Gap Analysis of the Existing Hospital Management Information System and Designing Requirements for the New Information Management System

By

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Dissertation submitted for the partial fulfillment of the
MBA Hospital and Health Management

Academic year, 2014-2016

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TO WHOMSOEVER MAY CONCERN

This is to certify that **Ketan Apte student** of MBA Hospital and Health Management from The IIHMR University, Jaipur has undergone internship training at Sahyadri Hospital, Pune, from February 8th 2016 to May 8th 2016.

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 future endeavors.

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13th May 2016

INTERNSHIP COMPLETION LETTER

This is to certify that Dr. Ketan Apte has completed his 3 (Three) Months internship in our hospital at Shayadri Speciality Hospital, Nagar Road from 8th February 2016 to 8th May 2016.

He did his project on **Gap Analysis between the current HIMS and preparing requirement/Standards for new HIMS.**

He has successfully completed his assignment.

During his internship period we found him sincere and hard working.

We wish his all the best for his future endeavor.

For **Shayadri Speciality Hospital, Nagar Road,**

Rajani

Rajani S Sanas
Asst. Manager - HR

THE IIHMR UNIVERSITY, JAIPUR

CERTIFICATE BY SCHOLAR

This is to certify that the dissertation titled ...Gap analysis of the existing Hospital management information system and prepar requirements for a new system and submitted by (Name) ..Dr. Ketan Apte ..... Enrollment No. .....0158..... under the supervision of ...Dr. P.R. Sodani..... for award of Postgraduate Diploma in Hospital and Health/ ~~Pharmaceutical~~ / ~~Rural Management~~ of the University carried out during the period from ...8th Feb. 16.. to ...8th may. 16..... 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

ACKNOWLEDGEMENT

First and foremost, I would like to thank my parents for their unconditional love for me, their continual support to all my decisions, for understanding my objectives in life and allowing me to express myself freely.

It is my utmost privilege to be a part of INSTITUTE OF HEALTH MANAGEMENT AND RESEARCH (IIHMR), which stands as an institute of national importance and a centre of excellence in Healthcare education in India.

It is a pleasant duty to express my deep sense of gratitude and indebtedness toDr.jayashreeApte (CEO, Sahyadri Hospitals), Mrs. Suneeta Bhat (Head Human Resource, Sahyadri hospitals)for providing me opportunity to work with Sahyadri hospitals and also to my project mentor, Mr. Tushar Deshpande and my revered Guide Dr. P. R Sodhani whose invaluable suggestions, constant support and encouragement kept me going all throughout my project work.

I also extend my sincere thanks to the respondents who spared their valuable time for my project.

Dr .KetanApte

Abbreviation

HIMS – Hospital information management

FDTM – Front Desk and treasury management

IP – In patient

IPD – In patient department

IPM – Inpatient management

OT – Operation theatre

IT – Information Technology

MRD – Medical records department

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1. ***Executive Summery*** –

Title – Gap analysis of the existing hospital management system and designing requirements for the new information system

Author – Dr.KetanApte
Advisor – Dr. P. R Sodhani

Background -

HIMSmeans putting all systems and hospital-wide resources both electronic and manual that deal with handling and storage of information / data of hospital on computers that are linked to each other and accessible from all authorized nodes.

The HIS may control organizations, which is Hospital in these case, official documentations, financial situation reports, personal data, utilities and stock amounts, also keeps in secure place patients information, patients medical history, prescriptions, operations and laboratory test results. A robust HIMS system ensures adherence to the standard operating procedures, it increases efficiency, it helps in analysis which is vital for taking major decisions. The review of literature was carried out, which suggests the usefulness of a HIMS in various departments and how it impacts the hospital and the front line staff who uses it on daily basis.

Objectives –

1. To identify the gaps in current system
2. To suggest system requirements specifications for the new system
3. Improve work efficiency and fiscal control, eliminate the chances of any pilferage

Methodology -

The techniques used to collect data were focused group discussion (FGD) and informal discussions, done in phases. Initially module wise focused group discussions were conducted in different units (different hospitals of the group).

In the second phase focused group discussions were conducted with the head of department of all the units (module wise). The entire data was collated and the same was discussed with the new vendor to finalize the requirements.

Result **–**

Gap analysis of all modules was conducted, and the gaps were identified in OPD, IPbilling, IP management, radiology and OT management. In OPD module the entry of mobile number should be made mandatory, source of the patient should be made mandatory. In IP management VIP patients should be marked separately, cover letter for insurance company to be typed in the system. In IP billing co-payment isn't calculated automatically nor are the emergency charges for surgeries, inter unit transfers cannot be done. In radiology module the impressions aren't in bold. In OT module which scrub nurse washes for which case isn't mapped, booking vs actual cases done isn't mapped either.

Conclusion –

Upon identifying the gaps the need for an upgrade was realized since there were too many deficiencies in the current system. It was also realised during the study that the system hadn't evolved with the organization. Since the structure of the organization is complex it was decided to ask the same vendor to redesign the system.

2. Introduction

HIMSmeans putting all systems and hospital-wide resources both electronic and manual that deal with handling and storage of information / data of hospital on computers that are linked to each other and accessible from all authorized nodes.

HIMS is comprehensive hospital-wide software, which covers all aspects of hospital management and day-to-day operations of a hospital

HIMS integrates clinical , financial and administrative information , using the combination of computer, communications Web and imaging technology so as to support health professionals working together in the delivery of care to patients, and provide accurate and timely information to public and management.

Hospital Information Systems provide a common source of information about a patient's health history. The systems have to keep data in secure place and controls who can reach the data in certain circumstances. These systems enhance the ability of health care professionals to coordinate care by providing a patient's health information and visit history at the place and time that it is needed. Patient's laboratory test information also visual results such as X-ray may reachable from professionals. HIS provide internal and external communication among health care providers.

The HIS may control organizations, which is Hospital in these case, official documentations, financial situation reports, personal data, utilities and stock amounts, also keeps in secure place patients information, patients medical history, prescriptions, operations and laboratory test results.

The HIS may protect organizations, handwriting error, overstock problems, conflict of scheduling personnel, official documentation errors like tax preparations errors.

