Internship Training

At

Jaypee Hospital Noida

Submitted By

Evaluating the Usability of CPOE (Computerize Provider Order Entry) And Doctors Bench Order Entry Module Functioning Of HIS by Doctors in OPD

By

Dr. Stuti Tripathi(PT)

Under the guidance of Anandhi Ramchandran

Post Graduate Diploma in Hospital and Health Management

Year 2013-2015

International Institute of Health Management Research, New Delhi

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Enroll No. PG/13/067

Under the guidance of

DR. Anandhi Ramchandran

Post Graduate Diploma in Hospital and Health Management

2013-15

International Institute of Health Management Research

New Delhi

The certificate is awarded to

Dr. Stuti Tripathi (PT)

In recognition of having successfully completed herInternship in the department of

Healthcare IT

and has successfully completed her Project on

Evaluating the Usability of CPOE (Computerize Provider Order Entry) And Doctors Bench Order Entry Module Functioning Of HIS by Doctors in OPD

Date 15/05/2015

Jaypee Hospital, Noida

She comes across as a committed, sincere & diligent person who has a strong drive & zeal for learning

We wish him/her all the best for future endeavors

Human Resources

3 | Evaluation Of Usability Of CPOE By Doctors In OPD

FEEDBACK FORM

Name of the Student: Dr. Stuti Tripathi (PT)

Dissertation Organization: Jaypee Hospital, Noida

Area of Dissertation: Evaluating the Usability of CPOE (Computerize Provider Order Entry) And Doctors Bench Order Entry Module Functioning Of HIS by Doctors in OPD

Attendance: 100% Attendance

Objectives achieved: Yes

Deliverables:

1) Project Report On "Evaluating the Usability of CPOE (Computerize Provider Order Entry) And Doctors Bench Order Entry Module Functioning Of HIS by Doctors in OPD"

2) Ms. Stuti Tripathi learnt and experienced the real time flow of EMR Functionality

Strengths: Sincere and hardworking,Have good learning capability

Suggestions for Improvement: Pilot is under progress and should involved herself in complete EMR implementation

Date: 15/05/2015
Place: NOIDA

Khare
Mr. Alok Khare
Vice President
HIS Department

CERTIFICATE OF APPROVAL

The following dissertation titled **"Evaluating the Usability of CPOE (Computerize Provider Order Entry) And Doctors Bench Order Entry Module Functioning Of HIS by Doctors in OPD"** at **"Jaypee Hospital, Noida"** 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.

Name	Signature
Anandhi Ramachandran	
Manav Chaudhary	

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TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Dr. Stuti Tripathi (PT)** student of Post Graduate Diploma in Hospital and Health Management (PGDHM) from International Institute of Health Management Research, New Delhi has undergone internship training at Jaypee Hospital, Noida from **2/02/2015 to 30/04/2015.**

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~~ her all success in all his future endeavors.

Dr. A.K. Agarwal
Dean, Academics and Student Affairs
IIHMR, New Delhi

Dr. Anandhi Ramchandran
IIHMR, New Delhi

Certificate from Dissertation Advisory Committee

This is to certify that **Dr. Stuti Tripathi (PT)** , 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 "**Evaluating the Usability of CPOE (Computerize Provider Order Entry) And Doctors Bench Order Entry Module Functioning Of HIS by Doctors in OPD**" at "**Jaypee Hospital, Noida**" 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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Mr. Alok Khare
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INTERNATIONAL INSTITUTE OF HEALTH MANAGEMENT RESEARCH,

NEW DELHI

CERTIFICATE BY SCHOLAR

This is to certify that the dissertation titled **Evaluating the Usability of CPOE (Computerize Provider Order Entry) And Doctors Bench Order Entry Module Functioning Of HIS by Doctors in OPD** and submitted by **Dr. Stuti Tripathi (PT)** Enrollment No. **PG/13/067**

under the supervision of **Dr. Anandi Ramchandran,** for award of Postgraduate Diploma in Hospital and Health Management of the Institute carried out during the period from 02/02/2015 to 02/05/2015 embodies my original work and has not formed the basis for the award of any degree. diploma associate ship. fellowship. titles in this or any other Institute or other similar institution of higher learning.

Signature

ACKNOWLEDGEMNT

I chose Jaypee Hospital Noida for my summer training with anticipation for learning & Hands on Experience. I had a feeling that the office bearers of this hospital would provide me with immense guidance & support. I felt extremely privileged when I found that all my dreams have come true at Irene.

At this juncture of time this Report would be incomplete if I forget to thank all people who made my learning a possibility & an unforgettable experience.

At the outset I would like to thank the **Almighty, Founders of Jaypee Hospital Noida & IIHMR** for providing me with such unique learning experience.

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ACRONYMS/ABBREVIATIONS

Acronyms/ Abbreviations	Full Form
ICU	Intensive Care Unit
OT	Operation Theater
CT Scan	Computer Tomography Sacn
CT Simulation	Computer Tomography Simulation
OPD	Out Patient Unit
HIS	Health Information Sstem
CPOE	Computerized Physician Order Entry
DWBOE	Doctors work Bench Order Entry
HITECH Act	Health information technology for economics & clinical health
E H R	Electronic Health Record
HIMSS	Healthcare information management system society
CDSS	Clinical Decision Support System
ACPOE	Ambulatory Computerized Physician Order Entry
ADE	Adverse Drug Events
EMR	Electronic Medical Record

ABSTRACT

INTRODUCTION:

Jaypee Hospital at Noida is the flagship hospital of the Jaypee Group, which heralds the group's noble intention to enter the healthcare space. This hospital has been planned and designed as a 1200 bedded tertiary care multi-specialty facility and has commissioned 525 beds in the first phase.In current practice at OPD of Jaypee Hospital, providers write medication orders on paper order sheets. They have CPOE and Doctors Bench Order Entry Module in HIS. But for any medication and investigation order, Doctors barely uses it. So this study is focus on Evaluation of Usability of CPOE (Computerize Provider Order Entry) And Doctors Bench Order Entry Module of HIS By Doctors in OPD and to what extent usability is there. The Study also aims to highlight the reasons and issues for barely using CPOE and Doctors Bench Order Entry.

OBJECTIVE:

The study is mainly to evaluate the usability of CPOE and DBOE module functioning of HIS in OPD and perform root cause analysis.

METHODOLOGY:

This was an evaluation study that used Exploratory and descriptive study involving analysis of major key stakeholders involved in using the CPOE, Doctors Bench Order Entry Modules. The study used both quantitative and qualitative research methods. The study used qualitative research methods because it mainly focused at obtaining subjective experiences and observed behaviors of CPOE/Doctors Bench Order Entry Modules users. The sample size was 20 doctors of OPD and used Convenient and Purposive Method. The calculation and analysis done in Microsoft Excel. The information have been collected through the tool like questionnaire and interview.

RESULTS:

The above Findings show that most of the users are between 30 to above 41 age and they are less techno friendly. They are comfortable in using computer but not use to with it even after that they are using this module for retrieval of patient information. They are use to with using paper for prescription. They need vigorous training to make them comfortable in using Doctors work bench order entry/ CPOE. . They want to adapt CPOE but they have not got proper training. As this module need more configurations from the software provider side and they are doing it so with this reason training not given properly CPOE is not a technology, rather it is a design (or redesign) of clinical processes that integrates technology to optimize physician ordering of medications, laboratory tests, etc.

CONCLUSION:

The study says that doctors work bench order entry/CPOE is there but only for retrieval of patient information. The functionality for entry of patient data in CPOE module is lacking.
The software is still in developing phase. In present running software have so many flaws which need to be improved and improvement is in developing phase. The reasons for incomplete implementation are also from doctors ends. They are less cooperative and they feel learning it is not priority. There is however also needof proper training and proper change management.

UNIT 1: ORGANIZATION PROFILE

ABOUT JAYPEE HOSPITAL

Jaypee Hospital at Noida is the flagship hospital of the Jaypee Group, which heralds the group's noble intention to enter the healthcare space. This hospital has been planned and designed as a 1200 bedded tertiary care multi-specialty facility and has commissioned 525 beds in the first phase.

The Jaypee Hospital is constructed across a sprawling twenty-five acre campus in Sector 128, Noida which is easily accessible from Delhi, Noida and the Yamuna Expressway. The plan, design and construction of the hospital positions itself amongst very few Lead certified hospital buildings in India.

The Jaypee Hospital is established on the following fundamental principles:

- Patient centric high quality care
- Evidence based medicine
- Ethical treatment
- Value for money

VISION

Promoting healthcare to the common masses with the growing needs of society by providing quality and affordable healthcare with commitment.

MISSION

The Jaypee Group is committed to building Jaypee Hospital as a super-specialty hospital with advanced healthcare facilities, the latest diagnostic services and state-of-the-art technology focused on medical specialties that meet the healthcare needs of the population. The Jaypee Hospital will be the ultimate choice for medical care.

CORE VALUES

- **Quality:** Jaypee hospital maintains the highest standards and achieve them by continually measuring and improving outcomes

- **Innovation:** Jaypee hospital welcomes and encourages change and continuously seek better and more efficient ways to target success

- **Teamwork:** Jaypee hospital collaborates and share knowledge, for the advancement of the mission
- **Service:** Jaypee hospital strives to exceed their patients and fellow colleagues expectations for comfort and convenience

- **Integrity:** Jaypee hospital adheres to the highest moral and professional standards of honesty, confidentiality, trust, respect and transparency

- **Compassion:** Jaypee hospital adheres to provide a caring and supportive environment for all patients, their families and fellow colleagues

➢ **Infrastructure Highlights**

- 525 beds in first phase
- 150 Critical Care beds
- 24 bedded Advanced Neonatal ICU
- 20 bedded Dialysis Unit
- 325 ward beds with Suite, Deluxe, Twin Sharing and Economy options
- 18 Modular OTs
- 4 Cardiac Catheterization Lab with Hybrid Operating Room

- 2 Linear Accelerator (IMRT, IGRT and VMAT), 1 Brachytherapy Suite, Wide Bore CT Simulator
- 2 MRI (3.0 Tesla) with High Intensity Focused Ultrasound
- 256 Slice CT Scan, CT Simulation
- 64 Slice PET CT, Dual Head 6 Slice SPECT CT, Gamma Camera
- Da Vinci Robotic Surgery for comprehensive robotic surgical solutions

➢ **Future plans of Jaypee hospital**

The Jaypee Group has extensive plans to expand its healthcare project in the coming years by developing 7 more hospitals:

- A 250 bedded hospital at Bulandshahar
- A 200 bedded hospital at Anupshahar
- A 500 bedded hospital at Sahibabad
- A 500 bedded hospital at Agra
- A 500 bedded hospital at Kanpur
- A 300 bedded hospital at Dehradun
- A 300 bedded hospital at Rewa

Key Learning's

- OPD Management
- Functioning of different modules of HIS
- Back end functions of HIS like Service & packages Mapping, Doctors Mapping in Master Data of HIS
- Time motion study

UNIT2: PROJECT

Evaluating the Usability of CPOE (Computerize Provider Order Entry) And Doctors Bench Order Entry Module Functioning Of HIS by Doctors in OPD

CHAPTER 1: BACKGROUND AND JUSTIFICATION

1.1Introduction

This document is a report on the research study of user perception on the effectiveness, efficiency, satisfaction, challenges and training of Computerized Physician Order Entry (CPOE) / Doctors Work Bench Order Entry in Jaypee Hospital Noida. The study mainly focused on evaluating the Usability of CPOE (Computerize Provider Order Entry)/ Doctors Bench Order Entry Module Functioning in HIS by Doctors In OPD**.** The document is organized in chapters and sections, such that, chapter one gives the study background, problem statement, study purpose and specific objectives. Chapter two provides relevant literature and is followed by chapter three which reports the methodology used including study design, sample selection, instruments, data collection process, data management and study limitations. Chapter four outlines results of the study. Discussion of the results, conclusions and recommendations, form parts of chapter five which is also the last chapter of the document. All the study instruments and letters of permission are included in the appendices.

1.2 Study Background

Most medical order like medications, other treatments and investigations are still paper-based, which means it is difficult to be used properly and consistently coordinate care, routinely measure quality, or reduce medical errors due to challenges with storage and difficulties to easily access or retrieve information when it's needed. A Computerized physician Order Entry (CPOE)/ Doctors Bench Order Entry allows providers (i.e. physicians, nurses, and pharmacists) to order medications, other treatments and investigations electronically, creating legible, complete, correct, and rapidly actionable orders. Potential benefits to CPOE include fewer medication errors, better quality of care (e.g. shorter medication turnaround times), and fewer adverse drug events.

"The CPOE & EMR systems quickly become the central nervous system of the hospital and ambulatory environment it is difficult to function without it. The hospital administrators need to expect and prepare for this transition so that when a disaster occurs, they have a backup system or at least, a plan of action. Included in this information are Pharmacy Ordering, Investigation Ordering, Blood Request, Appointment Scheduling, Retrieval of Investigation Report, Cross Consultation, Progress notes, problems, medications, and vital signs. The Jaypee Hospital want to implement CPOE completely so that it become a part of EMR system which will implement very soon.

