

**Summer Training at
Max Super Speciality Hospital Shalimar Bagh, New Delhi
(April 1 to May 31, 2014)**

- **To calculate the Quality Check Indicators listed by NABH for the month of March and April' 2014 and analyze the Utilization Statistics for the same in detail.**
- **To conduct a Need Gap Analysis of Endoscopic System for the Gastroenterology Department.**
- **Max Healthcare as one of the most successful hospital in maintaining Electronic Health Records.**

**By
Arushi Kamthan**

**Under the guidance of
Dr. Vijay Pratap Raghuwanshi,**

**MBA- Hospital & Health Management (MBA-HM)
2013-2015**



**The IIHMR University, Jaipur
2014**

**INSTITUTE OF HEALTH
MANAGEMENT RESEARCH**

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CERTIFICATE

This is to certify that **Dr. Arushi Kamthan** has undergone her summer training in **Max Super Speciality Hospital, Shalimar Bagh, New Delhi** from 1st April, 2014 to 31st May, 2014. The candidate herself carried out below mentioned studies related to her summer training. Her approach to the study has been scientific and analytical.

Studies are:

1. To calculate the Quality Check Indicators listed by NABH and analyze the Utilization Statistics
2. To conduct a Need Gap Analysis of the Endoscopic System for the Gastroenterology Department of Max Shalimar Bagh
3. Max Healthcare as one of the most successful hospitals in maintaining Electronic Health Records

The summer training is partial fulfilment of the course requirement recommended for the award of Post Graduate Diploma in Hospital and Health Management.

I wish her success in all her future endeavours.


Col. (Dr.) Ashok Kaushik

Dean (Academic & Student Affairs)

IIHMR Jaipur


Mr. Vijay Pratap Raghuvanshi

Assistant Professor

IIHMR Jaipur

Dr. Arushi Kamthan
New Delhi.

May 31, 2014

TO WHOMSOEVER IT MAY CONCERN

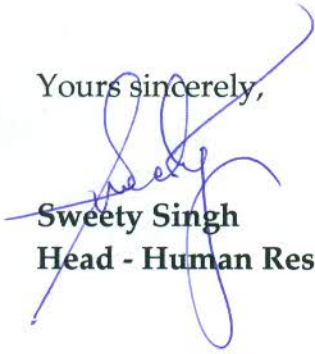
This is to certify that **Dr. Arushi Kamthan**, student of Institute of Health Management Research, Jaipur has completed her internship from **Max Super Specialty Hospital, Shalimar Bagh** in the Department of Medical Quality on the following topics from 01-April-2014 to 31-May -2014:

- 1- To calculate the Quality Check Indicators listed by NABH for the month of March and April ' 2014 and analyze the Utilization Statistics for the same in detail.
- 2- To conduct a Need Gap Analysis of the Endoscopic system for the Gastroenterology department .
- 3- Max Hospital as one of the best hospital in maintaining Electronic Health Records.

During the period of her association with us, we found her to be a dedicated, loyal, sincere and hard working person.

We wish her all the best for the future.

Yours sincerely,



Sweety Singh
Head - Human Resources

DECLARATION

I, Dr. Arushi Kamthan, student of PGDHM-Ist year, Institute of Health Management Research Jaipur, hereby declare that the following projects has been done by me:

1. To calculate the Quality Check Indicators listed by NABH for the month of March and April' 2014 and analyze the Utilization Statistics for the same in detail.
2. To conduct a Need Gap Analysis of Endoscopic System for the Gastroenterology Department.
3. Max Healthcare as one of the most successful hospital in maintaining Electronic Health Records.

I also declare that the confidentiality of the data will be given utmost priority and the data will only be used for the project work.

Dr. Arushi Kamthan
PGDHM- 18th Batch
IIHMR, Jaipur

ACKNOWLEDGEMENTS

It is with deep gratitude that I would like to express my sincere appreciation and indebtedness to my mentor and guide, **Dr. Lalitesh Sangwan**, Deputy Manager Operations & Medical Quality, for giving me an illuminated direction, indispensable suggestions, kind attention and precious time. Thank you for your ceaseless encouragement, constructive criticism and valuable suggestions for improvement.

I also gladly utilize this opportunity to express my extreme thankfulness to **Mr. Abhishek Sinha**, Head Biomedical Engineering Department, for his valuable time, expert guidance and support.

A special note of thanks to all the **Departments of Max Healthcare** I visited for data collection and compilation despite their hectic and busy schedule. It was their kind gestures and continuous help which led to the completion of my study.

My sincere thanks to **Col. (Dr.) Ashok Kaushik**, Dean, Academic and Student Affairs, Institute of Health Management Research Jaipur, for his invaluable inputs and guidance, as they helped me to develop a line of thought for how to shape my projects.

My heartfelt thanks to my mentor **Mr. V.P Raghuwanshi**, Assistant Professor, Institute of Health Management Research Jaipur, for his thorough support, untiring patience, providing clarity to my cluttered thoughts and never ending willingness to render generous help to me.

I am privileged to express my extreme gratefulness to my **MA & PAPA**, whose encouragement and believe in my abilities made me achieve my goal and overcome all obstacles in its accomplishment. The constant love and support of my **Nani Maa, Baba Sahab, Bhaiya** and **Bhabhi** is sincerely acknowledged. Their unconditional love and affection has been my greatest strength.

I would also like to thank my co-interns Ms. Arushi Joshi, Ms. Suparna Chawla, Dr. Bhawna Dhaka, Dr. Priyanka Gahlawat, Dr. Gaurav Kapur and Ms. Pratishtha Saxena for their countless support and help.

Finally, I would like to thank everyone who played an important role in the successful realization of my project as well as apologies for not thanking them personally.

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ACRONYMS:

ABG- Arterial Blood Gases
ACLS- Advanced Cardiac Life Support
ALOS- Average Length of Stay
AMS- Assistant Medical Superintendent
BCMA- Bar Code Mediated Drug Administration
BLS- Basic Life Support
CAG- Coronary Angiography
CLABSI- Central Line Associated Blood Stream Infections
CPRS- Computerized Patient Record System
CRRT- Continuous Renal Replacement Therapy
CT Scan- Computerized Tomography Scan
CTVS- Cardio-Thoracic Vascular Surgery
ECG- Electrocardiography
ECHO- Echocardiography
EHR- Electronic Health Record
ER- Emergency Room
ERCP- Endoscopic Retrograde Cholangio-Pancreatography
GDA- General Duty Assistant
GI- Gastro-Intestinal
HR- Human Resource
HDU- High Dependency Unit
HIS- Hospital Information System
ICCU- Intensive Coronary Care Unit
ICD- International Classification of Diseases
ICU- Intensive Care Unit
LEED- Leadership in Energy and Environmental Design
MICU- Medical Intensive Care Unit
MRI- Magnetic Resonance Imaging
NABH- National Accreditation Board for Hospital and Healthcare Providers
NABL- National Accreditation Board for Testing and Calibration Laboratories
NICU- Neonatal Intensive Care Unit
OPD- Out-Patient Department
OT- Operation Theatre
PFT- Pulmonary Function Test
PICU- Pediatric Intensive Care Unit
PTCA- Percutaneous Transluminal Coronary Angioplasty
SICU- Surgical Intensive Care Unit
SLED- Sustained Low Efficiency Dialysis
TMT- Trade Mill Test
TPA- Third Party Administration
UTI- Urinary Tract Infection
VEOS- Cloud Computing Software
YTD- Year-to-Date

ABOUT THE ORGANIZATION

MAX SUPER SPECIALITY HOSPITAL, SHALIMAR BAGH

- (i) **Website-** www.maxhealthcare.in
- (ii) **Type-** Privately owned healthcare network.
- (iii) **Year of incorporation-** Max India Limited was founded in 1985.
- (iv) **Start of operations-** November 2011.
- (v) **Major milestone of expansion-**
 - 2007- Max Healthcare receives NABH & NABL certification for its laboratories.
 - 2008- Max receives Express Healthcare Awards for Excellence in Healthcare
 - 2009- Max Healthcare receives D L Shah National Award on 'Economics of Quality' by Quality Council of India
- (vi) **Mission, vision, goal-**
 - a. **Mission:**
 - Create exceptional standards of Medical & Service Excellence
 - Care provider of FIRST CHOICE
 - Principal choice for physicians
 - Ethical practices
 - Create International Centre of Excellence for select Super Specialties
 - Safety- Patient, Customer, Staff
 - b. **Vision:** Deliver international class healthcare with a total service focus, by creating an institution committed to the highest standards of medical and service excellence, patient care, scientific knowledge, research and medical education.
 - c. **Goal:**
 - Profitable without profiteering
 - Seamless linkage between secondary and tertiary care
- (vii) **Any other affiliations-**
 - NABH, NABL, NABH Accreditation for blood bank, D L Shah National Award on 'Economics of Quality', JCIA, ISO 9001:2008
- (viii) **Any other branch-**

New Delhi : Saket (east & west), Patparganj, Pitampura, Panchsheel Park

Other cities : Nodia, Gurgaon, Mohali, Bathinda, Dehradun
- (ix) **Team leaders Pan Max Healthcare-**
 - **Chairman**
 - **Director Sales & Marketing**
 - **Senior Vice President, Human Resources**
 - **Director Service Excellence**
 - **Chief Financial officer**

BUILDING

- (i) **Plot Size-** 10 lakh square feet
- (ii) **Covered Area-** 2 lakh 98 square feet
- (iii) **Number of floors-** 10 plus 2 in the basement
- (iv) **Parking space-** Organized (in ground floor, upper basement & lower basement)
- (v) **Number of lifts-** 7 (Company: OTIS)
 - Visitors lift (3); Patient lift (2); Service lift (1); Capsule lift (1)
- (vi) **Capacity of lift-** 26 people (1728 kg)
- (vii) **Number of Fire exit-** 6
- (viii) **Green Hospital-** Max Healthcare is the only healthcare provider in India with 5 LEED India- Gold rated Green Hospitals.
- (ix) **Certified by:** Indian Green Building Council (IGBC)

HOSPITAL

- (i) **Total number of beds-** 300 (Functional-150)
- (ii) **Break up of beds**
 - **Wards-** 98; **ICU-** 52
- (iii) **Bed occupancy**
 - **Wards-** 82%; **ICU-** 85%
- (iv) **Out sourced departments-** Housekeeping, Security, Food & Beverages, Dental, Physiotherapy and Biomedical Waste, IT
- (v) **Software's-** CPRS; BCMA; PuTTY; HIS; VEOS

MODE OF DATA COLLECTION

The HR head scheduled the appointment with HODs of all the departments. All the HODs were intimated about the schedule.

Data collection involved discussion with HODs on managerial issues and talking to other staff and going through various records.

Source of data

Primary source of data: By interaction with head of the departments, managers, executives and other staff members of the hospital. Through direct observation of functioning of various departments

Secondary source of data: By going through various records of the hospital, through the internet and through the literature available about the hospital like information booklets, pamphlets and other various written documents.

