Internship Training

At

Indraprastha Apollo Hospitals, New Delhi

Implementation Study of HIS Med-Mantra Digital at Outpatient Department

By

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Enroll No. **PG/16/008**

Under the guidance of

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Post Graduate Diploma in Hospital and Health Management

2016-18

International Institute of Health Management Research

New Delhi

Acknowledgement

The success and final outcome of this project required a lot of guidance and assistance from many people and I am extremely fortunate to have got this all along the completion of my project work. Whatever I have done is only due to such guidance and assistance and I would not forget to thank them. I wish to thank first and foremost to the almighty that provided me strength and courage for the successful completion of this project. I am thankful and obliged to the CIO of the Apollo hospital, Delhi **Mr.Vishal Gupta**, IT Manager - **Ms.Puja Monga** for giving me an opportunity to work on this project providing me all support and guidance which made me complete the project on time. I am also thankful to my Project team leader **Mr. Shreekant Mishra** their continuous support, guidance and perseverance during the course of my project. They were my project mentors in the organization and were always helpful and encouraging towards me. I would also like to express my profound gratitude to my mentor **Dr. Nishikant Bele** for his exemplary guidance, monitoring and constant encouragement throughout the course of this report. He was my mentor in IIHMR, Delhi; words are not enough to thank him for his constant efforts and valuable time he has given to guide me through the various stages of project completion. At last, but not the least I would like to thank my parents, my brother and friends for providing constant encouragement throughout my academic years.

Thank you

Anubhav Mukesh Saini

Health-IT

PG/16/008

DISCLAIMER

I do hereby 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 "Implementation Study of Med-Mantra Digital at Outpatient Department" under the guidance of Mr. Shreekant Mishra (Project Team Leader) at Indrapratha Apollo Hospital, New Delhi for the completion of the degree of Post Graduate Diploma in Hospital and Health Management.

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PG/16/008

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and has successfully completed her Project on

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Organization: Indraprastha Apollo Hospitals, New Delhi

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

The Internship is in fulfillment of the course requirements.

I wish him all success in all his future endeavors.

Dr Supten Sarbadhikari
Dean, Academics and Student Affairs

IIHMR, New Delhi

Mentor
(Dr. Nishikant - Bele.)

IIHMR, New Delhi

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The following dissertation titled **"IMPLEMENTATION OF HIS MED-MANTRA DIGITAL AT OUTPATIENT DEPARTMENT"** at **"INDRAPRASTHA APOLLO HOSPITAL, NEW DELHI"** is hereby approved as a certified study in management carried out and presented in a manner satisfactorily to warrant its acceptance as a prerequisite for the award of **Post Graduate Diploma in Health and Hospital 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.

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VINAY	
M. Bhattacharya	M Bhattacharya

Certificate from Dissertation Advisory Committee

This is to certify that **Mr.Anubhav Mukesh Saini,** a graduate student of the **Post- Graduate Diploma in Health and Hospital Management** has worked under our guidance and supervision. He/ She is submitting this dissertation titled **"IMPLEMENTATION OF HIS MED-MANTRA DIGITAL AT OUTPATIENT DEPARTMENT"** at **"INDRAPRASTHA APOLLO HOSPITAL, NEW DELHI"** in partial fulfillment of the requirements for the award of the **Post- Graduate Diploma in Health and Hospital 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.

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INTERNATIONAL INSTITUTE OF HEALTH MANAGEMENT RESEARCH, NEW DELHI

CERTIFICATE BY SCHOLAR

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FEEDBACK FORM

Name of the Student: ANUZHAV MUKESH SAINI

Dissertation Organisation: INDRAPRASTHA APOLLO HOSPITALS, JASOLA

Area of Dissertation: IMPLEMENTATION OF HIL MAHA-MANTRA DIGITAL AT OUTPATIENT DEPARTMENT

Attendance: 100 %

Objectives achieved: SUCCESSFULLY IMPLEMENTED APPLICATIONS TOWARDS ALL CHANNELS OF OPD

Deliverables: YES

Strengths: MULTI-TASKING, RESULT ORIENTED, FORWARD APPROACH

Suggestions for Improvement: HAS POTENTIAL TO EXCEL & GROW. NEEDS MORE FOCUSED APPROACH

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

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

Date: 15/05/2018
Place: NEW DELHI

ABSTRACT

My exposition report has in view of Hospital Data System. The Med-Mantra Digital of all tasks that happen at any of the medicinal focus. It keeps up single level of clients, overseer level. The manager level envelops the specialists. The heads can execute tasks on touchier and private archives/modules that contains diverse data about the staff to guarantee classification. The modules incorporate OPD.

The system enables registration of new patients. The present conclusion points of interest of a patient are recorded in the meeting which are recovered as past subtle elements upon the consequent visit. The patient either continues to the treatment room or to the lab relying upon the specialist's choice in the discussion. All the research center report comes about are recorded can be gotten to which are recovered in the interview room through suitable pursuit strategies and the patient treated as needs be.

Client prerequisites and other framework determinations were gathered through perception and meeting strategies where respondents could indicate what was required especially.

The proposed framework has the accompanying capacities: keeping up patient's records, enlisting new patients, empowers recording of test outcomes and simple future references.

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LIST OF ABBREVATIONS

EMR	**Electronic Medical Record**
EHR	**Electronic Health Record**
HIPPA	**Health Insurance Portability and Accountability Act**
PACS	**Picture Archiving and Communication System**
HL7	**Health Level 7**
ICD 10	**International Classification of Diseases**
LOINC	**Logical Observation Identifiers Names and Codes**

1.0 OVERVIEW

- The Apollo hospital is founded by the Dr. Reddy who left his practice in Boston and returned to India to serve its motherland. He took this herculean task to start chain of hospitals known as Indraprastha Apollo Hospitals which is Delhi based now a large family of corporate hospitals across the country and abroad as well. The main of starting this venture to provide the affordable healthcare to the common people.
- There are about 10,000 beds in 64 hospitals, 2200 pharmacies among 100 primary and 100 diagnostics centers along with 115 telemedicine centers across the 9 countries.
- Apollo hospitals also have other wings like Apollo Insurance, health consultancy, 15 education organizations and medical research center focused mainly on stem cell genetics and other clinical studies.
- More than 57 specialities are existing in Apollo Hospitals.
- Apollo hospitals are focusing on future technologies such as Robotic surgeries.
- Spearheaded Tender Loving Care (TLC).
- As a part of their vision they have initiated the various project beyond the business metrics.
- Initiatives like save a child's heart, SACHI, YOUWECAN etc.

- The organization is a playing a pivotal role providing the regular health camps, Telemedicine, m-Health programmes across the India.

"'Apollo's has caught India's consideration for its support of the country. It was congratulated with the respect of a memorial postage stamp bearing its name. For their untiring quest for perfection in social insurance, Dr. Prathap C Reddy, was offered with the second most elevated non-military personnel grant, the 'Padma Vibhushan', by the Government of India. Apollo Hospitals finished its 30th year. Dr. Prathap Reddy, reaffirmed objectives and reclassified Apollo's core interest. With yearning ventures like Apollo Reach Hospitals, a solid spotlight on preventive social insurance and an unabated sense of duty regarding sustain brilliance and ability in medicinal services, they are the imagines for another skyline - a future where the country is sound, where its kin are battling fit, and India develops as the favored worldwide human services goal'".

2.0 INTRODUCTION

Outpatient Department

- In the outpatient department there are about more than 50 specialties spread across the hospital out of which I have visited selected OPD in these 3 months of dissertation because I have been allotted 3 departments Oncology, Urology and Nephrology.
- Over the three months' period of time, I have given training to 62 consultants approximately.

History of Electronic Medical Record

- The true history has begun in the 1960's with "issue situated" medicinal records that are, restorative records as we comprehend them today. The particular issue arranged therapeutic record was an upset in the medicinal account. Up until this time, specialist's generally recorded just their analysis and the treatment they gave. The 'issue situated' record was the first occasion when that outsider offices could autonomously confirm the conclusion. At the point when appropriately actualized, this model gave more powerful methods for correspondence among individuals from the social insurance group while encouraging the coordination or preventive care and support.

How Portable Records Became Electronic Record

- On the beginning of transportability, be that as it may, came the beginning of the PC period. A considerable lot of the soonest PC applications were being used at doctor's facilities and government establishments, however not very many different spots. Notwithstanding, with the convenient therapeutic records demonstrate, expansive doctor's facilities could now give a similar level of administration for every patient

without stresses that exclusive particular suppliers knew about that patient. PCs, obviously, truly didn't pick up footing in littler offices and private practices until the point when they did with the overall population, so before the 1980s it was uncommon to see a PC being utilized at all in a private practice, let alone to store restorative data. Despite the fact that the versatile recordkeeping framework had turned out to be significantly more ordinary, records were to a great extent (as it is today for a declining number of practices) paper that must be physically put away and moved.

- Nonetheless, business innovation was propelled enough that even paper records could be sent electronically, by means of fax, in situations where an office expected to connect with a patient's family specialist in the event of dire care. However, time is regularly of the pith in most providing care situations, and along these lines, the electronic framework turned into the standard. Therapeutic suppliers understood that in each medicinal claim to fame, from dire care to recovery, there were constantly one of a kind cases that must be settled.

The Internet and the Rise of the Electronic Medical Record

- By the 1990s, innovation had entered most therapeutic workplaces and PCs were being utilized to a certain point for record keeping purposes. Yet, it wasn't until the age of the web that vast scale change ended up much more unmistakable. Indeed, even in its beginning periods, the web turned into an essential instrument for recording and exchanging remedy narratives and other restorative records. At long last, inside the most recent decade or thereabouts, most real restorative frameworks in the created world could undoubtedly speak with each other when required. Digital Records Today and the Future.

- Today, therapeutic records are progressively paperless, albeit some private practices keep on using a blend of paper and electronic records. Quiet therapeutic records are more open than any time in recent memory with information innovation winding up progressively convenient and complete. Current refinements in the medicinal records industry are gone for the proceeded with specialization of frameworks to additionally streamline work processes, help profitability and enhance specialist persistent communications.
- Two real difficulties, be that as it may, remain with regards to electronic restorative records. The main test is, obviously, security. Because of the special idea of specialist tolerant protection, inquiries around electronic information and security have been forming both open strategy and private programming improvement. HIPAA rules, for instance, were intended to manage the security of patient therapeutic records. Difficulties around there remain and both people in general and private areas are centered on reinforcing the security of medicinal records at all entrance and transmission focuses.
- The second issue as we move from the present to what's to come is that numerous doctors are as yet not happy with their current EMR framework. One of the greatest deterrents to enhanced EMR fulfillment exists in specific outpatient mind offices. Huge numbers of the EMRs available take after a straightforward, one-measure fits-all model. While at first glance these non-specific EMRs seem to work similarly over all fortes, nearer examination effortlessly reveals that these bland models just miss the mark concerning desires. One-measure fits-all EMR frameworks frequently make a bigger number of issues than they fathom for specific care offices. Be that as it may, there is trust. Strength based EMRs cross over any barrier amongst programming and

expert through successful plan, upgraded work processes and practice-particular documentation.