1.3 Problem Statement

Computerized Provider Order Entry (CPOE) allows providers (i.e. physicians, nurses, and pharmacists) to order medications, other treatments and investigations electronically, creating legible, complete, correct, and rapidly actionable orders. Potential benefits to CPOE include fewer medication errors, better quality of care (e.g. shorter medication turnaround times), and fewer adverse drug events. Doctors Bench Order Entry is same as CPOE but it is only for Doctors.

However, despite these potential benefits, implementations of CPOE systems often fail. In the past decade, CPOE research has focused on why these implementations fail and how best to implement these systems. Barriers to widespread CPOE implementation have been recognized as organizational as well as technical. Few examine the role that human factors, a known technical barrier, plays in successful or failed implementations.

Very few CPOE systems are able to both satisfy users and improve the quality and safety of patient care; poor system usability often leads to user frustration and confusion, distrust in the system, and its eventual rejection.

In current practice at OPD of Jaypee Hospital, providers write medication orders on paper order sheets. They have CPOE and Doctors Bench Order Entry Module in HIS. But for any medication and investigation order, Doctors barely uses it. So this study is focus on Evaluation of Usability of CPOE (Computerize Provider Order Entry) And Doctors Bench Order Entry Module of HIS By Doctors in OPD and to what extent usability is there. The Study also aims to highlight the reasons and issues for barely using CPOE and Doctors Bench Order Entry.

1.4 Purpose of the Study

The study focuses on evaluating the usability of computerized physician Order Entry (CPOE)/ Doctors Bench Order Entry (DBOE) Module of HIS by doctors in OPD. The purpose of this study is to identify the gaps, perform a root cause analysis of scarce usage of CPOE by doctors in OPD. Based on these, recommendations would be provided, to increase the usability of CPOE by the doctors in OPD.

1.5 Objectives

General:

To evaluate the usability of CPOE and DBOE module functioning of HIS in OPD and perform root cause analysis..

Specific:

- To identify the important key stakeholders of CPOE, Doctors Bench Order Entry Modules
- To study the CPOE, Doctors Bench Order Entry Modules Features and Functionality.
- To evaluate the training given to doctors.
- To understand the perceptions of the doctors regarding the use of CPOE and DBOE and their existing practice in using these modules.

- To study and analyze the major reasons for scarce use of CPOE, Doctors Bench Order Entry Modules by Doctors.

1.6 Significance of the Study

Using CPOE in such a multi speciality hospital will increase the quality of the services to be provided to the patients. The current study is proposed to identify the barriers in using CPOE and putforth solutions that will mitigate these barriers in the the OPD department of Jaypee Hospital at, Jaypee Hospital as a super-specialty hospital with advanced healthcare facilities, the latest diagnostic services and state-of-the-art technology focused on medical specialties that meet the healthcare needs of the population. The results from this study will provide insight for implementing CPOE at other branches successfully.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

Computerized physician order entry (CPOE) is the process of a medical professional entering medication orders or other physician instructions electronically instead of on paper charts. A primary benefit of CPOE is that it can help reduce errors related to poor handwriting or transcription of medication orders.

CPOE systems are designed to mimic the workflow of the paper chart. The time and money it takes to install a CPOE system are two commonly cited drawbacks of the technology. CPOE adoption has been slow due to provider resistance, largely because of the disruption to existing care settings and the cost of implementation, which includes CPOE training. The cost of a CPOE implementation can be in the millions, and yearly maintenance can add hundreds of thousands to that total. A CPOE implementation can be rolled out to different departments gradually, sometimes taking years to complete. The Healthcare Information and Management Systems Society's online CPOE resource lists six steps needed for an ideal CPOE implementation: initiating, planning, executing, monitoring and controlling, transitioning to operations, and optimization and maintenance after the installation is completed.

CPOE systems are often used in tandem with e-prescribing systems, which alert physicians and clinicians to a particular patient's drug allergies and current medications. CPOE systems were formerly frequently sold as standalone systems. Many electronic health record products now come equipped with CPOE modules that allow treating physicians to enter patient data electronically into text boxes and drop-down menus, rather than handwriting notes.

CPOE implementation is a major requirement for stage 1 meaningful use eligibility. According to the provisions of the Healthcare Information Technology for Economic and Clinical Health (HITECH) Act, healthcare organizations that achieved meaningful use compliance by 2011 were eligible to receive incentive payments; those who have failed to achieve that standard by 2015 may incur financial penalties. Meaningful use stage 1 criteria specify that 30% of patients must have their medication orders entered via CPOE. Meaningful use stage 2 expanded those criteria to mandate that the same percentage of radiology procedures be entered by CPOE (1).

The U.S. health care system faces enormous cost, quality, and safety challenges. The Nation spent 1 $1.9 trillion on health care in 2004 and several well-known studies report gaps in the quality of care that Americans receive. Health information technology (health IT) has great potential to improve health care; however there is limited evidence about what impact health IT has on health care quality and costs. This lack of evidence is concerning given the significant resources needed to adopt and implement health IT systems. Further, implementing these systems has proven to be more difficult than expected, with organizations still learning how best to approach implementation. As an example of the quality gaps in U.S. health care, a growing body of literature shows that many patients experience adverse drug events (ADEs) or unanticipated injuries resulting from medication interventions across different care settings. Existing research estimates that 6.5 ADEs occur for every 100 hospital admissions, two ADEs per resident-month in nursing homes and three ADEs per 100 ambulatory patients. The Institute of Medicine estimates 98,000 deaths per year and many 8 more injuries resulting from medical errors, making patient safety a top priority in U.S. health care (4).

2.2 Benefits of the computerized physician Order Entry (CPOE)/ Doctors Bench Order Entry

Computerized provider order entry (CPOE) is an application that allows health care providers to use a computer to directly enter medical orders electronically in inpatient and ambulatory settings, replacing the more traditional order methods of paper, verbal, telephone, and fax. CPOE systems can allow providers to electronically enter medication orders as well as laboratory, admission, radiology, referral, and procedure orders. Strictly defined, it is the process by which providers directly enter medical orders into a computer application.

While CPOE on its own has an impact on safety by ensuring legible orders, it is the addition of clinical decision support systems (CDSS) that drives the value of this functionality. This key component gives providers real-time support on a range of diagnosis- and treatment-related information as well as tools aimed at improving patient care and reducing medical errors and costs. In addition, decision support may add rules to check for drug-drug interactions, allergies, medication contraindications, and renal- and weight-based dosing.

CPOE systems with clinical decision support systems can improve medication safety and quality of care as well as compliance with guidelines and the efficiency of hospital workflow; they can also reduce the cost of care(2).

A study published in 2013 in the Journal of the American Medical Informatics Association shed light on some CPOE benefits. The study found that processing a prescription medication order through CPOE lowered the chance of an error occurring on that order by 48%. The authors of the study projected, based on the degree of CPOE implementation when the study was conducted, that 17.4 million medical errors could be avoided in the U.S. in one year(1).

The Center for Information Technology Leadership in their report “Patient Safety in the Physician's Office: Assessing the Value of Ambulatory CPOE” sheds light on the potential clinical, financial, and organizational benefits that would result from the adoption of ambulatory computerized provider order entry systems (ACPOE) by California medical groups.

According to the report: (1) Adoption of sophisticated ACPOE systems in California would save more than $3.2 billion and prevent 249,000 adverse drug events (ADEs) annually. (2) ACPOE would also avert 156,000 office visits and 23,000 hospital admissions. (3) ACPOE would save the average provider nearly $29,000 and prevent nine ADEs each year. (4) Physicians bear the bulk of ACPOE implementation costs -- approximately $29,000 in the first year for a 25-provider practice -- but don't receive a proportionate share of the annual cost savings. The Study findings suggest that society would clearly benefit from widespread adoption of ACPOE systems. However, in the current payment environment, other health care stakeholders -- not providers -- realize most of the financial benefits from ACPOE. The systems are expensive to implement and maintain, suggesting the need for public debate on who finances this valuable technology (3)(4)(5).

According to Agency Center for Information Technology Leadership (CITL) AHRQ National Resource Center for Health Information Technology in their report key component provides clinicians with real-time support on a range of diagnosis- and treatment-related information and tools aimed at improving patient care and reducing medical errors and costs. In addition, decision support may add rules to check for drug/drug interactions, allergies, medication contraindications, and renal- and weight-based dosing. CPOE systems with clinical decision support systems can improve medication safety and quality of care as well as improve compliance with guidelines, improve the efficiency of hospital workflow and reduce cost of care. However, the majority of this existing evidence demonstrating the value of CPOE comes from hospital settings, and thus much less is known about the value of ambulatory CPOE. A growing proportion of care is being delivered in outpatient settings, with 910 million outpatient visits in 2004. Some experts believe that using CPOE in ambulatory settings could have a profound impact on cost and quality of care. A 2005 study reported a prescribing error rate of 7.6 24 per 100 of outpatient prescriptions, substantially higher than reported rates of 0.4 to 5 per 100 25 inpatient orders. If computerized prescribing is as effective in the outpatient setting as the inpatient setting, this presents a huge opportunity to have a positive impact on cost and quality of care (6).

2.3 Challenges of computerized physician Order Entry (CPOE)/ Doctors Bench Order Entry

The CPOE raises issues of confidentiality, privacy and security. Advances in information technology, the need to cut costs of health care delivery, and consumer demands for more effective and better-quality care have all hastened the exploration of alternatives for storing and retrieving health care information, and yet the implementation of CPOE faces several technical challenges. Compared to other industries, the acceptance of information technology in health care has been slow. Compounding this is the limited experience available in deploying applications, which has resulted in a steeper learning curve for health care organizations (5)(6).

A number of problems have been identified with the CPOE, including increased provider time, computer down time, lack of standards, and threats to confidentiality. Studies at (some) institutions in America have shown that electronic order entry increases the amount of time physicians spend entering a prescription.

In a study by Powner(10),A Global Perspective August 2008. Healthcare Information and Management Systems Society (HIMSS) , physician residents required 44 more minutes per day using computerized order entry, although internal medicine residents using the order entry gained half of that time back in cost savings elsewhere. Furthermore, the study showed a high overall rate of user satisfaction of the system. Developing means to streamline order entry for residents are now a priority (7) (8) (9).

During the HRSA webinar, “Meaningfully Using Computerized Order Entry: Experience From Two Safety Net Providers,” presenters from Golden Valley Health Center and Mitchell County Hospital provided insight into best approaches and practices for CPOE implementation.

During his portion of the webinar, David Simenson, MD, of Golden Valley Health Center emphasized that the benefits of CPOE will only be realized after recognizing the various challenges that adopting the technology present. The challenges: To begin, using CPOE entails more than simply using a software solution but a combination of hardware and software that some clinicians will have had limited experience with.

Basic computer competence is the cornerstone on which CPOE adoption is built. Secondly, provider productivity will be impacted when implementing the CPOE. In order to providers to learn the system and care for their patients, their schedules must account for sufficient time commitment to EHR training, meaning reduced patient schedules. Gradually, over a two-month period, providers can expect to increase their patient workloads. Thirdly, users must become familiar with the CPOE system and be trained accordingly. No less than three training sessions need to take place: two held by the system vendors and a third by a superuser within the clinic. Training should stress the usability and efficiency of built-in features (e.g., radio buttons, checkboxes) that will allow providers, especially those with limited or poor typing skills, to use the system smoothly and effectively.

Although natural language processing appears to provide a stopgap, it does so at the risk of discrete and accessible structured data. Lastly, a premium must be placed on consistently. CPOE users require written processes, training, and even retraining to ensure that processes are not forgotten, ignored, or learned incorrectly(10)(11).

In the article, "Overcoming Barriers to Adopting and Implementing Computerized Physician Order Entry Systems in U.S. Hospitals" (Health Affairs, July/August 2004), researchers from Harvard Medical School and Brigham and Women's Hospital, with support from The Commonwealth Fund, interviewed top management officials at U.S. hospitals to identify the barriers hospitals face in adopting and implementing CPOE systems and strategies for overcoming these barriers. According to interviewer Physician and organizational resistance was one of the top barriers cited in the interviews.

Physicians seemed to believe that CPOE systems would create more work and that the traditional paper-based ordering method was faster. Some hospitals abandoned implementation plans, fearing that physician resistance could escalate to a point of "physician rebellion." The interviewers also noted low levels of computer literacy among some physicians and a lack of user involvement in implementation processes.

A Global Perspective August 2008. Healthcare Information and Management Systems Society (HIMSS).To overcome this resistance, the study points to several strategies, including establishing strong, committed hospital leadership that is facile at managing change, identifying physicians who will champion CPOE and encourage other physicians, addressing workflow concerns by providing training, and involving younger, computer-savvy physicians in the implementation process. Another barrier to implementation and adoption is the high cost of implementing CPOE. Prior studies have estimated that the cost of CPOE has ranged from $3 million to $10 million, depending on hospital size and level of existing IT infrastructure. The high costs, coupled with the uncertainties associated with CPOE projects, could lead hospital officials to focus on competing, visible priorities, like building a new hospital wing. To offset this financial challenge, the interviewees in the study suggest realigning the hospital's priorities to focus on patient safety. By making patient safety part of the mission, hospitals can turn CPOE into mission-critical projects. Another strategy is to leverage external influences, like public outcry against medical errors and the threat of market share loss, as motivators in the push to adopt CPOE. Additionally, hospitals can point to the improved efficiencies that successful CPOE implementations can bring to institutions (12).