Modules in **HIMS**–

1. **OPD Management**

   OPD Registration When a patient comes to the reception desk, A new registration number is automatically Allotted to him. His personal details like Name, Age, Sex, Address etc. and the services desired are fed into the software. OPD Billing / Collection Billing of all OPD patients with complete details of Patient Information, Services provided like Consultation, Laboratory, X-ray, Ultrasound, Medicines, Procedures etc. along with Payment details.

2. **IPD Management**

   IPD registration when a patient comes to the reception desk for admission, A Separate new registration number is automatically allotted to him. His personal details along with the details of Admission, Room, Consultant, Surgeon, Diet, etc. and the Advance Payment made are fed into the software. The Software will record all this information and print the related documents.

3. **IPD Billing**

   On-line billing of all IPD patients with details of Patient Information, Services provided on daily basis like Room rent, Operation, Delivery, Oxygen & Other Gases, Consultation, Nursing Charges, Laboratory tests, X-ray, Ultrasound, Medicines, Procedures etc.

4. **Discharge Summary**

   After the discharge of patient discharge summary can be automatically generated.

Laboratory data can automatically be imported. Specialty wise standard format can be set.

5. **Consultant Management**

Tracking of consultant share for OPD /Indoor procedures. Option for defining consultant shared based on procedures/department.

Classifying visit of patient as new / old for that consultant

6. **Store Management**

Maintain Purchase order with due dates of delivery
Maintain MRN and Issue slips
Maintaining Stock, Reorder levels and show appropriate warning.
Bills can be adjusted against the payments made at other department.

7. **Laboratory Management**

As the test is booked at reception request is automatically send to laboratory. Lab can feed the result later and prints attractive reports.

8. **Pharmacy Management**

Complete pharmacy shop can be managed through this module. Additionally it can be linked to main billing. As patient collects medicines from pharmacy shop their charges will automatically transfer to patient billing.

9. **Radiology Management**

As the tests related to radiology is booked at reception request is automatically send to radiology department

10. **Insurance and TPA management**

Pre-admission forms for different TPA can be set. After admission limit of Panel's approval will be taken care of.

11. **Reception Management**

Status of any patient/doctor can be queried from this module e.g. timing of consultant, residential address/patient room search.

12. **MRD Management**

Keeps history of all patient. Data analysis can be further done on any field Keeps truck of the ICD numbers/Bed days per consultant and other MRD Records.

13. **MIS Reports**

It will provide vital and key reports to management. All the Further we are planning to incorporate graphical analysis of reports.

14. **Payroll & HRD Management**

Complete salary can be computed through this module. This module can be attached through Time machines also. All necessary formats can be generated through this module.

All purchase ,expenses ,payments can be fed in this module. Receipts can be directly imported from OPD and IPD department. Balance sheet

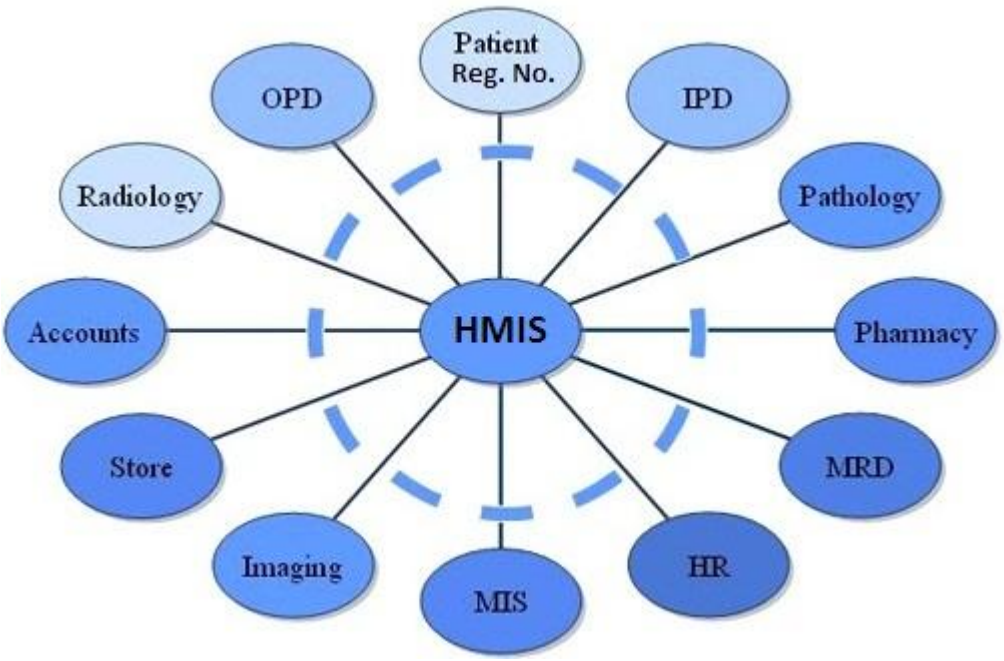

Figure 1.0 – **Hospital Services**

- Advantages of HIMS –

    - Increases efficiency leading to better patient satisfaction
    - Reduction in average length of stay of patient
    - Improved utilization of hospital resources
    - Improved patient turnover
    - Data entry at one point
    - Storage, retrieval and analysis of data
    - Instant access to patient information when and where required
    - Flow of better clinical information for better patient care management
    - Provide a totally secure database and facilitate patent care
    - Force orderliness and standardization of the patient records and procedures in the clinic and increasing accuracy & completeness of medical records of Patient.

- As a good managerial tool to provide total, cost-effective access to complete and more accurate patient care data to offer improved performance and enhanced functions
- A systematic way to manage documents.
- To gather information to meet management challenges.
- To educate patients about their diseases of surgical procedures through pictures and animations.
- Reduction in operational costs through effective resource allocation senior clinicians, nurses, technicians and other assets.
- Effective operational control and streamlining them
- Retrieval of financial information is easy

2.1 Rationale-

If all the processes in the hospital can be done through the system, it will reduce errors and increase efficiency. System is the best way of monitoring all the process flows as it can be controlled with an authority matrix. Performing a gap analysis and finding solutions for the same will help better utilization of the system and improve hospital performance.