DEPARTMENTAL REPORT

OUT PATIENT DEPARTMENT

- (i) **Location-** Ground floor (OPD A and B)
- (ii) **Number of consult chambers**
 - **A wing-** 12; **B wing-** 9
- (iii) **OPD timings-** 10:00 am to 3:00 pm
- (iv) **Number of other rooms like procedure rooms, refraction, etc-** 2
- (v) **Waiting area-** present on ground floor close to OPD- A Wing
- (vi) **Sitting capacity-** 40
- (vii) **Facilities-**
 - **A Wing-** Orthopedics, Dermatology, Podiatry, Internal Medicine, Pediatric Surgery, Plastic Surgery, Urology, Obs. & Gynecology, Surgical Oncology, General Surgery, Gastroenterology, Pediatrics, Minimal access metabolic & Bariatric surgery, Gynae Mas
 - **B Wing-** ENT, Ophthalmology, Mental health & Behavioral Sciences, Medical Oncology, Nephrology, Neurological Sciences, Dental, Radiation Oncology, Pulmonology, Endocrinology
- (viii) **Number of front desks-** 2 in each wing
- (ix) **Appointment system-** Online, Telephonic and Walk-in
- (x) **Retrieval of records-** Retrieval by patients Max ID
- (xi) **Number of OPD/day-** 300 to 350 per day
- (xii) **Manpower with hierarchy-** OPD Incharge, Duty Manager, Patient Care Coordinators (15)
- (xiii) **Day care procedures-** routinely procedures like cholecystectomy, cataract, hernia, dialysis, medical oncology, etc are done

CARDIO VASCULAR DIAGNOSTIC

- (i) **Location-** Ground floor
- (ii) **Manpower with hierarchy-** 1 Non Invasive doctor, 2 senior technicians, 1 GDA
- (iii) **Equipments-** ECG machine (1), ECHO machine (3- 2 are moving for bed side ECHO), TMT (1), Haulter (2)
- (iv) **Number of procedures-** ECG – 40 per day, ECHO – 15-20 per day, Stress ECHO – 4 per day, TMT – 5-10 per day, Haulter - 7-10 per month
- (v) **Turn Around Time-** ECG – 15 min, ECHO & TMT – 30 min, Stress ECHO 1 hour
- (vi) **Cath Lab-**
 - Located on first floor
 - Mainly for Angiography, Angioplasty, CAG, PTCA etc

- Hierarchy: Head- Dr. Tripathi, Senior Doctors (2), Junior Residents (2), Distal Surface Angiographist (1), Technicians (4), Nurses (7), GDA (3)
- Per day procedures and tariff: Angiography- 3 to 4 and is of 13,000/- Angioplasty- 2 to 3 and is of 95,000/- depending upon stent

ENDOSCOPY

- (i) **Location-** 1st floor
- (ii) **Manpower with hierarchy-** 1 HOD, 1 Senior Consultant, 1 Senior Resident, 1 Medical Service Coordinator, 1 Nurse, 1 Technician, 1 GDA
- (iii) **Process Flow-** Patient comes after consultation → goes to changing room → Preparation of the patient → Procedure room → observation room → sent back
- (iv) **Equipments-** 2 machines (3 endoscopes, 2 colonoscopes, 1 duodenoscope)
- (v) **Number of procedure per day-** 15-16
- (vi) **Time/tariff per procedure-** Total procedure of endoscopy is half hour and tariff is 2450/- and 150/- for registration. Total procedure for colonoscopy is 3 hour and tariff is 4775/- and 150/- for registration.

DIALYSIS

- (i) **Location-** 2nd Floor
- (ii) **Manpower with hierarchy-** Head, Senior Consultant, 6 Staff nurses (3 sisters, 3 brothers), 4 Technicians, 1 Front office staff, 1 GDA
- (iii) **No. of dialysis machines-** 6
- (iv) **Dialysis per day-** 20-22, **Duration per procedure-** 4 hours
- (v) **Facilities-** Dialysis (SLUD and CRRT done in ICUs)
- (vi) **Tariff-** Single use 2650/-, Reuse 2050/-
- (vii) **Medicine & Consumables-** Dialyzer, dialysis line, central line, AV fistula, normal saline, Heparin, Relinin (for reuse procedures), Potassium free solution A & B, weekly Iron & Erythropoietin therapy.
- (viii) **Duty Rosters-** Morning 8 hourly- Evening 6 hourly- Night 12 hourly

BLOOD BANK

- (i) **Location-** 2nd floor
- (ii) **Process flow-** Donor registration → Medical Screening (WHO/ NACO guidelines) → Phlebotomy (collection of 350-450 ml of blood depending on the weight of the donor) → Checking for donor reactions → Donor refreshments
- (iii) **Processing of the blood-** consists of two parts:
First, Testing that comprises of Blood grouping-antigen testing and infectious markers. Second, Component preparation where plasma, platelets and packed cells are extracted and stored.

- (iv) **Issuing of the blood-** Blood component request form (along with blood sample) —→ Testing for grouping and cross matching —→ Issuing by giving printed issue note —→ Reporting of all transfusion reactions (whether present or not)
- (v) **Equipments & Temperature maintained-** Component extractor (1); Platelet agitator (2); Deep freezer (2)- minus 86 degree Celsius; PRC fridges (2)- 4 degree Celsius; Cryo precipitator (2)- minus 4 degree Celsius; Automatic immune- hematology analyzers (1); Cell separator (1)- for Apheresis
- (vi) **License-** Drug & Cosmetic Act: Form 27(C)
- (vii) **Manpower with hierarchy-** Senior Consultant, Supervisor (1), Technician (4), Nurse (1), Receptionist (1), GDA (1)

PATHOLOGY

- (i) **Location-** 3rd floor
- (ii) **Manpower with hierarchy-** 3 doctors, 1 Lab Manager, 1 Lab Supervisor, 1 Quality Control Manager, 13 Lab Technicians, 3 GDA
- (iii) **Sample collection and receiving-** For OPD, at ground floor in the sample collection room from 8am to 8pm, For IPD, it comes from wards or ICUs, the service is 24 hours available
- (iv) **Report collection-** For OPD, it is done from OPD-A wing
For IPD, there is computerized patient record system where doctors can access all the reports
- (v) **Procedures per day-** **Biochemistry** – 100 tests, **Hematology** – 100-150, **Urine Analysis** – 40, **Microbiology** – 15-20

RADIOLOGY/ IMAGING SERVICES

- (i) **Location-** Ground floor
- (ii) **Equipments -**
 - X-ray machine, Ultrasound machine, CT Scan, MRI machine, Mammography machine, Fluoroscopy machine.
- (iii) **Number of procedures per day-** **X-ray:** 30-40, **Ultrasound:** 35-45, **CT scan:** 14-15, **MRI:** 10-8, **Mammography:** 4-5, **Fluoroscopy:** 1-2
- (iv) **Turn Around Time-** 15 to 30 minutes
- (v) **Manpower with Hierarchy-** Head, Senior Consultants (2), Technicians (10), GDA (6)- 3 males and 3 females- 2 for ultrasonography and one for dispatching
- (vi) **Nuclear medicine-**
 - Manopower & Hierarchy- Nuclear Medicine Physician, Nuclear Medicine Physicist & Radiation Safety Officer, 1 Nurse, 1 GDA
 - **Procedure:** Mostly appointment based and uses Technetium 99M whose T1/2 is around 6 hours. Used here for diagnosis only. One machine present (GAMA camera)

- **License:** Atomic Energy Regulatory Board

IN- PATIENT DEPARTMENT

(i) **Location-** 5th-9th floor

(ii) **Bed types and Charges-**

S.no.	Bed Type	Bed Charges/ day (Rs.)	Physician/Surgeon Charges per visit (Rs.)	Intensivist Charges (Rs.)
1.	VIP Suite	1000	1400	
2.	Classic Deluxe	8000	1100	
3.	Single Room	6000	850	
4.	Double Room	4000	750	
5.	Economy	2750	600	
6.	Day Care	2000	750	
7.	ICU/ICCU/SICU/ CTVS	9000	850	850/visit
8.	HDU	4000	750	650/visit
9.	NICU (I, II, III)	2250-4000	1750-2700/day	
10.	PICU (I, II, III)	3000-4000	2500-3600/day	

- One time charge of Dietician of Rs 300/- for all inpatients except those of PSUs
 - One time charge of Home Care Visit of Rs 500/- & Rs. 750/- for all patients.
- (iii) **Nursing Station-** There are two wings: A and B. Each wing has a central nursing station with nursing desks, computer systems, cupboards, White board (where details of each patient is mentioned), monitor system (for receiving calling bells from patient). Each wing comprises of 21 rooms. In the cupboard all the life saving and emergency drugs including day to day consumables are kept.
- (iv) **Record keeping-** All the records of in-patients are maintained in electronic health records including paper files for each.
- (v) **Arrangement of beds-** There is an open system in the arrangement of beds on each floor in cases of wards. For ICUs they are specialty wise like neonatal, surgical, pulmonary, medical, nuero, cardiac, respiratory, etc
- (vi) **Manpower with Hierarchy-** IPD Head, Duty Manager, 2 Patient Care Executives, 20 Patient Care Coordinators, 3 GDA
- (vii) **Daily/weekly volume-** 30 to 35 per day
- (viii) **Process flow-** Patient is advised for admission by Consultant → Front office asks for details regarding the room category from the patient or attendants → admission intimation is send to the respective floor nursing station → Housekeeping prepares the room → patient gets admitted
- (ix) **Medicines for patient and return-** Pharmacy department sends all the medicines required for next 24 hours each day floor wise and the return of the medicine is each day from 10pm-12am

- (x) **Discharge-** Discharge process takes approximately 3 hours from the time of receiving intimation from the Nurse Station. In TPA cases, discharge gets extended.
- (xi) **Visiting hours and Visitor policy-**
 - Visiting hours: **Wards-** Morning (11am-1pm); Evening (4pm-7pm)
ICUs/HDUs- Morning (11:30am-12noon); Evening (5pm-5:30pm)
 - **Visiting policies:**
 - Mandatory to carry attendant pass while visiting patient in the room
 - Only one attendant allowed to stay with patient at night
 - A maximum of 2 people per patient are allowed to visit
 - Children below 12 years are not allowed to visit the patient
 - Flowers and food from home are not allowed to be taken in patient rooms
 - Use of tobacco is strictly prohibited in the premises
 - Arms and ammunition of any form are strictly prohibited in the hospital (except for Armed Forces personnel & authorized Govt. security officials)

OPERTAION THEATRE

- (i) **Location-** 1st floor
- (ii) **Number of OTs-** 6
- (iii) **Types of OTs-** Neuro(1); Uro(1); Ortho(1); Cardio(1); Gen. Surgery(2)
- (iv) **Pre Op and Post Op area and beds-** separate common room for both pre and post op consisting of 8 beds
- (v) **Daily volume-** 15 to 20 per day
- (vi) **Manpower with Hierarchy-** 10 doctors (Head, 2 Attending Consultants, 7 Senior Consultants), 23 Nurses and 8 Technician
- (vii) **Duty Rosters-**
 - Doctors- 9am to 5pm and 5pm to 10am (General shift: 8am to 4pm)
 - Nursing- 8am to 4:30pm; 12pm to 8:30pm; 8pm to 8am
- (viii) **HEPA filters-** Total 5 (4 at each corner and one on the ceiling)
- (ix) **Temperature-**
 - **Uro-** 20 to 22 degree Celsius, **Ortho-** 16 to 17 degree Celsius,
General & Cardio- 18 to 20 degree Celsius
- (x) **TAT-** 30 minutes

INTENSIVE CARE UNIT

- (i) **Location-** 2nd floor
- (ii) **Type and number of beds-** Surgical ICU (8), Neonatal ICU (14), Neuro ICU (8), Pulmonary ICU (8), Medical ICU (10), Apex CCU (8), CTVS (8), HDU (8)

- (iii) **Isolation beds-** One in each ICU
- (iv) **Open or cubicle-** half wooden glass partition in between each bed
- (v) **Number of ventilators-** around 30

EMERGENCY SERVICES

- (i) **Location-** Ground floor
- (ii) **Manpower with Hierarchy-** Head Emergency Medicine, 3 Senior Consultants, 6 nurses, 2 GDA
- (iii) **Duty roster-** 2 shifts (9am-5pm and 5pm-9am)
- (iv) **Flow chart-** Patient directly comes to Emergency department → first aid given → Patient is stabilized and monitored → Billing procedure discharged/admitted.
- (v) **Number of beds-** 6 (and 6 in Resuscitation room; used in cases of mass accidents or disasters). Universal Triage Coding is followed.
- (vi) **Tariff-**
 - Emergency room charge: 500/-
 - Emergency Medical Officer charge: 300/-
 - SR/JR charge: 300/- (8am-10pm)
500/- (10pm-8am)
- (vii) **Ambulance services-**
 - Control of the ambulance fleet is centralized at the Emergency Base Station.
 - Ambulance number- 011 4055 4055
 - Type of ambulance- 1 BLS and 1 ACLS
 - Staff and tariff- as per the condition of the patient informed, the staff goes. In case of serious traumatic conditions, doctor accompanies in ACLS and tariff is around 1500-2000/-

MEDICAL RECORD

- (i) **Types of medical record-** Both Paper and Electronic medical record
- (ii) **Retention period-** 5 years (for all cases), Forever (for medico-legal cases)
- (iii) **Arrangement of medical records-** by patient IP number in steel open shelves.
- (iii) **Retrieval policy-** The patients/ attendants have to submit an application along with an identity proof to retrieve any content of the record