Electronic Medical Record (EMR)

An electronic medicinal record (EMR) that is created from an electronic configuration or is changed over from paper or printed copy to an online adaptation. It incorporates data about a particular patient, including:

- Patient contact data, including crisis contact(s)
- Vitals, for example, tallness, weight, weight file (BMI) and body temperature
- Past and future restorative office arrangements
- Physician orders
- Prescriptions
- Medical advance and surgical notes
- Consent to discharge data frames
- Allergies

Electronic Health Record (EHR)

The Electronic Health Record (EHR) is a longitudinal electronic record of patient wellbeing data produced by at least one experiences in any care conveyance setting from birth to death. Incorporated into this data are quiet socioeconomics, advance notes, issues, meds, and fundamental signs, past therapeutic history, vaccinations, lab information and radiology reports. The EHR mechanizes and streamlines the clinician's work process. The EHR can create a total record of a clinical patient experience - and additionally supporting other care-related exercises straightforwardly or in a roundabout way by means of interface - including proof based choice help, quality administration, and results announcing.

EHR VERSUS EMR

EMR (ELECTRONIC MEDICAL RECORDS)	**EHR (ELECTRONIC HEALTH RECORDS)**
Electronic Chart	A advanced record of wellbeing data
Not intended to be shared outside the individual practice	Streamlined sharing of refreshed, continuous data
Understanding record does not effectively go outside the practice	Allows a patient's restorative data to move with them
For the most part utilized by suppliers for conclusion and treatment	Access to instruments that suppliers can use for basic leadership

Dares to execute the Hospital information structure

Step1: **Assessment**

In this movement assessment is finished which helps in setting up the demonstration of the execution by endeavored the strategy Readiness Assessment. This fuses the profile of a Practice similar to IT. Further, an examination of the work environment staff is by and large coordinated as an Assessment Survey. A Hardware essential examination is in like manner done at this stage.

Stage 2: **Planning**

Data gathering which is made in the past walk is by and by purposely review and in perspective of this the electronic prosperity records execution goals are described and change openings are perceived and centered around.

Stage 3: **Choice**

EHR's necessities are described in perspective of the use step. This covers the EHR the structure course of action, assurance process and purposes of enthusiasm of the goals that are chronicled in light of the decision. The EHR system is picked.

Stage 4: **Implementation**

Usage is made and timetable for execution of the EHR is settled upon with the seller. The execution design incorporates subtle elements on Installation and setup of Hardware and EHR framework programming. Staff preparing program is started and System testing takes

after. The staff starts to utilize the EHR framework. A diary of experience and procedures is kept up.

Stage 5: **Assessment**

The Assessment mastermind incorporates the post utilization review to be coordinated and the Diary of experience and strategies is revived. The execution measures made in the midst of the orchestrating stage are affirmed and a change configuration is prepared.

Stage 6: **Change**

In the midst of this stage the EHR is changed to decide issues experienced in the midst of the appraisal organize. Changes as described in the change configuration are finished.

Med-Mantra Digital

Med Mantra, an aftereffect of consistent advancement, goes past doctor's facility robotization to empower change in tolerant care, asset administration and data administration, prompting better patient results and more advantageous tasks. A couple of key achievement factors for a doctor's facility that Med Mantra empowers to accomplish:

- Patient care and fulfillment
- Patient wellbeing administration through EMR
- Lower cost of activities
- Effective basic leadership
- Capacity usage
- Resource enhancement
- Physician and staff profitability

- Integration with outer frameworks
- Statutory consistence
- Advantages
- Clinical center with EMR: The EMR include together with solid clinical usefulness makes for a far reaching answer for the healing facility.
- Fully Coordinated arrangement: Far reaching scope of all healing center capacities with combination with outside frameworks like PACS Frameworks, Lab Auto analyzers, Scanner tag, Shrewd Card, RFID, Biometric, ERP Frameworks, and so on.
- Modular configuration: Empowers modules to be actualized in a specific and independent way, accommodating more prominent adaptability to address your issues while securing venture and limiting the effect of progress.
- Robust and Adaptable Design utilizing most recent Innovation: Gives venture assurance to the future, while empowering joint effort and improvements with particular attachment and play abilities.
- Conformance to Worldwide Benchmarks: Agreeable with medicinal services models, for example, HL7, ICD 10, ICD 9CM, LOINC, HIPAA and some more.

Current module of Med-Mantra Digital for Outpatient

The OP-module is a fully integrated patient management system which improves the entire doctor-patient encounter workflows efficiently. The main feature

In the Doctor OP dashboard, the logged in doctor can view all the patient who are given appointment on the day, checked in patient, perform activity on the checked in patient.

Logging into Med Mantra

Access to the doctor's dashboard is limited to the authorized users. To access this module login with user's ID and password is required.

Steps for **Logging In**

- Click on the Apollo icon and the main screen will appear.
- Enter the username and password.
- Click login and doctor's dashboard will display

Steps for **Logging Out**

Click on the logout button placed at top right of the doctor dashboard.

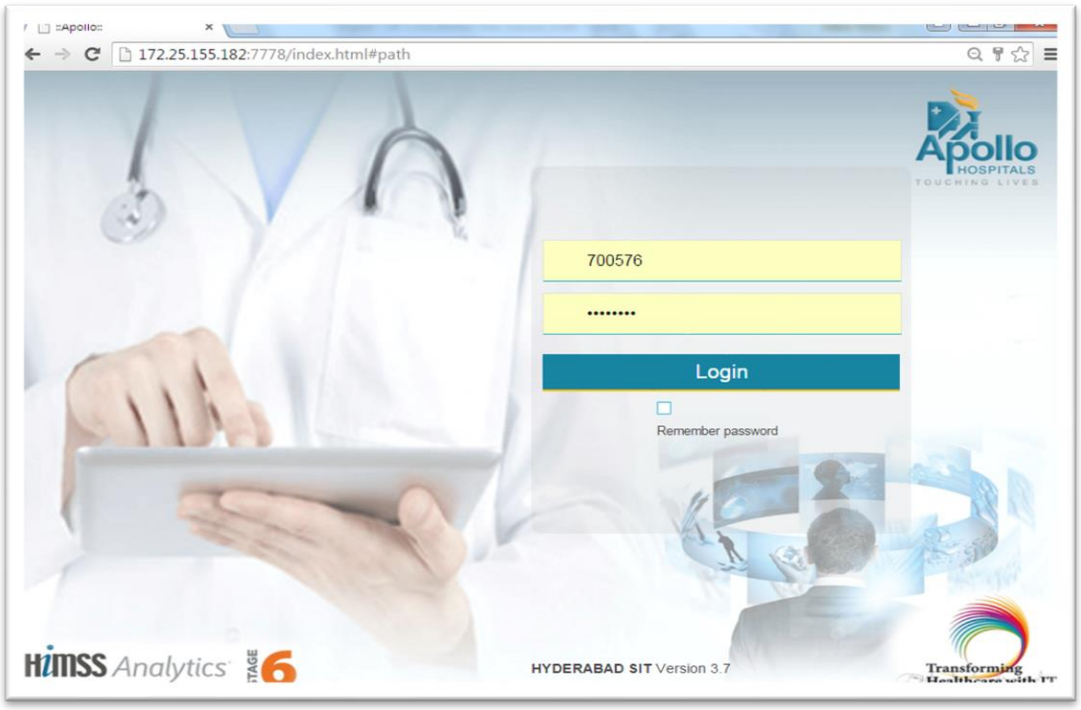


Fig2.1: Main Med-Mantra Digital Screen

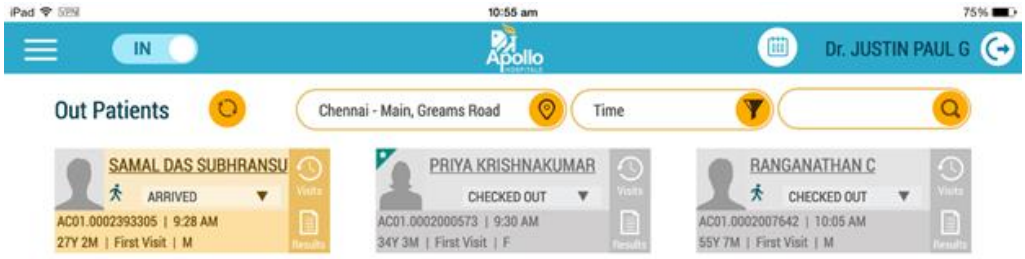


Fig 2.2: Doctor Dashboard

Steps of performing consultation

- once the dashboard has opened
- List of the booked patient appointment (credit card, online) will reflect on main screen.
- Patient list appear with all status (Arrived, Checked in, Checked out)

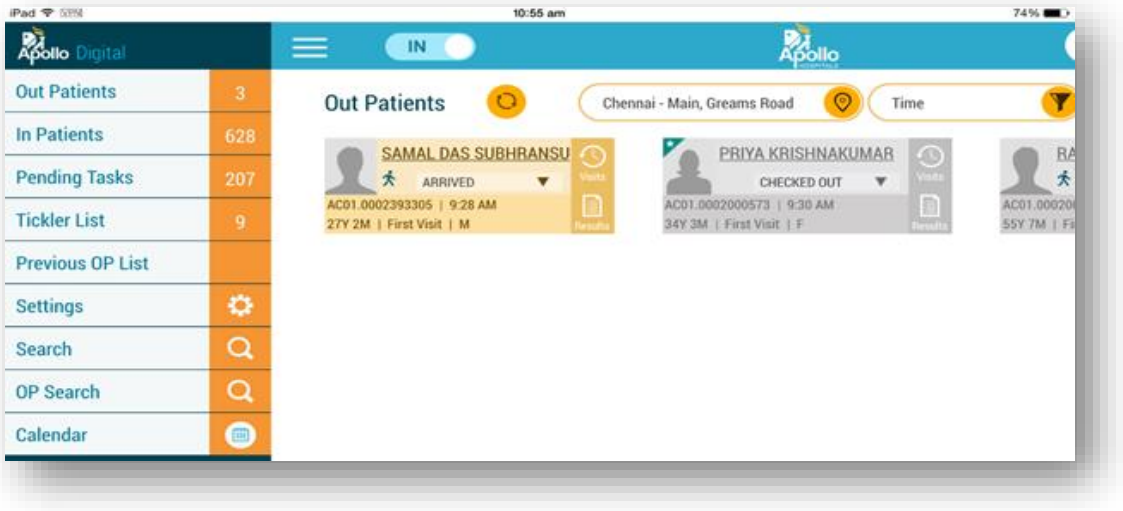


Fig 2.3: Dashboard Menu items

Steps of Menu Items

- click on the left side corner
- The menu item will appear, on click on them respective screen will appear

Fig 2.4: Viewing Patient History

Steps

- Select on the Patient by clicking on Patient details in OP Dashboard

- Select History to retrieve the previous OP Details of that patient
- Select Episode Type (IP, OP, AHC), Speciality and Consultant to get particular data of that patient
- Enter Date range to retrieve data
- Click on Show