3. ***Review of Literature***

Praveen Kumar A, Gomez L.A (2006) conducted a study of the hospital management information system (HMIS). The objective of the study was to 1. To study the existing Hospital Information System in the medical records department. 2. To identify the shortcomings, if any, in the existing Hospital Information System in the Medical Records Department. 3. To suggest the necessary steps to improve the existing Hospital Information System in the Medical Records Department. The Medical Records Department of the hospital was studied for assessing the Hospital Information System. Descriptive research approach as adopted for this study. Descriptive statistics have been used to find out the deficiencies, if any, in the existing Hospital Information System. The target population consisted of managers, doctors and patients in the hospital. The tool used to collect the data was a structured, closed ended questionnaire. t was observed that

de centralized filing system is being followed in the Medical Records Department of the tertiary care hospital i.e. the department is divided into two units – Out Patient (OP) and In-Patient (IP) MRD. Majority of the doctors do not believe that the existing Hospital Information System can help to reduce the cost of patient care (65%) or shorten the stay of the patient in the hospital (65%).he majority of the doctors (85%) feel that the nonexistence of ward computers is a hinderance in providing the expected patient care. They also feel that the existing Hospital Information System does not help either in making the OPD consultations quicker or in generating quick laboratory reports. Majority of the doctors disagree that the Hospital Information System helps in infection control (65%) and in defining the community needs (90%). Majority of them agree that the Hospital Information System helps in education and research.

Nauright L.P, Simpson Nell(1994) conducted a study on Benefits of hospital information systems in front line hospital staff from six hospitals. He purpose of these descriptive, correlational studies was to identify benefits realized from computerized hospital information systems (HIS) and the value of those benefits as perceived by front-line system users. A total of 695 respondents from six hospitals described benefits related to the quality of care, interdisciplinary communication, and collaboration; these were realized to a greater extent and were more important than benefits related to cost-savings. Perceptions of nurses regarding the extent to which benefits were realized were not significantly different than those of non-nurse staff; however nurses rated potential benefits much higher in importance than did non-nurses. Perceptions were not consistently linked to demographic variables; the factor most influencing perceptions was the extent of computerization in the department. Findings appear useful to researchers studying HIS benefits and to system designers and vendors endeavoring to make HIS more user-friendly, functional, and marketable.

PremkumarBalraman, KalpanaKosalram conducted a study - E hospital management and the changing trends in the information management system.

E-Hospital Management Systems provide the benefits of streamlined operations, enhanced administration & control, superior patient care, strict cost control and improved profitability. Globally accepted health care systems need to comply with Healthcare Insurance Portability and Accountability Act (HIPAA) standards of the US and that has become the norm of the Healthcare industry when it comes to medical records management and patient information privacy. The study is focused on understanding the performance indicators of Hospital information systems (HIS), summarizing the latest

commonly agreed standards and protocols like Health Level Seven (HL7) standards for mutual message exchange, HIS components, etc… The study is qualitative and descriptive in nature and most of the data is based on secondary sources of survey data. To arrive at a conclusive idea of the larger picture on E-Hospital Management and Hospital information systems, existing survey data and specific successful case studies of HIS are considered in the study. With so many customized versions of E – hospital management solutions (E – HMS) and Hospital Information systems (HIS) available in the market, a generic module wise version of E – Hospital management system is charted out to give a clear understanding for researchers and industry experts. From the specific successful case studies analyzed in the study, the success factors and challenges faced in successful E-HMS implementation are highlighted. Some of the mandatory standards like HIPAA are discussed in detail for clarity on Healthcare system implementation requirements.

Current HMIS at Sahyadri Hospitals –

The current HMIS in place at the group is developed by IMPULSE technologies. It's in place since 2004. The front end is visual basic and the back end is oracle. It runs of windows platform.

Modules –

1. FDTM (Front desk and treasury management)
2. IPM (In patient management)
3. IP Billing
4. Linen management
5. Pharmacy
6. Inventory management
7. Blood bank management
8. Human resource management
9. Finance and accounts
10. MIS
11. Radiology diagnostic management
12. OT management
13. CRMS (Customer relation management software)
14. Marketing and business management