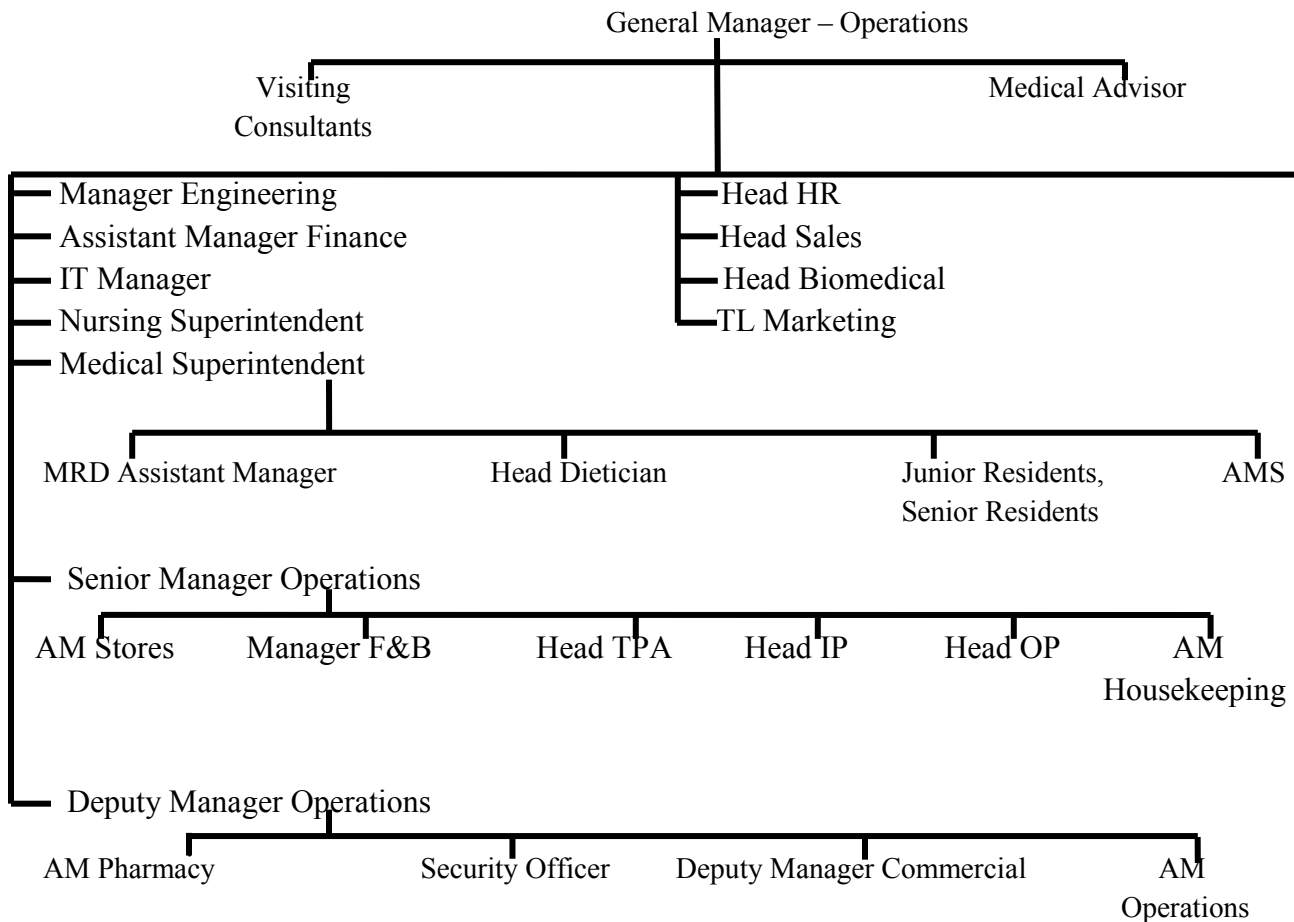
HUMAN RESOURCE

- (i) **Manpower with Hierarchy -** Head, 2 Executives, 1 GDA
- (ii) **Recruitment process-** Recruitment in Max Healthcare is done through various channels like; Internal recruitment, External recruitment, Referral, Online agency

- (iii) **Performance appraisal-** Performance appraisal is designed on different parameter for different categories (Clinical, Nursing, Paramedical and Support Staff) which is filled by employees first to rate themselves (Self Appraisal) and then the same appraisal is filled by their immediate supervisor/HOD to finalize it.
- (iv) **Employee rewards / appreciation systems-** There are various reward and recognition programs in place. A set number of employees are identified from each category in every quarter and awarded for their exemplary performance. There are other informal practices in place where the department head recognizes the good work done by their team members and applaud them with thank you cards/applaud cards etc.
- (v) **Exit Interview-** Every departing employee meets-up with the HR representative for the exit interview and also fills up an online form available. A form of exit interview is available on the software which is especially designed for employees with their own ID and login password.
- (vi) **Employee rights-** Every Employee shall be privileged to the right-
- To be aware of the hospital wide policies.
 - To avail the benefits being extended by the organization.
 - If any one believes that he/she has been the victim of harassment, or knows of another employee who has, the right to report it immediately to the HR department.
 - To be treated considerately and respectfully, and not discriminated on the basis of caste, religion, sex or socio-economic background.
 - To be entitled to the terms and conditions as specified in the appointment letter.
- (vii) **Grievance handling-** Consist of:

Escalation level	Authority
1st Level	Supervisor
2nd Level	Skip Level Manager
3rd Level	HOD / Unit HR / Zonal HR / Unit Head/ any member of Senior Management Team
4th Level	Grievance Resolution Committee Members: • Head of HR - Pan Max Healthcare • Clinical Director - Pan Max Healthcare • Head of Operations - Pan Max Healthcare

(viii) Organization Hierarchy



MARKETING

- (i) Location-** 4th floor in administration block
- (ii) Manpower with hierarchy-** General Manager Operations, Sales Head, Marketing Head, 7 Executives, 1 GDA
- (iii) Promotional activities-** Commonly performed promotional activities are,
 - Camps- Health checkup camps, Camps for brand visibility etc.
 - Talks
 - Internal & external activities
 - Campaigns- For larger period, this is basically the revenue generation activity.
- (iv) Advertisement-** Advertisement of hospital include many ways like, Hoarding, Newspaper, Consultant interviews/promotion

HOUSE KEEPING

- (i) **Manpower with Hierarchy** – Head, Second command, 11 supervisor, 218 team members (housekeepers and GDA)
- (ii) **Outsourced / In-house-** Housekeeping is outsourced in the organization by ‘_Ever Shine’ and GDA is outsourced by ‘_Shine & standards’.
- (iii) **Laundry** – Laundry is also outsourced in the organization (central laundry in Okhla)
- (iv) **Bio medical waste Management**– Outsourced by ‘_Biotech’. The average waste is around 45000 kg/month.

DIETRY

- (i) **Dietician-** Permanent: 3 and Outsourced: 2
OPD consultation by the Head (9am-5pm)
IPD consultation by Permanent Staff (Timings: 7:30am-7pm)
- (ii) **Cafeteria facility for staff, patients and nurses-** For employees- Medirest’. For the attendants- Wholefoods, Café coffee day, Sagar Ratna cafeteria, Nashta Pani (Waiting lounge) in the ground floor
- (iii) **Kitchen-** located on third floor close to the mess.
- (iv) **Diet flow procedure for different patients-** The patients are assessed everyday by the dieticians in- charge in their duty rounds. They make diet chart for each patient and then forward it to the kitchen department.

MAINTAINENCE (Engineering)

- (i) **Manpower with Hierarchy**-Manager Engineer, Maintenance Engineer, 3 Shift Engineer, 1 Fire Officer
- (ii) **Outsourced / In-house-** 6 employees in the hospital are on roll and 31 technicians with 4 for STP maintenance are outsourced.
- (iii) **Generator** - There are two generators, each with power 750 KVA.
- (iv) **UPS** – There are three UPS in the hospital with 120KV.
MRI, CT and Cath Lab have separate electronic control.
- (v) **RO water** – Commercial RO which purify 18000 liter water per hour
- (vi) **Maintenance Log book-** Maintenance log book is maintained for every system separately. This is updated on the monthly/weekly basis as required.
- (vii) **Water tanks-** Water supply in the hospital is through Boring water with 100-200 liter water consumption per day. The hospital has over all 6 water tanks with 6 lakh liter storage capacity.

MEDICAL GASES

- (i) **Manifold room-** located on upper basement area
- (ii) **Color Coding-** follow European Standard:
 - Oxygen – Yellow pipe line with white band.
 - Nitrous Oxide – Yellow pipe line with blue band.
 - Compressed air-4 bar – Sky Blue pipe line with black & white band.
 - Compressed air-7 bar – Sky Blue pipe line with black white black band.
 - Vacuum – Sky Blue pipe line with yellow band.
 - Carbon Dioxide – Yellow pipe line with grey band.
 - AGSS – Yellow pipe line with sky blue and dark yellow band.
- (iii) **Different gases at different department- It include,**
 - OT – Oxygen, 4 bar compressed medical air and 7 bar compressed medical air, nitrous oxide, carbon dioxide, vacuum, AGSS (Anesthetic Gas Scavenging System)
 - ICU- Oxygen, Carbon dioxide, Suction
 - Ward- Oxygen, Suction
 - Dental- Suction

OPERATIONS & QUALITY

- (i) **Hierarchy-** General Manager, Senior Manager, Deputy Manager, Manager (IPD, OPD, TPA)
- (ii) **Committees in the hospital-** 9 committees Infection control, Mortality, Medical Audit, Blood transfusions, OT & ICU users, Code Blue, Risk Management, Ethics, Drug and Therapeutics
- (iii) **Mission**

To be the hospital of first choice for key specialties in the region by:

 - Engaging the finest medical & non medical talent across specialties and their sub specialties
 - Offering the gamut of sub specialization
 - Affordable healthcare
 - Transparency of treatment to our stakeholders and clients
 - Best patient care

SUPPLY CHAIN MANAGEMENT (LSS & Commercial)

Local Supply Store

- (i) **Location-** Upper basement area
- (ii) **Manpower with hierarchy-** Head, 2 Executives, 2 team members, 3 in OT
- (iii) **Storing-** All the materials are stored in the shelf named in alphabetical way.
- (iv) **Issuing-** Request from different departments are made to LSS department regarding the required material, LSS then check the available stock and issue it

under the mane of particular department. In case if stock is not available, the department prepare an indent to the central supply (Okhla).

- (v) **Stock check-** In every six month stock is being checked, in which they maintain the ratio of 70%-30%. Focus is usually made on heavy consumables.
- (vi) **Inventory Management-** Every stock is checked in three months for expiry. In case the stock is getting expired within three month they are kept under first consumables. The policy of FIFO is followed.

Commercial

- (i) **Location-** 4th floor administration block
- (ii) **Manpower with hierarchy** – Head and 2 Executives
- (iii) **Process flow-** It consist of three parts, Purchase order, Contract, AMC/CMC.

PHARMACY

- (i) **Manpower with hierarchy-** Senior Pharmacist, Executive Pharmacist, 8 Pharmacist
- (ii) **Purchase** – Purchase in pharmacy is all centralized from corporate office (Okhla).
- (iii) **Storing** – In storage medicine are placed both in molecule wise and in alphabetical order.
- (iv) **Inventory management** – There is a separate section for the expired drugs. After every three months the expired drugs are removed.
- (v) **Narcotic drugs** – There is a separate register maintained for narcotics drugs and have double key lock system for all such drugs.
- (vi) **Look alike and sound alike drugs** –SALA drugs are kept in separate sections.
- (vii) **Licenses** – License of medicine is maintained by corporate office in Okhla.

CSSD

- (i) **Flow chart-** Receiving counter→ Check list→ washing with air/water gun→ Washer disinfectant → sorting out → Wrapped in cloth → Wrapped in SMS paper and taped with autoclave tape → Steam sterilization/Chemical sterilization.
- (ii) **Autoclaving-** Two steam sterilizers of 40-45 min cycle and 134 degree Celsius, 1 Chemical sterilizer that uses ethylene trioxide.
- (iii) **Auto reader (3M)** - There is a Biological Indicator Test that should give a negative result, depicting that the process of sterilization is correct and the instruments can be used.
- (iv) **Manpower & Hierarchy-** Head, 5 Technicians and 3 GDA
- (v) **Dispensing** – Separate sterilization room where sterilized materials are kept and dispensing is done through a window and timings are 9-11 AM and 3-5 PM.