According to the report “Can Utilizing a Computerized Provider Order Entry (CPOE) System Prevent Hospital Medical Errors and Adverse Drug Events?” given by Krista Charles et al (13) published in research journal perspective in health information management the Computerized provider order entry (CPOE) systems allow physicians to prescribe patient services electronically. In hospitals, CPOE essentially eliminates the need for handwritten paper orders and achieves cost savings through increased efficiency. The purpose of this research study was to examine the benefits of and barriers to CPOE adoption in hospitals to determine the effects on medical errors and adverse drug events (ADEs) and examine cost and savings associated with the implementation of this newly mandated technology.

This study followed a methodology using the basic principles of a systematic review and referenced 50 sources. CPOE systems in hospitals were found to be capable of reducing medical errors and ADEs, especially when CPOE systems are bundled with clinical decision support systems designed to alert physicians and other healthcare providers of pending lab or medical errors. However, CPOE systems face major barriers associated with adoption in a hospital system, mainly high implementation costs and physicians' resistance to change (13).

2.4 Introduction and Use of Doctors Bench Order Entry (HIS)

Jaypee Hospital at Noida is the flagship hospital of the Jaypee Group, which heralds the group's noble intention to enter the healthcare space. This hospital has been planned and designed as a 1200 bedded tertiary care multi-specialty facility and has commissioned 525 beds in the first phase. In jaypee hospital the HIS was implements around 9 months before in March 2014. HIS was implemented by ICT Health Bangalore. ICT Health helps to provide more value to customers through end-to-end administrative and clinical process automation and extensive adoption of collaboration technologies for enhanced business agility. The Software they implement is HINAI. HINAI is certified as a Complete EHR as per ONC 2014 standards. The HINAI system enables a holistic view across the continuum of care, helping healthcare providers streamline operations to achieve increased efficiency.

CHAPTER 3: METHODOLOGY

3.1 Type of Research Study

Exploratory and descriptive study involving analysis of major key stakeholders involved in using the CPOE, Doctors Bench Order Entry Modules. The study used both quantitative and qualitative research methods. The study used qualitative research methods because it mainly focused at obtaining subjective experiences and observed behaviors of CPOE/Doctors Bench Order Entry Modules users.

3.2 Study Place, Population and Sampling

Location- Jaypee Hospital Noida.

Sampling – Convenient and Purposive Method. One doctor from one OPD, The doctor selected was based on availability.

Sample Population – All Doctors in OPD.

Sample size is 20 doctors.

3.3 Data Collection Tools

The study used

- **Primary Data Collection**
- Questionnaire
- Informal interviews
- Direct observation
- In-depth interviews

- **Secondary Data Collection**

- Internal organization records
- Training Manuals of CPOE & Doctors Bench Order Entry

(Given in appendix at last)

3.4 Key Research Questions

1) **Do Doctors use CPOE?**
2) **What is the extent of usage?**
3) **Why do they prefer to use CPOE?**
4) **If they do not use, what is the reason behind it?**

3.5 Expected Outcome

By the end of the study the following will be highlighted:-

- Extent of usage of CPOE and DBOE
- An understanding of their perceptions
- Root cause for less usage

3.6 Study Limitations

- Sample Size is small because it is difficult to cover all Doctors due to busy schedule of doctors.
- Shortage of time.

CHAPTER 4: RESULTS

4.1 Description of Participants

The study had twenty participants. All Participants were experience Doctors providing the ambulatory care at OPD of Jaypee Hospital. The study took place in OPD of Jaypee Hospital. The study had both male and female participants of age between 25 to over 41 year. Table 1 and figure 1 below summarize the demographic data of the study participants.

AGE	NO. OF PARTICIPENT
26-30 yrs	4
30-35yrs	2
36-40 yrs	5
Over 41 yrs	9

Table 1: Age of users of CPOE

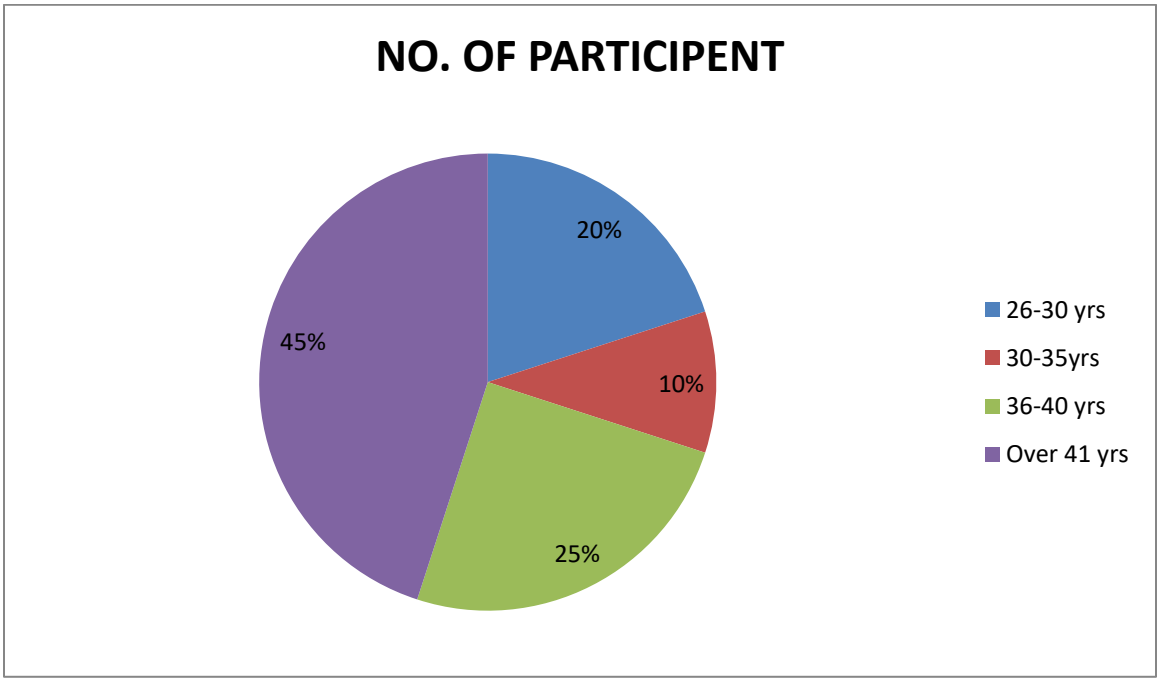

Figure: 1

According to above analysis 45% of doctors are above 41 year of age 25% of doctors are fall under 36 to 40 year of age 20% under 26% to 30 year and 10% doctors are between 30 to 35 year of age it reveals that most of doctors of OPD is between 30 year to over 41year age. From the beginning of their practice they are using traditional prescription method.

4.2 Experience of Users

Participants in the study had different experiences on the HIS use; some had used the system longer than others. Table 2, summarizes the period participants have used HIS and paper based records.

	Period of using HIS	Period of using Paper based Prescription
Never	**10**	**0**
Less than 6 months	**8**	**0**
6-12 months	**2**	**0**
13-18 months	**0**	**0**
9-24 months	**0**	**0**
Many years	**0**	**20**

Table 2: Experience of Users

Majority of participants (100%) had been using paper based prescription from many years. As I mentioned above most of the doctors are between 30 to more than 40 year of age, they are practicing from many years and for prescription they are using paper .The study also revealed that some of the participants had used the HIS before but for less than 6 months. Maximum doctors have not been used it before. This is one of the major reasons for doctors reluctant towards using it.

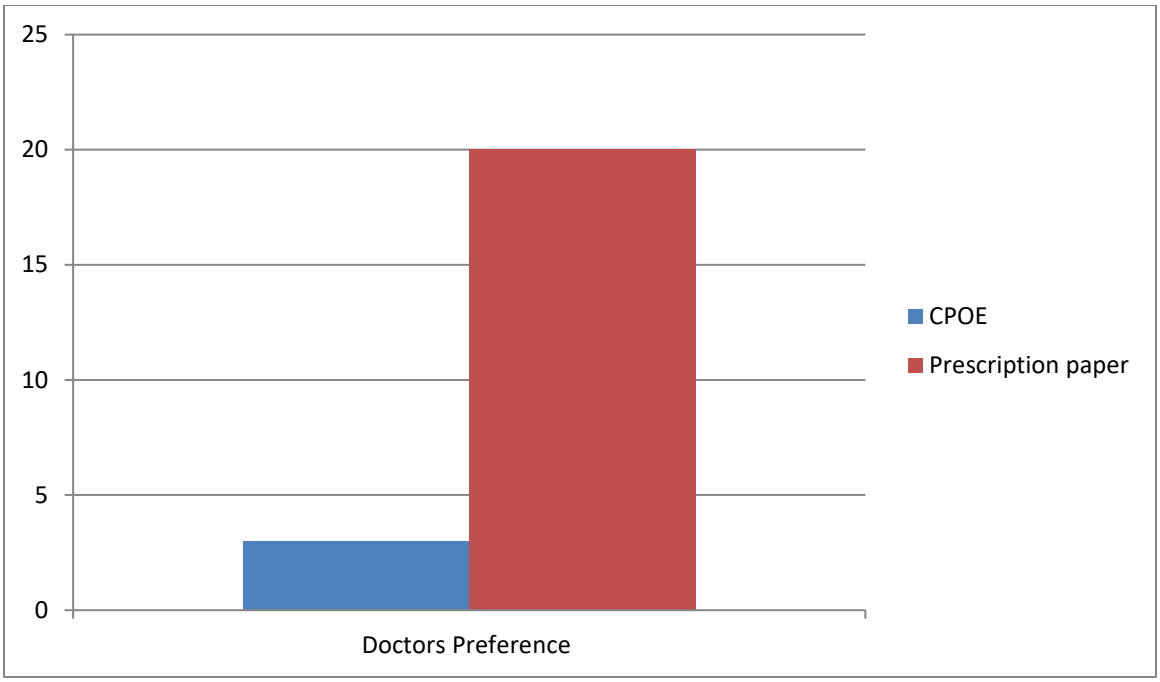

Fig: 2 Doctors preference (CPOE Vs Prescription Paper)

It is shown in above figure that out of 20 doctors 8 have worked in HIS from less than 6 month and 20 used paper from many years. The study says all doctors prefer to use paper based prescription than electronic prescription. Some of them are willing to use Electronic prescription but they are comfortable with traditional method. They feel in CPOE prescription based on dosage is complicated they found it easy in paper one.

4.3 Effectiveness and Efficiency of Doctors Work Bench Order Entry

The findings on effectiveness and efficiency on the electronic medical prescription were all subjective from Doctors. The study used perceptions of users to evaluate the effectiveness and efficiency of the CPOE system. CPOE effectiveness in this study is defined as the extent to which users felt the CPOE was able to produce good quality data, help improve quality of service delivery and user friendliness and satisfaction. CPOE efficiency is the ability of the CPOE to produce quick and satisfactory results this included accuracy, adequacy, timeliness, user-friendliness, availability and reliability.

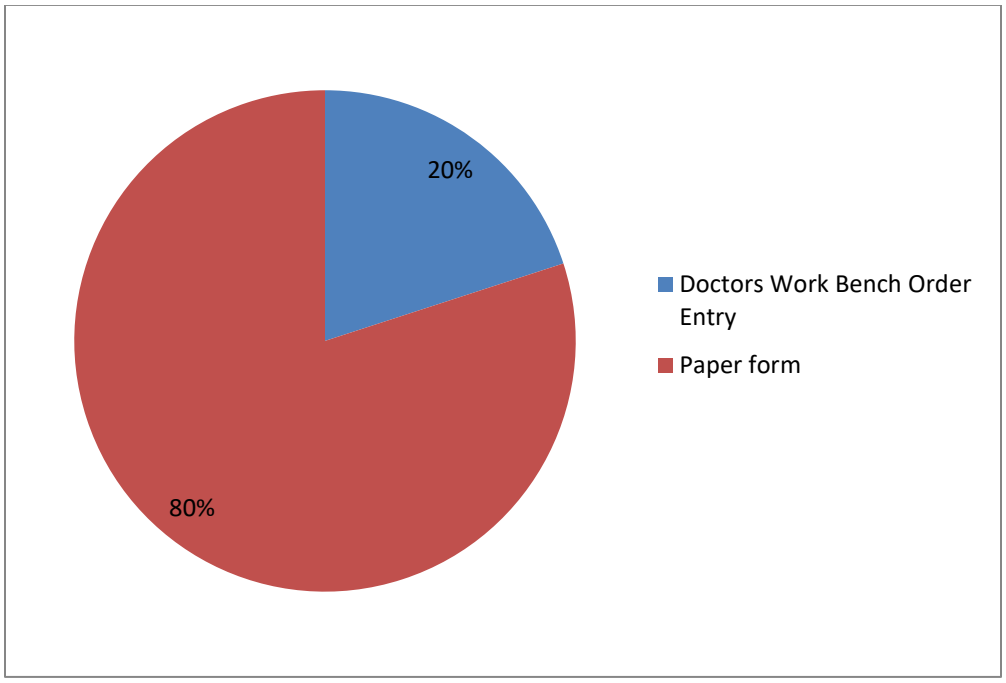

Fig 3: User Friendly System (Doctors Work Bench Order Entry Vs Paper Form)

According to this analysis 80% of doctors feel paper prescription is user friendly and 20% doctors have positive perception for HIS usage.