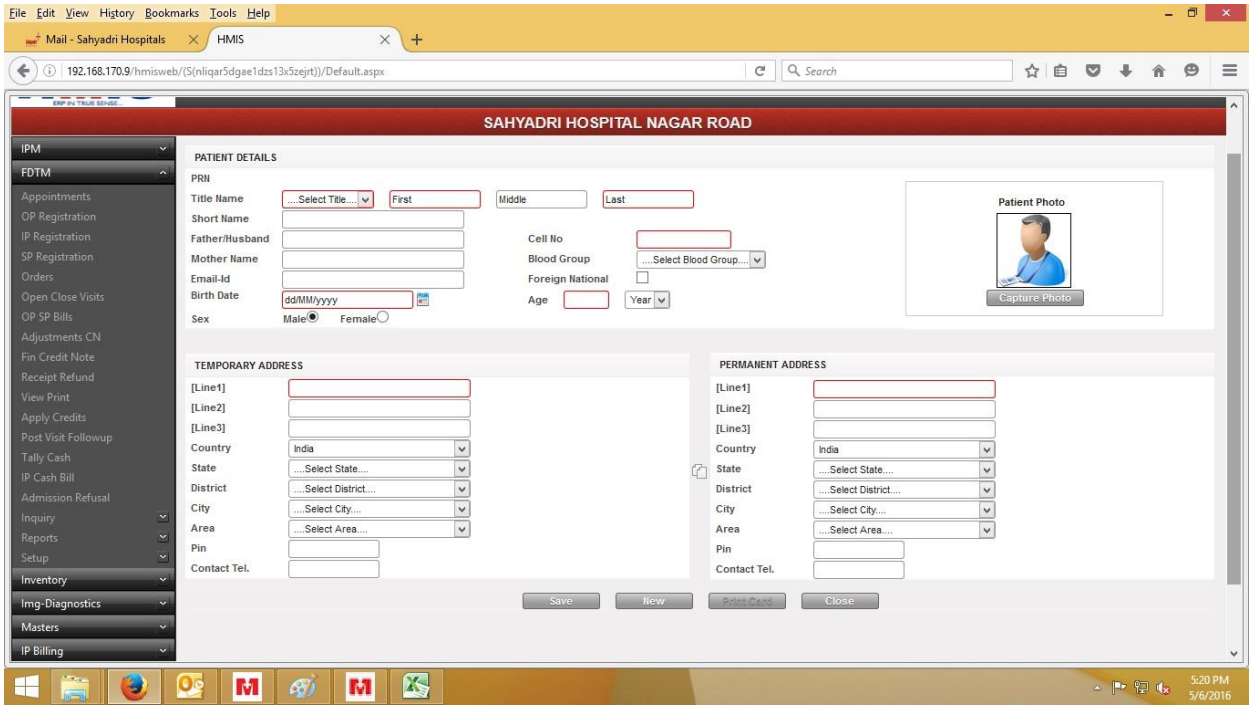

Figure 2 – Patient Registration page

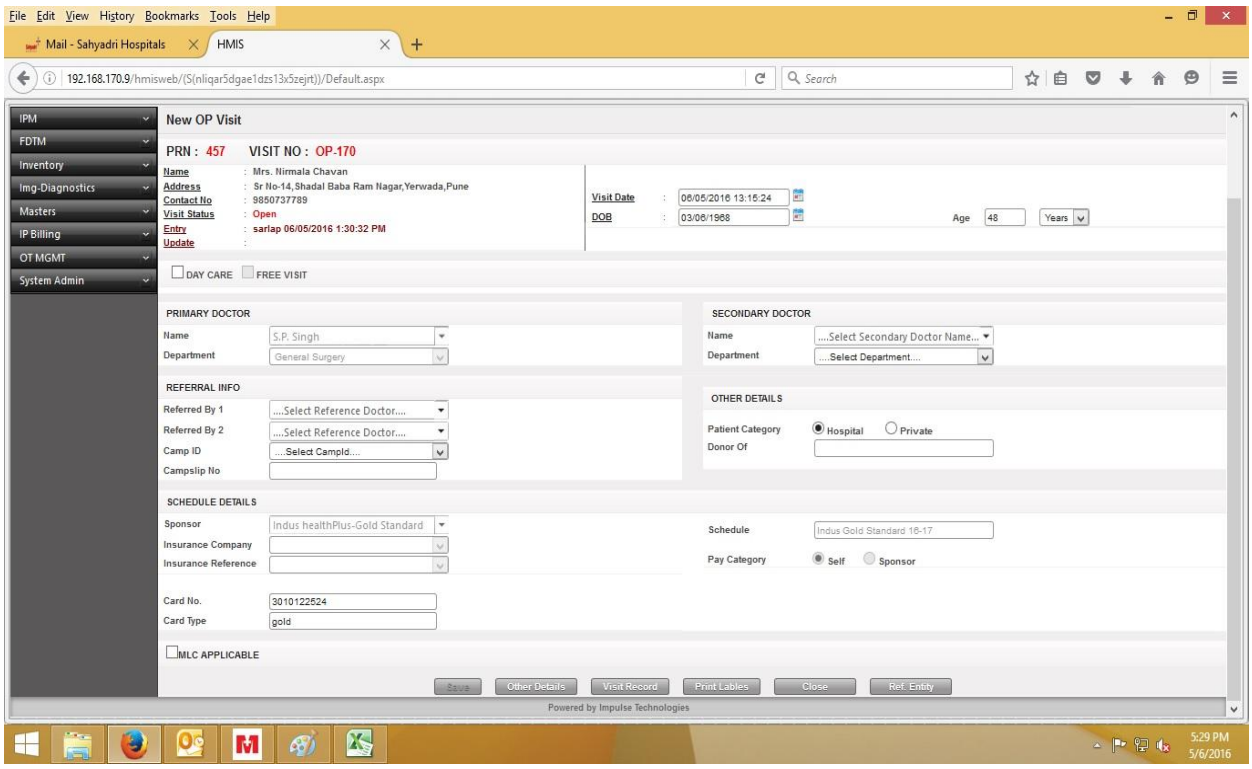

Figure 3 – Outpatient visit page

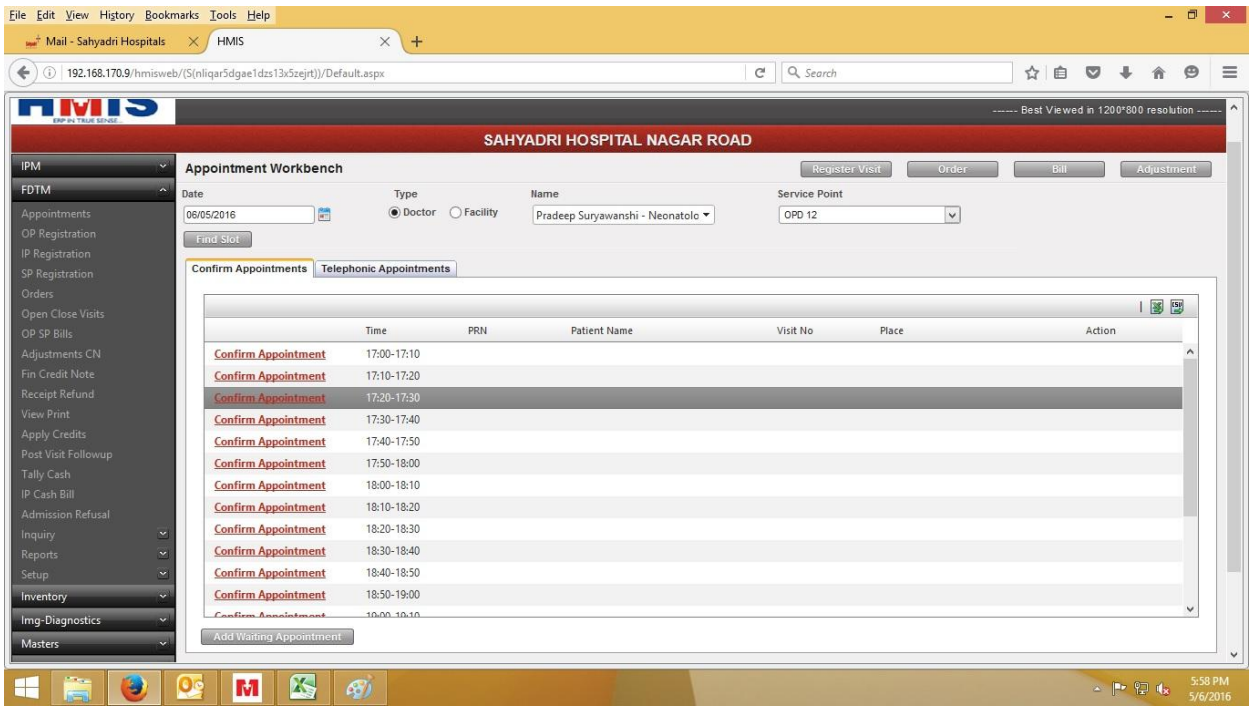

Figure 4 – Appointment workbench

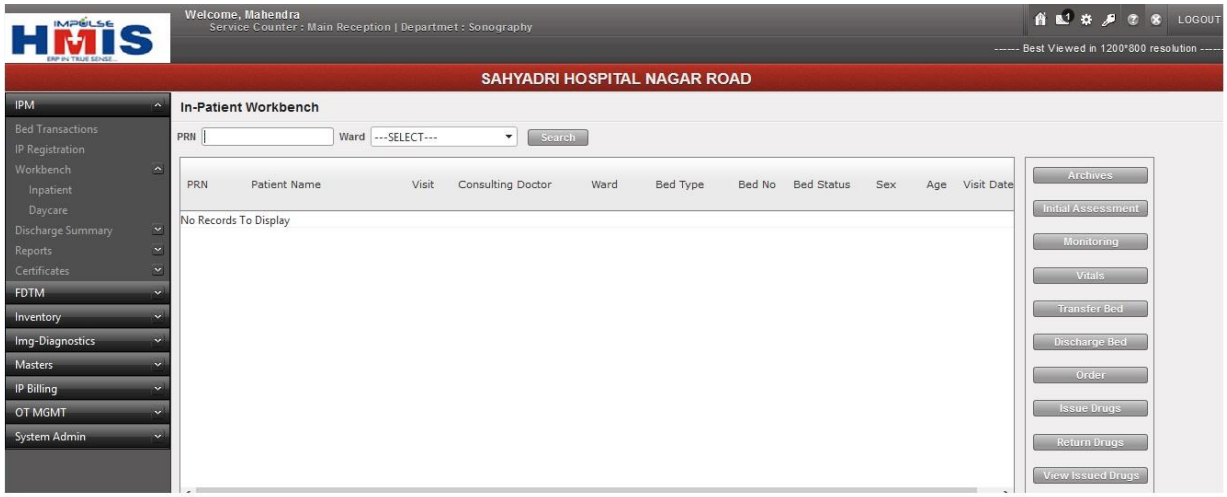

Figure 5 – In patient workbench

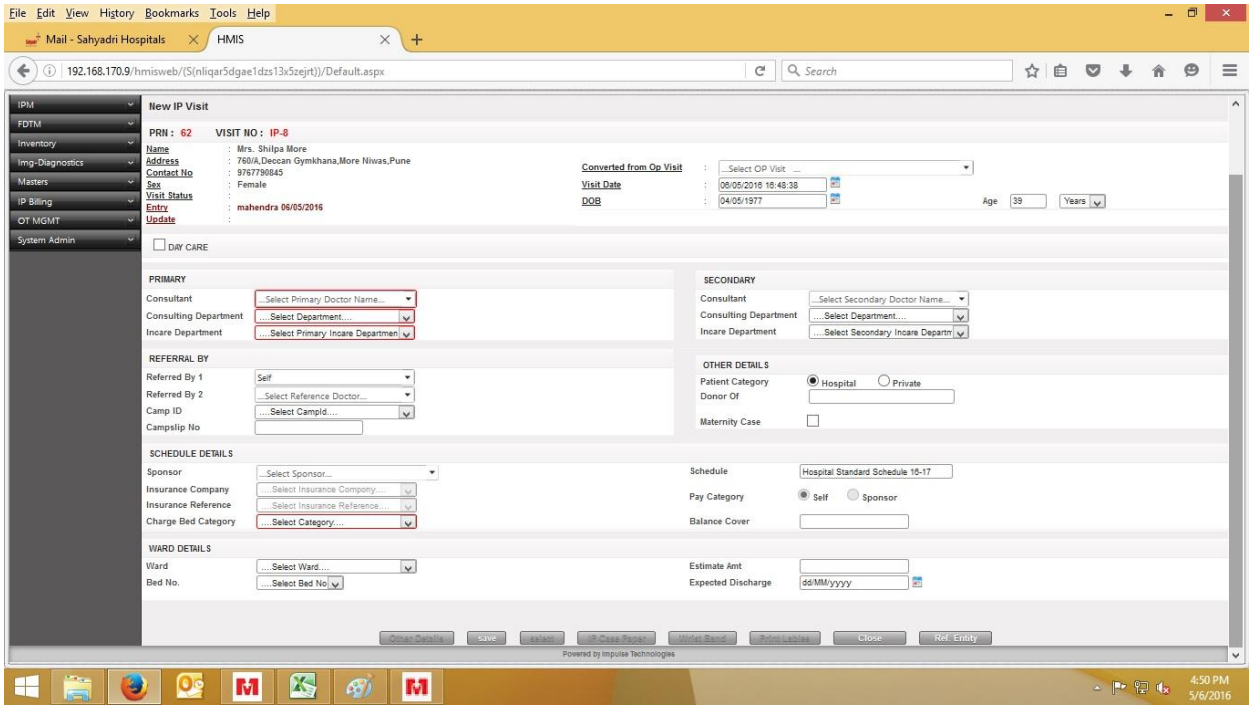

Figure 6- New In patient visit

SWOT analysis of the current system

Strengths	Weakness
The current system has all the modules Well integrated with finance module The current system is already on web	No centralized database Lack of dashboards User interface isn't user friendly

Opportunity	Threats
Centralized database Use of portable devices Mobile applications	Over dependence on windows licences Cyber security Technology obsolescence Network connectivity

4. Methodology –

4.1 Research Question –

Is the current HMIS capable of meeting the current and future IT requirements of Sahyadri Hospitals.

4.2 **Objectives** –

1. To identify the gaps in current system
2. To suggest system requirements specifications for the new system
3. Improve work efficiency and fiscal control, eliminate the chances of any pilferage

4.3 Research Design

4.3.1 **Study type** – Descriptive cross sectional study

4.3.2 **Area of study-** Study will be conducted in Sahyadri hospital Nashik

4.3.3 **Data Collection method** - Data will be collected from the end users of present HMIS (Executives, Doctors, administrators.), through focused group discussions, informal discussions.

4.3.4 **Exclusion criteria** - End users who don't use HMIS

4.3.5 **Sample Size** – All end users.