SECURITY

- (i) **Hierarchy-** Head, Officer Security, Assistant Officer, Supervisor (2), Security Assistant (2), 60 outsourced by _Ghibblines Solutions‘
- (ii) **Duty roster-** 7AM-3PM, 1PM-9PM, 9PM-7AM
- (iii) **Code committees- There are 6 codes,**
 - **Code Black** - Bomb threat/ terrorist attack
 - **Code Yellow** – External disasters
 - **Code Blue** – Cardiac arrest
 - **Code Red** – Fire
 - **Code Pink** – Missing patients
 - **Code Purple** – Violent patients/ attendants

CALL CENTRE

Consist of two divisions

- (i) Division I consists of announcements for IPD patients, attendants, parking, RRT, Code Blue, etc
- (ii) Division II manages all the Emergency calls. Max Shalimar Bagh is the centralized centre. They then call the nearest Max chain and through conference talks to the concerned doctor.
Average calls: 30 to 35 calls per day for dispatching

Turn Around Time:

	BLS	ACLS
Ambulance move time	1 minute	5 minutes
Scene to reach time	20 minutes	20 minutes
Back to hospital time	25 minutes	30 minutes

CONCLUSIVE LEARNING, LIMITATIONS AND SUGGESTIONS FOR IMPROVEMENTS

Max healthcare has immensely helped to know about the overall functioning of the hospital, the inter-linking of various departments and how the process flow. There were around 16 administrative departments and 19 clinical departments in the hospital, which helped us to grasp the relevant information and required knowledge

Limitations:

The hospital sector is a complex network with multiple functioning and busy schedule time constrain was a very important factor while learning about the hospital. Access to most of the areas in the hospital was restricted due to hospitals strict policies. Similarly, the sharing of detailed information was also prohibited.

Suggestions for improvements:

- Though the administrative department is located on the same floor yet there is need for separate distinctions among the various departments.
- Focus on retention policy need to be improvised due to high attrition rate in some of the departments.
- Wards in each floor should be separated speciality wise, this may lead to ease of working for doctors and also reduced nurse-patient ratio.
- Special attention is required by the housekeeping department on the floors where there is maximum patient flow.
- Some better mode of transport facility from the nearest metro station can be made available for patient and attendants.
- More of internal marketing for the hospital can be considered.

To calculate the Quality Check Indicators listed by NABH and analyze the Utilization Statistics for the same

INTRODUCTION TO NABH:

National Accreditation Board for Hospitals & Healthcare Providers (NABH) is a constituent board of Quality Council of India, set up to establish and operate accreditation programme for healthcare organizations. The board is structured to cater to much desired needs of the consumers and to set benchmarks for progress of health industry. The board while being supported by all stakeholders including industry, consumers, government, etc has fully functional autonomy in its operation.

International Linkages of NABH:

- NABH is an Institutional Member as well as a Board member of the International Society for Quality in Health Care (ISQua).
- NABH is a member of the Accreditation Council of International Society for Quality in Health Care (ISQua).
- NABH is on board of Asian Society for Quality in Healthcare (ASQua).

Vision

To be apex national healthcare accreditation and quality improvement body, functioning at par with global benchmarks.

Mission

To operate accreditation and allied programs in collaboration with stakeholders focusing on patient safety and quality of healthcare based upon national/international standards, through process of self and external evaluation.

Values

- Credibility: Provide credible and value addition services
- Responsiveness: Willingness to listen and continuously improving service
- Transparency: Openness in communication and freedom of information to its stakeholders
- Innovation: Incorporating change, creativity, continuous learning and new ideas to improve the services being provided

INTRODUCTION TO THE PROJECT:

The standards encourage an environment of continual quality improvement. The quality & safety programme are documented and involve all areas of the organization and all staff members. The organization's focus is primarily collecting data on structures, processes and outcomes, especially in areas of high-risk situation.

NABH had listed 66 Quality Indicators under 16 groups in its sixth which needs to be assessed for continuous improvement in Quality Cycle.

What is Quality Indicator:

The Quality Indicators (QIs) are measures of health care quality that make use of readily available hospital inpatient administrative data.

Continuous Quality Improvement (CQI) as per NABH

Most of the hospitals do not have proper documentation system. Even if the documentation system is in place, compliance to the same is poor and hence reliable and sufficient data is not available for month on month comparison and analysis. Unless the Hospital activities, across various departments are captured in the form of Forms, Records, and Registers or in computers as soft copy, Quality Improvement cannot be measured or monitored.

Continuous Quality Improvement (CQI) is not a onetime affair to achieve quality state, it is a constant and conscious effort to raise the standard of practice in all areas and process of the hospital and sustain it forever.

The Cycle of continuous quality improvement (CQI) includes –

- There should be established documentation system to collect data
- The sample size and frequency of data collection is defined
- The data has to be collected for various indicators across all departments or functions on a monthly basis. Target is set for each department based on national/international benchmarks /data, if available. The target can also be set on three months data to begin with if the hospital is way behind the national/international benchmarks/targets. The target can be revised in phased manner gradually to scale to the level of national/international benchmarks / targets
- Non performances/Under performances across departments who fall below set target is identified
- Root cause analysis done
- Suitable corrective action taken
- Effectiveness of corrective action taken is evaluated
- Corrective action will be modified if required
- Preventive action taken
- Effectiveness of the preventive action taken is evaluated
- If Consistency is maintained with respect to achieving defined target in a particular department

- or process, then new target is set after getting the consensus from all stake holders
- The target is increased by few notches to achieve it
- This cycle goes on and on improving the performances and quality of each and every department/process
- Various indicators are adapted and data captured on monthly basis for comparisons and analysis

REVIEW OF LITERATURE:

1. Quality in health care is important as it is directly linked with patient safety. Quality as we know is driven either by regulation or by market demand. Regulation in most developing countries has not been effective, as there is shortage of healthcare providers and governments have to be flexible. In such circumstances, quality has taken a back seat. Accreditation symbolizes the framework for quality governance of a hospital and is based on optimum standards. Not only is India establishing numerous state of the art hospitals, but they are also experiencing an increase in demand for quality as well as medical tourism. India launched its own accreditation system in 2006, conforming to standards accredited by ISQua. [1]
2. Ensuring the smooth flow of quality indicator data is also difficult. Even when data comes in regularly, the veracity of that data may be questionable. While data on quality may be reasonably correct, safety data largely depends on individual reporting. Because many health care workers are afraid to admit mistakes and failures, incidents often go unreported. The leadership team must instill a sense of confidence and fairness in the staff's minds. Clinical audits are another area of difficulty and delay. While nursing audits are generally executed, meaningful medical audits are often challenging to achieve. The medical audit committee must play an active role in this process and furthermore, training is also essential for clinical audits. [1]
3. Safety measures are incorporated into the standards but should things go wrong a mechanism is provided whereby incidents are reported, systems investigated, and corrective measures taken to prevent future mishaps. Quality is enhanced by staff education, audits, and tracking of established quality indicators derived from all areas of the hospital on a monthly basis. Hospital committees tackle quality and safety issues of special importance such as infection control, safe medication, blood transfusion, fire and disaster preparedness, and radiation safety. NABH advocates a culture of continuous quality improvement. Accreditation is a journey and not a destination, a laudable concept but one which can be taxing for busy staff with multiple competing priorities. [2]
4. Quality health care encompasses all aspects of both traditional therapies and protocols to HRD. Quality health care can be more exactly described as striving for and reaching excellent standards of care. It involves assessing the appropriateness of medical tests and treatment and measures to continually improve personal health care in all fields of

medicine from the aides that help you eat to then surgeon who removes a tumor from your brain. Some of the aspects involved in providing quality health care in any number of facilities include accrediting (or) approving physicians, offices, hospitals (or) other health care providers. This is achieved through accreditation (or) inspection standards that ensure that proper procedure and staffing ratios are met. It also ensures that medical records are continuously reviewed in order to assess the effectiveness of treatment (or) procedures. Improving patient care is the driving force behind standards and regulations in quality health care, and is now known as performance improvement. [3]

5. The implementation of quality indicators in hospitals is most effective if feedback reports are given in combination with an educational implementation strategy and/or the development of a quality improvement plan. Effective strategies to implement quality indicators in daily practice in order to improve hospital care do exist, but there is considerable variation in the methods used and the level of change achieved. Feedback reports combined with another implementation strategy seem to be most effective. [4]

RATIONALE FOR STUDY:

Accreditation to a health care organization stimulates continuous improvement. It enables the organization in demonstrating commitment to quality care. It raises community confidence in the services provided by the health care organization. It also provides opportunity to healthcare unit to benchmark with the best.

Hence the Quality Check Indicators helps in knowing how well the hospital is functioning and what are the key areas where intervention can be applied.

SIGNIFICANCE OF STUDY:

NABH conducts its inspection after every 18 months from the date of accreditation to the hospital and hence the study can be further used to continue evaluating the indicators.

Moreover, the study can also be used to compare with the values of the previous assessment in knowing the changes that have occurred and thus taking corrective actions as and when required.

OPERATIONAL DEFINITION:

Quality is defined as "the degree to which a set of inherent characteristics fulfill the requirements." (Para 3.1.1. of ISO 9000:2000)

Healthcare is "a generic term used to describe the various types of organization that provide healthcare services. These include ambulatory care centers, hospitals, laboratories, etc" (NABH Book 3rd Edition)

Health care quality is defined as "the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge." (Institute of Medicine)

Indicator is defined as "a statistical measure of the performance of functions, systems, or processes overtime." (NABH Book 3rd Edition)

OBJECTIVES:

- To calculate the Quality Check Indicators for 2 months (March and April' 2014)
- Analyze in detail the Utilization Statistics unit wise

RESEARCH METHODOLOGY:

Study area: Max Super Specialty Hospital, Shalimar Bagh, New Delhi

Study duration: 2 months

Study design: Quantitative cross sectional analytical study

Sampling design: Different sample size is followed according to NABH Guidelines for different indicators. However, all sampling is by random sampling technique.

Data collection: Primary data is collected through observation, data recording and NABH checklists & guidelines

Data analysis: Data will be analyzed through statistical method

ETHICAL CONSIDERATIONS:

- Confidentiality will be ensured.
- Respect of people's right, dignity, diversity and time.
- Ensure that the study does not affect the working and functioning of the hospital.

NABH QUALITY CHECK INDIACTORS

I. PATIENT ASSESSMENT

1. Time taken for initial assessment of the inpatients

The time begins from the time the patient arrives at the bed of the ward till the time the initial assessment has been completed by the doctor.

Sample size- For hospitals with 30-50 patients per day; 50% sample size is taken

Formula= Total number of patients (sample size)/ Sum of time taken

March'14-68 minutes

April'14-62 minutes

Control Unit-60 minutes

2. Time taken for initial assessment of the emergency patients

The time begins from the time the patient arrives at the door of the emergency till the time that the initial assessment is completed by the doctor.

Sample size- For hospitals with >50 patients per day; 20% sample size is taken

Formula= Total number of patients (sample size)/ Sum of time taken

March'14- 1.25 minutes

April'14- 1.18 minutes

Control Unit-5 minutes

3. Percentage of cases wherein the care plan with desired outcome is documented and counter signed by clinician

The desired outcome includes curative, preventive, rehabilitative, etc.

Formula= Number of in-patient care records where the care plan with desired outcome is documented* 100/ Number of discharges and deaths

Sample size- 20% of discharged or death records

March'14- 100%

April'14- 100%

Control Unit-95%

4. Percentage of cases wherein the nursing care plan has been documented

Sample size- 20% of discharged or death records

Formula= Number of in-patient case records wherein the nursing care plan has been documented*100/ Number of discharges and deaths

March'14- 100%

April'14- 100%

Control Unit-95%

II. DIAGNOSTIC SERVICES

5. **Number of reporting errors per 1000 investigations**

Reporting errors include those picked up before and after dispatch. It includes transcription errors.

Formula= Number of reporting errors*1000/ Number of tests performed

March'14- 0/0

April'14- 0.01/0

Control Unit-0/0

6. **Percentage of re-dos (Lab/Radiology)**

This include tests repeated before release of the result (to confirm the diagnosis)

Formula= Number of re-dos*100/ Number of tests performed

March'14- 0.23/2.99

April'14-0.15/0.51

Control Unit-1%

7. **Percentage of reports co-relating with clinical diagnosis**

Co-relation means that the test results should match either the diagnosis or the differential diagnosis written in the requisition form.

Sample size- For hospitals with >500 tests per month; 15% is the sample size

Formula= Number of reports co-relating with clinical diagnosis*100/ Total number of tests performed.

March'14-97.46/

April'14-98.83/

Control Unit-80%

8. **Percentage of adherence to safety precautions by employees working in diagnostic department**

Formula= Number of employees adhering to safety precautions/ Total number of employees

March'14- 100%

April'14- 100%

Control Unit-100%

III. ADVERSE DRUG EVENTS

9. **Percentage of admissions with adverse drug reactions**

Adverse Drug Reaction is a response to a drug which is noxious and unintended and which occurs in doses normally used in man for prophylaxis, diagnosis, or therapy of disease or for the modification of physiologic function.