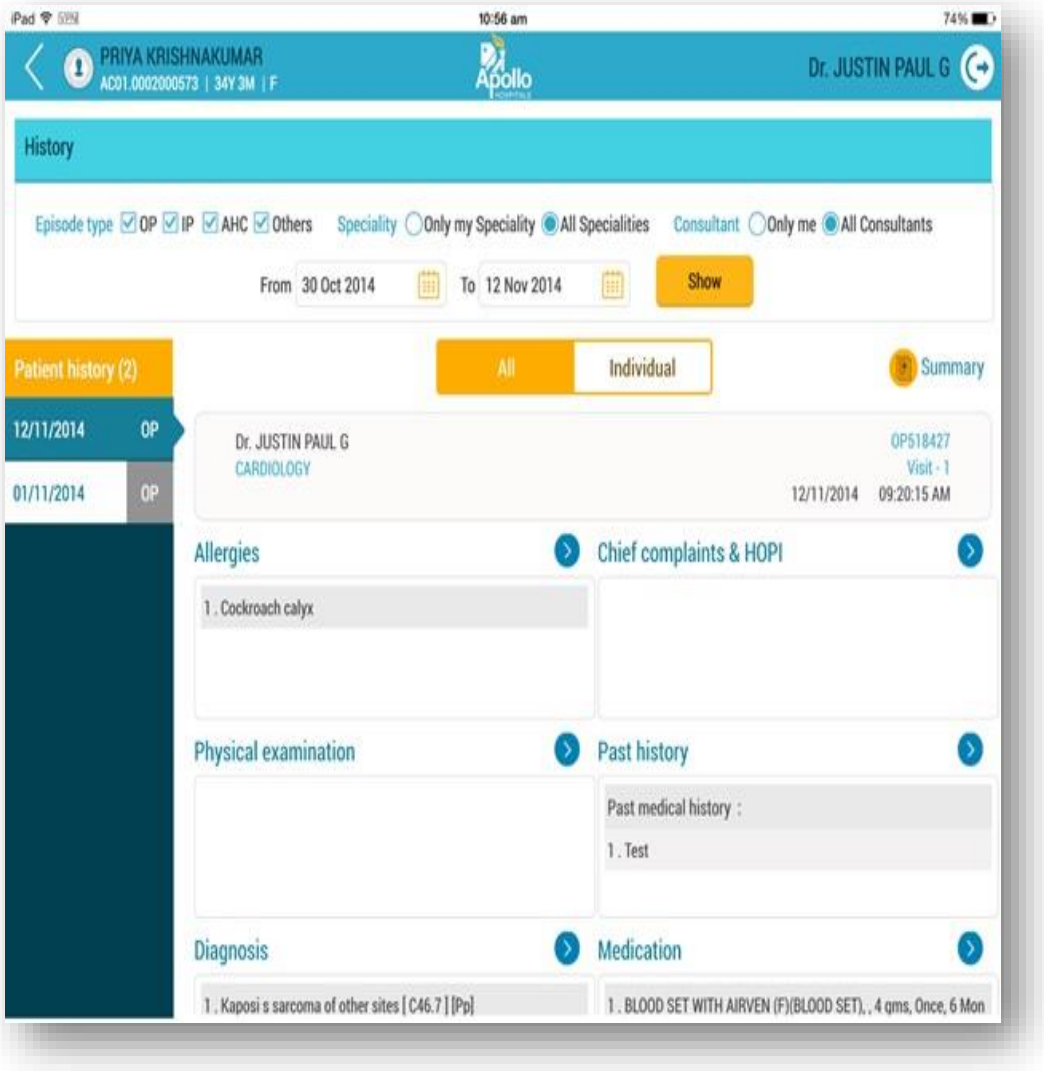


Fig 2.5: Displaying OP visits

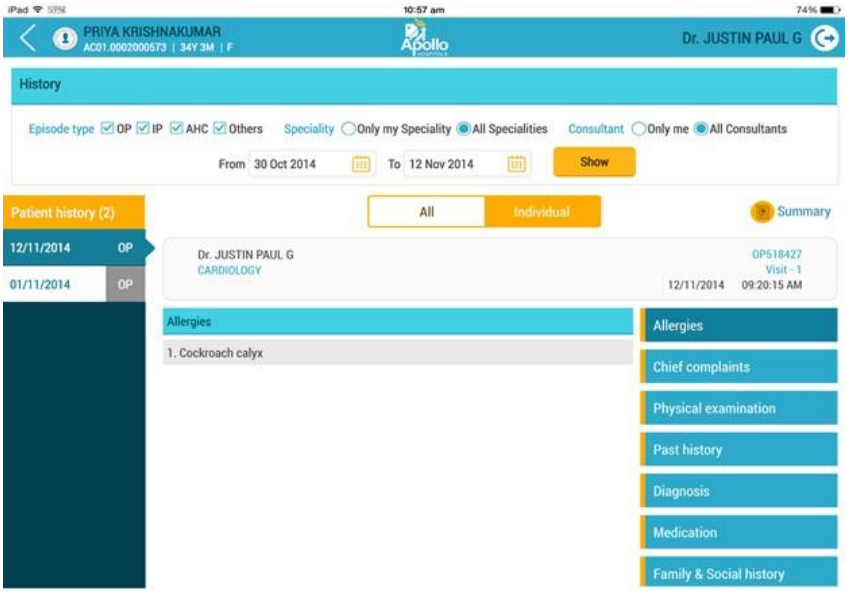
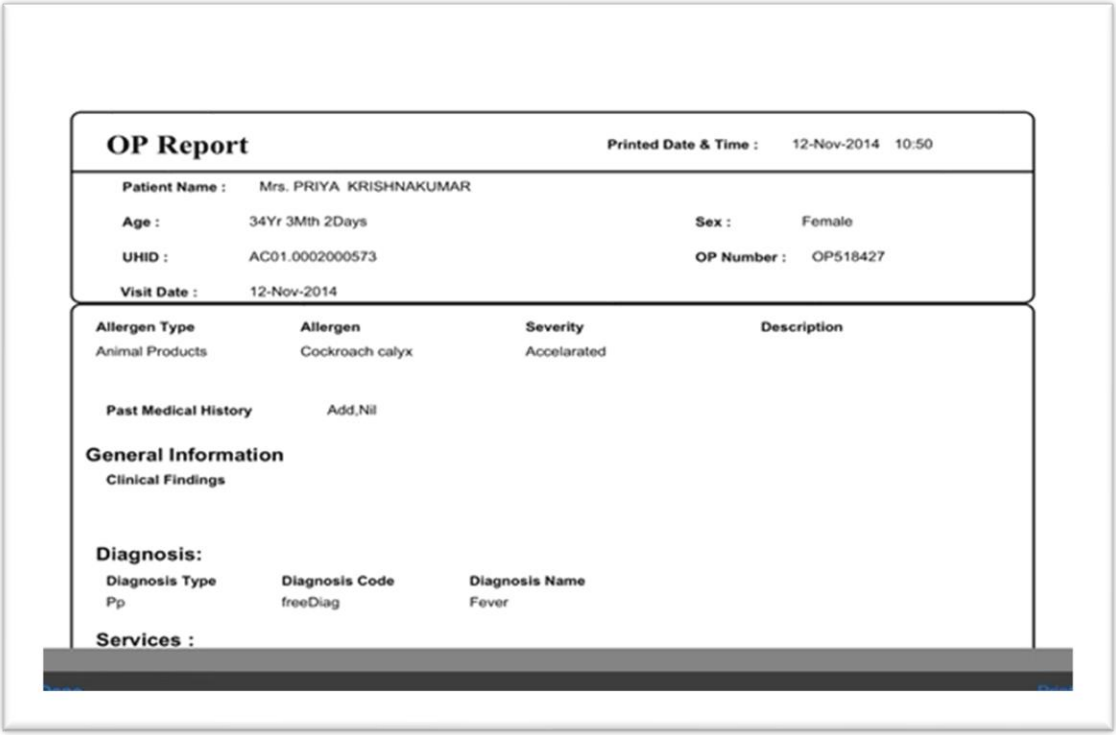


Fig 2.6: Viewing Summary (OP Report)



OP Report

Printed Date & Time : 12-Nov-2014 10:50

Patient Name : Mrs. PRIYA KRISHNAKUMAR

Age : 34Yr 3Mth 2Days **Sex :** Female

UHID : AC01.0002000573 **OP Number :** OP518427

Visit Date : 12-Nov-2014

Allergen Type	Allergen	Severity	Description
Animal Products	Cockroach calyx	Accelarated	

Past Medical History Add,Nil

General Information

Clinical Findings

Diagnosis:

Diagnosis Type	Diagnosis Code	Diagnosis Name
Pp	freeDiag	Fever

Services :