5. ***Tools and Techniques***

The technique used to collect data was Focused group discussion (FGD) and informal discussions. It was done in phases. Initially module wise focused group discussions were conducted in different units (different hospitals of the group).

In the second phase focused group discussions were conducted with the hods of all the units (module wise). The entire data was collated and the same was discussed with the new vendor to finalize the requirements.

6. ***Results and findings***

Once the entire data was compiled and the final round of meetings were conducted, the vendor gave commitment to make the modifications in the system.

6.1 Front Desk and treasury management (FDTM)/ OPD management –

Sr. No.	Issue/ Change Request	Discussion
1	Cell No. to be made mandatory & has to be 10 digit only	For the hospital to send text messages to patients for follow up , and other promotional events
2	OP Case sheet to be printed along with Prescription	Most of the doctors write prescription manually. If HMIS will able to print blank prescription along with patient's details & doctor's details along with registration no. then doctors will prescribe the medicines on same page.
3	Consultation charges automation.	In SHL, the are multiple services for OP consultation. Based on consultant & duration between last consultation &on going consultation, billing user decides which service to be charged. Due to this, it is user dependent & time consuming process as each time, user needs to calculate the duration between two visits.
4	Duplicate bill printing with Access control	Currently anybody can print the receipts n no. of times without marked as 'Duplicate'. This may lead to malpractice.
5	Adjustment/ Concession Reason - Whether to select or Enter?	There are two groups with different opinion. OP billing users are demanding that there should be provision to enter the reason because reason changes patient to patient. On other hand IP billing users are demanding that reason should be selected from list to avoid wrong reason entry like *, - ...etc.

6	OPD Utilization Report	Currently SHL is generating this report manually. If this report will be generated from HMIS then time can be saved. SHL team is ready to provide the input for the same.
7	Receipt Against Bill & Refund - Apply credits to Bill page to be opened from same page.	Currently Apply Credits to Bill, Receipt Against Bill, Refund are three different menus. While settling bill if apply credits bill option will get open from Receipt Against Bill OR Refund menu then no need to enter PRN again & again and time will be saved.
8	Alert for some schedules if amt. exceeds a specific amount. *	Tata Motors has sponsor paid schedule. For OP visits if bill amount is less than INR. 500/- then bill will be paid by patient else it will be paid by Tata Motors only. In such case if user will get alert while creating bill then user will change the pay category & will create the bill.
9	Receipt - Masters for Paid By & Report with O/S	SHL receives funds from various charitable trusts for the patient treatment. Thought it received from trust SHL receives in the name of patient. Trusts keep on asking funds paid by them, it's utilization & O/S.
10	Bed Reservation Facility	When patients want to reserve a room we should be able to block it for them on that particular date.
11	Patient Source to be captured	Currently there is no provision to analyze the source of the patient. So the field 'Patient Source' to be added in visit master so patient source can be analyzed.
12	Appointment Scheduling - Management of doctor's appointment considering multi location	This is required to avoid appointment scheduling of same doctor for same time at different division/ location.
13	SMS for Refund - Text awaited	SHL wants to send SMS to the patient as soon as refund is made in the name of patient. This will help to reduce malpractices.
14	Emergency Charges for multiple services	SHL charges emergency charge on certain service. Currently HMIS allows to calculate emergency charges but on individual service.

6.2 Operation theatre management

Sr. No.	Issue/ Change Request	Discussion
1	OT Booked Vs. Actual Variance to be checked.	There is an issue in existing report
2	Consents & Clinical details to be captured	At present everything is on paper
3	Surgery register - records search by surgery department	Hampers analysis
4	Scrub nurse who has attended the surgery to be captured in HMIS	To better know the utilization of scrub nurses
5	Ability to book OT from the consulting module	Will help consultants book for their surgeries

6.3 Radiology module

Sr. No.	Issue/ Change Request	Discussion
1	Bullet point in impression	Today doctors puts the bullet in word and then paste in HTML page.
2	Impression to be printed in bold.	to highlight the impression
3	Tables of Doppler report	Tables are not coming properly in the report
4	Image Annotation facility	System to allow put image in the report 'always on second page'. Then allow annotation before print.
5	Investigation Request entered in Consulting to be displayed	It will help the patient as the patient doesn't have to carry any chit with him, plus will facilitate the department in planning all the appointment.

6.4 Inpatient management module (IPM)

Sr. No.	Issue/ Change Request	Discussion
1	Discharge tick box to be added	This is required to identify discharged patients immediately.
2	VIP patients to be displayed with different colour	This is required to identify VIP patients immediately.
3	In case of VIP email to be sent to concern mail ID	SHL has a process to send email to specific mail ID when VIP patient gets admitted. If mail will be automated then time will be saved and all mail ids will be considered without fail.
4	While admitting patient -Walk in, Emergency, Planned to be captured.	Currently SHL is not able to do analysis whether the admission is Walk in/ Emergency/ Planned.
5	Admission Type to be displayed in admission report	To do analysis based on Admission Type, this column is required in report.
6	Admission SMS to be sent to joint care doctor	As the patient is under care of two or more doctors
7	Facility to upload document.	SHL wants to capture scan copy of important documents like PAN, Aadhar Card, policy details…etc. If the documents are stored electronically hard copy need not be maintained & can be available across the network.
8	Ward wise Prescription - Time to be displayed	To better monitor the TAT times

9	Claim Management - provide facility to Discard Claim	HMIS does not allow change of schedule once the approval amount is entered in claim management module. In some cases patient has insurance from multiple companies & switches insurance during the admission.
10	Covering Letter - Sponsor Details to be printed along with insurance company name	In case of sponsor of type 'TPA', sponsor asks for insurance company name.
11	Visit number to be displayed in admissions	For analysis
12	Search Patient option to be added in IPM	Currently menu search patient is available in FDTM module, nurses require this menu to search particular patients with their location
13	Nursing Care Plan, Nursing Notes, Assessment forms	SHL wants to start capturing clinical data in HMIS.
14	In case of High Risk Drugs, Check By & Verified by to be captured in system.	If any high risk item is precsribed by nurse then NABH insists that it has to be approved by house doctor before showing it the pharmacy for dispensing