Formula= Number of adverse drug reactions*100/ Number of discharges and deaths

March'14- 0
Control Unit-0

April'14- 0

10. Percentage of medication charts with error prone abbreviations

These include medication charts with illegible handwriting and an unacceptable error prone abbreviations.

Formula= Number of medication charts with error prone abbreviations*100/
Total number of medication charts

March'14- 0
Control Unit-1%

April'14- 0

11. Percentage of patient receiving high risk medication developing adverse drug event

High risk medications are those that are involved in a high percentage of medication errors or sentinel events and medications that carry a high risk for error, abuse or other adverse outcomes.

Formula= Number of patients receiving high risk medications developing adverse drug event*100/ Number of patients receiving high risk medications

March'14- 0
Control Unit-0

April'14- 0

IV. USE OF ANESTHESIA

12. Percentage of modifications of anesthesia plan

The anesthesia plan is the outcome of pre- anesthesia assessment. Any changes done after this is considered as modification of anesthesia plan

Formula= Number of patients in whom the anesthesia plan was modified*100/
Number of patients who underwent anesthesia

March'14- 0
Control Unit-0

April'14-0

13. Percentage of unplanned ventilation following anesthesia

Formula= Number of patients requiring unplanned ventilation following anesthesia*100/ Number of patients who underwent anesthesia

March'14- 0
Control Unit-0

April'14-0

14. Percentage of adverse anesthesia events

It is any untoward medical occurrence that may present during treatment with an anesthetic product but which does not necessarily have a causal relationship with this treatment.

Formula= Number of patients who developed adverse anesthesia event*100/
Number of patients who underwent anesthesia

March'14- 0
Control Unit-0

April'14-0

15. Anesthesia related mortality rate

Any death where the cause is probable, possible (likely) or certain to be due to anesthesia are included.

Formula= Number of patients who died due to anesthesia*100/ Number of
patients who underwent anesthesia

March'14- 0
Control Unit-0

April'14-0

V. SURGICAL SERVICES

16. Percentage of unplanned return to OT

Formula= Number of unplanned return to OT*100/ Number of patients operated

March'14- 0.52%
Control Unit-0.32%

April'14-

17. Percentage of re-scheduling of surgeries

This includes cancellation and postponement (beyond 4 hours) of the surgery

Formula= Number of cases re-scheduled*100/ Number of surgeries performed

March'14- 21.78%
Control Unit-20%

April'14-

18. Percentage of cases where the organizations procedures to prevent adverse events like wrong site, wrong surgery, wrong patient has been adhered to

Formula= Number of cases where the procedure was not followed*100/ Number
of surgeries performed

March'14- 0%
Control Unit-0

April'14-0%

VI. USE OF BLOOD AND BLOOD PRODUCTS

19. Percentage of transfusion reactions

A systemic response by the body to the administration of blood incompatible with that of the recipient.

Formula= Number of transfusion reactions*100/ Number of transfusions

March'14- 0%
Control Unit-0.5%

April'14- 0.22%

20. Percentage of wastage of blood component usage

Formula= Number of blood and blood products used*100/ Number of blood and blood products issued from the blood bank

March'14- 9.39%
Control Unit-10%

April'14- 10.6%

21. Percentage of blood component usage

Formula= Number of components used*100/ Number of blood and blood products used

March'14- 100%
Control Unit-100%

April'14- 100%

22. Turnaround time for issue of blood and blood components

The time shall begin from the time the order is raised to blood/ blood component reaching the clinical unit.

March'14- 0.55
Control Unit-0

April'14-0.33

VII. MORTALITY AND MORBIDITY INDICATORS

23. Return to ICU within 7 days

Formula= Number of returns to ICU within 7 days*100/ Total number of discharges/transfers/deaths in the ICU

March'14- 3.13
Control Unit-5

April'14-5.74

24. Return to ER within 7 days and readmission within 14 days

Formula= Number of returns to ER within 7 days and readmission within 14 days (with similar presenting complaints)*100/ Number of patients who have come to the emergency

March'14- 1.47
Control Unit-2

April'14-0.52

25. Reintubation rate within 48 hours of extubation

Formula= Number of reintubations within 48 hours of extubation*100/ Total number of intubations

March'14- 0
Control Unit-5

April'14-0

VIII. CLINICAL RESEARCH- Max is not into any Clinical Research

- 26. Percentage of research activities approved by Ethics committee
- 27. Percentage of patients withdrawing from study
- 28. Percentage of patients withdrawing from the study
- 29. Percentage of protocols violations/ deviations reported
- 30. Percentage of serious adverse events (which occur in hospital) reported to the Ethics committee within defined time frame

IX. PROCUREMENT OF MEDICINES

31. Percentage of drugs purchased by local purchase

These include drugs and consumables that are not included in the hospital formulary at the time of prescription, but are then arranged by the hospital pharmacy itself for the patient within a short time.

Formula= Number of items purchased by local purchase*100/ Number of drugs listed in hospital formulary and hospital consumables list

March'14- 0.15%
Control Unit-0.1%

April'14-0.2%

32. Percentage of stock outs including emergency drugs

A stock out is an event which occurs when an item in a pharmacy or consumable store is temporarily unable to provide for an intended patient.

Formula= Number of stock outs including emergency drugs*100/ Number of drugs listed in hospital formulary and hospital consumables list

March'14- 0.16%

April'14-0.05%

Control Unit-0

33. Percentage of consumables rejected before the preparation of goods receipt note

All materials received not in conformity with the specifications and requirements ordered for in the purchase order shall be rejected.

Formula= Total quantity rejected*100/ Total quantity received before goods receipt note

March'14- 0

April'14-0

Control Unit-0

34. Percentage of variations from the prescribed procurement process

Variations from the written standardized procurement process of acquiring supplies from licensed, authorized agencies/wholesalers/distributors.

Formula= Total number of variations from the usual procurement process*100/ Total number of items procured

March'14- 0

April'14-0

Control Unit-0

X. RISK MANAGEMENT

35. Number of variations observed in mock drills

Mock drill is a simulation exercise of preparedness for any type of event. It could be event or disaster

March'14-4

April'14-3

Control Unit-NA

36. Incidence of falls

Loss of upright position that results in landing on the floor, ground or an object, or furniture or a sudden, uncontrolled, unintentional, non-purposeful, downward displacement of the body to the floor/ground or hitting another object like a chair or stair.

Formula= Number of falls*100/ Number of discharges and deaths

March'14- 0
Control Unit-0.03

April'14-0.11

37. Percentage of employees provided pre-exposure prophylaxis

Pre-exposure prophylaxis is any medical or public health procedure used before exposure to the disease causing agent, its purpose is to prevent, rather than treat or cure a disease.

Formula= Number of employees who were provided pre-exposure prophylaxis*100/ Number of employees who were due to be provided pre-exposure prophylaxis

March'14- 100%
Control Unit-NA

April'14-100%

XI. UTILIZATION

38. Bed occupancy (Ward/ICUs/ALOS)

March'14- 82.03/85.30/4.4
Control Unit-80/80/4

April'14-79.01/83.01/3.9

39. ICU utilization rate

March'14- 84
Control Unit-80

April'14-82.09

40. Critical equipment downtime

March'14-91:45:00
Control Unit-96 hours per equipment

April'14-167:45:00

41. Nurse-patient ratio (ICU/Ward)

March'14-2.1/5.9
Control Unit-1.5/6

April'14-2.5/6.0

XII. PATIENT SATISFACTION

42. Outpatient satisfaction index (excellent rating)

Patient satisfaction is defined in terms of the degree to which the patient's expectations is fulfilled.

Formula= Score achieved*100/ Maximum possible score

March'14- 73
Control Unit-50

April'14-55

43. Waiting time for the service of patient (OPD)

A waiting time is a length of time which one must wait in order for a specific action to occur, after that action is requested or mandated.

Formula= Sum (Patient-in-time for consultation or procedure- patient reporting time in OPD or diagnostics/ Number of patients reported in OPD or diagnostics

March'14-
Control Unit-10 to 15 minutes

April'14- 25 minutes

44. Time taken for discharge

The discharge process is deemed to have started when the consultant formally approves discharge and ends with the patient leaving the clinical unit.

Formula= Sum of time taken for discharge*100/ Number of patients discharged

March'14-
Control Unit-90 minutes

April'14-

XIII. EMPLOYEE SATISFACTION

45. Employee satisfaction index

It is an index to measure satisfaction of employee in an organization.

Formula= Score achieved*100/ Maximum possible score

March'14-
Control Unit-NA

April'14-

46. Employee attrition rate

It is the rate of people leaving the organization.

Formula= Number of employees who have left*100/ Number of employees at the beginning of the month plus the newly joined staff

March'14- 2.6
Control Unit-3%

April'14-3.89

47. Employee absenteeism rate

Absenteeism in the employment law is the state of not being present that occurs when an employee is absent or not present at work during normally scheduled work period.

Formula= Number of employees who are on unauthorized absence*100/ Number of employees

March'14- 2.95
Control Unit-2%

April'14-1.1

48. Percentage of employee who are aware of the employee rights, responsibilities and welfare schemes

It is the state or condition of being aware, having knowledge; consciousness about employee rights, responsibilities and welfare schemes.

Sample size- For hospitals with 501-1000 staff, 4% of sample is taken

Formula= Number of employees who are aware of the employee rights, responsibilities and welfare schemes*100/ Number of employees interviewed

March'14-
Control Unit-NA

April'14-

XIV. ADVERSE EVENTS AND NEAR MISSES

49. Number of sentinel events

A sentinel event is defined as a relatively infrequent, unexpected incident, related to system or process deficiencies, which leads to death or major and enduring loss of function for a recipient of health services.

Formula= Number of sentinel events reported, collected and analyzed within the defined time frame*100/ Number of sentinel events reported, collected and analyzed

March'14- 0
Control Unit-0

April'14-0

50. Incidence of blood body fluid exposures

An exposure is when blood, blood components or other potentially infectious materials come in contact with a staff's eyes, mucous membrane, non intact skin or mouth.

Formula= Number of blood body fluid exposures*100/ Number of in-patient days

March'14- 0
Control Unit-0

April'14-0

51. Incidents of needle stick injuries

Needle stick injuries are wounds caused by needles (or other sharp objects) that accidently puncture the skin.

Formula= Number of parenteral exposures*100/ Number of in-patient days

March'14- 0.03

April'14-0.03

Control Unit-0.1

XV. MEDICAL RECORDS

52. Percentage of medical records not having discharge summary

A discharge summary is a part of patient record that summarizes the reasons for admission, significant clinical findings, procedures performed, treatment rendered, etc written by the attending doctor.

Sample size- For hospitals with 51-100 discharges per day, 20% is taken as sample size

Formula= Number of medical records not having discharge summary*100/
Number of discharges and deaths

March'14- 0

April'14- 0

Control Unit-0

53. Percentage of medical records not having codification as per ICD

The ICD is the international standard diagnostic classification for all general epidemiological, many health management and clinical use.

Sample size- For hospitals with 51-100 discharges per day, 20% is taken as sample size

Formula= Number of medical records not having codification as per ICD*100/
Number of discharges and deaths

March'14- 0

April'14- 0

Control Unit-0

54. Percentage of missing records

A medical record is considered as missing when the record could not be found out from the Medical Record Department after the 72 hour of the record request.

Formula= Number of missing records*100/ Number of records

March'14- 0

April'14- 0

Control Unit-0

UTILIZATION STATISTICS

LENGTH OF STAY (discharge days):

The total number of patient days for an inpatient episode. The duration of an inpatient's hospitalization is considered to be one day if he is admitted and discharged on the same day and also if he is admitted on one day and discharged the next day. The day of admission is counted but not the day of discharge.

AVERAGE LENGTH OF STAY (ALOS) OF DISCHARGED PATIENTS:

The average number of days that inpatients (exclusive of newborn) remained in the hospital. It is to be monitored to prevent unnecessary stay of the patient in the hospital. In chronic illness treating wards it will be more than acute wards.