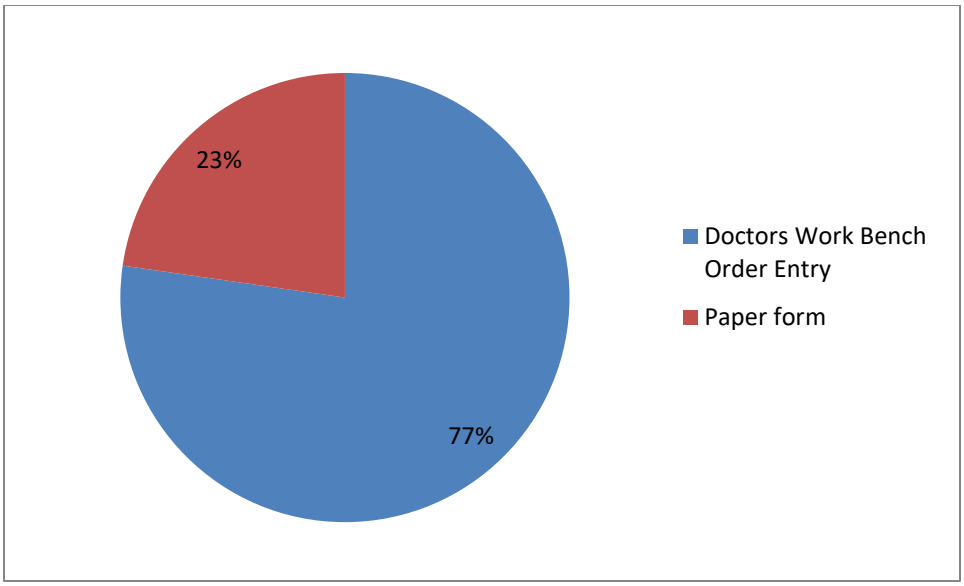

Fig 4: Time Consuming System (Doctors Work Bench Order Entry Vs Paper Form)

The above analysis says that 77% of doctors found DWBOE is time consuming system than paper based system and 20% of doctors feel paper based is time consuming. They feel if there is high foot fall of patient than DWBOE will not work.

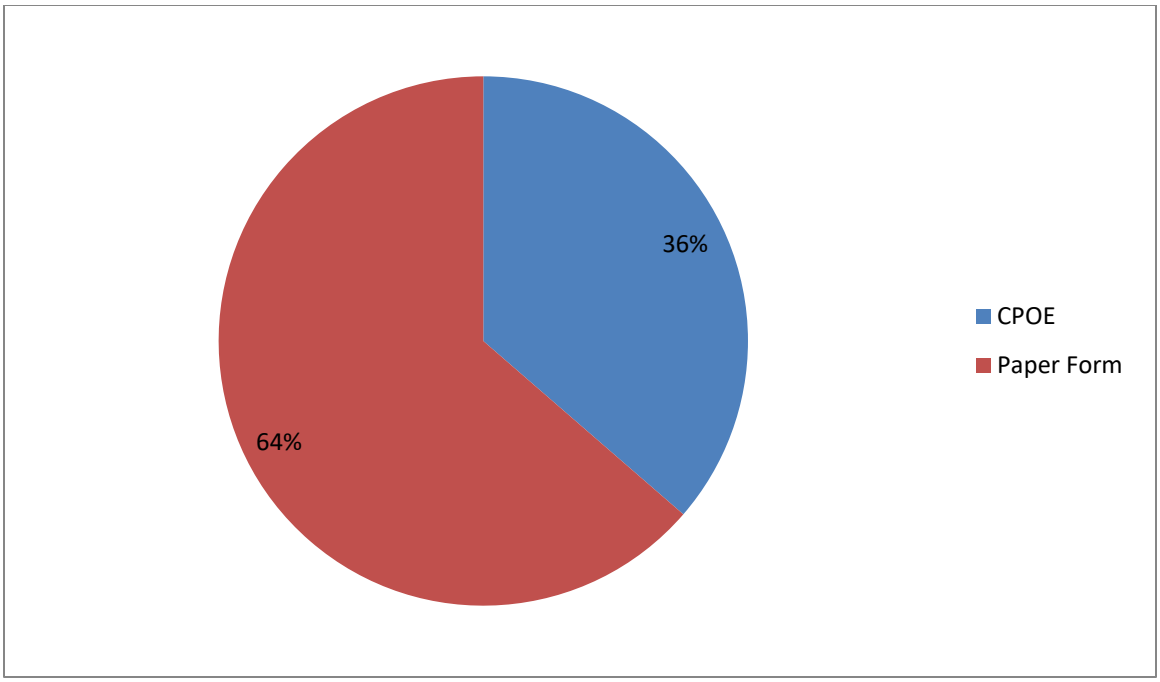

Fig 5: Faster System (CPOE Vs Paper Form)

The above figure 5 says that 64% of doctors feel paper based prescription is faster than CPOE and 36% doctors says CPOE can work fast.

According to study maximum doctors feel paper based prescription is faster and user friendly and less time consuming. They feel using CPOE can be produce quality service but it is ineffective in hospital with heavy foot fall. They said they are comfortable in using computer but they want ease in functionality. As they are partially satisfied so they found it less efficient and effective.

4.4 User Training

The training provided to users before introducing before HIS implement. The doctors Expressed that trainings to prepare users to use Doctors Work Bench Order Entry/CPOE are not well structured.

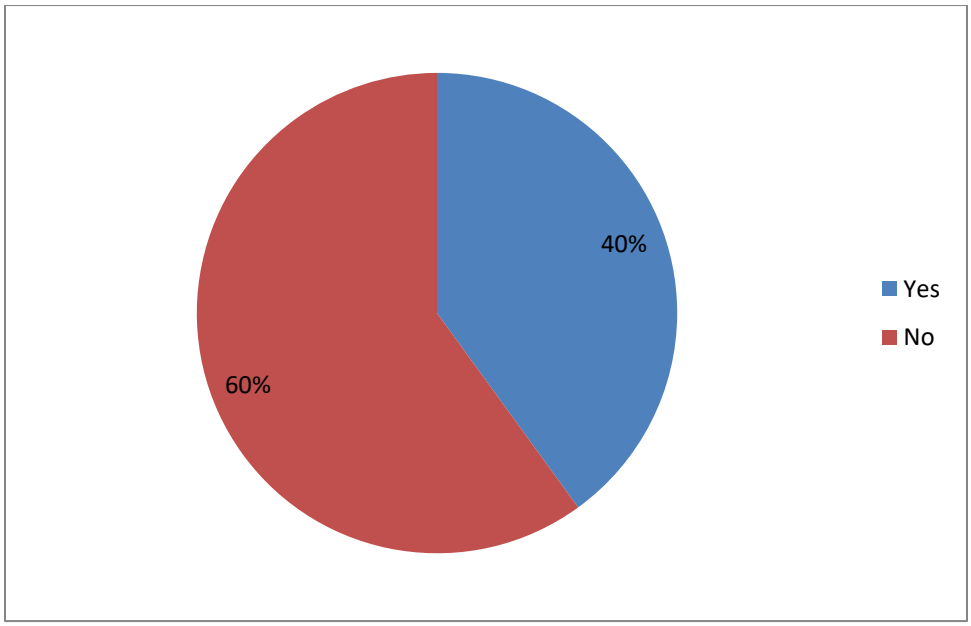

Fig 6: No. of Doctors Got proper training

60% of doctors said they did not get any training regarding CPOE usage. Some of the doctors don't know their login ID. 40% doctors got training but they are also not using it completely. They said they have complete IT support but even after that not using it completely.

Reasons provided for incomplete IT Training

- Doctors are not computer savvy
- Some of the functionality of this module is missing like print option after confirmation of pharmacy and investigation order. (given in fig 10,14 appendix)
- The module is not configured according to the need.
- The work flow of module is complicated and lengthy which need to be revised.
- Doctors have very busy schedule so follow up of training is difficult.
- They will train the doctors when 5.7.2 version will be given by software provider (ICT)

4.5 Challenges of Using EMR

This section summarizes users' responses with using Doctors Work Bench Order Entry and highlights challenges encountered when using it.

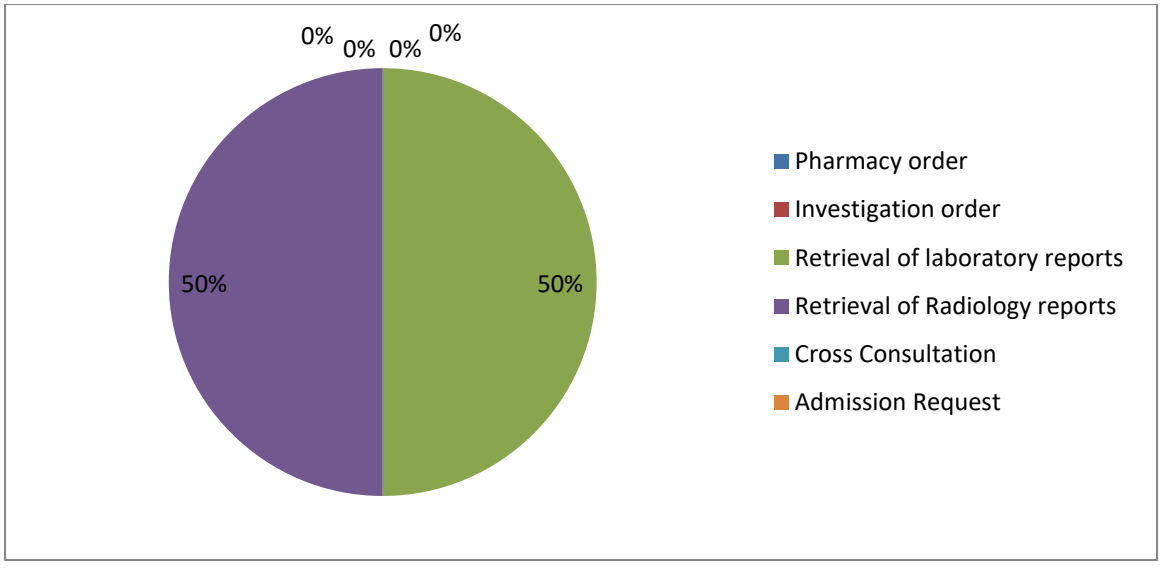

Fig7: Commonly using features of CPOE/ Doctors Work Bench Order Entry

According to this figure 50% of doctors using Doctors work bench order entry for retrieving of patient's lab report and radiology report. There is partially satisfactory response from user side. As given in above figure doctors are using CPOE/ Doctors work bench order module just for retrieval of data like to see patient laboratory investigations, Radiology investigation, doctors retrieve data through CPOE(HIS).

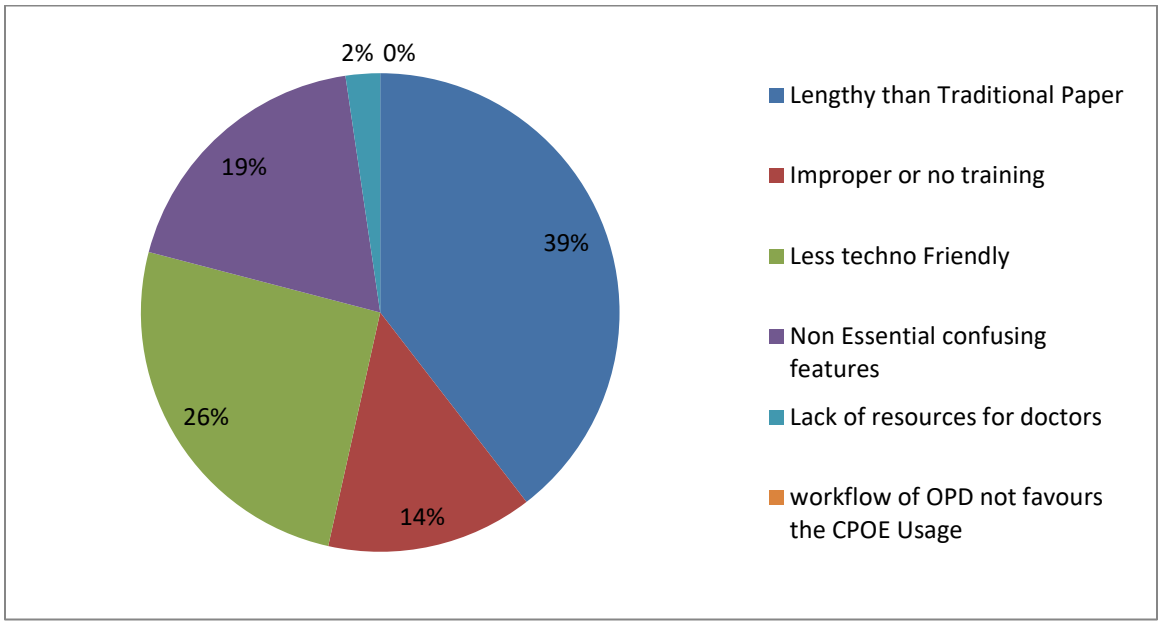

Fig: Reason for not using CPOE/ Doctors Work Bench Order Entry

This study reveals the reasons for not using CPOE by doctors. We found doctors maximum favor was towards the lengthiness of CPOE than traditional paper. . They felt him comfortable and easy in using Paper for prescription than Doctors work bench order entry. Doctors gave 14% favors to improper training and 26% to less techno friendly , 39% to lengthy than traditional paper, 26% to less techno friendly, 19% to nonessential confusing features and 2% to lack of recourses.