6.5 In patient Billing module (IPBilling)

Sr. No.	Issue/ Change Request	Discussion
1	Inter Division transfers	As many times patient is transferred from one unit to other
2	Inter division service feasibility for CT/ MRI	As many times patient is transferred from one unit to other
3	Discount to be calculated on administrative charges	SHL agreed for the sponsor for flat discount %. Though Admin charges are getting calculated on Net Amt. (Net Amt.=Qty * Rate - Disc. +/- Adjustment) still sponsor wants to see discount given on admin charges also
4	Ward difference calculation	Patient is entitled for General ward but opted for higher ward. In this case SHL charges ward difference charges to patient. Currently this is to be calculated manually
5	Allow to uncheck disallow flag	Sometimes disallowance of services/ items get changed patient to patient, policy to policy.
6	Auto Calculation of Co-Payment	Currently there is provision to calculate Co-Payment but services/ items on which co-payment to be calculated has to be selected manually.
7	SMS to be sent for provisional bill (Access Control)	SHL billing team wants to send SMS to patient once the provisional bill is ready. So no need to call patient again & again

10	Changes in package master -	Modify the package to fit the estimate
11	Item charging based on cost price	For certain low paying schemes the package calculation should be on cost price (RGJAY)
12	Adjustment/ Concession - Consider Doctor Payment % while giving concession.	Reduce doctor payment in % when a doctor offers discount to patients
14	Emergency Charges OR Serology +VE charges to be calculated 25% automatically based on user selection. Adjustment to be passed.	At present the emergency charges are calculated manualy which leads to revenue leakage.
15	Surgery Rate Calculation based on user input	When multiple surgeries are performed at the same time
17	Alert message when the net amount becomes zero or negative	In case the discounted amount makes the net price zero , it's a calculation error hence an alert is required
19	Annexure Print - Date wise print for specific date	For long stay patient, date wise annexure will be helpful & will save the papers
22	Tracker based on events	All data will be captured in system itself & TAT will be calculated by system only.

6.6 Masters

Sr. No.	Issue/ Change Request	Discussion
1	New fields to be added in Consultant Master	At present we have to maintain files and at the time of audit have to go through each file to make sure all the documents are present, this will ensure the completion of document sets
2	Privilege details to be captured for the consultants	To complete the database
3	Consultants certificates & registrations scanning & uploading with their records.	To complete the database
4	Disallow Item list to be exported into excel	To avoid manual errors
5	Copy Disallowed items from one to another schedule	To avoid manual work
6	Schedule Master - Items on Cost price	to facilitate billing and contribution analysis for specific schemes

7. Conclusion –

The study was conducted to find out gaps in the current HIMS and prepare requirements for a new HIMS. All the end users were involved through FGD and the gaps were identified. Upon identifying the gaps the need for an upgrade was realized as there are too many deficiencies in the current system as the system didn't evolve with the organization. As the structure of the organization is complex it was decided to ask the same vendor to redesign the system.

8. Limitations –

1. Repetition of answers in FGDs
2. The time span of FGDs
3. Could not incorporate all the queries

9. Recommendations –

Post the module wise gap analysis, we came up with the following recommendations to overcome the gaps.

9.1 FDTM –

- 10 digit mobile number to be mandatory
- Consultant charges to be put through the system
- Emergency charge calculation should be done through the system
- How did the patient get to know about the hospital should be captured

9.2 In Patient Management –

- VIP patients should be marked with a different colour
- Admission type should be displayed
- Visit Number of admission against that registration number should be displayed
- Text message to be sent to joint care consultant

- Facility to print Cover letter with the name of the insurance company
- Attach scanned documents to the patients

9.3 In patient Billing

- Since it's a group of hospitals , there should be provision to transfer the patient to other unit with the same registration number
- Auto calculation of ward charge difference
- Discount calculation on admin charges
- SMS on provisional bill
- Auto calculation of co-payment
- Package calculation on cost prices
- Selective annexure printing

9.4 Radiology –

- Impression to be printed in bold
- Consultants should be able to put the radiology requisitions through the consulting module

9.5 OT management –

- OT booked vs cancelled report directly through the system
- The scrub nurse for the operation should be mapped

9.6 Masters

- The masters data has to be complete hence provision to add more fields should be present

10. Annexures

The FGD details (Specific to Sahyadri hospital Nagar Road)

10.1 ***FDTM*** –

Sr.No	Menu	Discussion	Requirement
1	OP Registration	VIP patient to be marked separately	Display VIP patients in the system
2		Cell phone number field	10 digit cell phone number to be made mandatory
3		Father /Spouse name	Father /Spouse name field to be a mandatory field
4		Camp Patient bulk registration	Facility to upload bulk registration for camp patient
5		Patient details on search	On search patient address and schedule to be displayed
6		patient label	label with patient details to be printed
7		Registration card	Ability to print cards
	Visit	Consultation charges	Automate the consultant charges when a patient comes for multiple visits
8	Visit	Patients with two consultant visits	In case patient wants to visit two consultants the first visit needs to be closed
9		Details of foreign patients	Passport and visa details to be captured
11	Visit	Prescription print will be given on visit form	Prescription print facilitate on visit form
13		Package cancellation	Package cancellation facility if services status is 'pending'
14		Emergency charges	calculate emergency charges on multiple services at the same time
15		Cancel order report	Cancel order report for MIS
17	Bill	Duplicate bill	Duplicate bill printing with access control
18		Adjustment facility for multiple services as a time also facility given to select adjustment reason	provision to make adjustments in bills with reasons
19		PCN not allow for Complete order	PCN will not facilitate for Complete order
20		detailed credit note report	Add visit date to the report
21		OPD Utilization	OPD Utilization Report to be generated
23		refund SMS	Sms to be sent to the patient post refund

24	Token		
25			
22		Token Summary detail report	Token Summary detail report should show cash/credit bill / Refund / credit card details separately
26	Appointment	Appointment cancellation	Appointment cancellation sms to be sent to patient
28		Doctor in & out report	Doctor In & out check box required on Appointment form
29		Patient Outstanding pop up	Patient Outstanding pop up to be displayed on visit form & Deliver report
32		OP order In IP visit	If IP visit open at that time we can place OP order
34		Receipt for sponsor form	Ability to select multiple bills In Receipt for sponsor form
35		Inter unit credit bill	Create Inter unit credit bill with debit and credit details
38		Payment mode	All payment modes on the same form
		card payment report	In card payment report , credit card no (last four digit) should be displayed
40	Consultant	Consulting module	Consulting module will be access control
41	Lab & Radiology	outstanding details	Patient Outstanding pop up to be displayed on visit form & Deliver report
42	Blood bank	Bulk registration for donor	Bulk registration for donor