Fig 2.7: OP Report

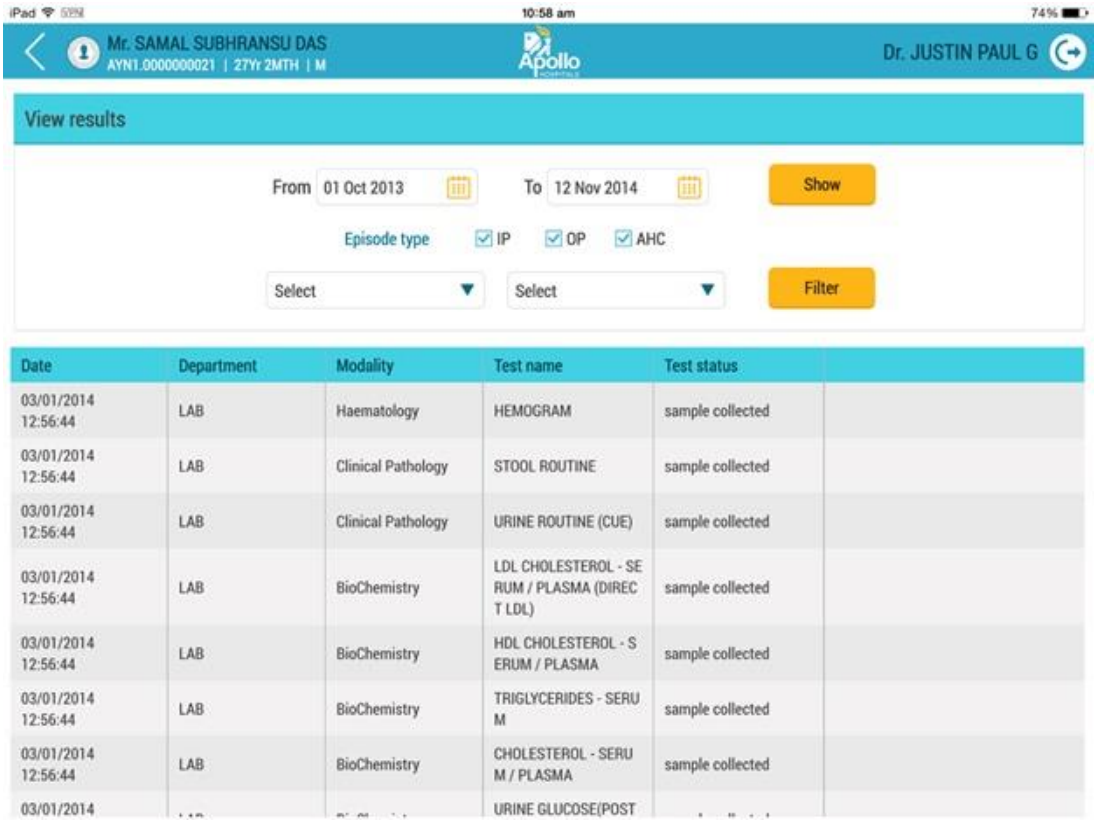


Fig 2.8: Viewing Results

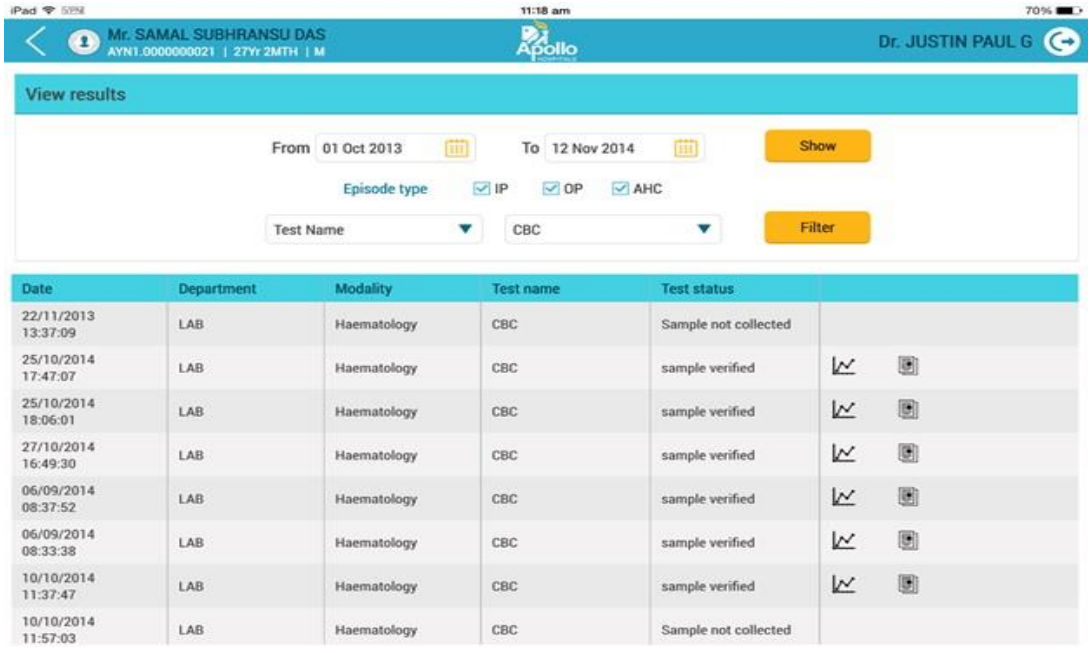


Fig 2.9: Viewing the Request

Fig 2.10: Viewing the result by parameter wise

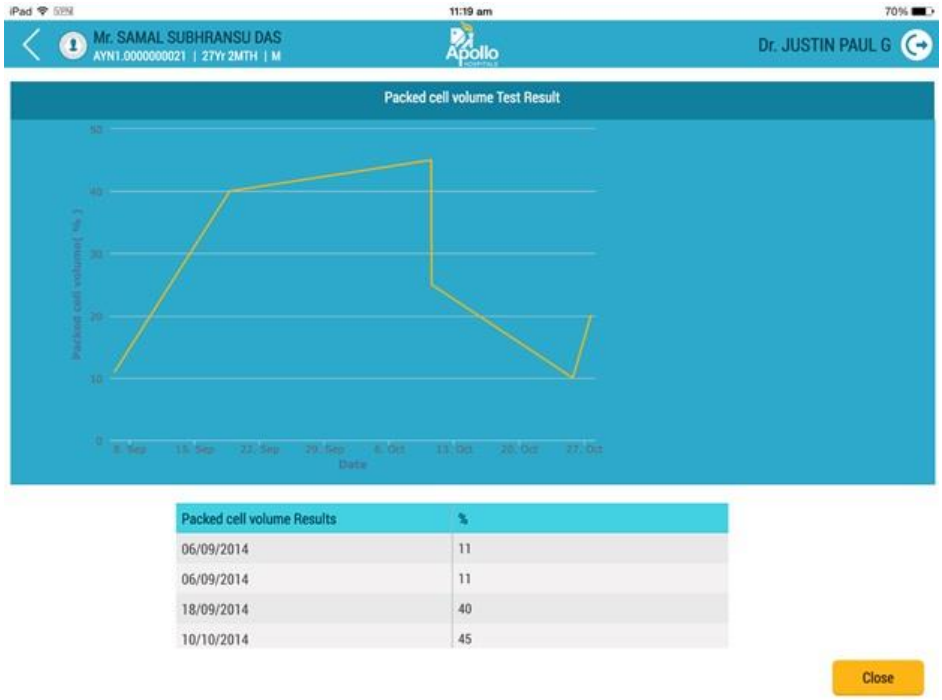


Fig 2.11: Viewing the result in graph

Add/Update Allergy

Steps

- Click on the allergy icon
- Select allergy type and severity
- Add description about it
- Click on add
- Then save the allergy
- If the patient doesn't have any allergy just click on No Allergy.

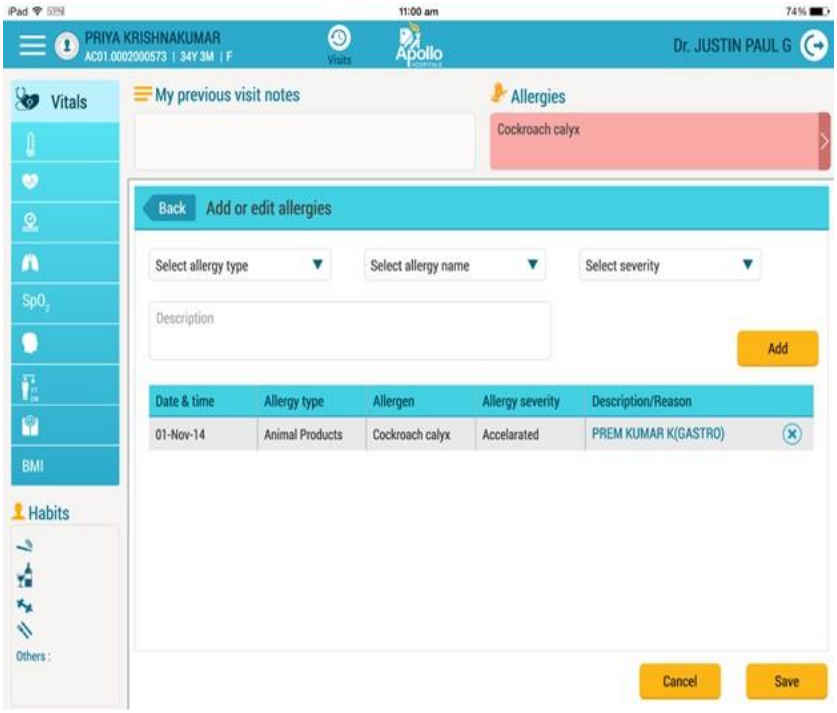


Fig 2.12: Adding allergy

Previous Diagnosis

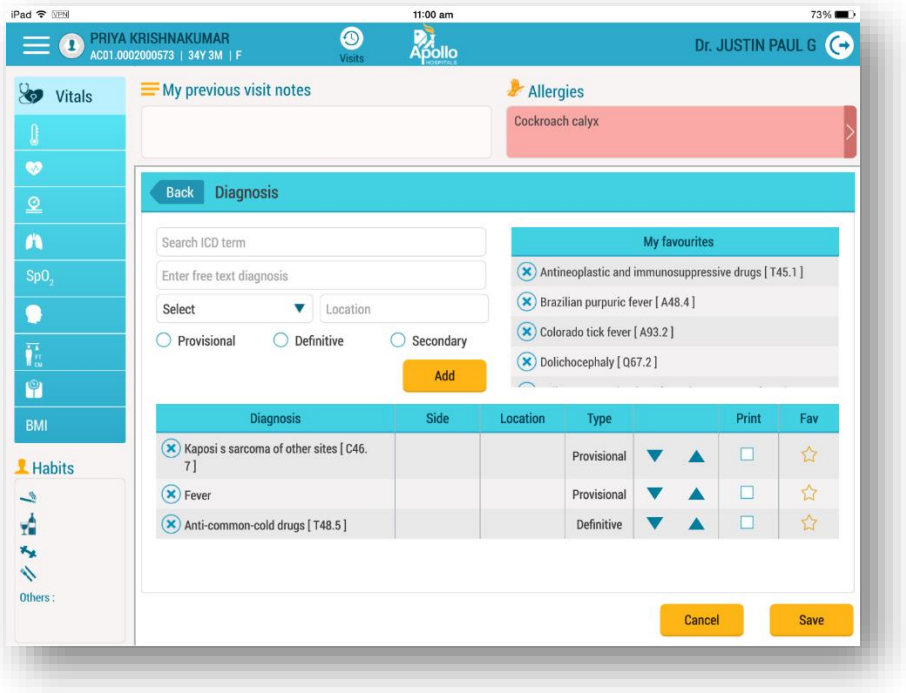


Fig 2.13: Adding Diagnosis (Favorites)

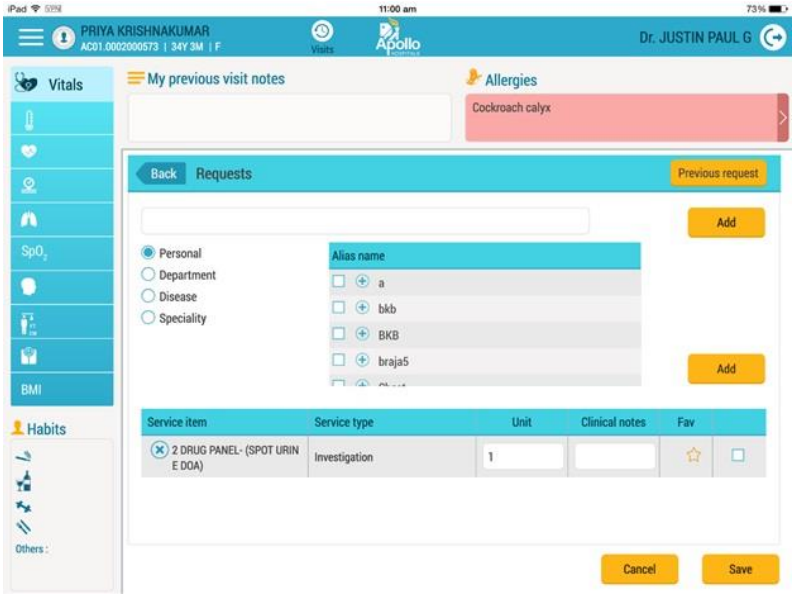


Fig 2.14: Adding Diagnosis

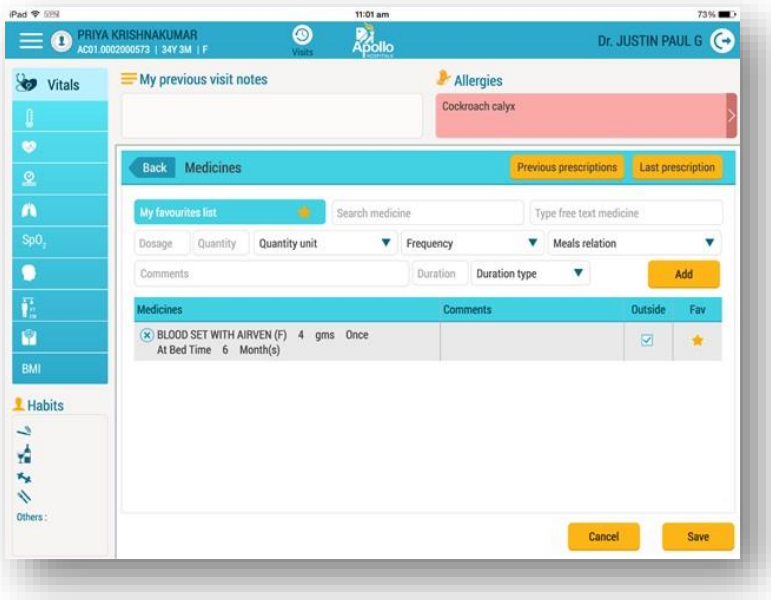


Fig 2.15: Raising the Prescription

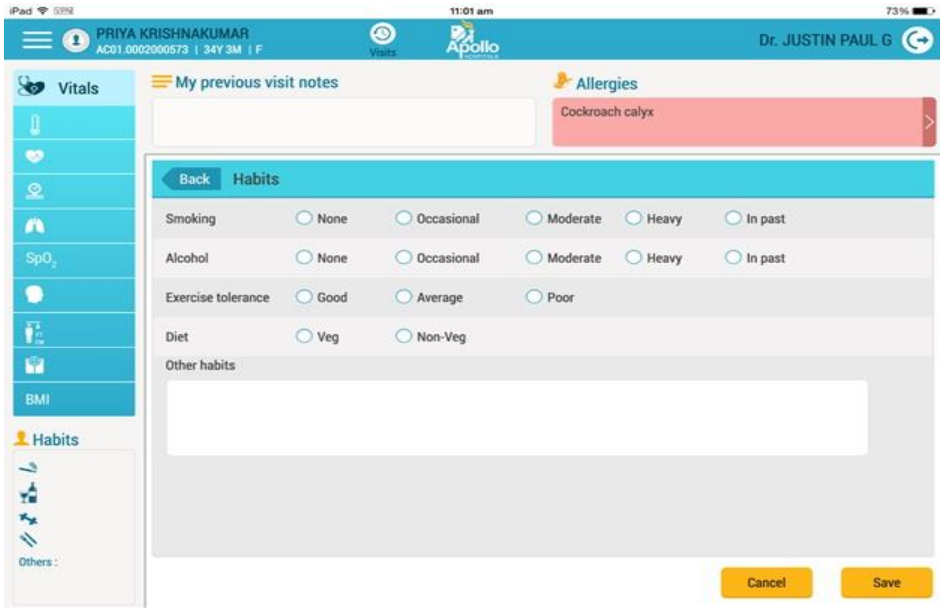


Fig 2.16: Adding habit

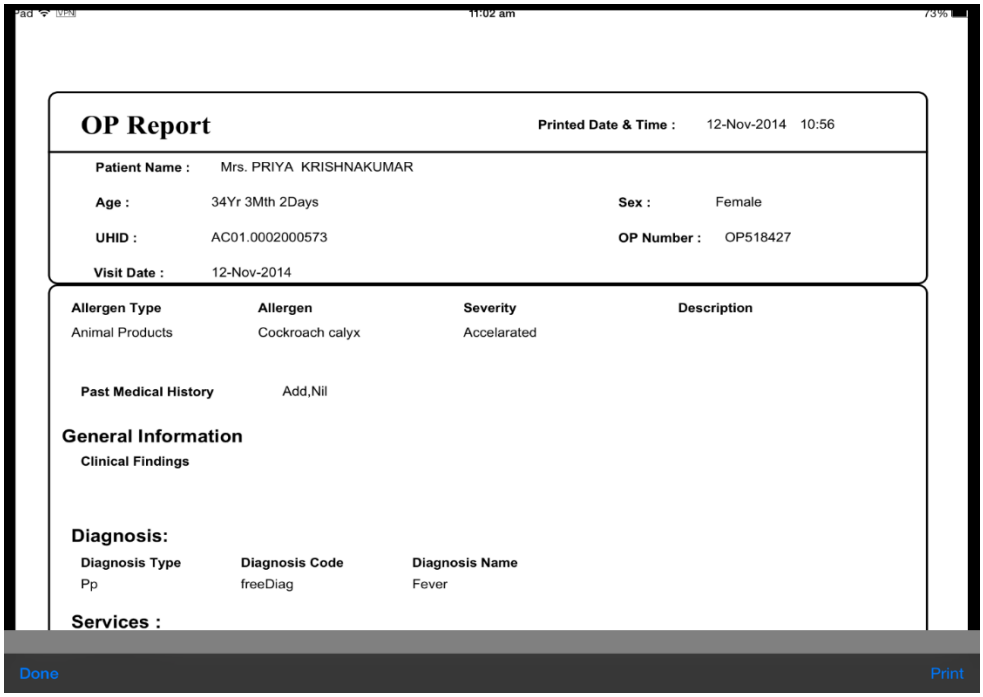


Fig 2.17: OP Report

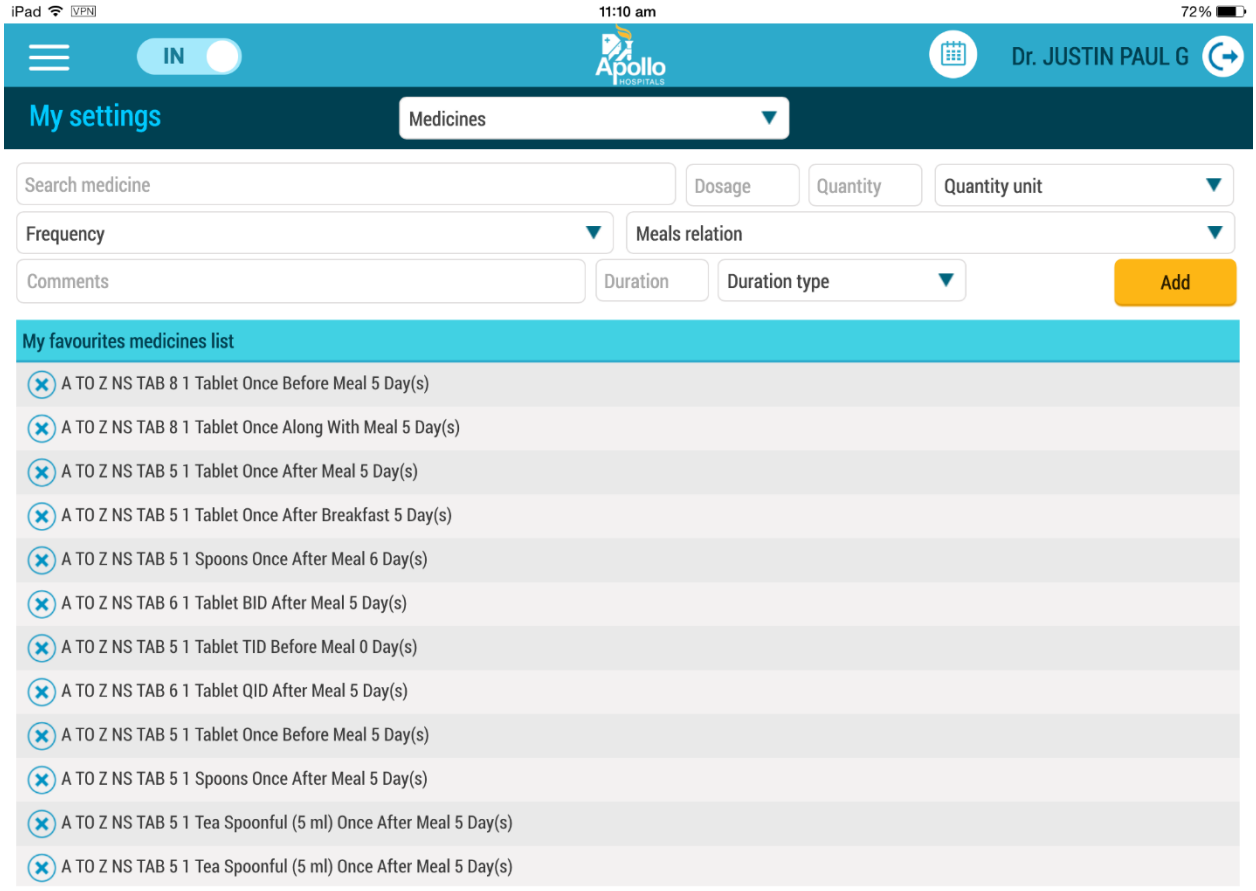


Fig 2.18: Adding the medicine to favorites

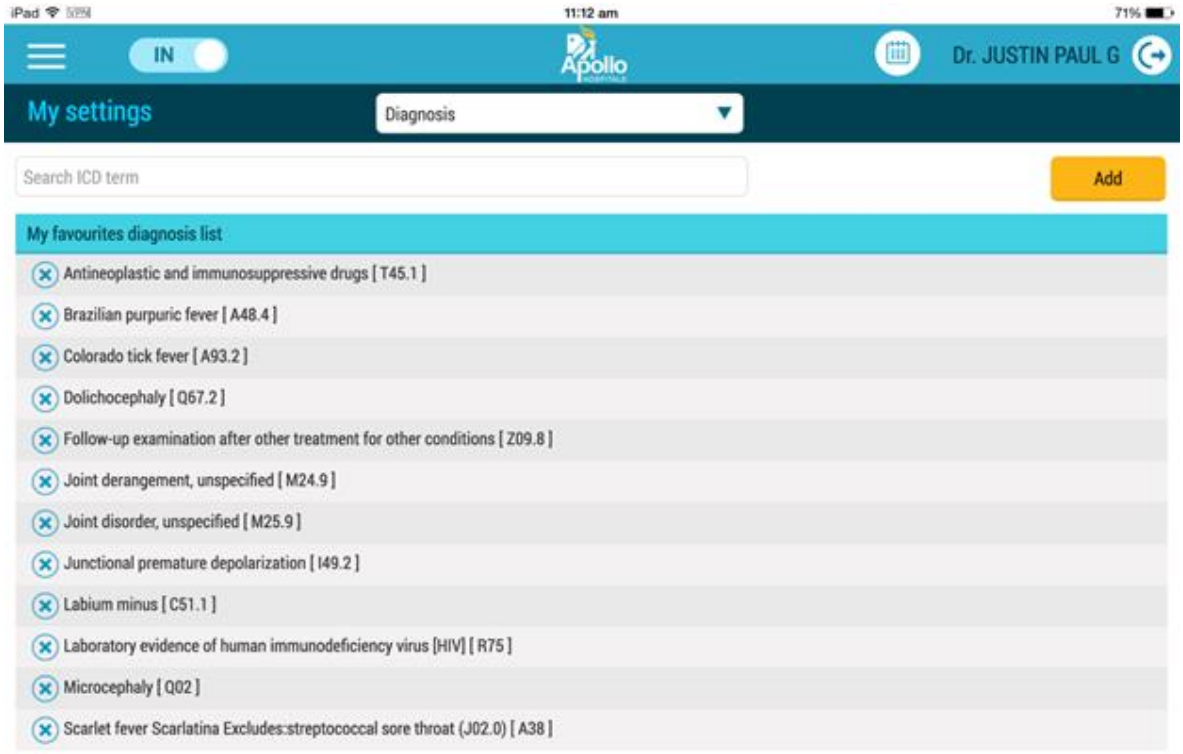


Fig 2.19: Adding the diagnosis to favourites

Fig 2.20: OP Search

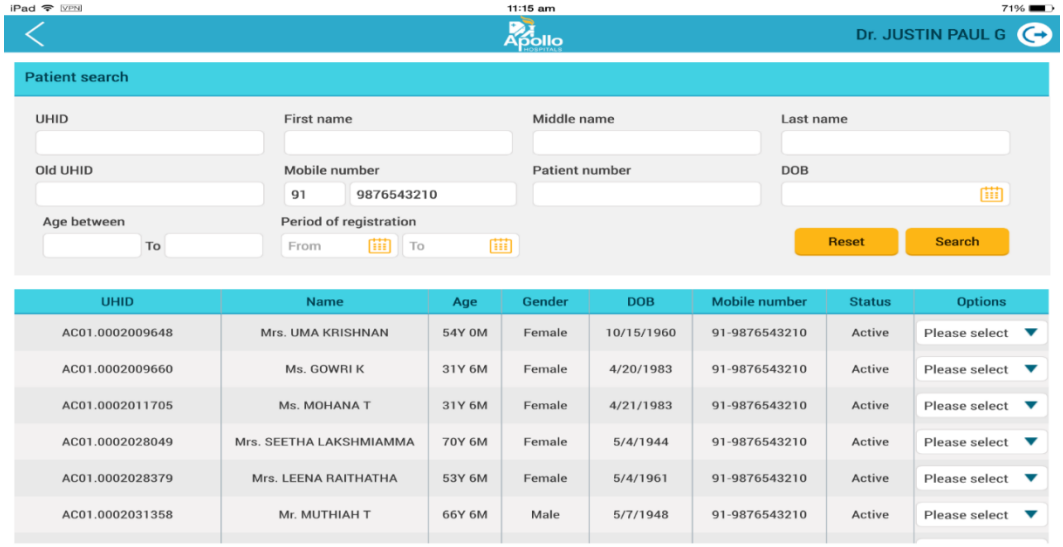


Fig 2.21: Patient Search

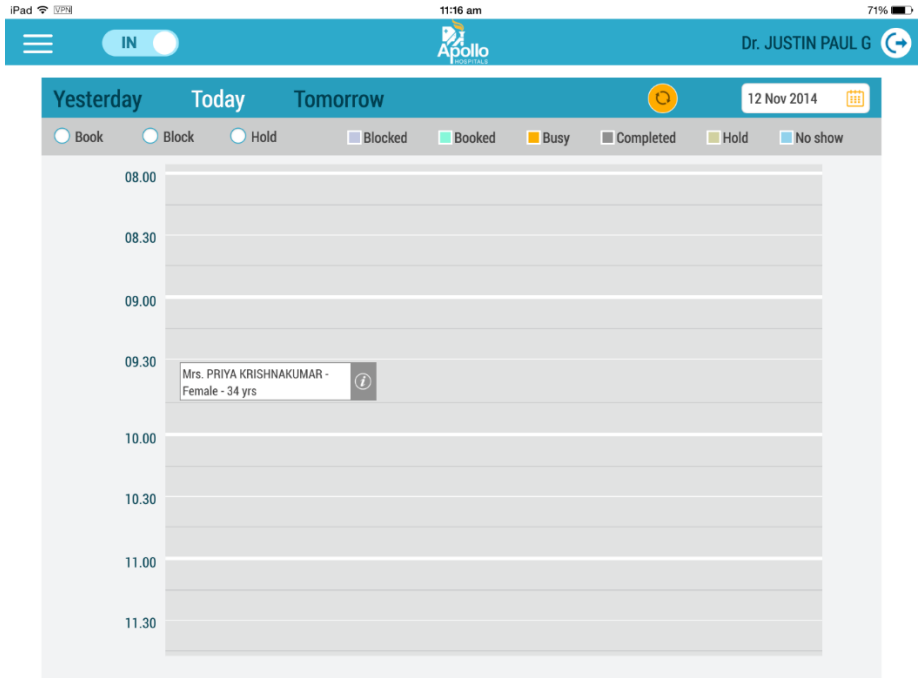


Fig 2.22: Appointment slot

3.0 Literature Review

Case Study 1:

The Worldwide Doctor's facility Data Frameworks advertise is determined to develop at 10% from 2010-2017. Medicinal services associations comprehensively perceive the significance of putting resources into data advancements. The HIS frameworks are vast electronic information bases are fundamentally essentially for correspondence, wellbeing records storehouse and regulatory purposes. It is obvious, that the utilization of HIS offers enormous chances to diminish clinical mistakes and bolster social insurance inhabitants' basic leadership. It enhances the proficiency and nature of patient care. The improvement, testing, and appropriation of HIS stay constrained and various hindrances exist. There is a dire need to take a gander at HIS from various edge. The headway of data frameworks, advancements made different new applications conceivable. The investigation additionally centers on insights about equipment, operational method and other vital actualities relating to powers bringing about acknowledgment of HIS. The reason for this examination, is to comprehend foundation, framework works on, blocking and inspiring powers behind HIS at a tertiary showing doctor's facility which is explorative in nature.

The examination was directed, at a 1050 had relations with tertiary care showing healing center which is operational from 1996. Aggregate of 8 bureaus of the healing facility were contemplated for evaluating the Doctor's facility Data Framework. The present research, is a subjective and exploratory in nature. The examination is embraced to know the current HIS likewise take a diagram of improvements done. Broad meetings for the example of 100 full-time workers which included Clinical, Non-Clinical and Regulatory Staff of the doctor's facility have been taken trailed by a survey to understand the circumstance and comprehend the marvels. The testing technique took after is Opportunity inspecting.

Doctor's facility Data framework essential capacity is to store therapeutic records, managerial data and impart, with enormous development openings towards patient's care, decreasing clinical blunders, bolster medicinal services experts, increment the productivity of care enhance the nature of patient care. There are Persuading Powers like Upgraded Correspondence, Ease of use, Assets Use, Basic leadership, Work Proficiency, and Better Process Stream and Quality Affirmation which are influencing staff to transfer on HIS while some Impeding Powers like preparing for representatives, looking for help, finish incorporated framework, non-presence and cost regulation of PCs are going about as hindrances.

Case study 2:

To look at the current status of doctor's facility data frameworks (HIS), investigate the impacts of Electronic Therapeutic Records (EMR), Clinical Choice Emotionally supportive networks (CDSS) have upon healing facility proficiency, and inspect how administration issues has changed after some time agreeing, to different development stages.

Information taken from, the 2010 review on the HIS status and administration issues for 44 tertiary clinics and 2009 overview on doctor's facility execution evaluation were utilized. A chi-square test had used to examine the relationship between the EMR and CDSS qualities. A t-test had used to break down the impacts of EMR and CDSS on clinic execution.

Top administration and healing center's size help had altogether related, with the selection of EMR. Not at all like the EMR comes about, in any case, just the institutionalization trademark had altogether connected with CDSS reception. Both EMR and CDSS had related with the change of doctor's facility execution. The EMR appropriation rates and outsourcing had

reliably, expanded as the development organize expanded. The CDSS, institutionalization, Learning Administration Framework (KMS) and client preparing reception rates for Stage 3 doctor's facilities, were observed to be higher for Stage 2 healing centers.

Both EMR and CDSS had affected, the change of healing facility execution. As healing facilities progressed to Stage 3, had more involvement with data frameworks, they were embraced EMRs and understood the significance of each administrative issue.

Case Study 3:

The electronic medicinal record (EMR) is an empowering innovation that permits specialist practices to seek after more intense quality controlled projects that isn't conceivable with paper-based records. Be that as it may, accomplishing better quality through advanced wellbeing records utilize is neither minimal effort nor simple. Based, on a subjective investigation of specialist hones that was executed an EMR, we found that quality reconstruction depends intensely on therapeutic expert’s utilization of the electronic and not paper for a large portion of their day by day errands. We discovered key obstructions to specialist's utilization of EMRs. We at that point recommend, arrangement mediations to defeat these impediments, including giving improving electronic clinical information trade, work/rehearse emotionally supportive networks, and giving money related prizes to quality improvement.

It was a non-interventional, elucidating cross-sectional and simply subjective examination utilizing a semi-organized meeting, control for an investigation populace of 24. These meetings were physically recorded and broke down specifically. EMR usage was steered in the Crisis Center. A portion of the Crisis Center staff served as EMR work force. An open source EMR had unreservedly downloaded and furthermore redone to address the issues of

the EC. The EMR database made was a crossover, one including advanced bio-information of patients and checked duplicates of their paper EC records

It was watched that with the arrangement of satisfactory human and money related assets, the difficulties were overcome and the reception of the EMR progressed.

The facilitators for using the framework had included giving preparing to staff, the accessibility of some coordination, and the dedication of staff. The venture obstacles were supported, full-time data innovation aptitude, and programmed information and power reinforcements.

Electronic Medicinal Records had been a fractional achievement. The organizers recognized in this examination, to be specific arrangement of coordination, preparing, and staff responsibility speak to establishments to work from. The obstructions recognized could be tended to with arrangement of data innovation skill extra financing, and information and power go down. It is recognized that absence of venture could considerably restrain EMR usage.

Case Study 4:

In Malawi, paper-based medicinal record-keeping had been seen to amplify challenges identified with getting to persistent records and patient following. In spite the presentation of electronic therapeutic record (EMR) frameworks in 2001, paper-based records keep on being in use. Some wellbeing specialists lean toward paper-based records to EMRs. This investigation surveyed factors that influence the utilization of computerized restorative record, especially at Ruler Elizabeth and Kamuzu Focal Healing centers. It was additionally examined that the reasons why paper-based records are still being used in demonstrate hatred

for the various related inconveniences. The degree to which EMRs add to persistent care was additionally investigated.

In this cross-sectional examination, 111 haphazardly chose wellbeing specialists had chosen and talked with, utilizing a semi organized poll. At, the 2 biggest focal healing facilities in Malawi where advanced records were first presented in the nation. Center gathering discourses had been directed to assemble additional data on factors recognized amid the individual meetings.

Contrasts in sexual orientation, age, and past PC encounter had not related with contrasts in electronic record use. Be that as it may, instruction and work levels had a positive connection with emr utilization. Equipment and availability issues, and also absence of preparing, and administrative help adversely affected the utilization of advanced records. EMRs were found to change information quality and proficiency in tolerant administration.

4.0 OBJECTIVE

General Objective

To implement HIS and adopt the process of EMR at all OPD functionalities of the hospital.

Specific Objective

- To implement HIS and adopt the process of EMR
- To determine the satisfaction level among the doctors about Med-Mantra Digital
- To determine the Performance of the Med-Mantra digital
- To determine the Usability of Med-Mantra Digital

Research Question?

- What is the need of implementation HIS and to adopt the process of EMR?
- What is the usability of Med-Mantra Digital?
- What is the performance of the Med-Mantra Digital?
- What is the satisfaction level of Med-Mantra Digital?

5.0 METHODOLOGY

5.1 STUDY DESIGN

- Experimental (Interventional study)

5.2 STUDY AREA

- The study has been carried out in Apollo Hospitals, Indraprastha (New Delhi)

5.3 STUDY PERIOD

- The study conducted over a period of 3 months from February to April,2018

5.4 STUDY POPULATION

- 60 doctors both male and female

5.5 SAMPLING METHOD

- Convenient Sampling

5.6 INCLUSION CRITERIA

- This study includes consultants on panel of Apollo hospital.
- Department which are covered Oncology, Urology, Nephrology, Rheumatology.

5.7 EXCLUSION CRITERIA

- All the visiting consultants in Apollo hospital.

5.8 DEFINITION OF STUDY VARIABLES

- **Clear Information**

  It means information regarding patient's details of visits, medical history, treatment plan, billing, appointment etc.

- **Productive Use**

  It means that with the use of electronic medical record by the users help them in their day today activities more efficiently.

- **System Crash**

  It means that during the working of the software, the software will stop, hang, and corrupt which further hampers the activities of the OPD.

- **Update Information**

  It means that the software is able to provide updated information about the patient and other important data e.g. medicines, reports, medical history etc.

- **Time-Consuming**

  It means that the software is taking time while opening or closing any activity regarding the patient.

- **Prevention of Errors**

  It means that the software is good at providing correct information to the user.

- **HIS Window**

  It means that design of the software's window flashing on the screen.

- **Use of EMR**

  It means that how much comfortable a user is in using EMR after Training.

5.9 STUDY VARIABLES

Objectives	Study variables	Study population	Tool/Technique
• To determine the usability of HIS Med-Mantra Digital in Doctors.	• Clear information • Productive use	Doctors	• Questionnaire technique/questionnaire
• To determine the performance of HIS Digital Med-Mantra in doctors	• System crash • Update information • Time - consuming	Doctors	• Questionnaire technique/questionnaire

• To determine the satisfaction level among doctors	• Prevention of errors • HIS Window • Use of EMR	Doctors	• Questionnaire technique/questionnaire

5.10 DATA COLLECTION TOOLS AND TECHNIQUES

- The questionnaire to be used
- Data is to be collected from the doctors by the questionnaire
- The investigator to introduce himself to the respondent and explain the objective of the study and also confidentiality of the participants assigned.
- Most of the question to be close ended.
- MS excel to be used for analysis of the primary data.

6.0 RESULT

DATA ANALYSIS

The collected data to be analyzed using excel software. It should be presented as given below.

- Data will be presented descriptively along with Pie charts, line graphs and bar graphs.

Usability

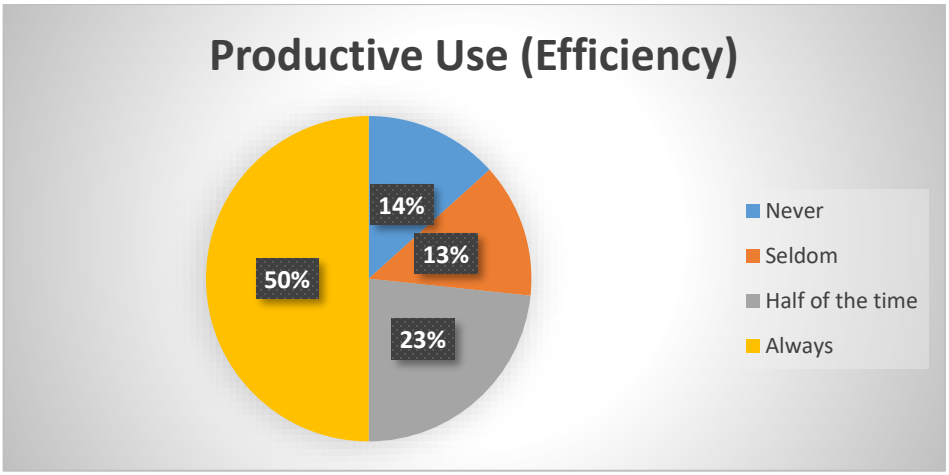


Fig 6.1

Inference-

In the above figure 6.1 pie chart shows that 50% of the doctors find it productive.

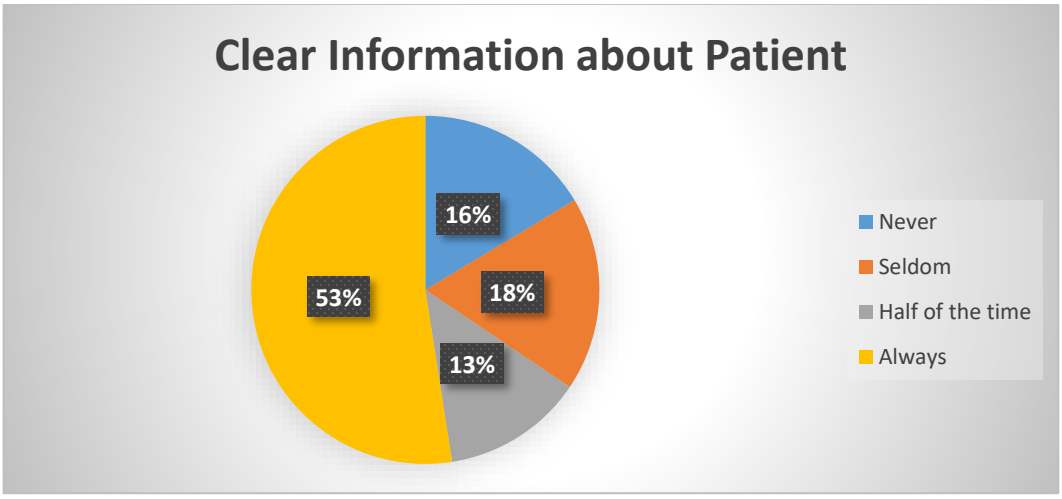


Fig 6.2

Inference –

The above fig 6.2 pie chart shows that 53% doctors meant that clear information is being provided by the system.

PERFORMANCE

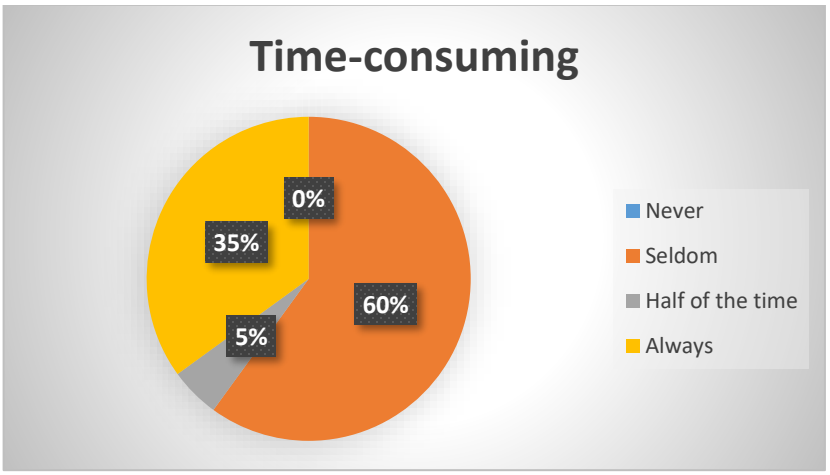


Fig 6.3

Inference-

The above figure 6.3 shows that system is time-consuming seldomly not very frequently.

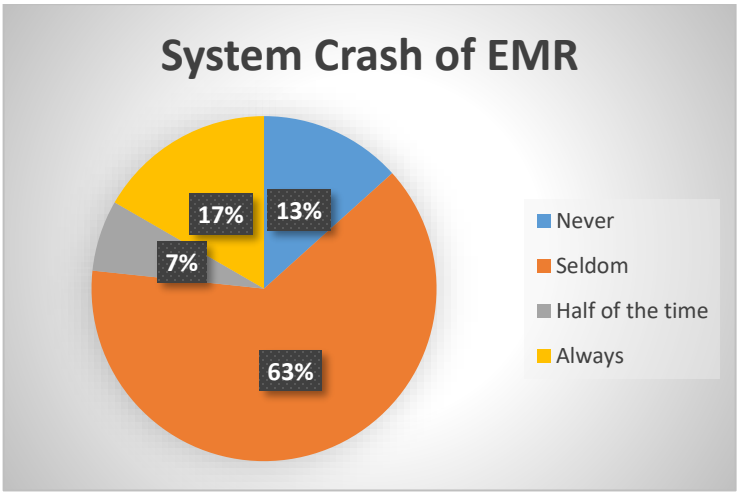


Fig 6.4

Inference –

As we can see that in the Fig 6.4 pie chart shows that maximum percentage is **63%** for seldom which interprets that HIS crashing is not very frequently. **17%** responded always, **7%** responded half of the time, rest **13%** responded never. It means the system is adequate and robust enough to handle the crash.

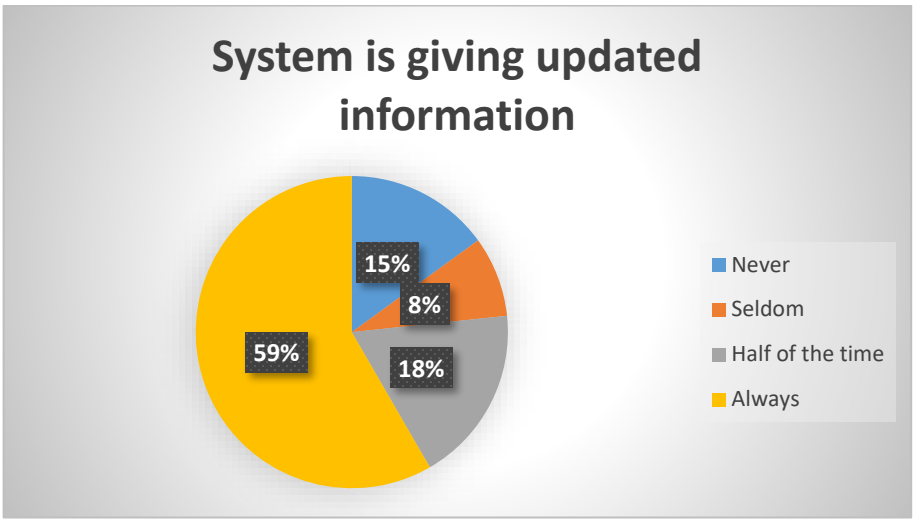


Fig 6.5

Inference-

The above fig 6.5 pie chart reflects that system is updated always according to doctors.

SATISFACTION

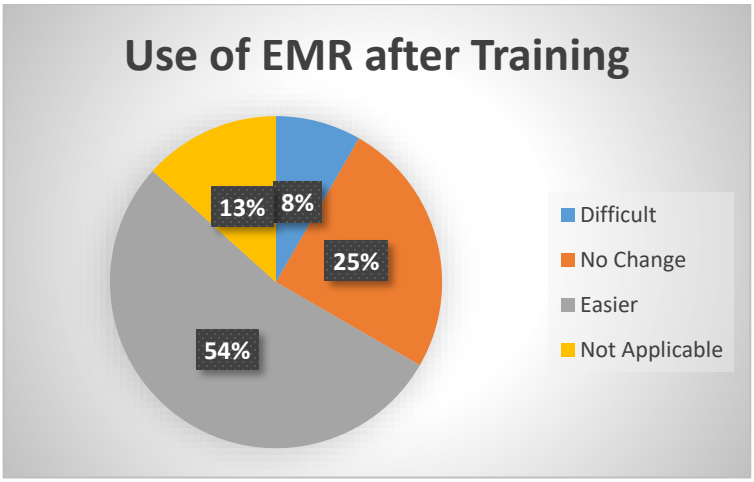


Fig 6.6

Inference-

The above fig 6.6 shows use of EMR has become easy after the training.

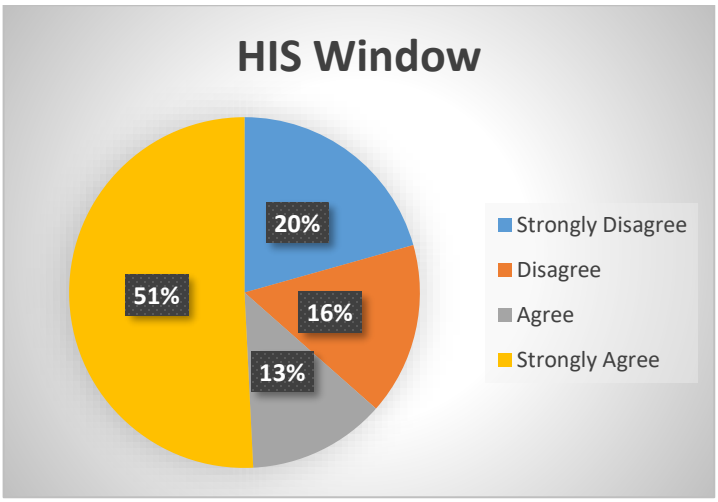


Fig 6.7

Inference-

The above fig 6.7 pie chart show that 51% doctors like HIS layout and rest 20 % doesn't like it

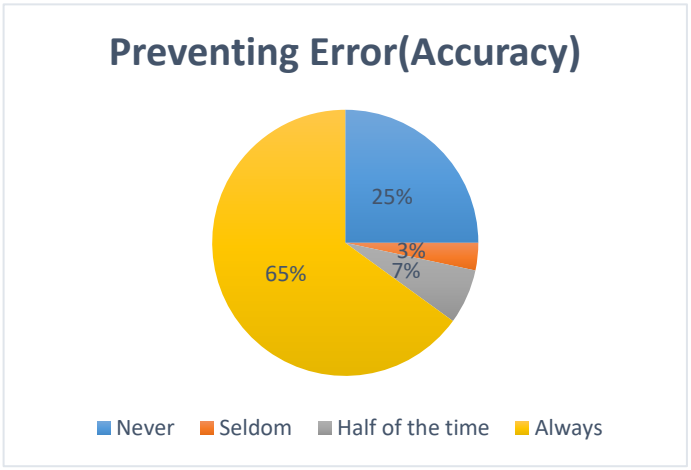


Fig 6.8

Inference –

The above fig 6.8 pie chart shows that system is capable of preventing errors on time.

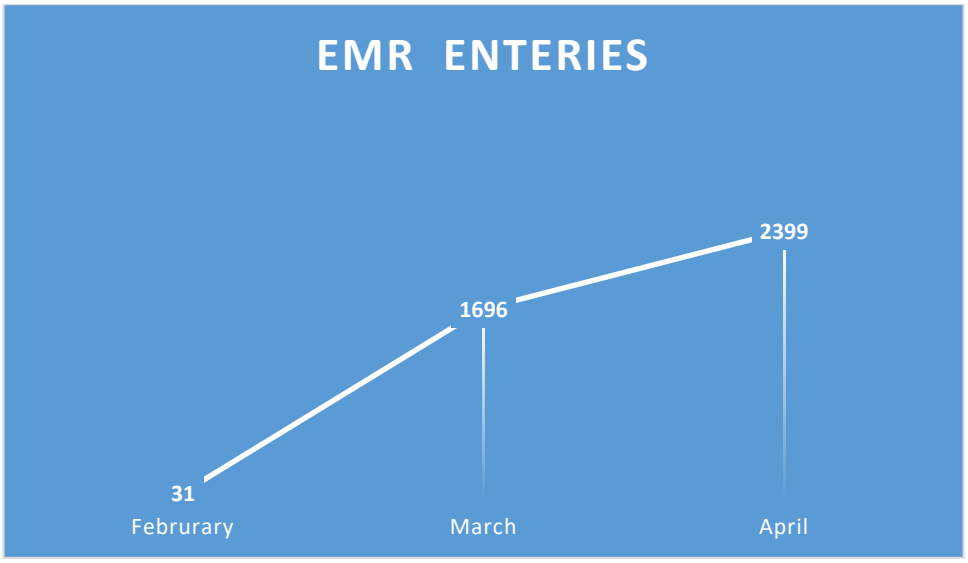


Fig 6.9

Inference-

This line graph fig 6.9 shows that number of the electronic medical records are generated in each respective month. The highest number of digital records were done in the month of April.

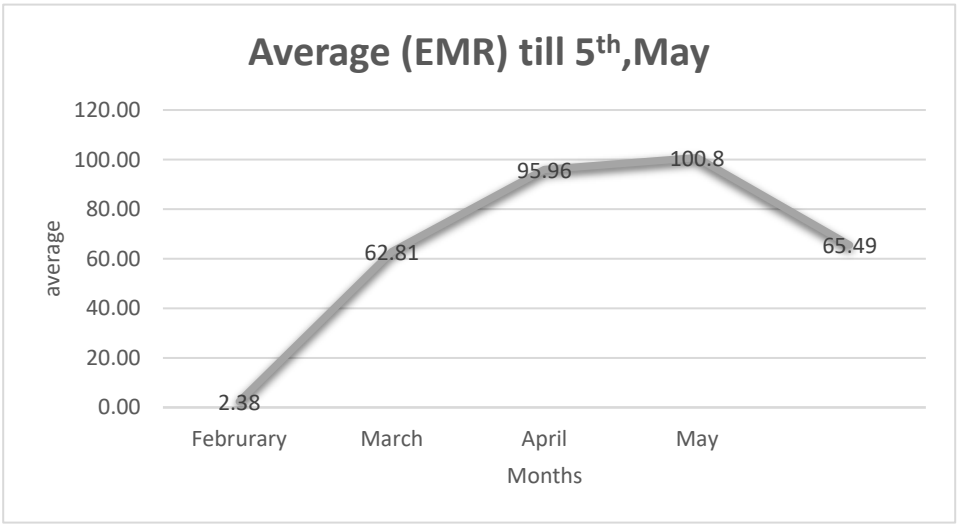


Fig 6.10

Inference-

In the above graph fig 6.12 average of number of electronic medical records generated in the respective months till 5th of May.

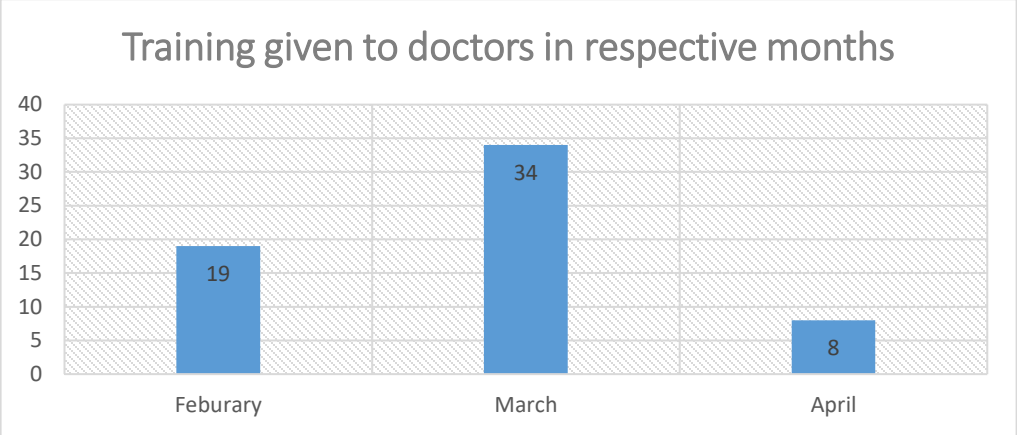


Fig 6.11

Inference-

The above fig 6.11 bar chart depicts the number of doctors given training and they using the EMR in the respective months that these doctors took the training and started typing medical records himself/herself.

7.0 OBSERVATION AND FINDINGS

- The software is very complicated
- The New software has speed issues.
- The Med-Mantra Digital software is quite lengthy which increases the entire OPD timings and disturbs OPD.
- The software does not have any PDF format for storing the important documents for the patient's record.
- The software does not have any provision for the auto-text.
- The most challenging task is the user requirement which varies from doctor to doctor.
- Human error is another big issue while implementing the software
- Training is itself a huge challenge because of the high turnover of its staff members which hinders the success rate of the implementation.
- Another issue we frequently meet is with availability of the rooms and timing slot of the doctors.
- The old software has higher dependence rate in terms of operations of the tasks at the point of consultation and other related processes.
- The software has crashing and network issues.
- In some OPD's, patient footfall is quite high than the usual one.
- Another challenge in case of surgeons as they are not available in OPDs in normal days as their schedules is very dynamic.
- Most serious challenge is senior consultants' attitude.
- The doctors are not tech-savvy enough to type which creates the obstruction for the implementation of EMR.
- The doctors feel that use of the software interferes doctor-patient relationship.

8.0 DISCUSSION

Therefore, with the qualitative study results suggested that implementation of HIS Med-Mantra Digital is a challenging job for the hospital. However, there is an evidence that HIS has improved the activities. The doctors considered the HIS Med-Mantra Digital more resourceful in their respective specialties opd's . Furthermore, there is qualitative association for the clear information about the patient's medical record during their successive visits to the outpatient department to the hospitals.

It is sure about the premise subjective information there is a need to build up a prolific ground before the usage of HIS. There is a likewise requirement for specialists to build up a practical system to make usage a stupendous achievement. Clients are the drivers of the framework on the off chance that we they don't feel great from any point whether it is information or some other issues. It is troublesome for it to be headed to give targets. There is a general numbness about the data among the wellbeing specialists. There is pressing need to teach the end clients about doctor's facility data frameworks.

There is an urgent need to fix the leakages in the system like infrastructure issues like system crash, hardware, software, network problems, system processing-time and timely rectification of queries. The major hurdle for the implementation of HIS is computer incompetence and less time interaction between the patient and doctor during the time of the consultation which hampers the growth of the systems. In various departments there are multiple issues regarding registration of patients online and offline which made the process more tedious rather than smooth. The systems outside the doctor's room for their secretaries is not up-to-date because there is huge issues system compatibility on current system which resisted some secretaries to type and obstructs the process of change. There are some hidden agents like lack of joy, poor coordination among the teams.

While mechanical issues can be taken care of by a technologist, it isn't yet certain whether arrangements are accessible for the socio/wellbeing/political issues which additionally impact achievement rate of these frameworks.

9.0 Recommendations

- The software should be made simpler in nature
- The Direct payment patients should be reflected on the dashboard like credit patients.
- The EMR should have provision for PDF format and view mode as well.
- The software should be hassle free during opening and processing during important task.
- The software should be implemented for all doctors even they are using their own private software for maintaining the database.
- The hospital should provide the Transcripts to the senior consultants and at the heavy OPD.
- The availability of incentives and perks should be on time.
- The software should have auto-text mode.
- The management should proactively conduct frequent meetings with doctors to make implementation more fruitful.
- The software should show previous visits while copying the text during the OPD consultation.
- Under Medicines options “Generic Name” are different from listed Medicines. Same needs to be updated.
- All Secretaries and Doctors should be included in kick-off meetings for better coordination and functioning of the project.
- Connectivity issues also taken care of on urgent basis.
- Options like Parameters, Global parameters and Swap templates should be removed to make EMR screen easy.
- Integrate key transformation enablers employ a holistic approach
- Identify the drivers: understand the drivers.
- Realizing the maximum effectiveness: execute the transformation.

10.0 CONCLUSION

The planning and implementation of new-clinical has significant impact on the entire organization not only from a technology point of view, but from the patient, staff and process perspectives as well. So, in order to create the synergies among people, processes, and technologies to drive the transformation required to advance healthcare following needs to be done.

The implementation phase of HIS Med-Mantra at outpatient department is started well in the respective opds' that I have covered. The best opd out of 4 opd is Urology department where maximum number of doctors showing wonderful interest and great sense of excitement of bringing the change in the existing system. Then oncology is progressing gradually, showing improvement in terms of usage. The same course is being followed but with certain less degree in Nephrology and Rheumatology.

With the constant efforts and assisting the doctors sometimes during the rush hours the situation is changing according to the expectations. We have achieved 12.6 % adoption rate from 8.6% till now which is a significant milestone.

At last according to me the project for the implementation HIS Med-Mantra is overall going good in terms of adoption and disruption in the conventional system.

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12.0 Annexure

Q1.How often is the system subject to frequent system problems & crashes?

- Never
- Seldom
- Half of the time
- Always

Q2. How often does the system provide up-to-date?

- Never
- Seldom
- Half of the time
- Always

Q3. Do you like the layout of the HIS?

- Strongly Disagree
- Disagree
- Agree
- Strongly Agree

Q4. How often is the information clear?

- Never
- Seldom
- Half of the time
- Always

Q5. The training provided prepared me to perform my duties using EMR in my practice:

- Difficult
- No Change
- Easier
- Don’t Applicable

Q6. How often our procedures and systems are good at preventing errors from occurring?

- Never
- Seldom
- Half of the time
- Always

Q7. Does the system is time-consuming?

- Never

- Seldom
- Half of the time
- Always

Q8. How system is often to use productive?

- Never
- Seldom
- Half of the time
- Always