Formula =
$$\frac{\text{Total length of stay of discharged patients for a given period}}{\text{Total number of discharges and deaths in the same period}}$$

ANALYSIS-

Specialties	MARCH			APRIL		
	ALOS	Number of Patients	Percentage Impact	ALOS	Number of Patients	Percentage Impact
Cardiac Surgery	5.0	1.0	0.12%			0.00%
Cardiology	3.2	162.0	12.60%	3.3	159.0	14.41%
Cardiovascular Surgery	10.9	18.0	4.76%	6.5	13.0	2.28%
Critical Care Medicine	12.0	1.0	0.29%			0.00%
Ear, Nose & Throat	2.0	11.0	0.53%	0.9	14.0	0.35%
G. I. Surgery	2.8	13.0	0.87%	2.0	3.0	0.16%
Gastroenterology	4.3	27.0	2.81%	3.6	30.0	2.94%
General Surgery	2.7	66.0	4.33%	3.1	78.0	6.66%
Internal Medicine	6.3	108.0	16.47%	5.7	109.0	16.77%
Interventional Neurology			0.00%	0.0	1.0	0.00%
Medical Oncology	1.2	42.0	1.21%	1.7	43.0	2.04%
Minimal Access Metabolic Bariatric Surgery	3.1	8.0	0.60%	1.0	2.0	0.05%
Nephrology	0.4	571.0	5.68%	0.3	552.0	4.51%
Neuro Surgery	9.5	55.0	12.65%	6.3	43.0	7.42%
Neurology	4.4	27.0	2.90%	7.5	22.0	4.46%
Obstetrician & Gynecology	2.1	85.0	4.38%	2.2	97.0	5.84%
Ophthalmology	0.1	12.0	0.02%	0.0	23.0	0.00%
Orthopedics	3.9	93.0	8.78%	3.4	77.0	7.01%
Pediatric Endocrinology			0.00%	3.0	2.0	0.16%
Pediatric Surgery	1.5	17.0	0.63%	6.0	9.0	1.47%
Pediatrics	4.5	99.0	10.76%	3.9	119.0	12.58%
Pediatric Cardiology			0.00%	8.0	3.0	0.65%

Plastic Surgery	3.7	15.0	1.35%	1.7	7.0	0.33%
Pulmonology	6.0	22.0	3.22%	5.0	29.0	3.94%
Rheumatology	10.3	4.0	0.99%	3.3	4.0	0.35%
Surgical Oncology	6.8	4.0	0.65%	6.5	6.0	1.06%
Urology	2.6	53.0	3.39%	2.5	67.0	4.54%
Weighted Mean	2.7			2.4		
Total	4.4			3.9		

INTERPRETATION-

ALOS for the month of March was around 4.4 while for the month of April was 3.9

The specialties that have created major impact on ALOS for the month of March and April includes Internal Medicine, Nuerosurgery, Cardiology, Pediatrics and Orthopedics.

There was a decrease in the ALOS from March to April that occurred mainly due to Nuerosurgery, Orthopedics and also because of Cardiovascular surgery. The possible reason can be attributed to either decrease in number of patients, overall decrease in the length of stay of the patients, or both.

CRITICAL EQUIPMENT DOWNTIME:

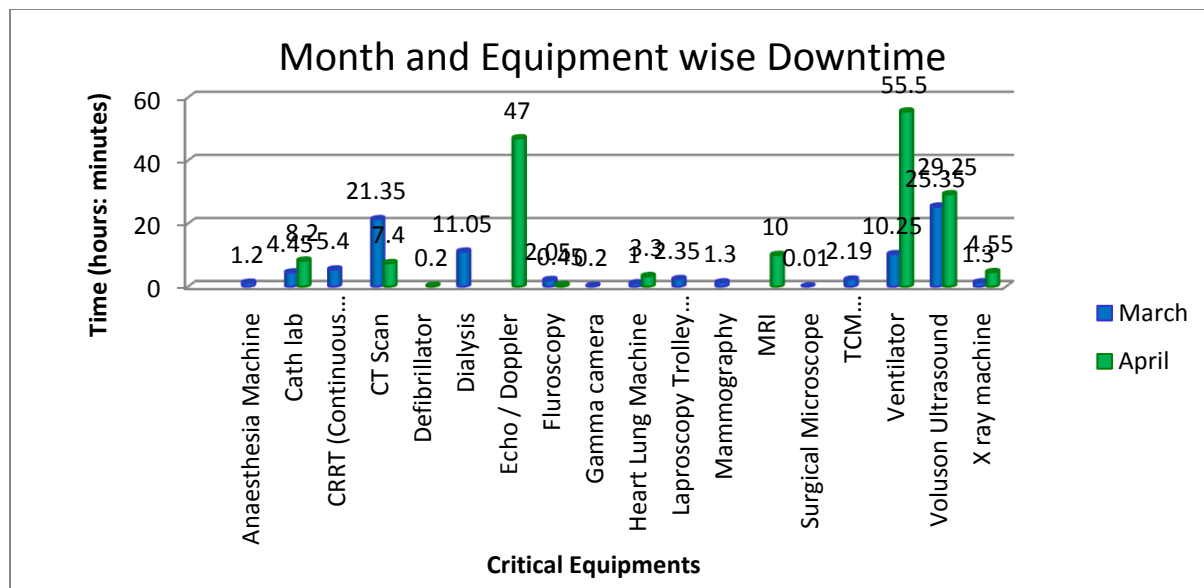
Biomedical Engineers have the target to reduce downtime of medical equipments, but the harsh reality is that even the best plans and preparation cannot prepare for every circumstance and even the simplest oversights can snowball into serious events that are difficult and costly to remediate.

Medical equipments can be classified into three types-

- Critical equipments- Equipments that can affect patient's life and affect direct revenue of the organization. E.g.- Ventilator, CT scan, MRI, X ray machine, Heart Lung machine, Anesthesia machine, Defibrillator, Dialysis, etc.
- Urgent equipments- Equipments that can affect patient's life directly or indirectly (life-supporting). E.g.- ABG, Monitor, Patient warmer, Mammography, Infusion pump, Feeding pump, Fogging machine, Endoscope, TMT/Holter, PFT, etc.
- Non Critical equipments- Equipments that can neither affect patient's neither life nor direct revenue of the organization. E.g. - Thermometer, Glucometer, Sphygmomanometer, Nebulizer, Stethoscope, etc.

Critical equipment downtime is calculated by adding the total time the various critical equipments had not been functioning. It is calculated in hours: minutes: seconds.

ANALYSIS-



INTERPRETATION-

The total critical equipment downtime for the month of March and April 2014 came out to be 91 hours 45 minutes and 167 hours 45 minutes respectively.

After analyzing the statistics on monthly and equipment wise basis, it can be seen that in the month of April, there were 10 critical equipments that had been non-functional as compared to the month of March, where 15 critical equipments showed downtime. But the duration of downtime of the major equipments was very long in April which led to the overall increase in the monthly downtime. The maximum downtime was seen in Echo/Doppler and Ventilator which was about 47 hours and 55 hours 50 minutes respectively.

Although the control unit set by the organization is 96 hours per equipment but the Bio-medical department is continuously working and focusing on reducing the rate each month.

In the month of March, the maximum downtime can be seen of CT scan and Ultrasound machine which is around 21 hours 35 minutes and 25 hours 35 minutes respectively.

On a two monthly basis, the common critical equipments that had been non-functional includes (in descending order of total downtime of both months)-

Ventilator, Ultrasound machine, CT Scan, Cath Lab system, X ray machine, Heart Lung machine and Fluoroscopy machine.

To reduce the downtime of Critical Medical Equipments, the Biomedical Engineering department has put all the critical equipments under CMC (Comprehensive Maintenance Contract) and rest of the equipments which are life saving, life supporting and used in critical care areas under AMC (Annual Maintenance Contract)

PATIENT-NURSE RATIO:

Identifying and maintaining the appropriate number and mix of nursing staff is critical to the delivery of quality patient care. Numerous studies reveal an association between higher levels of experience of nurses and lower rates of adverse patient outcomes. Rising patient acuity and shortened hospital stays have contributed to the challenges. Finding an optimal patient-to-nurse ratio has been a national challenge. Ensuring adequate staffing levels has been shown to:

- Reduce medical and medication errors
- Decrease patient complications
- Decrease mortality
- Improve patient satisfaction
- Reduce nurse fatigue
- Decrease nurse burnout
- Improve nurse retention and job satisfaction

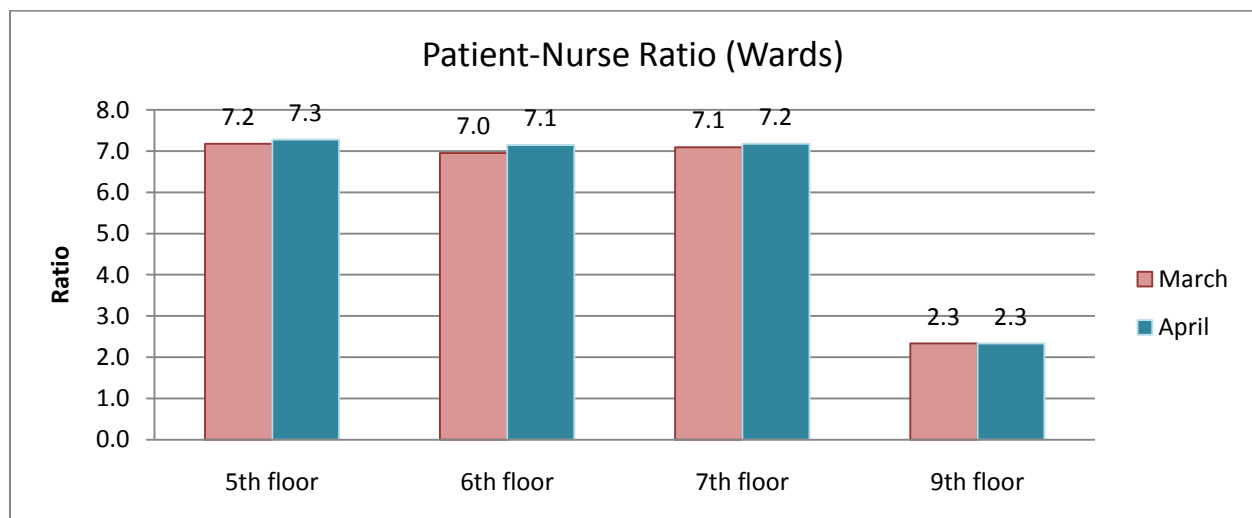
For the staffing of nurses, two different approaches are followed in case of Wards and ICUs

For Wards- Administrative approach is followed, in which the administration based on their perception decided the number of nurses required in each nursing unit per shift.

For ICUs and HDUs- Staffing according to Acuity of Patients' condition is followed, depending upon the dependency of patient on direct nursing care

Formula=
$$\frac{\text{Total number of patients treated (under any region or periphery in hospital)}}{\text{Total number of nurses engaged in duty/service in a calendar year or period}}$$

ANALYSIS-

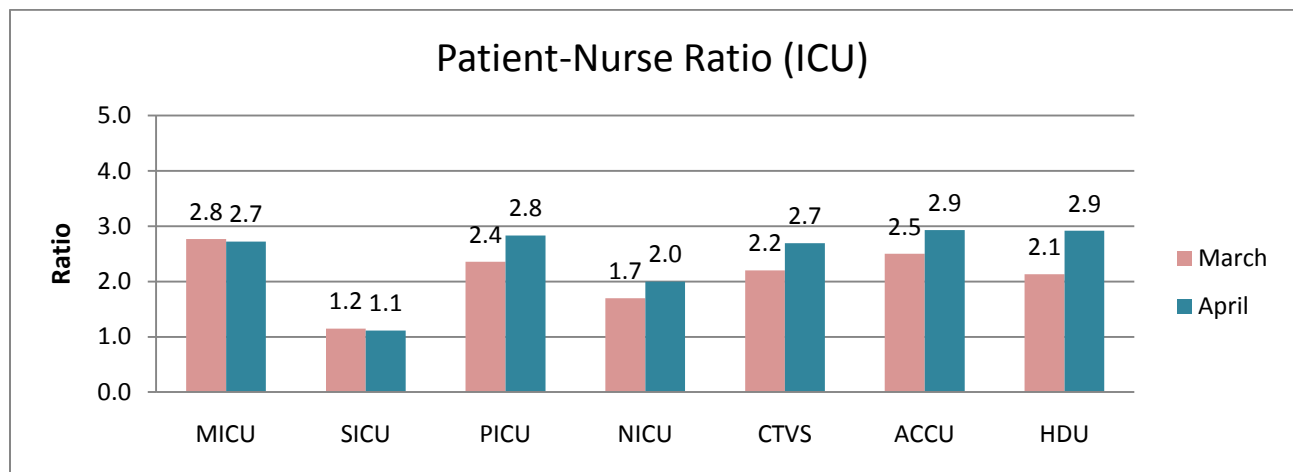


INTERPRETATION-

Patient-to-Nurse ratio for the month of March and April 2014 was around 5.9 and 6.0 respectively. The administration has set the control unit of 1 nurse on every 5 or 6 patients. After analyzing the data floor wise, it can be interpreted from the following figure that the ratio has slightly increased in the month of April as compared to March. The highest ratio can be seen on 5th floor which is around 7 patients per nurse.