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CHAPTER 5: DISCUSSION

The above Findings show that most of the users are between 30 to above 41 age and they are less techno friendly. They are comfortable in using computer but not use to with it even after that they are using this module for retrieval of patient information. They are use to with using paper for prescription. They need vigorous training to make them comfortable in using Doctors work bench order entry/ CPOE. . They want to adapt CPOE but they have not got proper training. As this module need more configurations from the software provider side and they are doing it so with this reason training not given properly CPOE is not a technology, rather it is a design (or redesign) of clinical processes that integrates technology to optimize physician ordering of medications, laboratory tests, etc. At its core is an interactive decision support system that is based on rules that may be adapted by the hospital to include formularies and/or guidelines that assist physicians in their decision making.

This study is focus on Evaluation of Usability of CPOE (Computerize Physician Order Entry) And Doctors Bench Order Entry Module of HIS By Doctors in OPD and to what extent usability is there. The Study also aims to highlight the reasons and issues for barely using CPOE and Doctors Bench Order Entry. As we know for complete implementation of any software or modules of software gaps are very important to find out so that we can remove it completely. We know that officially the software in Jaypee hospital has been implemented but it need more work and training to make it user friendly. According to the study finding some doctors does not have their HIS Login ID, they doesn't feel it necessary and some doctors have their Login ID but they are not using it. This behavior of doctors shows that HIS for them is not so important. They are not willing to learn about it. Because of doctors tight schedule they won't be able to give time for training. Some doctors feel that recourses are lacking for them.

According to the study IT team are giving training and support to doctors in current running software but they also says that the software need some improvement and they will give complete training as software will get configured and improved. They said the improvement is in processing stage.

We found that software implementation is still in developing phase, 5.7.1 version of software has been implemented and the improved version will be implementing in future. No doubt users of OPD are not techno friendly but they are using this module for retrieving of patient information means they are partially using this module and we have to make them use it completely this is called change management which is very common in organization For that we will provide training to them.

CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

The study evaluates the usage of doctors work bench order entry by doctors in OPD. The significance of study is to find out the reasons and gaps of less usage of CPOE by doctors so that we can resolve it and implements it completely. The study says that doctors work bench order entry/CPOE is there but only for retrieval of patient information. The functionality for entry of patient data in CPOE module is lacking. We found the software is still in developing phase. In present running software have so many flaws which need to be improved and improvement is in processing phase. The reasons for incomplete implementation are also from doctors ends. They are less cooperative and they feel learning it is not priority.

The recommendations for complete implementation are as follow:

- Making Login ID should be mandatory for all doctors. As doctors are recruited in organization, login ID should be developed within 2 to 3 days
- During induction phase, doctors training for HIS should be given
- Organization should make it mandatory for doctors to use there HIS login ID
- Follow up class room training of HIS for doctors should be scheduled in every month and attendance for training of doctors should be made compulsory.
- HIS personnel should make a note of all the doctors are trained and are to be trained.
- HR should give doctor's information upon joining the hospital to the HIS department. So that their training can be scheduled.
- HIS department should give training to those doctors who are willing to take the training again.

CHAPTER 7: REFERENCE

1) Alex Delvecchio, Brain Eastwood,Computerized physician order entry(CPOE definition, Healthcare IT Glossary,,http://searchhealthit.techtarget.com/definition/computerized-physician-order-entry-CPOE

2) Centre for information technology leadership (CITL), AHRQ National Resourse center for..health information technology, http://healthit.ahrq.gov/key-topics/computerized-provider-order-entry

3) Douglas Johnston(M.T.S) Ericpan (M.D, M.Sc), Janice Walker (R.N, MBA), Black Ford Middleton, enter for information technology leadership," Patient safety in physician's office assessing the value of ambulatory CPOE, http://www.chcf.org/publications/2004/04/patient-safety-in-the-physicians-office--assessing-the-value-of-ambulatory-cpoe#ixzz3Z5tLlI00, April 2004, Pg 4,5

4) Richard Hillestad, James Bigelow, Anthony Bower, Federico Girosi, Roger Taylor, " Can Electronic Medical Record System Transform Healthcare? Potential Health Benefits, Saving andcosts,http://content.healthaffairs.org/content/24/5/1103.full http://www.chcf.org/publications/2004/04/patient-safety-in-the-physicians-office--assessing-the-value-of-ambulatory-cpoe#ixzz3Z5sf6Z7K, Health Affairs

5) http://healthit.ahrq.gov/sites/default/files/docs/page/Ambulatory%20CPOE%20Issue%20Paper.pdf

6) A Work Product of the HIMSS Enterprise Systems Steering Committee and the Global Enterprise Task Force. Electronic Health Records: A Global Perspective August 2008. Healthcare Information and Management Systems Society (HIMSS). [Accessed 23rd January 2009]. Available from: http://www.himss.org/asp/topics_ehr.asp.

7) Shortliffe EH. The evolution of healthcare records in the era of the internet. Med Info. 1998;98:1–8.

8) Computerized Physician Order Entry: Costs, Benefits and Challenges A Case Study Approach January 2003 Prepared by: Prepared for: {Computerized Physician Order Entry: Costs, Benefits and},EHRIncentivePrograms/downloads/1_CPOE_for_Medication_Orders.pdf,http://www.cms.gov/Regulations-and-Guidance

9) Carter M. Integrating electronic health records and patient privacy: possible benefits but real dangers. EMJA 2000;172:28–30.

(10)Powner DA. Health information technology: HHS is continuing efforts to define a national strategy. GAO-2006-346T; 2006.

(11) Kyle Murphy,PhD,Article in electronic healthrecord intelligence newsletter, "CPOE: Biggest challenges and best practices, https://ehrintelligence.com/2012/12/18/cpoe-biggest-challenges-and-best-practices/, 18 december 2012

(12)David Blunmenthal,M.D, Eric G. Poon, M.D,MPH,MPP,Tonushree Jaggie et al; Article in Common Wealth FunHealth Affairs; Overcoming Barrier to adopting and implementing CPOE in US Hospital http://www.commonwealthfund.org/publications/in-the-literature/2004/jul/overcoming-barriers-to-adopting-and-implementing-computerized-physician-order-entry-systems-in-u-s; 23 july 2004:18490

(13) Krista Charles, MS; Margaret Cannon, MS; Robert Hall, MS; and Alberto Coustasse, DrPH, MD, MBA, MPH, Online Research Journal Perspectives in health information Management ; http://perspectives.ahima.org/can-utilizing-a-computerized-provider-order-entry-cpoe-system-prevent-hospital-medical-errors-and-adverse-drug-events/#.VUZiBY6qqko

CHAPTER 8: APPENDIX

Appendix 1: QUESTIONNAIRE

User Name……. Employee Code……..

Gender…… Designation…….. Date of interview: …../…./2015

1) **Age :**
   a) **26-30 yrs**
   b) **30-35yrs**
   c) **36-40 yrs**
   d) **Over 41 yrs**

2) **How long have you worked in this Hospital?**
   a) **Less than 6 months**
   b) **6-12 months**
   c) **13-18 months**
   d) **19-24 months**
   e) **Above 24 months**

3) **How comfortable are you with using computer?**
   a) **Comfortable**
   b) **Less Comfortable**
   c) **Not Comfortable**

4) **Do you know about CPOE & Doctors Work Bench Order Entry Module running in HIS?**
   a) **Yes**
   b) **No**

5) **Have you got training in CPOE/ Doctors Work Bench Order Entry Module?**
   a) **Yes**
   b) **No**

6) **How trained you to use the CPOE system?**
   a) **No one**
   b) **Jaypee Hospital IT Staff**
   c) **Self trained**
   d) **By internet**
   e) **By other …….....**

7) **How adequately did the training prepare you to use the CPOE system?**
   a) **Fully prepared**
   b) **Mostly prepared**
   c) **Somewhat prepared**
   d) **Not at all prepared**
   e) **Not applicable – I was never trained**

8) **Did you get enough IT Team support after the training?**
   a) **No support**
   b) **Some support**
   c) **Full support**

9) **Are you using these modules frequently?**
   a) **Yes**
   b) **No**

10) **For order entry (pharmacy/investigations) you mostly use -**
   a) **Prescription paper**
   b) **HIS**

11) **Are you using CPOE & Doctors Work Bench Order Entry Module for-**
   a) **Entering the patient information**
   b) **Retrieving the patient information**

12) **Have you used HIS(CPOE) before?**
   a) **Yes**
   b) **No**

13) **How long have you been using the CPOE?**
   a) **Less than 6 months**
   b) **6-12 months**
   c) **13-18 months**
   d) **9-24 months**
   e) **Above 24 months**

14) **How long have you been using paper based medical records?**
   a)**Less than 6 months**
   b) **6-12 months**
   c) **13-18 months**
   d)**19-24 months**
   e) **Above 24 months**

15) **Which one is faster and easier to complete between the CPOE and Paper based records?**
   a) **CPOE**
   b) **Paper form**
   c) **Both**

16) Which system is more user friendly for entering and retrieving the patient's information more accurate?

a) **CPOE & Doctors Work Bench Order Entry Paper form**
b) **Both are about the same**

17) In functioning features of CPOE & Doctors Work Bench Order Entry Module frequently you are using-

a) **Pharmacy order**
b) **Investigation order**
c) **Retrieval of laboratory reports**
d) **Retrieval of Radiology reports**
e) **Cross Consultation**
f) **Admission Request**

18) CPOE /Doctors Work Bench Order Entry Module set system has all necessary features & tools you would need?

a) **Agree**
b) **Partially Agree**
c) **Disagree**

19) What are the major problems you face while using it and make you reluctant to using CPOE & Doctors Work Bench Order Entry Module in OPD?

a) **CPOE systems create more work than traditional paper**
b) **Selection of medication based on preset dosage and mostly it is not match with the desired dosage**
c) **System has nonessential, extra and confusing features**
d) **Less techno friendly**
e) **Improper and incomplete training**
f) **It will take more time than hand written prescription**
g) **Any other reasons you feel so …….**

20) Time consuming system?

a) **CPOE/Doctors Work Bench Order Entry**
b) **Paper prescription**

21) Overall, are you satisfied with the EMR system?

a) **Always Satisfied**
b) **Mostly satisfied**
c) **Somewhat satisfied**
d) **Not at all satisfied**

