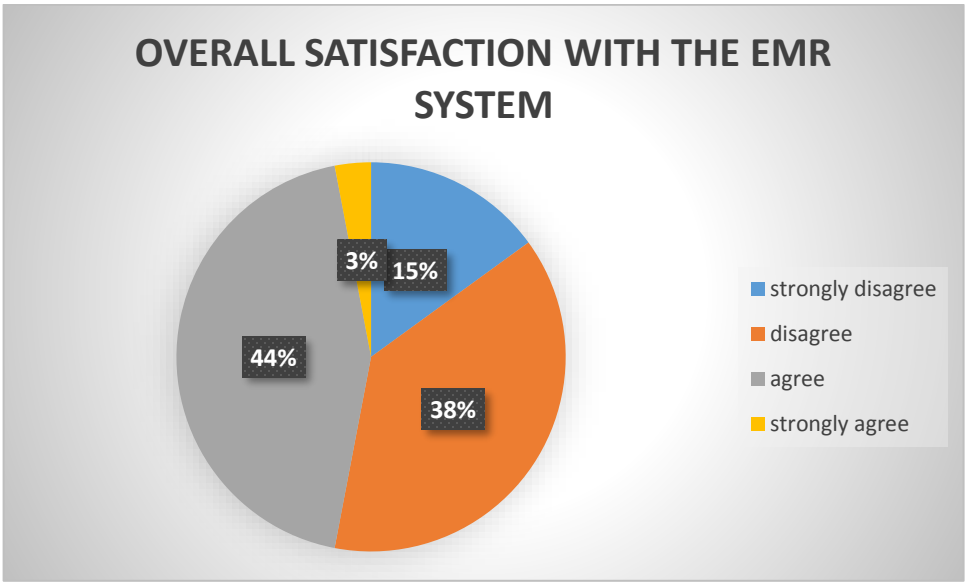


Figure 1.10

Figure 1.10 is showing the percentage of doctors in terms of overall satisfaction with the EMR system

From the above figure 1.10, it is inferred that out of 100 doctors 44% of the doctors are agree and 15% of the doctors are strongly agree with the EMR overall performance, while 15% of the doctors are strongly disagree, and 3% of the doctors are disagree with the overall functioning of Med mantra. So Med-mantra requires few changes to increase the percentage of user acceptance.

OBERVATIONS

1. The pre-configuration of the I.T. systems within consultant's chambers to incorporate essential application requirement have planned as per the project.
2. If any breakdown or sever down occurs towards the application at any locations of consultant's chamber are being monitored and regularize by the Technical Support Evaluation team.
3. The framework towards Consultants onboarding has done as per the suitability/availability of the consultant's appointment without hampering the OPD process.
4. All the queries and complaints regarding the software (i.e. e-prescription) are been resolve by the EMR team.
5. With the enhancement of the process flow, minimizing turnout time of patient's consultation in OPD has shown doctor's positive approach towards EMR system

FINDINGS

1. Most of the Doctors were agree with the statement EMR is easy to use.
2. For the majority of Doctors, EMR screen layouts are acceptable.
3. Most of the Doctors agree that EMR provides updated information (i.e. Appointment booking, Patient's Record)
4. Most of the Doctors agree that EMR fonts and characters are easy to read.
5. Doctors are in favor of using EMR, as it decreases Patient Consultation time.
6. Majority of doctors agree with the statement that "using EMR can improve the quality of Patient Care Process, Patient Data, and Retrieval."
7. Most of the Doctors are satisfied with the layout of printed prescription.
8. The progressive approach and satisfaction towards using EMR show 44% which has been the success growth towards the project.

The Cumulative analysis through statistical interpretation has been presented on a graphical note showing the progress tracker on a monthly basis.

RESULT

In this study, data is collected from 10th February to 10th May. Total number of doctors on boarded till the given time period are 91. Given below table 2.1 showing the data of total number of prescriptions printed per month by the doctors in outpatient department.