The possible reason behind increased patient-to-nurse ratio may be accounted to high attrition rate seen in nurses leading to shortage of staff and therefore, increase in work.

ANALYSIS-



INTERPRETATION-

Patient-to-Nurse ratio for the month of March and April 2014 was around 2.1 and 2.5 respectively. The control unit has been set depending upon the acuity of the patients i.e. one nurse on every ventilated patient and one nurse on every two unventilated patients. When compared on monthly basis, the ratio has increased in specialty wise ICUs. The possible reason remains the same that the attrition rate among the nurses is usually more when compared with other professions.

But the organization is continuously putting all its efforts in the recruitment of the staff nurses both for wards and ICUs. Moreover they are also initiated their improvisation in retention policies.

CONCLUSION

Accreditation results in high quality of care and patient safety. The patients get services by credential medical staff. Rights of patients are respected and protected. Patient satisfaction is regularly evaluated.

The staff in an accredited health care organization is satisfied lot as it provides for continuous learning, good working environment, leadership and above all ownership of clinical processes.

Accreditation to a health care organization stimulates continuous improvement. It enables the organization in demonstrating commitment to quality care. It raises community confidence in the services provided by the health care organization. It also provides opportunity to healthcare unit to benchmark with the best.

The Quality Control Indicators of NABH serves as the fastest way to know what is working and what is not working for the patients by reviewing and sharing the monthly comment reports. Moreover the Organization can also review quickly individuals or teams who were complimented.

It also helps to evaluate the service issues from both a system as well as people perspective. The Quality Check not only adds to customer delight but also propels the hospital towards its cherished mission i.e. ‘To be the preferred choice for healing and good health’

Quality Healthcare is crucial for people’s welfare and it is important to have organizations that are willing to measure themselves against national standards.

Make a habit of quality improvement. Challenge the standard!

NEED GAP ANALYSIS OF ENDOSCOPIC SYSTEM IN GASTROENTEROLOGY DEPARTMENT OF MAX SHALIMAR BAGH

INTRODUCTION:

Gap analysis, also called "need-gap analysis," is a management tool that looks at the "gap" between a company's goals and its actual performance and attempts to determine how that "gap" can be closed. What makes gap analysis unique is that it combines quantitative and qualitative methodologies. Gap analysis involves determining, documenting, and approving the difference between business requirements and current capabilities. Gap analysis naturally flows from benchmarking and other assessments.

REVIEW OF LITEARTURE:

1. In a growing number of countries, health technology assessment (HTA) has come to be seen as a vital component in policy making. Even though the assessment of the social, political, and ethical aspects of health technology is listed as one of its main objectives, in practice, the integration of such dimensions into HTA remains limited. Recent social scientific research on the inherently political nature of technology strongly supports such a comprehensive approach. Thus gap analysis forms an important part that needs to be assessed correctly. [5]
2. The appropriate deployment of technology contributes to the improvement in the quality of healthcare delivered, the containment of cost, and to increased access to services offered by the healthcare system. Over the past one-hundred years, the dependence of the healthcare system on medical technology for the delivery of its services has continuously grown. In this system, the technology facilitates the delivery of the "human touch." Medical technology enables practitioners to collaboratively intervene together with other caregivers to treat patients in a cost-effective and efficient manner. [6]
3. Gaps arise when the manager has not considered of the best ways of targeting the end users and their demand through cost managing and services input in the channel of distribution. Channel managers have to pay greater importance on the supply and demand side in establishing their channels so as to prevent the creation of a gap. The closure of gaps assumes that managers have the ability to identify and correct the gaps. [7]
4. The approach also has to be customer driven this is because when the managerial bound process is opposed it should be on the reasons of not being able to deliver customer satisfaction. Lastly the use of managerial bound should be based a well built mechanism which will enable the organization to be in touch with the services and products of the end users. [7]
5. Historically, such decisions were often made primarily on grounds of cost, however, in recent years there has been an increasing recognition of the strategic implications of these decisions and the need to take into account a wide range of factors other than cost. The process is based on operationalizing a framework which addresses technology and

manufacturing processes, supply chain management and logistics, support systems, and costs and mainly its utilization. [8]

6. The impact of technological advancement and the widespread availability of resources and their utilization, to meet the healthcare requirements of the community have become important fundamental need of human being. New developments in instrumentation, measuring instruments, biotelemetry and diagnostic tools, both hardware and web based make it suitable for patient monitoring, tele-consulting and even converting hospitals into a complete telematic process. [9]

RATIONALE FOR STUDY:

Gap analysis can be used at the beginning of any improvement initiative to find the gaps where teams need to start working for improving the process. It can also be used at the end of the project to determine if the gaps found in the beginning were actually closed. It can be used within the company to improve processes, for supplier development to monitor/audit supplier processes giving them pointers where to begin improvements.

Through the use of cost-benefit analysis in financial services regulation, regulators can determine if their proposals will actually work to solve the problem they are seeking to address. Basing regulations on the best available data is not a legal “hurdle” for regulators to overcome as they draft rules, as some have described it, but rather a fundamental building block to ensure regulations work as intended.

SIGNIFICANCE OF STUDY:

The study can be used in future prospects to co-relate with the advancements or can also be used as reference of other need gap analysis. Moreover, such study helps in justifying the actual cause and effect of any action before any huge investment can be made by the organization.

OBJECTIVES:

- To find the existing situation and do gap need assessment of the Endoscopic instruments in Gastroenterology department
- Justification (with reference to utilization) as to why new system is required

STUDY QUESTION:

Whether Max Super Specialty Hospital, Shalimar Bagh, New Delhi requires another set of Endoscopy System in their Gastroenterology department?

OPERATIONAL DEFINITION:

- Need Gap Analysis- The process through which a company compares its actual performance to its expected performance to determine whether it is meeting expectations and using its resources effectively. Gap analysis seeks to answer the questions "where are we?" (current state) and "where do we want to be?" (target state) [10]
- Endoscopy System- It is a minimally invasive diagnostic medical procedure that involves examining the inside of a person's body using an endoscope. An endoscope is a medical device consisting of a long, thin, flexible (or rigid) tube which has a light and a video camera. [11]

RESEARCH METHODOLOGY:

Study area: Max Super Specialty Hospital, Shalimar Bagh, New Delhi

Study duration: 1 month

Study design: Quantitative cross sectional analytical study

Study population: Head GI department (Dr. Upadhyay)
Medical Service Coordinator GI (Ms. Geetanjali)
Head BME department (Mr. Abhishek Sinha)
Finance department (Mr. Vinay Singhal)
Hospitals in vicinity

Sampling method: Purposive Convenience Sampling

Data collection method: Primary data collected through survey and face to face interviews

Data collection technique: Questionnaire (unstructured)

Data analysis: Data is analyzed both through statistical and non-statistical methods

NEED GAP ANALYSIS

Existing System:

Presently, the Gastroenterology Department of Max Shalimar Bagh has one endoscopy system which includes one GI scope, one Colonoscope and one ERCP

Current Volume:

S.no	Month	Total Volume
1.	January	183
2.	February	165
3.	March	189

Procedure-wise Volume:

S.no	Procedure	January	February	March
1.	Endoscopy	138	115	135
2.	Colonoscopy	40	43	45
3.	ERCP	05	07	09

Expected Volume:

Currently we are catering 200 to 220 patients for Endoscopy and we are expecting an increment of 5 to 10% every month where one system will not be sufficient to cater that volume

Need Gap Analysis:

We need one more set of endoscopy system along with all the existing scopes to reduce the waiting time and as backup in case of breakdowns of existing system. Also an upgraded technology is required as well so that some other procedures can also be done in the department like Narrow Band Imaging which will further help to generate the additional revenue for the hospital.

Recommendation:

The present scenario is that every month 3-5 patients are getting refused or transferred to other location due to non-availability of equipments for Narrow Band Imaging procedure. The reports also get delayed as procedures are lined up in continuation and hence, waiting time is also high. This in turn leads to bad impression on patients coming for GI procedures in the hospital.

We need the system critically in order to treat the patient appropriately without any risk involvement.

Competitors:

- i. Fortis Shalimar Bagh- 02 Endoscopy system
- ii. Balaji Action Group- 02 Endoscopy system
- iii. Maharaja Agarsen Hospital- 02 Endoscopy system
- iv. Jaipur Golden Hospital- 03 Endoscopy system

Utilization:

Month	OPD		IPD		Total		Utilization
	Volume	Revenue	Volume	Revenue	Volume	Revenue	
Jan-14	114	3.68	69	2.21	183	5.89	61%
Feb-14	99	3.42	66	1.59	165	5.01	55%
Mar-14	112	3.48	77	2.32	189	5.80	63%
Total	325	10.58	212	6.12	537	16.70	
Average							60%

Justification: Projection for 2014-15

Month	April -14	May -14	June -14	July -14	Aug -14	Sept -14	Oct -14	Nov -14	Dec -14	Jan-15	Feb-14	Mar-14
Volume	200	210	221	232	243	255	268	281	295	310	326	342
Utilization (%)	67	70	74	77	81	85	89	94	98	103	109	114

YTD= 3,183

Conclusion:

Presently, the Endoscopy System is working eight hourly everyday on weekdays with the average time per procedure being 40 minutes. The current utilization rate of the system is around 63%; which is expected to reach approximately 90% in the next 6 months (as per 5-10% of increments of volume every month)

Hence in coming months the organization will have to procure another set of Endoscopy System to reduce the waiting time, better utilization and advanced technological testing.

Thus, it can be concluded that the Gastroenterology Department at Max Super Specialty Hospital, Shalimar Bagh requires another set of Endoscopy System in near future.

ELECTRONIC HEALTH RECORDS- a dose of technology

STUDY TOPIC:

Every hospital is advancing towards making their functioning and health records completely paper-less

INTRODUCTION:

With the recent development in information and communication technologies, healthcare is constantly undergoing changes, with new medical technologies, business models and research findings. It has evolved as a new data centric, more precise, productive, accurate and timely system which can make the difference of life and death in acute situations. This is known as Electronic Health Records (EHRs). The system is designed to represent data that accurately captures the state of the patient at all times. It allows for an entire patient history to be viewed without the need to track down the patient's previous medical record volume and assists in ensuring data is accurate, appropriate and legible. It reduces the chances of data replication as there is only one modifiable file, which means the file is constantly up to date when viewed at a later date and eliminates the issue of lost forms or paperwork. The idea is to make health records and medical history of people easily accessible to them anywhere anytime, through desktop or any mobile device. Having such an EHR could be lifesaving in many emergency situations. Also an EHR provides the benefit of not having to store bulky hardcopies of the whole family. Due to all the information being in a single file, it makes it much more effective when extracting medical data for the examination of possible trends and long term changes in the patient.

LITERATURE REVIEW:

1. One study estimates electronic medical records improve overall efficiency by 6% per year, and the monthly cost of an EMR may (depending on the cost of the EMR) be offset by the cost of only a few "unnecessary" tests or admissions. [12]
2. Handwritten paper medical records can be associated with poor legibility, which can contribute to medical errors [13] Pre-printed forms, the standardization of abbreviations, and standards for penmanship were encouraged to improve reliability of paper medical records. Electronic records help with the standardization of forms, terminology and abbreviations, and data input. Digitization of forms facilitates the collection of data for epidemiology and clinical studies. [14]
3. EMRs can be continuously updated. The ability to exchange records between different EMR systems would facilitate the co-ordination of health care delivery in non-affiliated health care facilities. In addition, data from an electronic system can be used anonymously for statistical reporting in matters such as quality improvement, resource management and public health communicable disease surveillance. [15]

4. Electronic links across care settings should facilitate collaborative, coordinated approaches among caregivers and enhance the tracking and monitoring of the quality of our care activities. E.g. Oncologists need support for their clinical decisions that is patient-specific, as well as timely reminders. [16]

RATIONALE FOR STUDY:

The crude reality is that none of us are maintaining the file of hard copies of our health records and when we fall sick, we do not tell doctors what was the medication taken and exact medical reports of last time when we fell sick.

EHRs may include a range of data, including demographics, medical history, medication and allergies, immunization status, laboratory test results, radiology images, vital signs, personal statistics like age and weight, and billing information.