Please explain your answer above……

Appendix 2: CPOE/DOCTORS WORK BENCH MODULE OF HIS

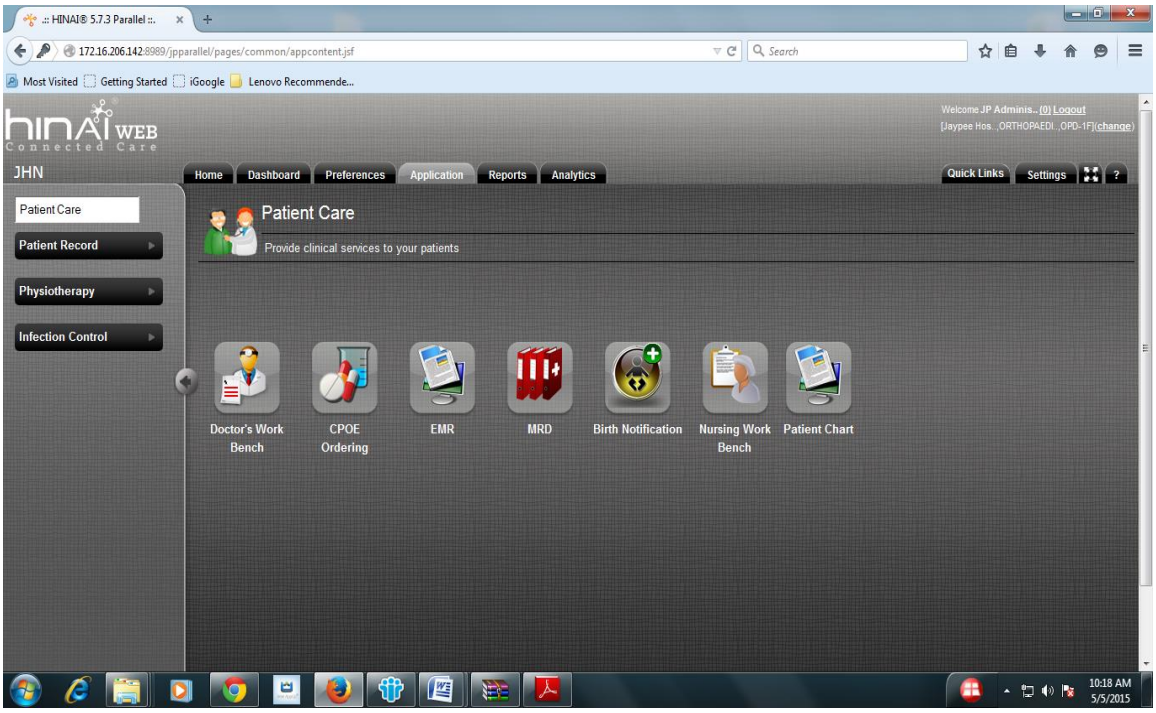


Fig 9

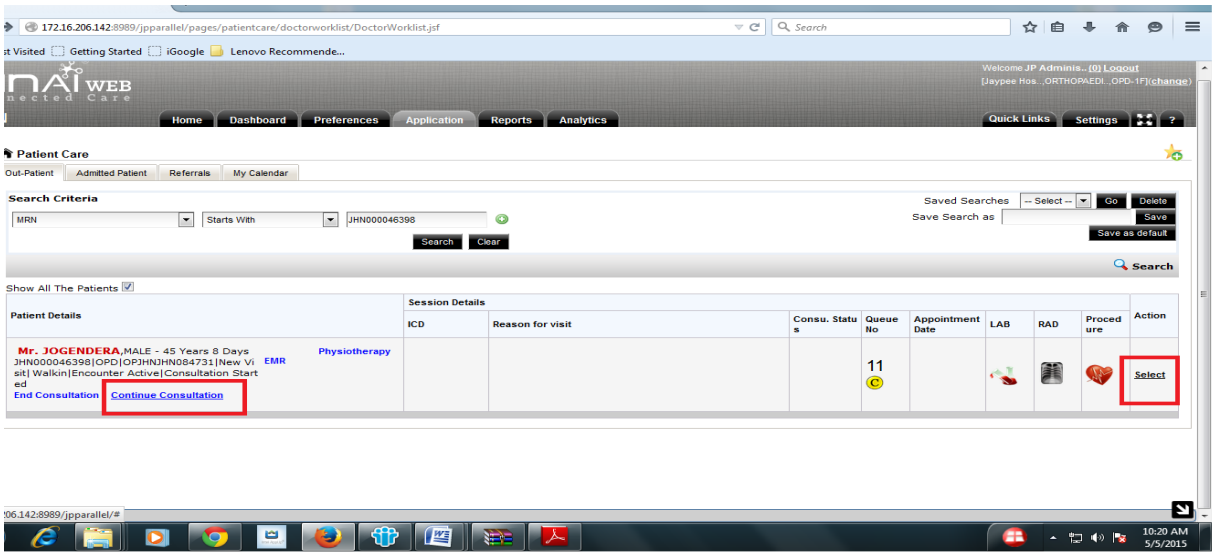
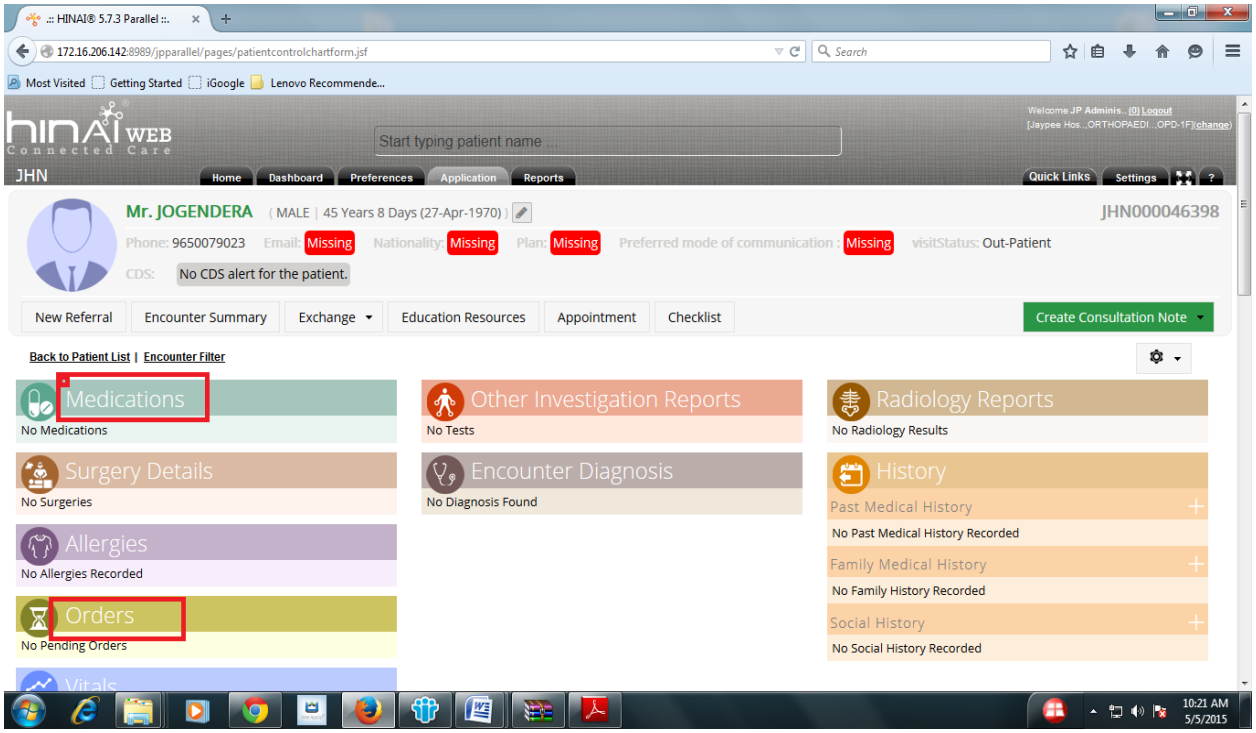


Fig 10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JHN
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New Referral Encounter Summary Exchange Education Resources Appointment Checklist
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Back to Patient List | Encounter Filter
Medications
No Medications
Other Investigation Reports
No Tests
Radiology Reports
No Radiology Results
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Encounter Diagnosis
No Diagnosis Found
History
Past Medical History
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Family Medical History
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Social History
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Vitals
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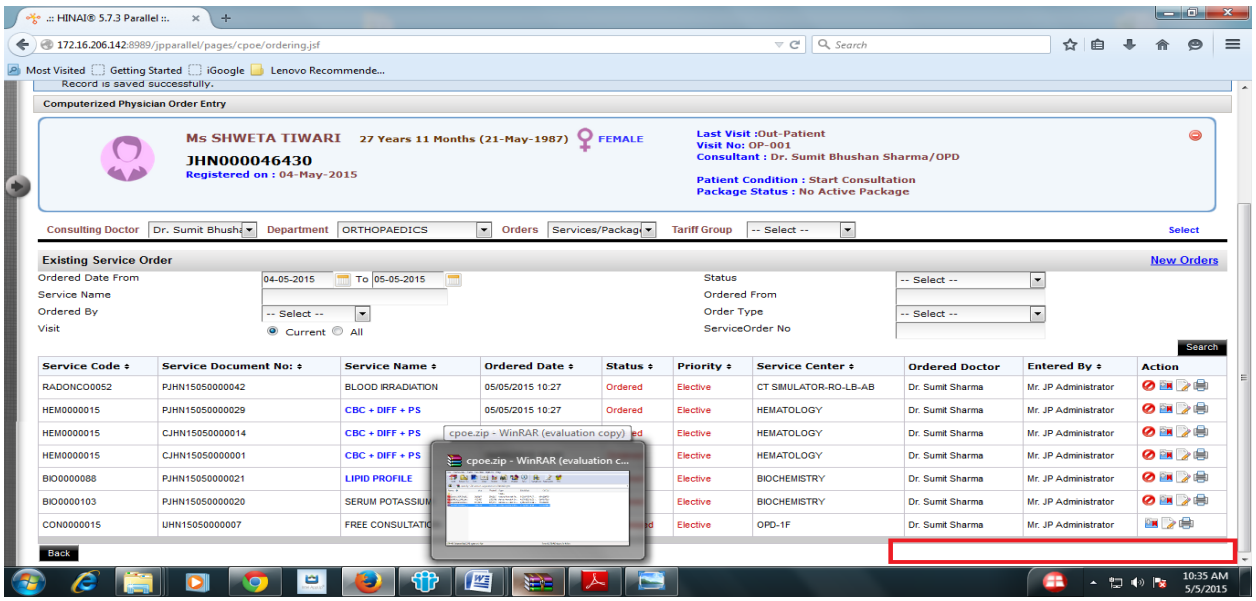
Fig 11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Record is saved successfully.
Computerized Physician Order Entry
Ms SHWETA TIWARI 27 Years 11 Months (21-May-1987) FEMALE
JHN000046430
Registered on : 04-May-2015
Last Visit :Out-Patient
Visit No: OP-001
Consultant : Dr. Sumit Bhushan Sharma/OPD
Patient Condition : Start Consultation
Package Status : No Active Package
Consulting Doctor Dr. Sumit Bhush Department ORTHOPAEDICS Orders Services/Packag Tariff Group -- Select -- Select
Existing Service Order
New Orders
Ordered Date From 04-05-2015 To 05-05-2015
Service Name
Ordered By -- Select --
Visit Current All
Status -- Select --
Ordered From
Order Type -- Select --
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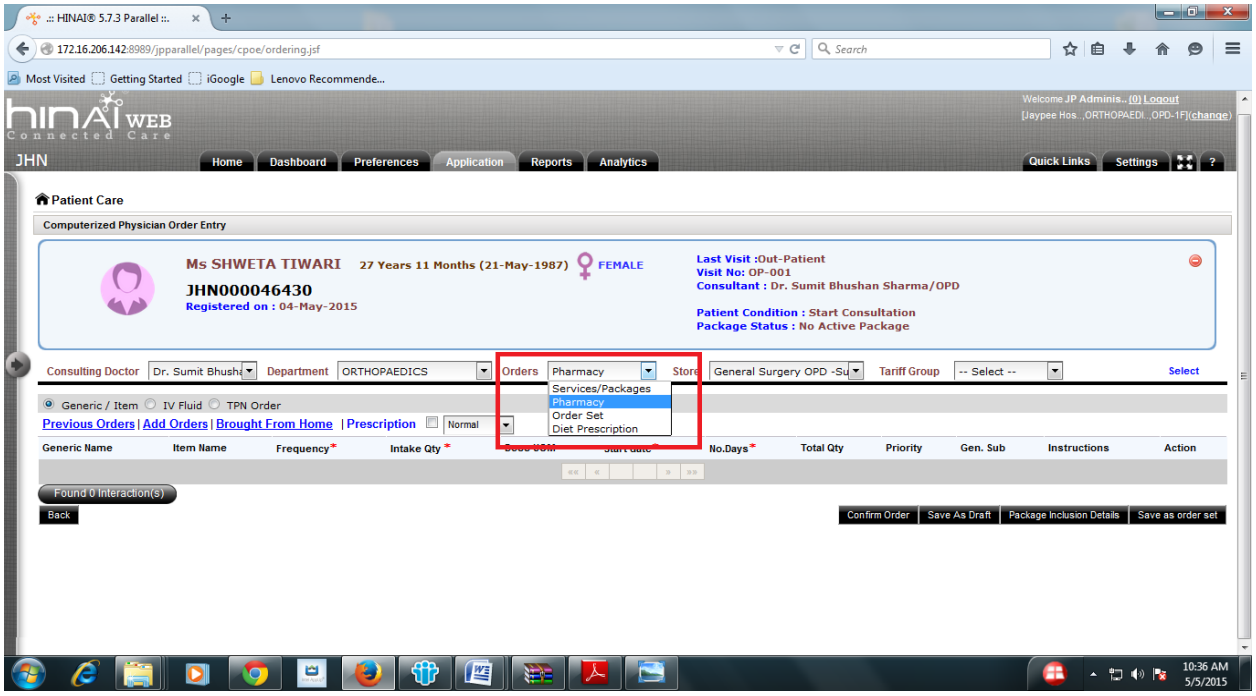
Fig 12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JHN
Home
Dashboard
Preferences
Application
Reports
Analytics
Quick Links
Settings
Patient Care
Computerized Physician Order Entry
Ms SHWETA TIWARI
27 Years 11 Months (21-May-1987)
FEMALE
JHN000046430
Registered on : 04-May-2015
Last Visit :Out-Patient
Visit No: OP-001
Consultant : Dr. Sumit Bhushan Sharma/OPD
Patient Condition : Start Consultation
Package Status : No Active Package
Consulting Doctor
Dr. Sumit Bhush
Department
ORTHOPAEDICS
Orders
Pharmacy
Services/Packages
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-- Select --
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Generic / Item
IV Fluid
TPN Order
Previous Orders | Add Orders | Brought From Home | Prescription
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Item Name
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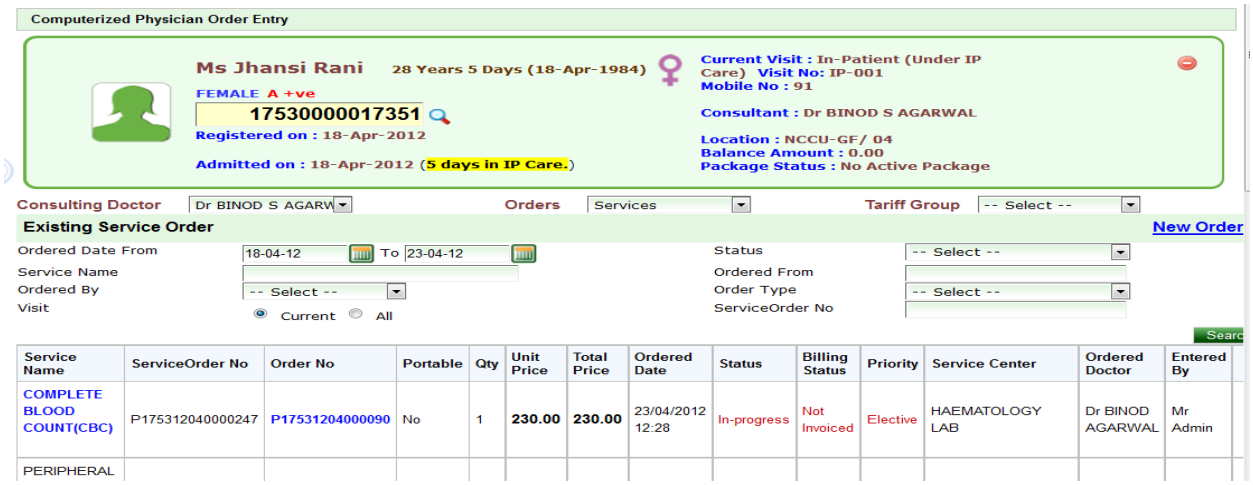
Fig 13


Computerized Physician Order Entry
Ms Jhansi Rani
28 Years 5 Days (18-Apr-1984)
FEMALE A +ve
17530000017351
Registered on : 18-Apr-2012
Admitted on : 18-Apr-2012 (5 days in IP Care.)
Current Visit : In-Patient (Under IP Care) Visit No: IP-001
Mobile No : 91
Consultant : Dr BINOD S AGARWAL
Location : NCCU-GF/ 04
Balance Amount : 0.00
Package Status : No Active Package
Consulting Doctor
Dr BINOD S AGARW
Orders
Services
Tariff Group
-- Select --
Existing Service Order
New Order
Ordered Date From
18-04-12
To
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Service Name
Ordered By
-- Select --
Visit
Current
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-- Select --
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Elective
HAEMATOLOGY LAB
Dr BINOD AGARWAL
Mr Admin
PERIPHERAL

Fig 14

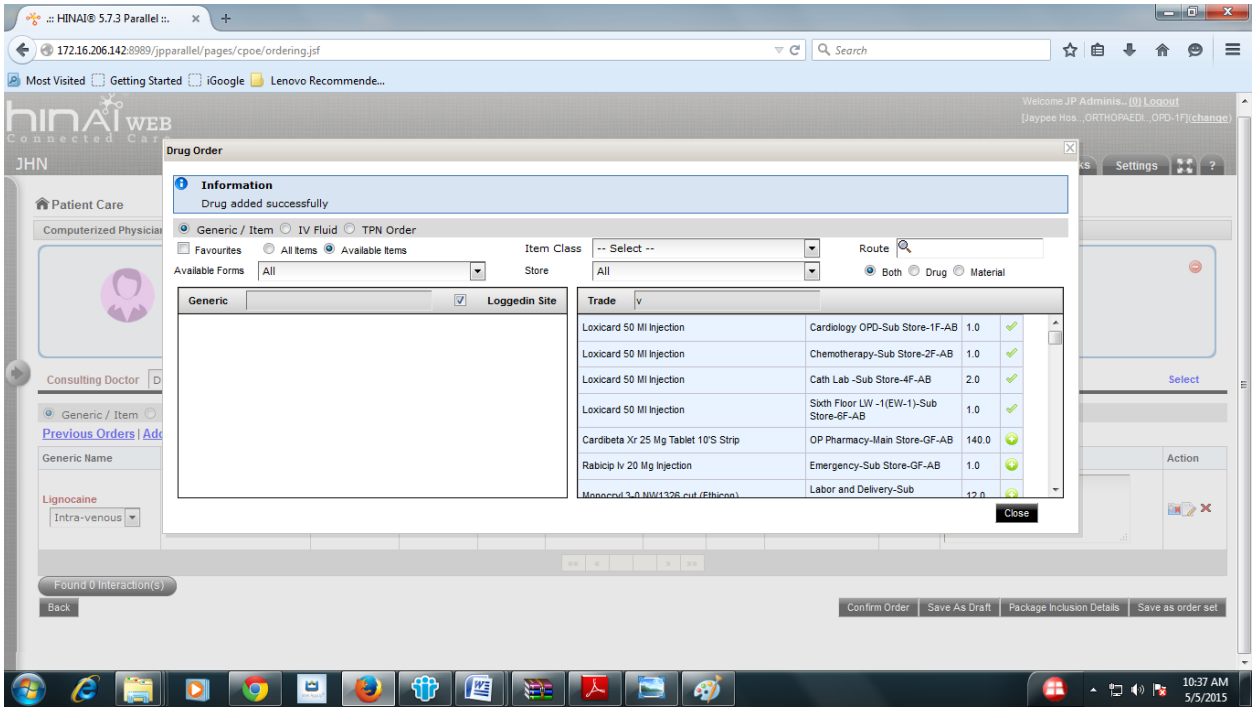

:: HINAI® 5.7.3 Parallel ::
172.16.206.142:8989/jpparallel/pages/cpoe/ordering.jsf
Most Visited
Getting Started
iGoogle
Lenovo Recommende...
hinAI WEB
Connected Care
JHN
Drug Order
Information
Drug added successfully
Patient Care
Generic / Item
IV Fluid
TPN Order
Favourites
All Items
Available Items
Item Class
-- Select --
Route
Available Forms
All
Store
All
Both
Drug
Material
Generic
Loggedin Site
Trade
Loxicard 50 Ml Injection
Cardiology OPD-Sub Store-1F-AB
1.0
Loxicard 50 Ml Injection
Chemotherapy-Sub Store-2F-AB
1.0
Loxicard 50 Ml Injection
Cath Lab -Sub Store-4F-AB
2.0
Loxicard 50 Ml Injection
Sixth Floor LW -1(EW-1)-Sub Store-6F-AB
1.0
Cardibeta Xr 25 Mg Tablet 10'S Strip
OP Pharmacy-Main Store-GF-AB
140.0
Rabicip Iv 20 Mg Injection
Emergency-Sub Store-GF-AB
1.0
Labor and Delivery-Sub
Close
Consulting Doctor
Previous Orders
Generic Name
Lignocaine
Intra-venous
Action
Found 0 Interaction(s)
Back
Confirm Order
Save As Draft
Package Inclusion Details
Save as order set
10:37 AM
5/5/2015

Fig: 15

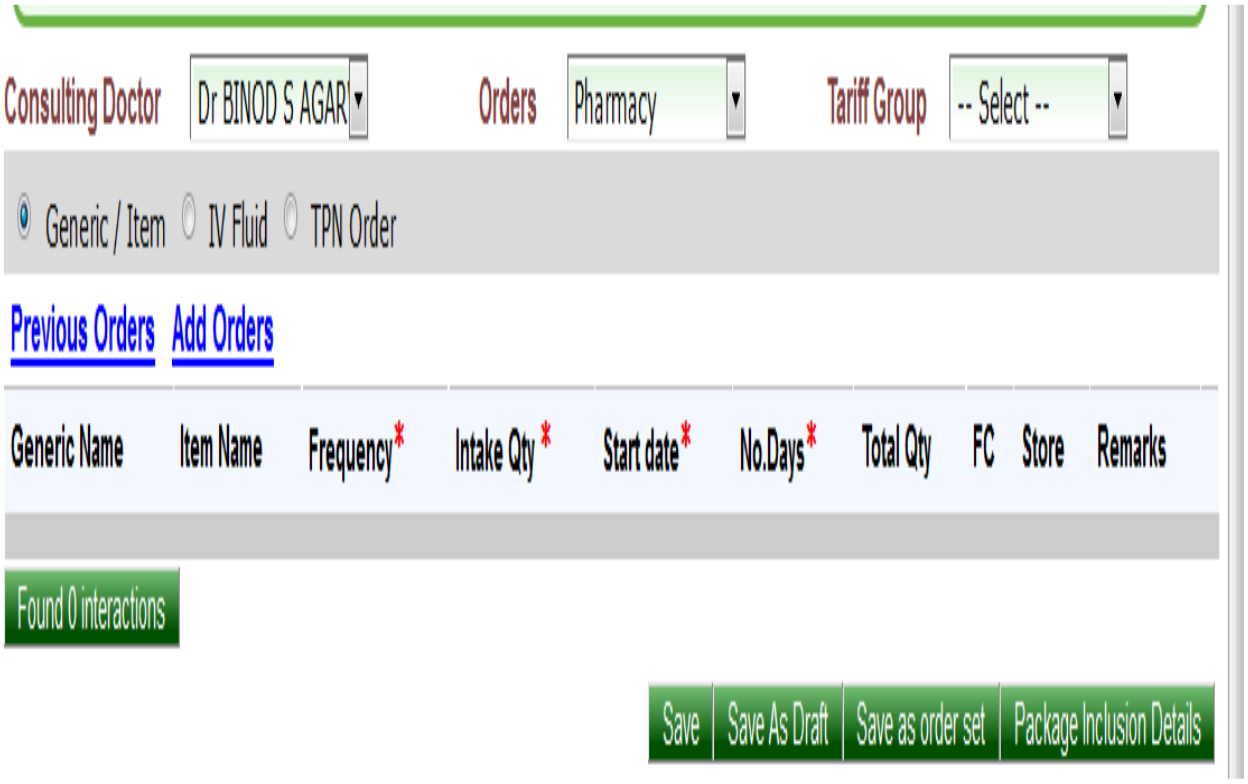

Consulting Doctor
Dr BINOD S AGAR
Orders
Pharmacy
Tariff Group
-- Select --
Generic / Item
IV Fluid
TPN Order
Previous Orders
Add Orders
Generic Name
Item Name
Frequency*
Intake Qty*
Start date*
No.Days*
Total Qty
FC
Store
Remarks
Found 0 interactions
Save
Save As Draft
Save as order set
Package Inclusion Details

Fig16

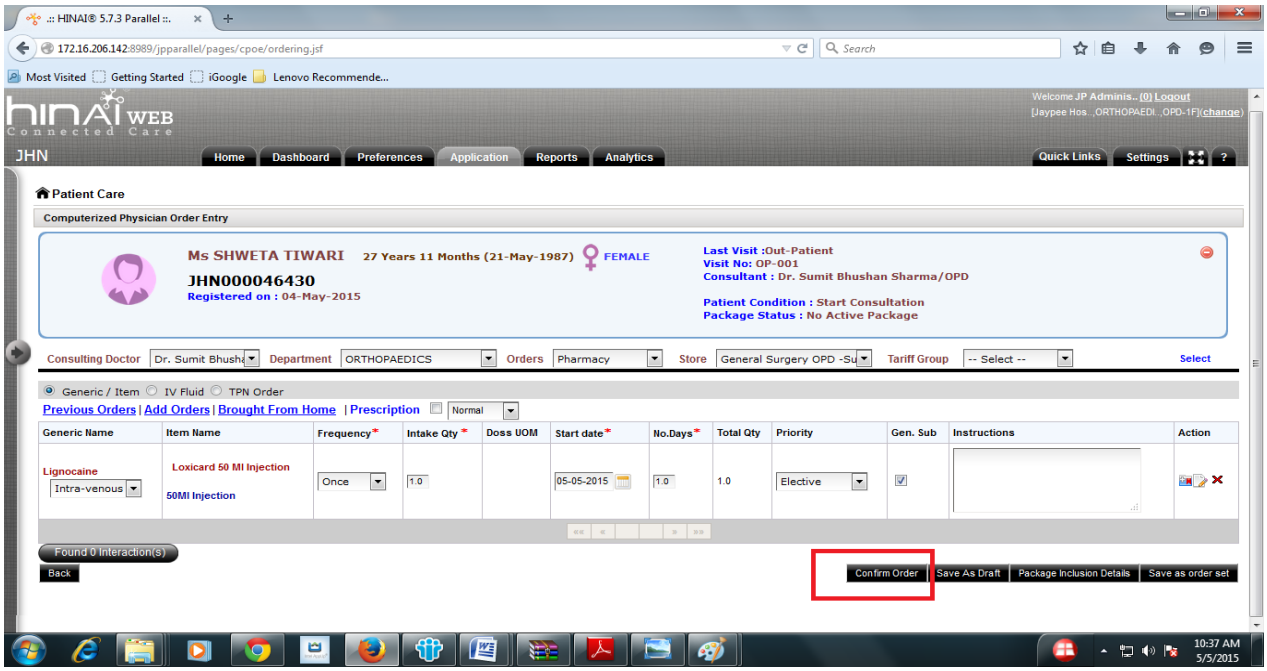

HINAI® 5.7.3 Parallel
172.16.206.142:8989/jpparallel/pages/cpoe/ordering.jsf
Most Visited
Getting Started
iGoogle
Lenovo Recommende...
hinAi WEB
Connected Care
Welcome JP Adminis.. (0) Logout
[Jaypee Hos..,ORTHOPAEDI..,OPD-1F](change)
JHN
Home
Dashboard
Preferences
Application
Reports
Analytics
Quick Links
Settings
Patient Care
Computerized Physician Order Entry
Ms SHWETA TIWARI
27 Years 11 Months (21-May-1987)
FEMALE
JHN000046430
Registered on : 04-May-2015
Last Visit :Out-Patient
Visit No: OP-001
Consultant : Dr. Sumit Bhushan Sharma/OPD
Patient Condition : Start Consultation
Package Status : No Active Package
Consulting Doctor
Dr. Sumit Bhush
Department
ORTHOPAEDICS
Orders
Pharmacy
Store
General Surgery OPD -Su
Tariff Group
-- Select --
Select
Generic / Item
IV Fluid
TPN Order
Previous Orders | Add Orders | Brought From Home | Prescription
Normal
Generic Name
Item Name
Frequency*
Intake Qty *
Doss UOM
Start date*
No.Days*
Total Qty
Priority
Gen. Sub
Instructions
Action
Lignocaine
Intra-venous
Loxicard 50 MI Injection
50MI Injection
Once
1.0
05-05-2015
1.0
1.0
Elective
Found 0 Interaction(s)
Back
Confirm Order
Save As Draft
Package Inclusion Details
Save as order set
10:37 AM
5/5/2015