10.2 In patient Billing

Sr.No	Menu	Discussion	Requirement
1	IP Billing	Inter division transfer (For Emergency cases for admission process)	Allow new IP visit for inter division transactions
2	IP Billing	Inter division services	Allow new OP visit for inter division transaction
3	IP Billing	Discount	Discount to be calculated on admin services
4	IP Billing	Ward upgradation	Ward upgradation calculation(Ward difference) with print option
5	Master	Disallowed items	Facility to export the disallowance report to excel
6	Master	Master modification	Copy the disallowances for services & items from one unit to other unit

7	IP billing	Bill modification	Create Bill=> Mark disallowances =>remove the default disallowances as and when required with access control
8	IP billing	Co-payment	Auto calculation of Co-payment
9		Provisional bill SMS	Provision to send SMS of provisional bill
10		Outstanding amount SMS	Provision to send SMS of the outstanding amount
12	IP billing	IP package modification	Ability to order the same package multiple times, modify services in the package, order date to be displayed
14	Master	Print Group wise ceiling	Packages content definition for all the units
15	IP billing	NICU packages	Rendering doctors name to be displayed
16	IP billing	Division wise pkg	Division wise packages to be locked for that division
17	IP billing	IP package modification	Option to print the package details , check box for services and items for inclusion and exclusion
18	IP billing	Item cost	Item price at cost price for IPF patients
19	IP billing	Adjustments and discounts	In private cases if any discount is given , it should be proportionately cut from doctors share.
20	IP billing	Emergency charges	default addition of emergency charges on services and surgeon charges
21	IP billing	Surgeon charges calculation for multiple surgeries at the same time	Surgery rate calculation based on user input (% to be different for the second surgery)
24	IP billing	Estimate calculation	Estimate will be calculated group and item class wise
25	IP billing	Template	ability to attach the template to PRN number
26	IP billing	Actual & estimate	Comparison report between actual and estimate
27	IP billing	Modification to estimate report	Facility to add remark on estimate report
29	IP billing	Annexure print	Annexure print - date wise print
30	IP billing	Remarks for create bill window	Create bill window remark data length to be increased

32	IPM	Refund of drugs	The ability to close the indent and return drug window at the ward level post the patient is marked for discharge
33	IP billing	CGHS bill	Join hospital and CGHS service codes
35	IP billing	RCM tracker	RCM tracker format to be given

10.3 Radiology

Sr.No	Menu	Discussion	Requirement
1	Radiology	Reporting and remarks	Bullets requied for Reporting & remarks
2		Font size	Change font size to 12 for reports
3		Email facility	Reports via email
4		Report format	Reports to be provided in tabular format
5		Upload photos to Create report	Upload photos to Create report form which is shown to patients
6		Search reports	Report search facility by using specific word
7		PACS integration	link selected images from PACS to patient ID
8		Reports	Add field refered by 2 in report - Income analysis by doctor/dept report
9		Export facility	Export facility for report & bill in word
10		Archives	Archives option given on print report form
11		Investigation request	Investigation request in consulting module to be displayed
12	Radiology	Appointment facility	Appointment facility given in radiology module
13		Some services e.gecg required facility to verify after requisition generate	Some services e.gecg required facility to verify after requisition generate
14		Selection Facility with digital signature	Selection Facility required to print report with digital signature

10.4 In patient management

Sr.No	Menu	Discussion	Requirement
1	Inpatient	Patient discharge	**Just discharge** tick mark required for patient just discharged from the system
2		Separate mark for VIP patient	Colour code or symbol for VIP patients
		VIP patient alert mail	Once patient is marked VIP , direct mail to certain departments
		Source and admission type	Source and admission type ton registration form
		IPD documents	Ability to upload documents in IPD registration
		Joint care SMS	Joint care SMS in joint care admissions
3	Insurance Claim	Covering letter	Addition of fields in covering letter as suggested by the department
		Ward wise prescription	Ward wise prescription time display
4	Admission	Should display every window, Admitted Patients report	Add remark text box on IPD admission/visit booking form & display as massage while retrieving that patients record for transaction during admission period
5	IPM - Workbench	Drug prescriptions post discharge	Display the name of the user who indents/prescribes drug to pharmacy. This facility is required for discharged patient.
6	IPM - Prescription	Drug prescriptions post discharge	show all items while prescribe the drug without clicking on "show items".
7	IPM	Required "Search Patient" option in IPM. Required to know the exact bed status & ward status of patient.	Required "Search Patient" option in IPM. This menu same like FDTM menu.
8	IPM	Short cuts	Short cuts required while doing transaction in IPM Web
9	QIS	Nursing care plan, Nursing Note & all assessment forms	Nursing care plan, Nursing Note & all assessment forms to be incorporated in the system
10	IPM	MLC number	MLC no. to be imported on discharge summary
11	IPM	Lab and diagnostic values	Lab & Diagnostics values to be imported directly from the system
12	IPM	High risk drugs	High risk drugs should be highlighted. In case of High risk drugs, Checked by & verified by to be displayed

13	IPM	OT notes	OT notes to be imported on discharge summary
14	DRMS	Indemnity form	In indemnity Bond, expiry date field required (Document Check List)
15	DRMS	Certificate copies	facility to upload the certificate scan copies
16	DRMS	Certificate options	Fields for Graduation, P/G & Diploma
17	DRMS	Privilege form	Privilege form to be received tab

10.5 OT management-

Sr.No	Menu	Discussion	Requirement
1	Requisition	Multiple Surgery can be added at a time	Multiple Surgery can be added at a time
2		OTM Module while select surgeon only surgeon or anaesthetist list will display	Only surgeon & anaesthetist list display in OTM module
3		Consumable sets will be define.	For issue to patient we can define consumable set.
4		Infection contol menu	Infection control menu
5		OT Booked vs Actual report difference shown in Web & VB HMIS	In VB difference shows accurate
6		All consent & clinical data	All consent & clinical data
7		MIS report format	MIS report format
8		OT booking by Consultant	Require facility to booke OT by consultant

12. References

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