	Month	Total no. of days	Total no. of prescriptions
1	February	17	31
2	March	27	1696
3	April	25	2399
4	May	9	870

Table 2.1

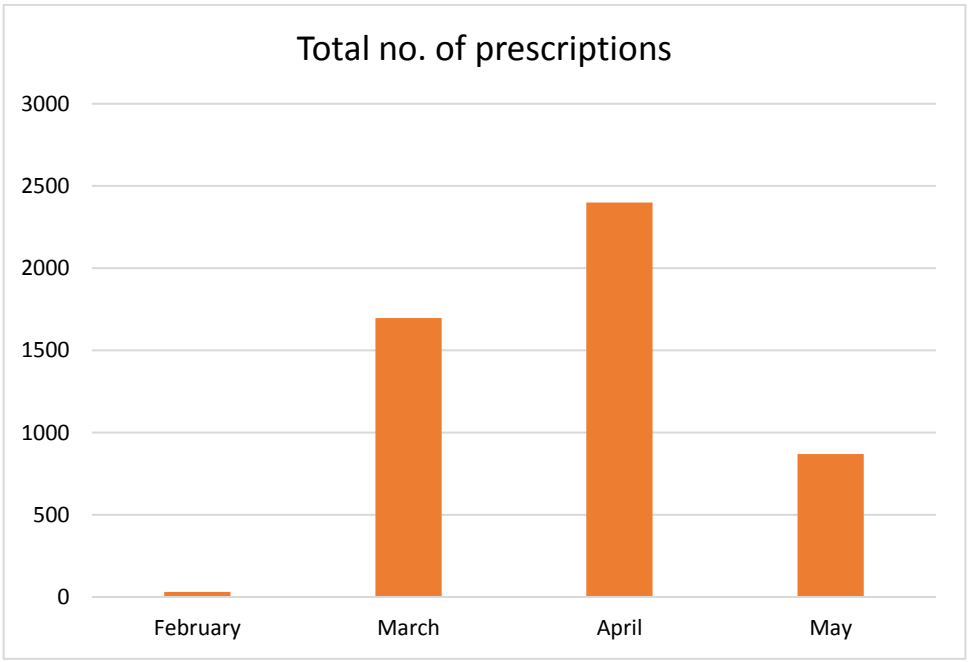


Figure 2.1

Table 2.2 is showing the number of average prescriptions printed by doctors per day in each month

	Month	Average prescription/day
1	February	2
2	March	63
3	April	95
4	May	96

Table 2.2

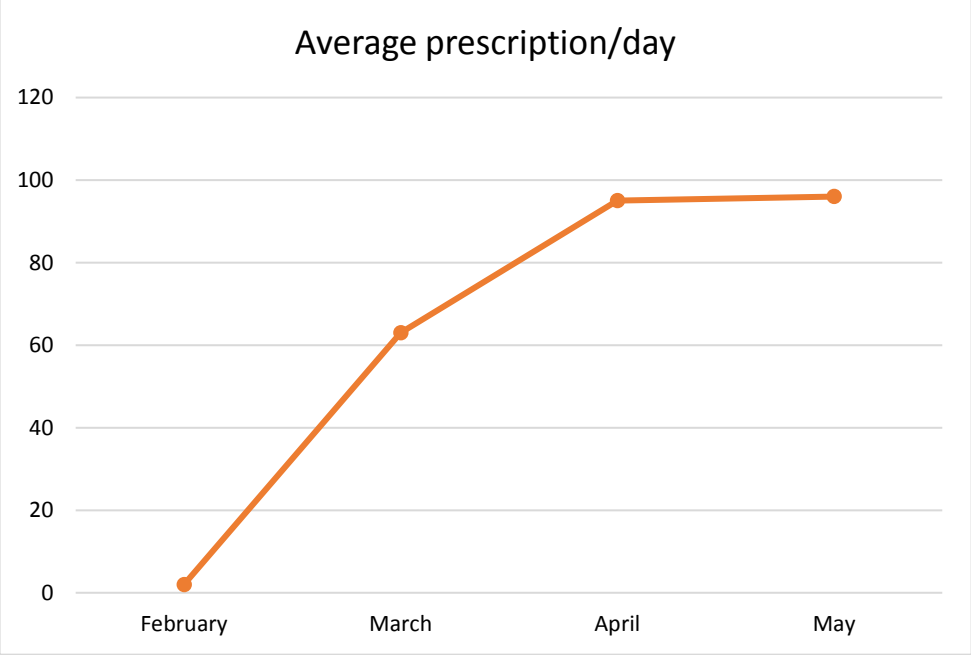


Figure 2.2

Table 2.3 is showing the number of doctors on boarded or provided with EMR Training per month.

	Month	Total no. of doctors on boarded
1	February	19
2	March	34
3	April	35
4	May	3

Table 2.3

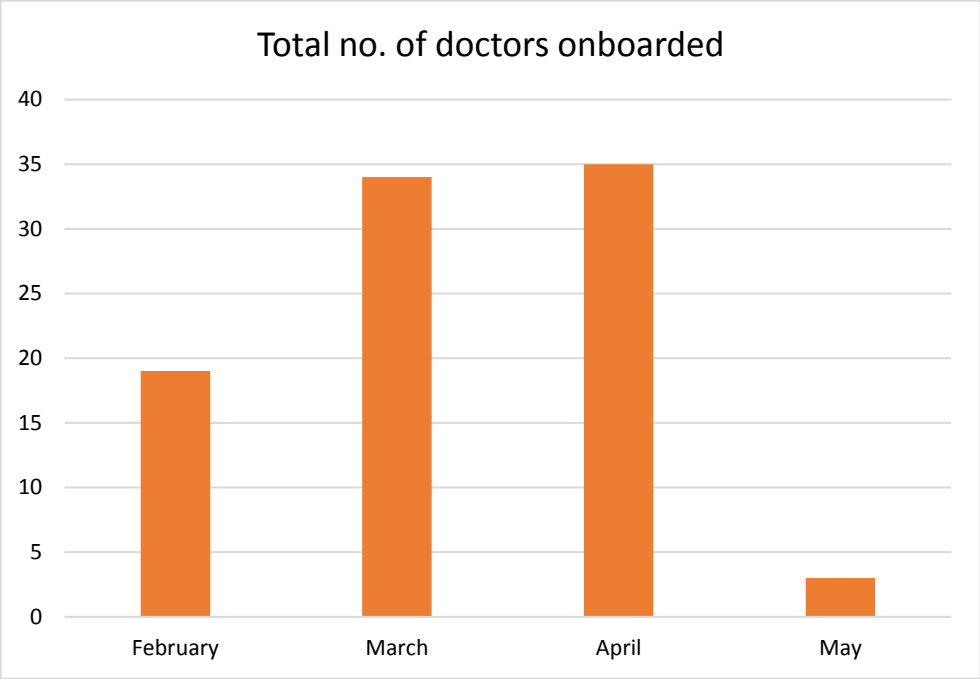


Figure 2.3

GAP ANALYSIS

Major challenges in MED-MANTRA

1. Only credit patients were reflecting on Dashboard. The process for consulting cash patient was too lengthy.
2. Network connectivity issue was there. Sometimes each step was taking enough time to process.
3. In Medication parameter of e-prescription, the generic names of the medicines were different from listed medicine.
4. In ‘attachment’ parameter of prescription, only file format such as ‘jpeg’ was given and ‘Pdf’ option was not given.
5. The overall process of typing e-prescription was very lengthy and time consuming.
6. Availability of specific requirement i.e specialty specific image for few departments was one of the major challenge for the production team

Challenges faced by Doctors

1. Doctors couldn’t use EMR whenever there was heavy patient flow.
2. They were not feeling comfortable in typing lengthy prescription as it was time consuming.
3. They were having problem with the network connectivity.
4. It was hampering the level of their patient satisfaction.

CONCLUSION

The growth of digitization towards transforming hand written prescription into digital mode has enhanced the importance of patient care & service quality in a delivery of service within the needs of the Hospital industry. The rolling stone to conceptualize the project with various sub-systems, networking channels, drainage mapping, resource allocation and its efficient optimization, essential ingredients to shape the project were kicked off.

At Apollo, to enhance the service towards patient safety and satisfaction, concept of EMR, a part of Med-mantra was operationalized within all available OPD facilities. To commensurate the success of the Project, skilled brain-storming involving the right resources were brought into taken so that no stones should be left unturned.

The scale to measure satisfaction among the acceptance towards internal stakeholders can't be figured on the defined sets of parameters. This would vary accordingly with external and internal environment. Overall, the acceptability, compatibility, and the ease of using the application has covered a successful journey where-in the usability of application has seen the positive approach.

RECOMMENDATIONS

Critical areas of improvement

- The Status of Cash Patients should reflect on OP Dashboard.
- The process of typing “APD1.0010…” (Username) should be automatically set as a default rather by entering whole set.
- File Format such as “.pdf” should be enabled at attachment option towards uploading of file in e-prescription.
- Under Medicines Options “Generic Name” are different from listed medicines. Same needs to be Updated and new medicines should be updated in the previous list
- Connectivity Issues need to be improved
- Unnecessary step in Med-mantra, like “Click Here for parameters, Click Here for Global parameters & Swap template should be removed from patient landing screen.

ANNEXURE

	Quick Reference Guide For Digital OP / IP for MED MANTRA	
	For OPD	**For IPD**
	(To be Used in OPD)	(To be Used in Wards)
1	Login Med mantra DNA with your Login ID	Login Med mantra DNA with your Login ID
2	Update Doctor Status as "IN"	Update Doctor Status as "IN"
3	Click "Out Patient" on top right of the options panel	Click IP Dashboard on top row
4	Fill the Mandatory Parameters: ➢ Allergies	Click All Patients/My Patients to consult as per daily admission logs
5	Print OP Summary	Initiate & Finalize Discharge Summary

QUESTIONNAIRE

S.No	Questions	Likert Scale			
		Strongly disagree	Disagree	Agree	Strongly agree
1	EMR user friendly or easy to use				
2	EMR Screen layout are acceptable				
3	EMR provides updated information				
4	EMR fonts and characters are easy to read				
5	EMR performance speed is acceptable				
6	Using EMR decreases time spent by patients				
7	EMR improves the quality of patient care process				
8	EMR improves the quality of patient data and retrieval				
9	I am satisfied with layouts of printed prescription				
10	Overall, I am satisfied with EMR				

REFERENCES

- Physician user satisfaction with an electronic medical records system in primary healthcare centres in Al Ain: a qualitative study by Shamma Al Alawi1, Aysha Al Dhaheri1, Durra Al Baloushi1, Mouza Al http://bmjopen.bmj.com/content/4/11/e005569
- Physician satisfaction with electronic medical records in a major Saudi Government hospital https://www.sciencedirect.com/science/article/pii/S1658361214000353 by H Alharthi - 2014
- https://www.sciencedirect.com/science/article/pii/S1658361214000353
- https://globaljournals.org/GJCST_Volume12/1-A-Study-on-Hospital-Information-System.pdf
- https://www.mjphm.org.my/mjphm/index.php?option=com_content&view=article&id=456:the-implementation-of-hospital-information-system-his-in-tertiary-hospitals-in-malaysia-a-qualitative-study&catid=39:2010-volume-102&Itemid=81
- http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.428.5860&rep=rep1&type=pdf
- https://www.ncbi.nlm.nih.gov/pubmed/21846508

.