Fig: 17

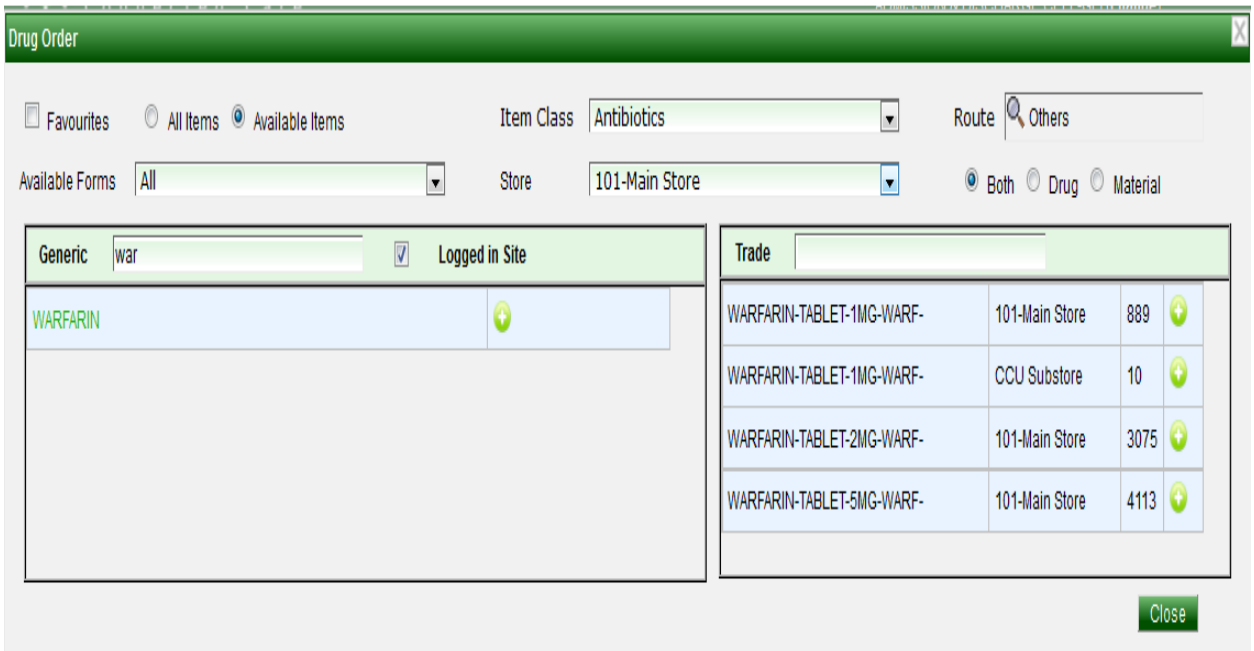

Drug Order
Favourites
All Items
Available Items
Item Class
Antibiotics
Route
Others
Available Forms
All
Store
101-Main Store
Both
Drug
Material
Generic
war
Logged in Site
WARFARIN
Trade
WARFARIN-TABLET-1MG-WARF-
101-Main Store
889
WARFARIN-TABLET-1MG-WARF-
CCU Substore
10
WARFARIN-TABLET-2MG-WARF-
101-Main Store
3075
WARFARIN-TABLET-5MG-WARF-
101-Main Store
4113
Close

Fig: 18

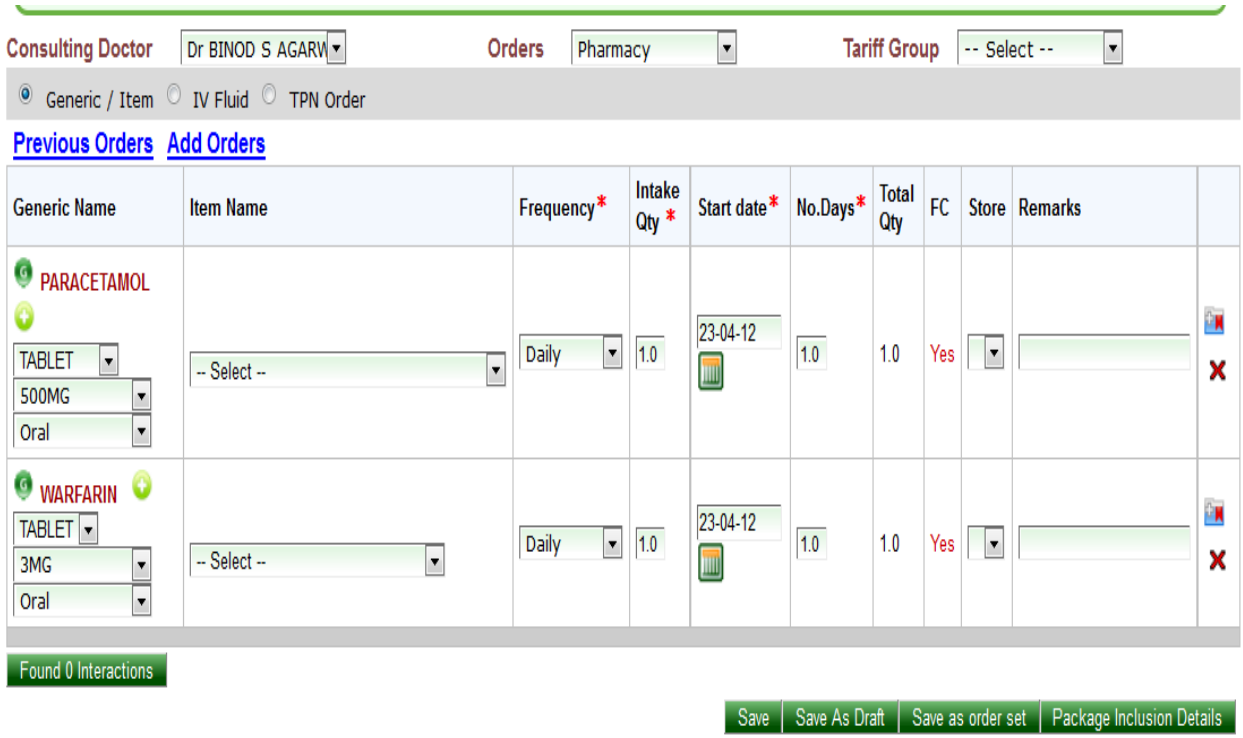
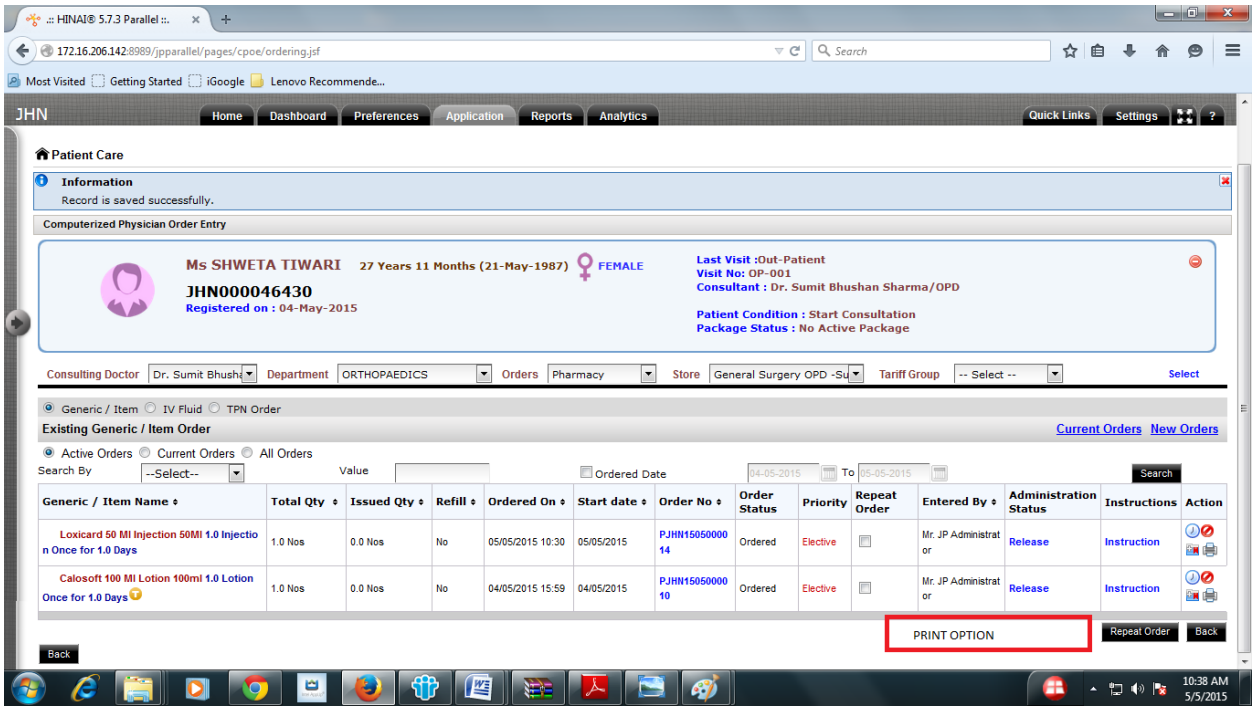

Consulting Doctor
Dr BINOD S AGARW
Orders
Pharmacy
Tariff Group
-- Select --
Generic / Item
IV Fluid
TPN Order
Previous Orders
Add Orders
Generic Name
Item Name
Frequency*
Intake Qty *
Start date*
No.Days*
Total Qty
FC
Store
Remarks
PARACETAMOL
TABLET
500MG
Oral
-- Select --
Daily
1.0
23-04-12
1.0
1.0
Yes
WARFARIN
TABLET
3MG
Oral
-- Select --
Daily
1.0
23-04-12
1.0
1.0
Yes
Found 0 Interactions
Save
Save As Draft
Save as order set
Package Inclusion Details

Fig 19


.:: HINAI® 5.7.3 Parallel ::.
172.16.206.142:8989/jpparallel/pages/cpoe/ordering.jsf
Most Visited
Getting Started
iGoogle
Lenovo Recommende...
JHN
Home
Dashboard
Preferences
Application
Reports
Analytics
Quick Links
Settings
Patient Care
Information
Record is saved successfully.
Computerized Physician Order Entry
Ms SHWETA TIWARI
27 Years 11 Months (21-May-1987)
FEMALE
JHN000046430
Registered on : 04-May-2015
Last Visit :Out-Patient
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Consultant : Dr. Sumit Bhushan Sharma/OPD
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Package Status : No Active Package
Consulting Doctor
Dr. Sumit Bhush
Department
ORTHOPAEDICS
Orders
Pharmacy
Store
General Surgery OPD -Su
Tariff Group
-- Select --
Select
Generic / Item
IV Fluid
TPN Order
Existing Generic / Item Order
Current Orders
New Orders
Active Orders
Current Orders
All Orders
Search By
--Select--
Value
Ordered Date
To
Search
Generic / Item Name
Total Qty
Issued Qty
Refill
Ordered On
Start date
Order No
Order Status
Priority
Repeat Order
Entered By
Administration Status
Instructions
Action
Loxicard 50 Ml Injection 50Ml 1.0 Injection Once for 1.0 Days
1.0 Nos
0.0 Nos
No
05/05/2015 10:30
05/05/2015
PJHN1505000014
Ordered
Elective
Mr. JP Administrator
Release
Instruction
Calosoft 100 Ml Lotion 100ml 1.0 Lotion Once for 1.0 Days
1.0 Nos
0.0 Nos
No
04/05/2015 15:59
04/05/2015
PJHN1505000010
Ordered
Elective
Mr. JP Administrator
Release
Instruction
PRINT OPTION
Repeat Order
Back
Back
10:38 AM
5/5/2015

Fig: 20