Therefore, hospitals that adopt EHR technology are sure to improve tremendously on patient care by being able to seamlessly offer various patient-centric services such as continuity of care, patient education and evidence-based medications to name a few. [17]

OBJECTIVES:

- To understand the importance and need of Electronic Health Records in health care systems.
- How Electronic Health records are implemented and its hassles
- Major advances in EHR in recent times

STUDY QUESTION:

How is Max Healthcare one of the most successful hospitals in maintaining Electronic Health Records?

OPERATIONAL DEFINITION:

An electronic health record (EHR) is a systematic collection of electronic health information about an individual patient or population. It is a record in digital format that is theoretically capable of being shared across different health care settings. [18]

Research methodology

9.1 Study Area: Max Super-specialty Hospital, Shalimar Bagh, Delhi (Big hospitals may follow Max Healthcare in maintaining electronic health records) [17]

9.2 Study time: 1 month

9.3 Study design: Qualitative cross-sectional descriptive study

9.4 Study population: - Deputy Manager (Operations)

- Technical Assistance team of IT Department

9.5 Sampling method: Purposive Convenience Sampling

9.6 Data collection method: Qualitative method (including secondary data sources)

9.7 Data collection technique: Face to face interviews

9.8 Data collection tool: Questionnaire (unstructured)

9.9 Data analysis: Data will be analyzed through non-statistical methods

Ethical Considerations

- Confidentiality will be ensured.
- Informed consent to be taken from all the participants
- Voluntary participation
- Respect of people's right, dignity, diversity and time
- Ensure that the study does not affect the working and functioning of the hospital

MAX HEALTHCARE AS ONE OF THE MOST SUCCESSFUL HOSPITAL IN MAINTAINING ELECTRONIC HEALTH RECORDS

INTRODUCTION

Max Healthcare which has been at the forefront of delivering healthcare services in Delhi-NCR has moved to an Electronic Health Records (EHR) system along with their existing Hospital Information System (HIS). The group implemented an open source EHR system, WorldVista, with the goals of minimizing the need for paper records, allowing order entry by the doctors in the system itself, and enabling easy access to patient records. The system was hosted on a private cloud and was interfaced with laboratory, radiology and pharmacy to allow real-time access to any patient record.

WHY WAS IT NEEDED?

With the era of new technologies, where telemedicine and medical tourism is going to flourish in the country; technology also needs to be improved when it comes to health record. Specifically, the use of standardized electronic health records and the secure exchange of health information will improve health care quality and safety.

Health care is a team effort. Shared information supports that effort. When all team members can communicate with each other effectively and efficiently, everyone benefits—patients, their families, and providers.

Medical records section is important because of the documents it stores, their security concerns and value for generating research work. The staff should be made to realize its importance so that they can handle the documents carefully. Hence, proper indexing of the records and easy retrieval are the quality indicators of its functioning.

EASY TO DISCUSS, DIFFICULT TO IMPLEMENT

Hardeep Singh, assistant professor of medicine at Houston-based Baylor College of Medicine who assisted Max Healthcare with its EHR drive, says there is a lot of difference between theory and practice. Vista software system of digital medical recording is as good as free but to make that into a product that could change the lives and healthcare in a country like India despite the challenges deserves a lot of recognition. He also warns about the inertia and resistance in changing the system.

HOW DID THEY START

The Delhi-headquartered hospital group has so far spent a huge amount for the purpose and it all starts with doctors being asked to type in, not write in their prescriptions. Max Healthcare first hired a foreign company for the purpose, but soon realized that processes are much different in India. A lot of customization was required because processes in India are very different from those in US hospitals.

Moreover, they have also been successful in connecting their hospitals to EHR platform, linking their labs and pharmacies to the doctors.

ABOUT CPRS- Prescribing a dose of technology

The system includes Computerized Patient Record System (CPRS) for documenting, ordering, reporting and viewing of clinical information. Apart from this, Bar Code Medication Administration (BCMA) is also implemented along with unit dose dispensing policy to track and reduce waste, returns and medication errors. It is a Bangalore based Vista-system that keeps a back-up of their entire records and is updated every night at 12 a.m.

CPRS can exclusively be accessed by Max employees who have login Id and verify password. All their systems including laptops used by the employees are configured by Dell and access by

the external systems is restricted.

Each patient has a Max Id which has a fixed code for each branch of Max. Example- Max Shalimar Bagh has code of 1700. Entering the Max Id preceding with code the user can easily access the patient record sitting in any of the branches working on EHR.

ADVANTAGES OF EHRs

1. Reduced human errors: these include
 - i. Medication errors like prescription, dispensing, patient identification, administration documentation, etc
 - ii. Reporting error (labs/radiology)
 - iii. Drug-drug interaction
 - iv. Reduced polypharma
 - v. Reduced drug allergy
2. Improved efficiency, through multi-site viewing with reduced cost and clutter
3. Improved multi-disciplinary care
4. Eliminated record manipulations
5. Clinical data safety
6. Continuity of care, through networking and interlinking
7. Saves paper and hence environment friendly
8. Legibility – eliminates chances of poorly eligible handwriting
9. Clinical reminders help improve care.
10. Helps collection and retrieval of data about diseases there by supporting in research and academics.
11. So far, in India hospitals were measured by their financial performance. Going forward, hospitals can be measured by their clinical performance indexes as well — which would be a representation of the health of their patients.

FUTURE PROSPECTS

The advantage of EMR also lies in the fact that they can be continuously updated and modified.

In this first stage implementation, Max was able to connect five of its 11 hospitals to this EHR network; as of now, access to records is limited to a number of doctors, and only of their patients

In the second phase, Max hopes to make its EHRs accessible to its patients and is working towards it.

Presently, Max has decided to keep the outpatients out of their CPRS loop but soon may plan to implement the whole CPRS exercise

HASSELS & CHALLENGES OF EHRs

- Start up costs are enormous
- The equipment to record and store patient charts are much more expensive than paper and file cabinets
- Without networking and linking, other hospitals may not be able to get the detailed description of the patient from other hospital
- Implementation of training of employees to learn it
- Additionally there is not one electronic medical records system. There are many. Streamlining patient care can only be achieved when a single system is used, since two or more systems may not work together.
- An important issue is the electronic signature of the patient, doctors and witnesses on informed consent. The Indian Evidence Act 1887 has been amended where electronic signatures have been accepted; however, it is not yet clear whether this will be applicable to medical documents also.
- Proprietors of various hospitals are usually scared about the prospects of "greater transparency" that EHRs would bring
- Cultural barriers of overcoming paper-based system
- Data-entry hassles
- Training of staff to adapt to the new system- can lead to huge employee turnover
- Probability of transcription & typographical errors
- Threat of malware

WHAT OTHER OPTIONS ARE AVAILABLE FOR EHRs

- Conventional: Paper based
- Pocket software's: multiple small software's in each department, that are not inter-linked or inter-connected
- Hybrid Health Records: For example, dictation, lab, and x-ray results might be available electronically, whereas progress notes, provider information, and doctors' orders remain on paper. Other health information may be maintained on various other media types such as film, video, or an imaging system.

CONCLUSION

EHR is an investment in total practice transformation. It alters the workflow of virtually every care process and significantly impacts most consumers of health care and those who deliver this vital service. To promote the EHR implementation and optimization process, planning and modifications are continually needed to address technological, professional, and organizational perspectives. EHRs as an essential part of a “learning health care system,” or a system that is designed to both generate and apply evidence to promote innovation, quality, safety and efficiency in health care. Many also believe that EHRs are critical to the success of payment and delivery system reforms such as patient centered medical homes and accountable care organizations. In order for EHRs to reach their full potential, it will be important to consider how to encourage and support organizations to continually modify and optimize their systems to meet the needs of their organization, their staff, and ultimately their patients. At the end, the key remains the same that “technology is the future”.

RECOMMENDATIONS

MSO (Management Service Organization): Unlike the traditional EHR client-server model where the data and technology are hosted locally at the provider site, MSOs offer EHRs hosted in a secure, centralized data center. The data is safeguarded through a network operating that, by design, ensures high quality and uninterrupted service. MSOs enable providers to access a patient’s record wherever access to internet exists.

Duke MyChart by Maestro Care: This new online tool gives patients access to information from their Maestro Care electronic health record. Duke MyChart helps patients to view their appointment information, request appointments, view medical reports, and pay your bills, Request a prescription refill, Send a message to your health care team about any non-urgent needs. Access your Duke MyChart account through the iPhone and Android MyChart apps.

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ANNEXURES:

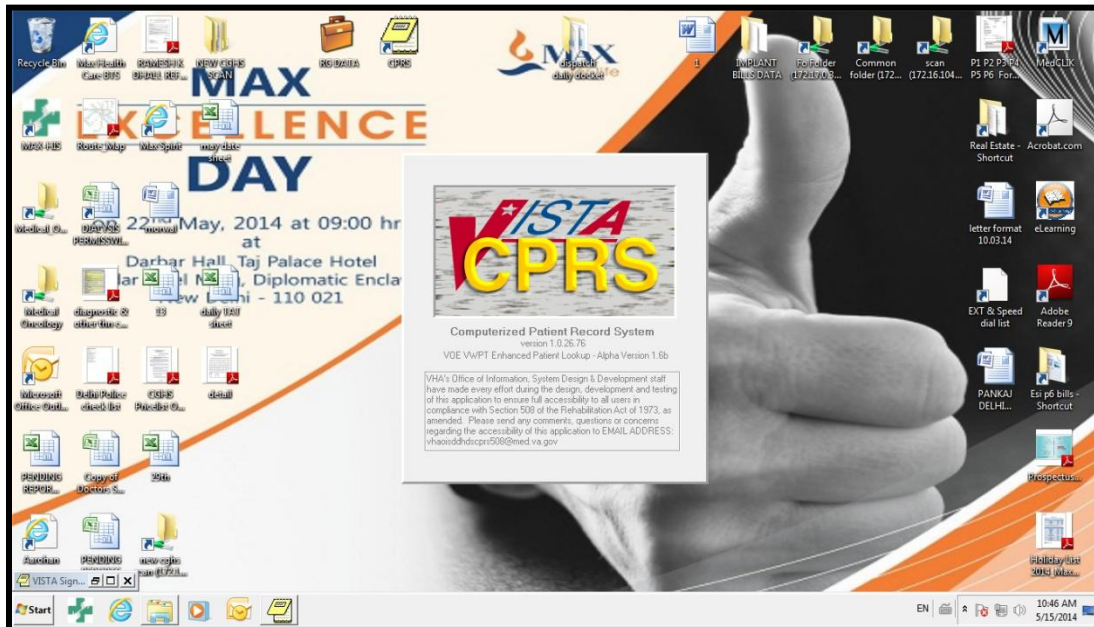
QUESTIONAIRE- NEED GAP ANALYSIS

- Q.1. What is the present situation of the department in terms of the available endoscopic system and the patient load?
- Q.2. For how long are the machines working and what is the utilization rate of the system?
- Q.3. What are common problems faced in the department on a daily basis?
- Q.4. What is the expected increase in patient load in near future?
- Q.5. Who all are the leading competitors of Max Shalimar Bagh?

QUESTIONAIRE- ELECTRONIC HEALTH RECORDS

- Q.1. Why are hospitals advancing towards making their functioning and data recording completely paper-less?
- Q.2. What is the need of Electronic Health Records in health care systems?
- Q.3. What are the advantages of having Electronic Health Records in health care systems?
- Q.3. How did Max started with the concept of Electronic Health Record?
- Q.4. Was it easy to implement?
- Q.5. What is CPRS and how it is different?
- Q.6. What challenges or difficulties Max had to face to bring CPRS into their daily working?
- Q.7. How does the organization protects its data?
- Q.8. Is there any disadvantage of making the records completely electronic?
- Q.9. What other software are being used in the hospital? Are they inter-lined with CPRS?
- Q.10. What are the future plans of Max hospital in terms of advancing or upgrading their technology?

Computerized Patient Record System:



Vista CPRS in use by: Kumar,Akhilesh (172.30.0.72)

File Edit View Tools Help

..KHYALI 090-1-1-1700 Jan 01,1969 (45) Visit Not Selected Primary Care Team Unassigned

Flag Remote Data No Postings

Current Provider Not Selected

Active Problems No Problems Found	Allergies / Adverse Reactions No Allergy Assessment	Postings No Patient Postings Found
Active Medications No active medications found	Clinical Reminders No reminders due	Due Date
Recent Lab Results No Orders Found	Vitals No data found	Appointments / Visits / Admissions No data found

Cover Sheet Problems Meds Orders Notes Consults D/C Summ Labs Reports

Promotional Activities:



Free Health Camps at various schools:

