

**Summer Training at  
EHCC Hospital, Jaipur  
(April 3 to June 2, 2017)**

**Analyzing the Hand Hygiene Compliance in MICU and HDU at EHCC  
Hospital**

**By  
Satarupa Sen**

**Under the guidance of  
Dr. Suresh Joshi**

**MBA Hospital & Health Management  
2016-2018**

  
*Institute of Health Management Research*  
**The IIHMR University, Jaipur**  
**2017**

**CERTIFICATE**

This is to certify that **Dr. Satarupa Sen** has undergone summer training in **EHCC, Jaipur (Rajasthan)** from 3<sup>rd</sup> April to 2<sup>nd</sup> June 2017.

The candidate herself completed the project assign to her during summer training. Her approach to the project was sincere and proactive. This summer training is in partial fulfillment of the course requirement recommended for the award of MBA in Hospital and Health Management.

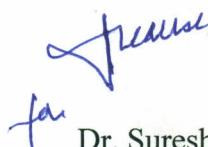
I wish her success in all her future endeavors.



Col. (Dr.) Ashok Kaushik

Dean (Academic & Student Affair)

The IIHMR University, Jaipur



Dr. Suresh Joshi

Adjunct Professor

The IIHMR University

**TO WHOMSOEVER IT MAY CONCERN**

This is to certify that **Dr. Satarupa Sen** student of **IIHMR, Jaipur** has completed her internship at **"Eternal Hospital, Jaipur"** from 03<sup>rd</sup> April 2017 to 02<sup>nd</sup> June 2017.

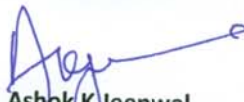
During this period, she has successfully completed her projects on:

1. TAT Analysis for nursing bell.
2. Gap Analysis for Food and Beverage Department.
3. Bundle Compliance.
4. Hand Hygiene Compliance

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

We wish her all the best for future endeavours.

For **ETERNAL HEART CARE CENTRE AND RESEARCH INSTITUTE, JAIPUR**



**Ashok K Jeenwal**  
Manager - HR

## Acknowledgement

Gratitude unlocks the fullness of life. It turns what we have into enough and more. :- Melody beattie

The success of any task would be incomplete without expression of gratitude. Though my word falls short to express sincere thanks to everyone who helped me directly or indirectly in my endeavours, it is a pleasant feeling that I have an opportunity to render my gratitude to all of them.

I am grateful to Mr Subratha das, GM human resource, Eternal Hospital, who took keen interest in my project work and for being helpful, supportive and receptive.

I am obliged to dr vrajesh shah, MS, Eternal hospital, whose advices played valuable role in accomplishing my task.

I am also gratefully indebt to my guide, Miss Kirti Hemkar, Head, Quality Department, Eternal hospital, who not only guided me all along but also provided all required resources and information without which completion of the project would not have been possible. Her dynamic thinking and profound knowledge assisted me greatly in achieving my objectives.

I would also pass on my regards to entire staff of eternal hospital for sparing their precious time and providing full co-operation in completion of my assigned task

My chain to thanks would be incomplete without thanking The IIHMR UNIVERSITY, my guide and mentor Dr. Suresh Joshi adjunct professor, Ilhmr University, Jaipur for unconditional support and treasured suggestion in completion of the project. His word of wisdom has always been a perpetual source of inspiration.

Lastly I am thankful to Placement cell and Mr Hem K Bhargava , deputy registrar ,IIHMR Jaipur for providing me with this opportunity.

## ABBREVIATIONS USED

ACLS: advance cardiac life support

Cath: catheterization

CT: Computed tomography

CTVS: cardiovascular and thoracic surgery

EHCC: eternal heart care centre

GDA: general duty staff

HIS: HIV incidence surveillance

HDU: high dependency unit

LIS: Laboratory information system

ICU: intensive cardiac unit

MICU: medical intensive unit

OPD: out-patient department

O.T. : operation theatre

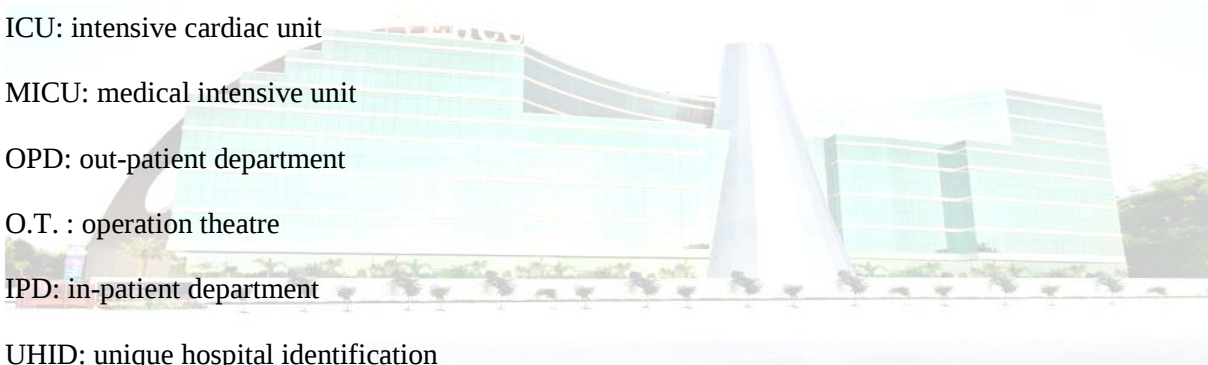
IPD: in-patient department

UHID: unique hospital identification

TPA: third party assurance

TSSU: theatre sterile supply unit

SICU: surgical intensive care unit



## **TABLE OF CONTENTS**

|                                       |       |
|---------------------------------------|-------|
| 1. Cover Page                         |       |
| 2. Acknowledgement                    |       |
| 3. Abbreviations                      |       |
| 4. Observational Learning             |       |
| Introduction.....                     | 1     |
| Company profile.....                  | 2-5   |
| Services.....                         | 5-7   |
| Clinical specialties.....             | 7-10  |
| Non clinical specialties.....         | 10-15 |
| 5. Project 1                          |       |
| Introduction.....                     | 16-17 |
| Research Question.....                | 18    |
| Objectives.....                       | 18    |
| Research Methodology.....             | 18    |
| Data Analysis and Interpretation..... | 19-28 |
| References.....                       | 29-3  |

## **OBSEVATIONAL LEARNING:**

### **INTRODUCTION:**

Eternal Hospital (A unit of Eternal Heart Care Centre and Research Institute) is a state-of-the-art tertiary care hospital in Jaipur city. This landmark Healthcare Institute is the result of the vision of Dr. Samin K. Sharma, world renowned Interventional Cardiologist based at Mount Sinai Hospital, New York, USA. Founded in 2013,

Hospital with capacity of 250 bedded hospital has state-of-the-art technology focusing on the specialities like Cardiology, Cardiac Surgery, Neurology, Neuro Surgery, Orthopaedic & Joint Replacement, Spine Surgery, Nephrology, Paediatrics, Gynaecology, Critical Care, Urology, Pulmonology, Gastroenterology, Diabetes and Endocrinology and many more.

Eternal Hospital has a knowledge sharing arrangement with Mount Sinai Hospital New York USA, which has been internationally recognized for its top-performing physicians and revolutionary research centres.

Eternal Hospital has emerged as a destination of choice for many national & international patients owing to the exclusive services and excellent medical outcomes delivered at Eternal Hospital.

All construction and adaptation of technology has been done in adherence to international norms. An aesthetically inspiring building backed by highly dedicated customer services bear the differentiating mark for Eternal Hospital. Latest range of equipment ranging from a highly equipped ICU to FD-20 (most advanced CATH LAB in Rajasthan) cath lab are some of the examples of the high benchmarks Eternal Hospital maintains for its patients.

Eternal Hospital has been amongst the leaders in the number of patients in Cardiology right from the first few months of inception. Clinical excellence is rooted in our team of doctor or medical experts who are well versed with the latest advancements in their respective field; this is further complemented by our teams of highly trained nurses and paramedical staff.

Along with the state-of-the-art medical services, some of the unique features which Eternal Hospital also offers are Nuclear Medicine, Infectious disease department, Fast track surgeries, Preventive health department and Eternal Hospital patient education services.

### **ORGANIZATION PROFILE:**

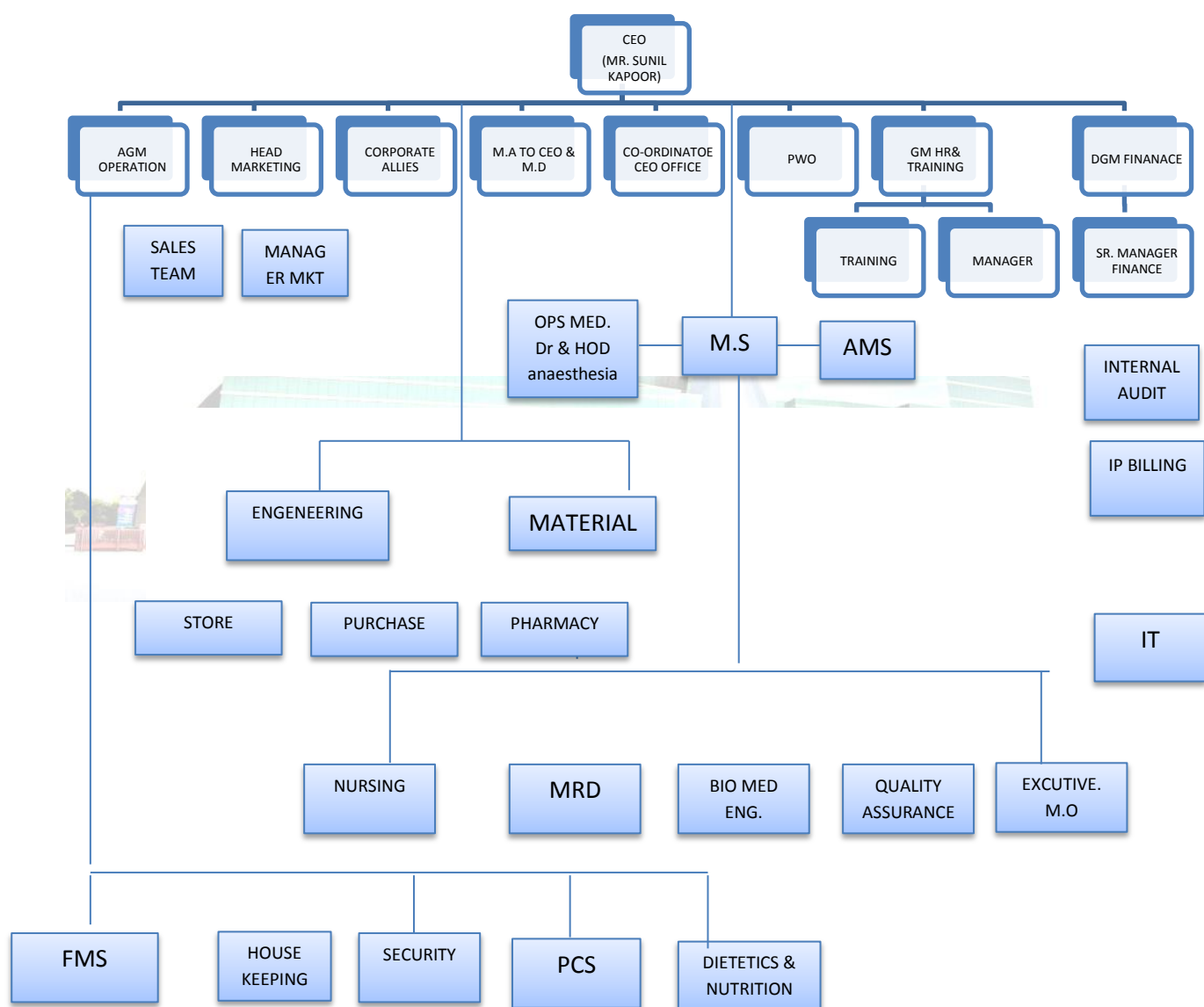
#### **Vision:**

A centre of excellence in area of medicine with highest international standard at affordable cost for community around the globe.

#### **Mission:**

To redefine health care by improving outcomes and experience of patients through cutting edge research and personalized clinical care including innovative, preventive, diagnostic, therapeutic and rehabilitation services.

## EHCC – THE LEADERSHIP TEAM



## SERVICES OFFERED BY THE HOSPITAL :

- ANESTHESIA
- DENTISTRY

- DERMATOLOGY & VENEROLOGY
- EAR NOSE & THROAT
- GENERAL SURGERY
- GYNECOLOGY
- INTERNAL MEDICINE
- ORTHOPEDICS & JOINT REPLACEMENT
- PEDIATRICS
- PULMONARY

#### SUPER SERVICES:

- CARDIO THORACIC & VASCULAR SURGERY
- CARDIAC ANESTHESIA
- CLINICAL PSYCHIATRY
- DIABETES & ENDOCRINOLOGY
- GASTROENTEROLOGY
- GASTRO-INTESTINAL SURGERY
- INTERVENTIONAL CARDIOLOGY
- NON INVASIVE CARDIO LOGY
- NEPHROLOGY
- NEUROLOGY
- NUCLEAR MEDICINE
- NEURO AND SPINE SURGERY
- PEDIATRIC CARDIOLOGY
- PLASTIC SURGERY
- UROLOGY

#### SUPPORT SERVICES:

- DEPARTMENT OF DIETATICS

- PHYSIOTHERAPY

#### DIAGNOSTIC AND IMAGING SERVICES:

- BLOOD BANK
- PATHOLOGY
- RADIO DIAGNOSIS
- CRITICAL CARE
- EMERGENCY & AMBULANCE

#### 24X7 SERVICES

- AMBULANCE
- PHARMACY
- EMERGENCY
- LABORATORY
- RADIO DIAGNOSIS

#### A QUICK TOUR:

- ❖ 225 Bedded super speciality hospital (operation bed -130)
- ❖ Modular “class 100” operation theatre
- ❖ 24X7 hr. cath lab
- ❖ 24X7 emergency with fully equipped ALS/BLS/Ambulance
- ❖ Blood storage
- ❖ Nuclear medicine(gamma camera with stress thallium)
- ❖ Radio diagnosis & imaging sciences (MRI/ CT Scan, CT angiography, bone densitometry, x ray)
- ❖ Clinical pathology – bio chemistry and microbiology
- ❖ Pneumatic chute for quick sample transport
- ❖ Transfusion medicine
- ❖ Non-invasive cardiology (Echo, TMT, etc.)
- ❖ Environment friendly : use of solar energy , green building & recycles water

- ❖ Café lounge
- ❖ Library
- ❖ Seminar hall and conference room

#### **SALIENT FEATURES:**

- Largest cardiologist team in private sector in the state to perform complex care
- Contribution of 80 critical care beds to the state- Rajasthan is having scarcity of critical care beds and people are dying without availability of critical care beds and emergency and when required. EHCC is giving 80 critical care beds including medical, surgical, cardiac care, CT Recovery etc.
- Cath lab – EHCC consist of 2 state of the art cath lab that house most advanced technology including bi plane flat panel imaging, which allows for more images with less contrast dye usage, and magnetic catheterization. We have the facility to show the live cases at our auditorium for medical fraternity.
- Treatment in golden hours- EHCC believes in Rapid action and focused care to give best results for heart attack, brain attack and trauma because we believe that needle time is important.
- Modular/ laminar flow “class 100” operation theatres with HEPA filter and zero infection rate
- Availability of GAMMA imaging, nuclear medicine for cardiac treatment.
- Pneumatic chute- first time introducing pneumatic chutes. It is a system placed at sample collection counter and nursing stations. It is a suction operated System and support to send collected samples directly to laboratory. The system reduces man power, infection possibility
- Separate in and out system for sterile and non-sterile items is also an infection controlling measure.
- Steam disinfection system for infection free instruments.
- Minimum involvement of attendants and patients. Video briefing for attendant’s information and counselling
- EHCC is establishing a research department to evaluate delayed recovery of admitted patients, patients in critical areas, infection cases after surgery etc. a team of senior doctors will audit the surgery and treatment results. Team of Mount Sinai hospital, USA will available for live audio/ video advises. Ehcc & research institute being a truly international standard hospital has procured its 2<sup>nd</sup> cath lab which is the latest one “Phillips FD20” which can perform a full spectrum of cardiac & vascular interventions. It combines a large field of view and high resolution flat detector with advanced diagnostic and 3d intervention tools- all seemingly integrated in the clinical work flow of a mixed lab.
- Advance interventional tools for vascular and PTCA procedures.
- Sharp , crisp , visualisation of small details and objects during cardiac and vascular interventions.
- Dose wise offers low x ray dose and excellent image quality as compared to conventional cath labs which is an advantage to both for a performing cardiologist and patient.
- Compact design provides full patient access and supports step projections.
- Other equipment’s as follows:
  - 3d mapping system for ep study
  - Phillips mp-20 patient meter

## **FACILITIES:**

- Total environmental control with proper treatment of air and water, well provided waiting space, sophisticated and well stocked pharmacy and facilities for communication and refreshment enhances the patient comfort. EHCC is supported by state of art medical gas system, central sterile supply, laundry and full back up power generation.
- Supporting most modern healthcare we adhere to stringent infection control, environment protection, biomedical waste disposal , sewage treatment, waste treatment and rain water harvesting.
- Currently the hospital has 22r beds devoted for the patient comfort which include icu's, economy wars, semi-private rooms, private/deluxe rooms and semi-deluxe/suite rooms

## **DEPARTMENT VISITED DURING SUMMER TRAINING:**

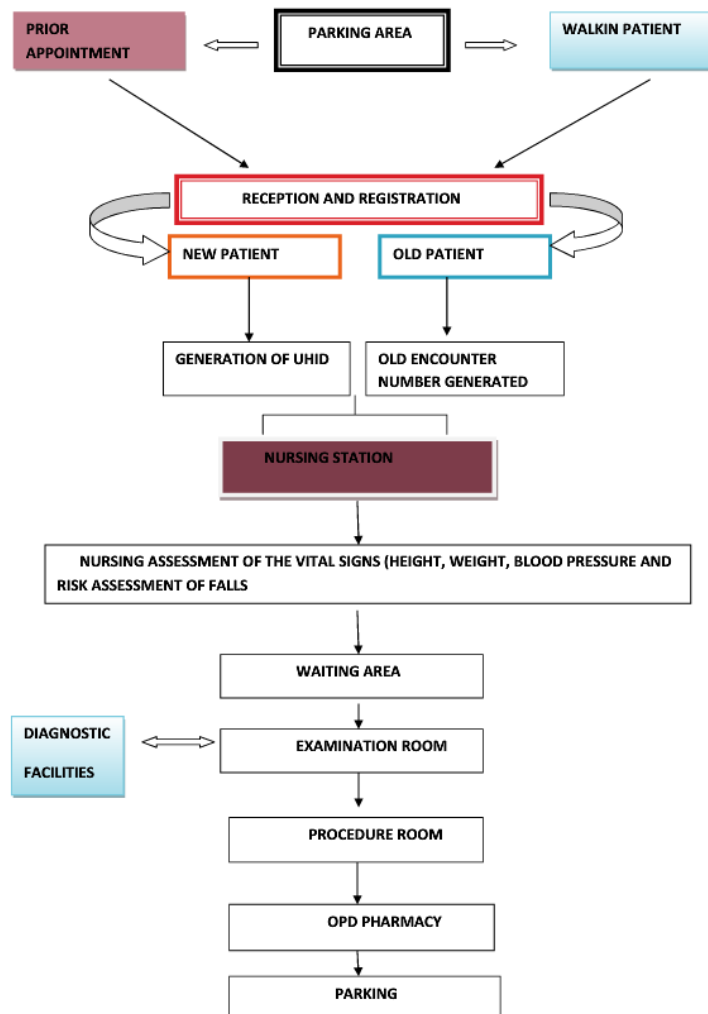
### **❖ FRONT OFFICE:**

- First contact point between the patient / their attendants coming to the facility.
- Gives direction to them about the location of various departments.
- Perform in patient out -patient registration
- Does appointment scheduling of the patients.
- Makes doctor available summary
- Insurance management

### **❖ OUT-PATIENT DEPARTMENT:**

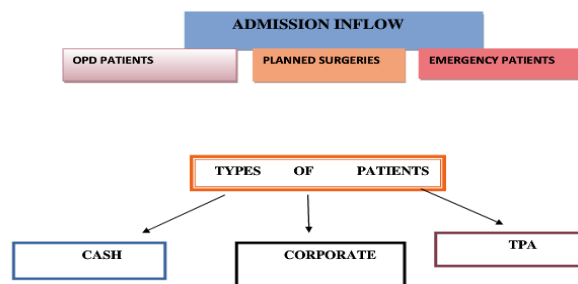
- There are 3 OPDS in EHCC:
  - OPD1 & 2 is in ground floor
  - OPD 3 in 1<sup>st</sup> floor. It is especially for the cardiac patients.
- Each OPD has its own front desk.
- Walk-in patients are given a token number as soon as they arrive at the front desk, to reduce the rush at the front desk.
- When a particular number is called, the patient with that token number comes to the front desk, where registration is done which is valid for life time of the patient and a UHID number is generated which becomes a unique identification for all his health related information.
- After generation of UHID the patient is informed about the doctors available for that specific day so that they can make a decision.
- The waiting area has a capacity of accommodating 70-100 patients at a stretch.
- OPD for EHCC is approximately 300 patients/ day.

## PROCESS FLOW OF OPD:



## ADMISSION DESK:

- If the patient has to be admitted to the hospital, he/she first reports to the admissions desk wherein all the paper work is completed. Dos and donts as well as patient's rights duties are explained to him. An initial token amount is deposited here by the patient which is according to his preference of the room.( be it economy, single, twin sharing or suite.)
- Incase of TPA patients the admission has to be reported to the insurance company within 24hiurs
- ISSUES: few staffs are present at rush hours which cause a chaos at times.

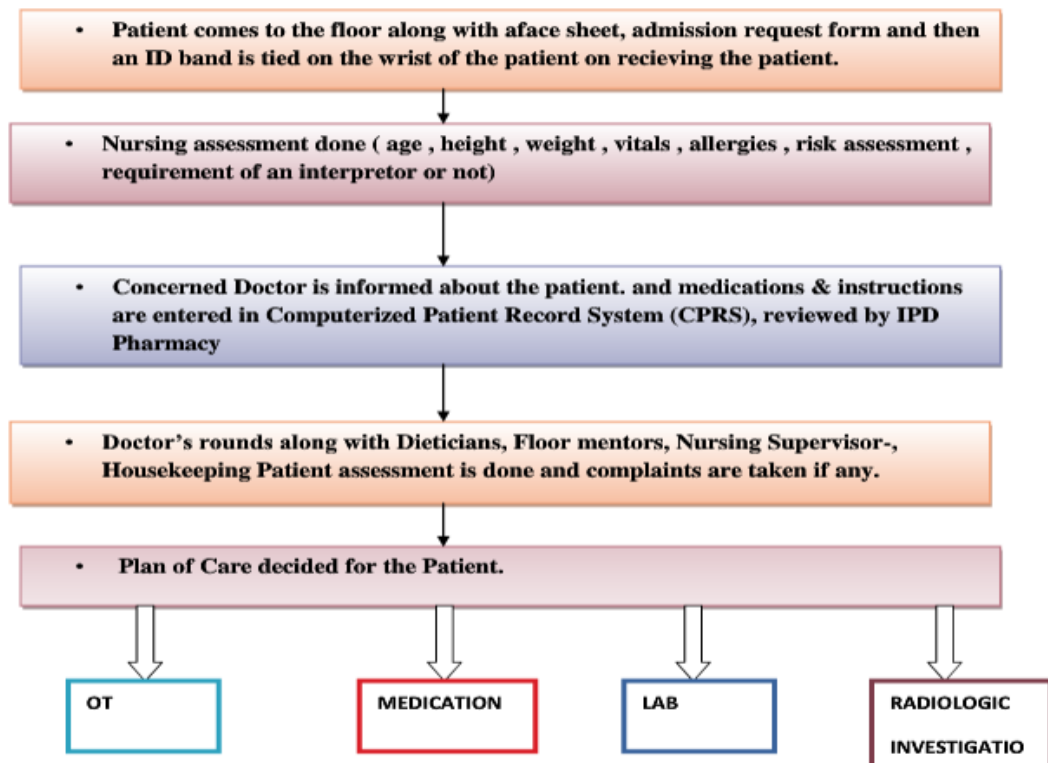


### IN PATIENT DEPARTMENT (IPD):

- ❖ IPD is distributed over two floors (3<sup>rd</sup> and 4<sup>th</sup>). Each floor has two wings.
- ❖ Every wing has its own nursing station.
- ❖ Structure of IPD
  - 3<sup>rd</sup> floor:
    - General ward, consisting of 9 bed
    - HIGH DEPENDENCY UNIT (HDU): 6 beds
    - Wing 3C comprising of 23 beds arranged in 13 rooms
    - Wing 3A has 15 rooms where there are 22 beds.
  - 4<sup>th</sup> floor:
    - Wing 4A
    - WING 4C
- ❖ The rooms available in IPD have the following structure of bed/room:
  - Triple sharing: 3 beds/room
  - Deluxe rooms: 2 beds/room
  - Semi deluxe rooms: 1 bed/ room
  - VIP suite
- ❖ Every bed side has:
  - Room equipment checklist-side rails, oxygen, suction
  - Important instructions.
- ❖ Things observed at nursing station:
  - ❖ Information board covering:
    - Occupied bed with name of the patient, consulting doctor, diagnosis and important instructions if any.
    - Nurse: patient ratio. (1:4)
    - bed allotted to each nurse( 4 -6 nurses/shift)
    - Vacant/ available beds.
  - ❖ Crash cart parked next to nursing station.
  - ❖ Wing 3C has 2 computers one is used for dispatch summary writing, other by the staff for updating patient's medicines and investigation and for filling indents. Other wings have only 1 computer.
  - ❖ Cupboards with forms- down time form, investigation track sheet, blood requests, informed consent, O.T consent, registers- duty , roster, special diet, hand over, weight machine.
  - ❖ Pantry -1
  - ❖ Biomedical waste disposal bins
- ❖ Nurse to patient ratio : 1:4

- ❖ General duty assistants(GDA)= 2-3 in every shift
- ❖ Average length of stay (alos) for normal laparoscopic surgeries: 2-3 days
- ❖ Quality indicators are : patient fall , hypoglycaemia, needle stick injury.

### **IPD PROCESS FLOW**



- ❖ Reverse barrier nursing:  
Done when the patient is immune compromised.

### **EMERGENCY DEPARTMENT:**

Due to unplanned nature of patient attendance, this department provides initial treatment for broad spectrum of illness and injuries, some of which may be life threatening and require immediate attention, except for major burns. It is located at the ground floor with its own entrance and operates for 24 hours a day.

Ambulance:- 2 ACLS ambulance is owned by the hospital and ambulance is outsourced.

Patients are either transferred to other departments or are discharged within 4 hours.

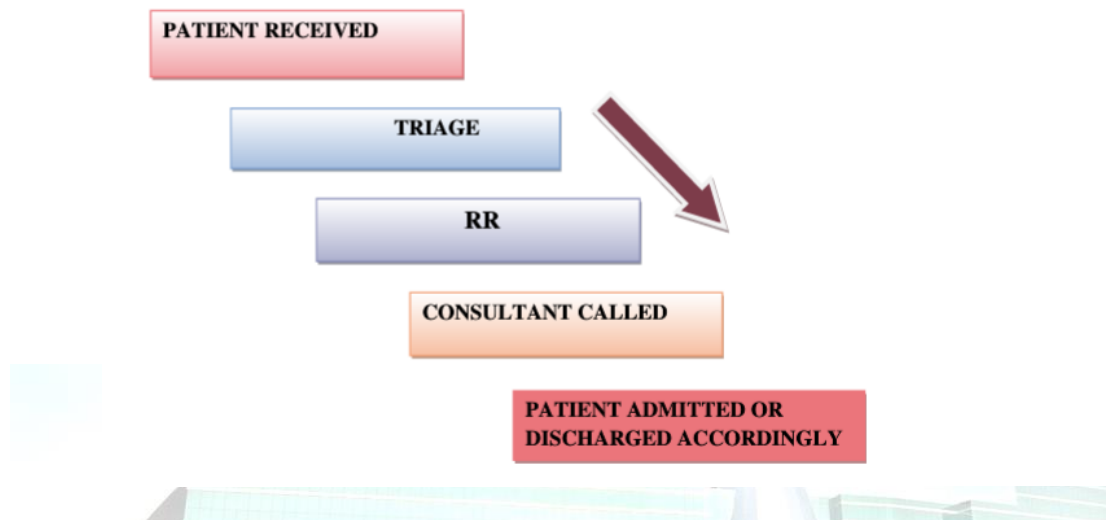
Response time:

- EMO response time: < 1 min
- Consultant response time < 60 min
- Code blue response time < 5 min
- Ambulance response time < 10 min

#### STAFFING:

- Senior consultant
- 2 doctor
- Team leader
- Emergency physician:1
- Nursing staff : 32(8 per shift)
- 2 GDA per shift
- Security personal

#### PROCESS FLOW



#### INFRASTRUCTURE:

4 emergency is there in EHCC.

- Doc. Work station is located in one corner of the room.
- Store room
- Hospital information system and CPRS
- Waiting area for patient's attendants outside the department

#### OPERATION THEATRE COMPLEX:

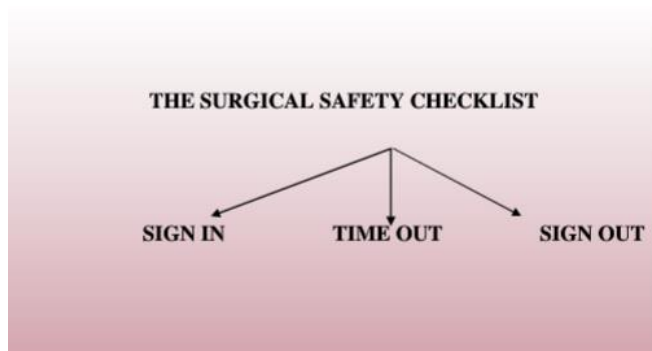
Operation theatre complex is located on the second floor. Operation theatre complex has 5 modular class-100 operation theatres for various departments.

#### Organisation of staff:

The staffs of operation theatre are organised into 4 groups

1. Anaesthetics and surgeons 2. Nursing staff 3. technician and supportive staff.
- Average operations done – 10 per day
  - Average temperature: 21 degree
  - Humidity: 50%-60%
  - Light: 2000 lux in the centre of the O.T table and decreases on moving farther.
  - Each O.T has a separate material store and a TSSU( theatrical sterile supply unit)
  - Staffing ratio: nurse: patient – 4:1 (pre-op) 2:1(post op)  
Technician: pt. - 1:1

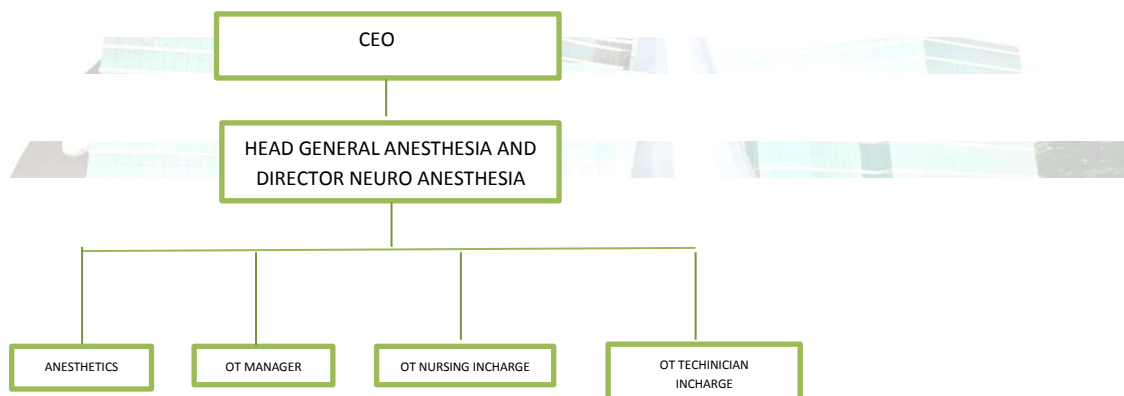
- Ot utilisation: 70%



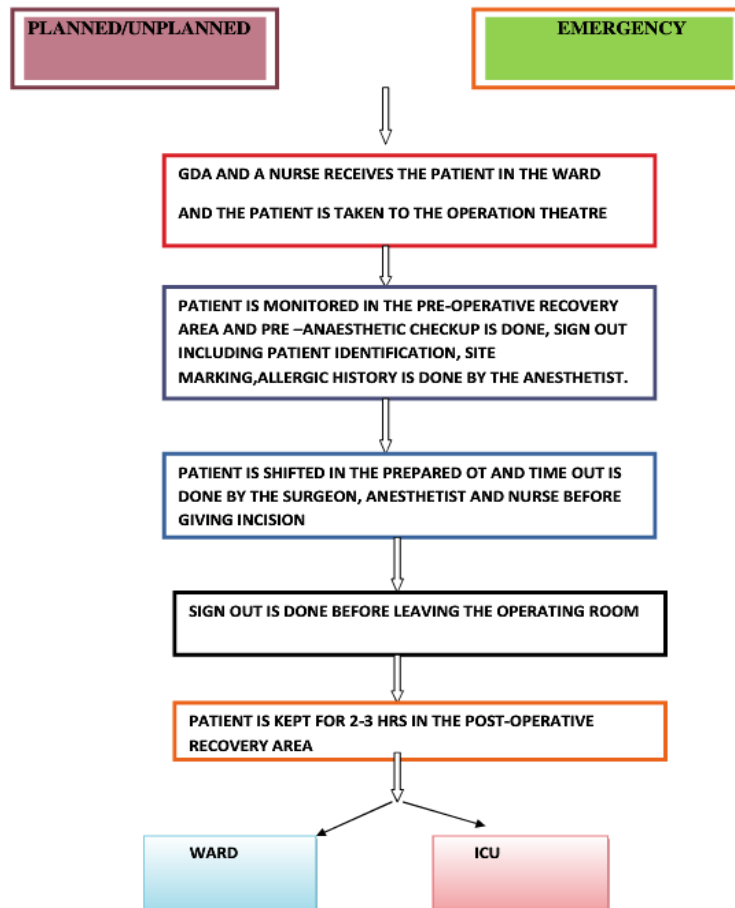
#### QUALITY INDICATOR:

- Wrong patient
- Wrong surgeon
- Wrong surgery
- Return to OT (with-in 7 days)
- Waiting time for O.T

#### HIERARCHY:



#### PROCESS FLOW IN OPERATION THEATRE

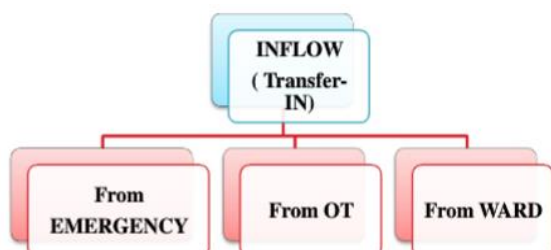


### INTENSIVE CARE UNIT:

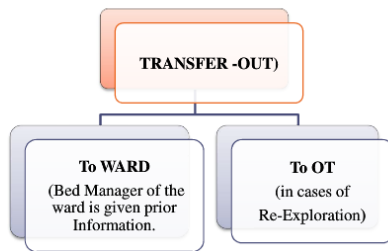
EHCC HAVE 3 intensive care unit in hospital

1. Medical ICU:
  - MICU 1: 8 bedded
  - MICU 2 : 8 bedded
2. Surgical ICU:
3. CTVS ICU:

### PROCESS FLOW:

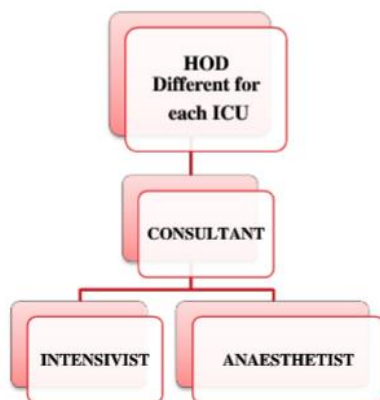


Beforehand information is given on call to the ICU for transfer-in of the patient.



- ❖ Patient :nurse ratio 1:1( but at times its 1:2)
- ❖ Patient counselling – done throughout the day, relative counselling done twice a day by the Intensivist.
- ❖ Protocol for infected patients:
  - Isolation:
  - Visitor is allowed inside isolation after doctor’s permission only during visiting hours.
  - Aseptic policy
  - Separate linen disposal in separate bag
  - Separate dressing trolley
  - Separate housekeeping material- dusters, mops etc.

HIERARCHY:



QUALITY INDICATOR:

- Patient fall
- Bed sore
- Nosocomial infection
- Medication error
- Hand hygiene and bundle compliance

All quality indicators are duly noted in “Quality flash” and it is audited time to time and measures are taken to reduce the number of incidents.

## CATH LAB:

Catheterization room or cath lab is an examination room with diagnostic imaging equipment used to visualize the arteries of the heart and the chamber of the heart and treat any stenosis or abnormality found.

Diagnostic procedure performed here are:

- ❖ Angiography
- ❖ Electrophysiology study
  - Cath study

Other procedures are:

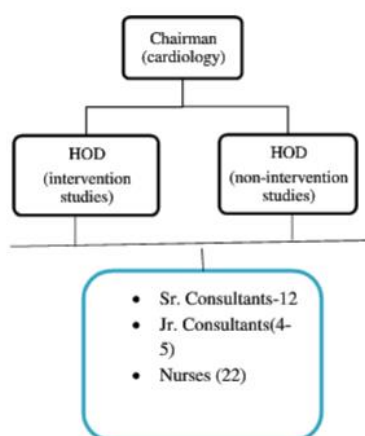
- Percutaneous transluminal coronary angioplasty
- Peripheral transluminal angioplasty
- Radiofrequency ablation
- Permanent pace-maker implantation
- Intra cardiac defibrillation
- Cardiac resynchronisation therapy defibrillator device
- Cardiac resynchronisation therapy pacemaker
- Left and right sided pressure studies
- Closure of some congenital heart defect

Slots are booked for everyday as per doctors and patients convenience. About 70% of the total booked slot are treated every day

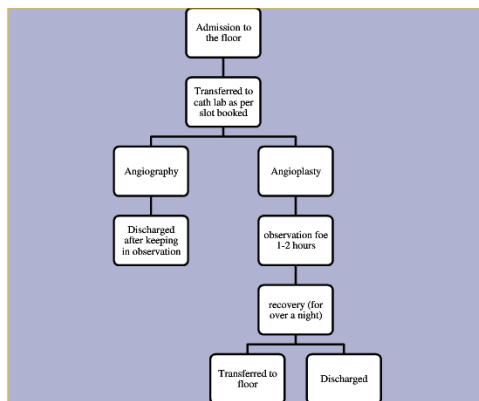
Location: located in 1<sup>st</sup> floor in the vicinity areas of

- CATH recovery -11 beds
- Coronary care
- MICU 1 AND MICU 2
- OT complex
- CTVS ICU
- SICU

STAFF:



#### FLOW OF THE PATIENT



#### DEPARTMENT OF LAB SERVICES:

An ISO 9001:200 certified lab, it opens 24hrs a day. It is a high tech lab with fully automated instrument which are directly interfaced with HIS and LIS.

Departments:

- Biochemistry
- Haematology
- Immunoassay
- Histopathology
- Clinical pathology
- Serology
- Microbiology
- Infection control

#### RADIOLOGY DEPARTMENT:

Situated in the ground floor

Procedure one in the department:

1. Routine x-rays
  - Plain:- e.g. chest, spine, etc
  - Routine fluoroscopic procedure e.g barium studies
2. Routine ultra sound studies:
  - Ultrasonography
  - Doppler studies peripheral (B/W and colour)
3. Mammography
4. Dexascan
5. Special imaging techniques:
  - CT scan
  - MRI

Divided into two parts:

1. For ultrasonography, mammography, dexascan
2. For C.T scan, MRI, X-ray, fluoroscopy

Consists of:

- Reception
- Waiting area<sup>4</sup>
- Diagnostic room
- Counselling room
- Changing room
- Film processing room
- Radiologist office

There are two MRI and CT scan machine in the department

Timing of OPD 9 am to 5 pm

In between this IPD and Emergency patients are also taken.

Report collection:

Turnaround time is 4 hour. Reports can be collected on the same day from the radiology department. After 24hrs it is sent to the front desk of OPD.

Emergency, doctor's referred patients scan is done as soon as possible

IPD and ICU patients are given prior appointments.

**BLOOD BANK:** EHCC has its own blood bank . all blood groups are available. But it is preferred that patient arranges blood through his relatives or any friend and should give replacement

- The RBC are stored for 31 days without solution or 42 days with solution at 2-6 degree
- Platelet is stored for 5 days at a room temperature 20-22 degree Celsius.
- Cryoprecipitate at -30 degree Celsius for below 1 year. But once thawed within 6 hours
- The FFP ( fresh frozen plasma) are stored for 1 year at -40 degree Celsius. But any unit that is thawed should be stored at 2 – 6 degree Celsius +\_ 1 for max. of 24 hours.

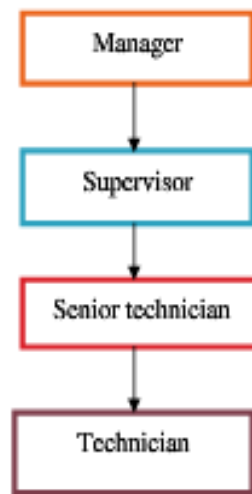
## CSSD

CSSD is the heart of the hospital control and the most important unit of the clinical support services. CSSD role lies in receiving cleaning packing disinfecting, sterilizing, storing and disinfection of instruments per well delineated protocols and standard procedures

It is a centralised department and is located service floor.

The main aim of CSSD is to reduce the level of micro- organisms from  $10^6$  to  $10^{-6}$

### **HIERARCHY OF THE DEPARTMENT-**



Zones present:

- Decontamination
- Clean
- Sterile

Colour coding :

- Parking area for trolleys marked with yellow tape
- Not to be crossed area around the machines with blue
- At the time of receiving the instrument at the cssd department, the instrument are counted, checked for any damage , segregated according to the method of sterilisation required for the instrument.
- Instrument used for the washing of the instrument are fully automated and according to thr European standards
- For packing of the instruments medical grade paper and clothes are used which are specifically designed for the purpose (the have a zig zag pattern)
- Once sterilized and packed instrument can be used within 2 days

### **EQUIPMENT LIST:**

- Water
- Autoclave
- Plasma sterillizer
- Eto sterillizer
- Dryer
  - Air guns
  - Water guns
  - Ultrasonic cleaners

## **Quality indicators**

Various quality indicators used in cssd are

- ❖ Batch monitoring strip: a yellow coloured strip which is attached to every lot which on exposure to right temperature and pressure turns black

## **FOOD AND BEVERAGES:**

- ❖ Food and beverage department is responsible for the supply of food to the in-patient and sometimes their attendants (if required) and for arranging food during various meetings and conference in the hospital
- ❖ The department has been out sourced to pepper fry, however, the management hand supervisory staff is in-house

## **Time table for the diet of the patient:**

**7-8 AM breakfast**

**11-11.30 mid-day beverage/soup**

**1-2 PM: lunch**

**4-5PM: evening tea**

**7-8 PM: dinner**

- ❖ Dinner of the same day, breakfast and lunch of the next day are decided prior in the morning and diet tickets are issued by the dietician and given to the chef.
- ❖ Apart from these if patients wants to have something extra , those can be provided to the patient after consulting dietician but for an extra charges.

## **DIETETICS:**

- ❖ The department plans diet for all IPD patients accordance with the primary consultant's opinion on the same
- ❖ Staff:5

Assessment of each patient has to be done within few hours of admission and thereafter every day at morning by dietician.

For eternal nutrition, all commercial supplements for each disease are available.

**Dietician: Patient: - 1:40**

## **BIOMEDICAL ENGINEERING:**

This department deals with purchase, installation and commission, training on operating, handing and maintenance of medical equipment in all departments of the hospital

Looks after running equipment and new equipment

❖ **For running equipment:**

- Preventive maintenance is done- to prevent breakdown, maintenance is done.
- Calibration is done- i.e to check how accurate an equipment is functioning
- Breakdown call is checked for
- Depreciation is measured

❖ **For new equipment**

- Installation and commissioning is done

❖ **AMC and CMC records are maintained**

**PHARMACY:**

**EHCC has self-owned central pharmacy, with one In patient pharmacy stores and 1 out-patient store in the hospital.**

**PURCHASE:**

Auto purchase requisition is given to H.R team which is then is forwarded to vendor (outsourced). For purchasing the item ABC method id followed.

**STORING OF DRUGS:**

Medicine are arranged according to VISTA(e-care) in client patient record system via generic name in alphabetic order in racks. Oral, parenteral, and topical items are stored separately.

Expired drugs are stored in separate room.

**INDENT AND DISPENSE OF MEDICATIONS:**

**In patient pharmacy-**

Medication orders posted by the clinicians is verified by pharmacist on PUTTY system labelled with (patient info, SSN no. , drugs name) then the medications are dispatched after billing via HIS (hospital information system) and finally hand over to GDA to dispense medicines.

The STAT order required is dispensed with 5 min, while normal orders are dispensed by 1 hour.

**NARCOTICS DRUGS:**

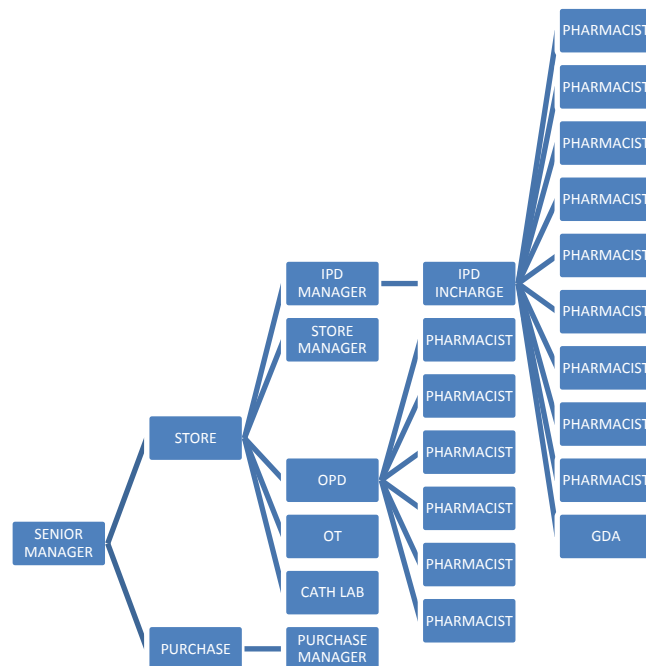
They are kept in double lock and key system, documentation of narcotic drugs is appropriately maintained.

**LOOK ALIKE SOUND ALIKE DRUGS:**

Look alike sound alike medications have high medication error due to similarities in nomenclature and packing.

In the main pharmacy stores(SALA medication) are stored separately in 2 adjacent racks with yellow colour for sound alike and pink colour for look alike medications warning sticker to avoid confusion.

## HIERARCHY:



## PROJECT UNDERTAKEN:

### ANALYSIS OF HAND HYGINE COMPLIANCE IN MICU1, MICU2 AND HDU

## INTRODUCTION:

Hand hygiene in general terms can be defined as removal of microorganisms with the help of disinfecting agents such as alcohol or soap and water. [1] Hand hygiene is always recommended for health care workers before they start caring for a patient, after any contact with bodily fluids, before any invasive procedure, and after removal of gloves. [2] Use of hand-rub or soap and water for hand hygiene still remain an essential ingredient in controlling infection in hospital settings. The importance of hand hygiene has been continuously explained and it is also been proved that training staff on hand hygiene has resulted in sustained improvement

Hospital-acquired Infections (HAI) is one of the important causes of morbidity and mortality in Intensive care units. HAIs not only lead to increase length of stay, but are also associated with a great risk of Mortality. WHO data shows that, at least 1 out of 4 patients of intensive care might incur an infection in hospital. During patient care Healthcare workers' hands are colonized by potential pathogens, a Good hand hygiene practice will help in reducing HAI rates along with cross-transmission MRSA pathogens.

Direct observation for monitoring the compliance of hand hygiene is considered as the “Gold Standard” as it provides both quantitative and qualitative information about the reasons for failures in hand hygiene compliance; moreover it helps in distinguishing the hand hygiene practiced by various health care workers.

WHO launched Global Patient Safety Challenge under the slogan of "Clean care is safer care" in 2005, which introduced the health system to “my five moments of hand hygiene” according to which health care workers should perform hand hygiene: before touching patient, before a clean or aseptic procedure, after the risk of body fluid exposure, after touching patient, after touching patient surroundings.

#### **PROBLEM STATEMENT:**

Hand hygiene has been considered as an important measure to prevent hospital acquired infection; however the compliance was found to remains low among health care professionals.

#### **OBJECTIVE:**

The purpose of this study is to find out the compliance hand hygiene in MICU1, MICU2 AND HDU, according to WHO guidelines of hand hygiene based on “my five moments of hand hygiene approach”.

#### **METHODOLOGY:**

EHCC is a multispecialty hospital operating in Jaipur, providing health care facility to its residents and to the nearby areas. It is a 225 bedded hospital with an average OPD of 250 patients daily. The hospital has two ICUs with 24 beds. Both ICUs have hand washing facilities located in the ICU premises.

Keeping in mind the achievement of specific objectives of the present study the methodology has been designed, consisting of several sequential steps as follows:

- **Study setting:** MICU1 , MICU2 and HDU ,EHCC, JAIPUR
- **Study design:** observational and descriptive
- **Study span:**
  1. Observational study duration: 4<sup>th</sup> may –27<sup>th</sup> may 2017
  2. Data analysis duration: 28<sup>th</sup> may- 31<sup>st</sup> may 2017
  3. Review of literature duration: 1 June – 3 June 2017
- **Study population:** health care workers in MICU1 , MICU2, and HDU , during day shift i.e. 9am- 5pm
- **Data collection method:** it was a three week observational study, 1 week each was spent in all the 3 department and total opportunities for hand hygiene was noted down.

#### **STRENGTH OF THE STUDY:**

1. Direct observation minimises the observational bias
2. Cost effective
3. Tool used for recording the observation is standard

tool given by WHO

4. Distinguish between hand hygiene practiced by different health care provider

#### **LIMITATION:**

1. Awareness of observation can influence staff behaviour.
2. Can compromise patient privacy.
3. Doesn't provide any information on the reason of non-compliance.
4. The act of "double counting" can present a conundrum. This issue arises when health care worker appropriately performs hand hygiene after contact with one patient and then goes directly to another to provide care without again performing hand- hygiene.

#### **RESULT:**

IN THIS STUDY 3 wards were observed for hand hygiene compliance for three week, and data were recorded,

In HDU the total opportunity for hand hygiene was calculated to be 213 (63 doc, 130 nurses, 20 GDA staff) out of which total compliance was observed in 123 opportunities i.e. 56.9%. (38% doc, 63% nurses, 50% GDA)

In MICU 1 total opportunities were 321 and compliance was seen in 163 observations (50.7%)

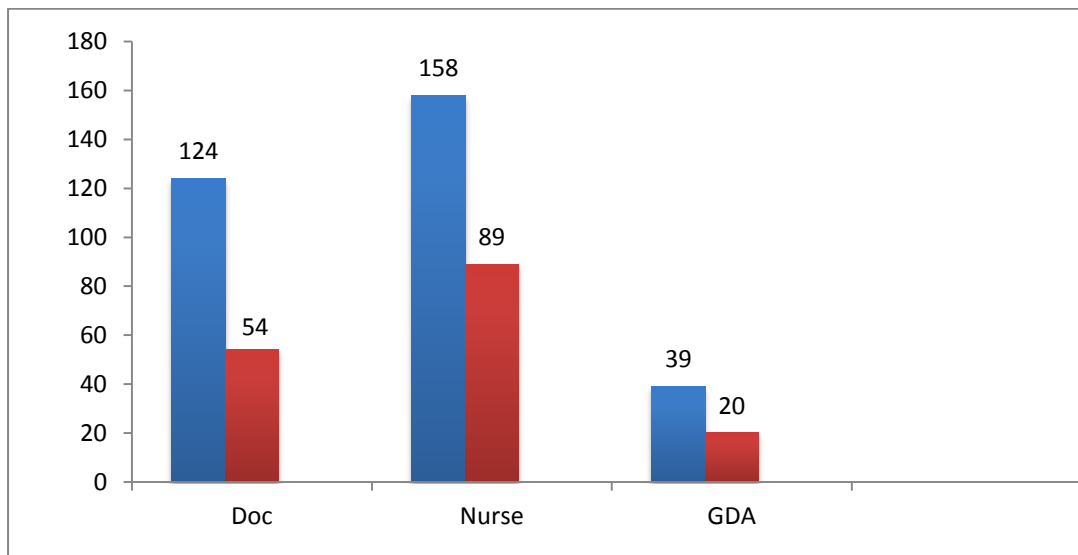
In MICU 2 opportunity calculated to be 191 out of which in 94 opportunity compliance was observed.(49.21%)

- **MICU 1:**

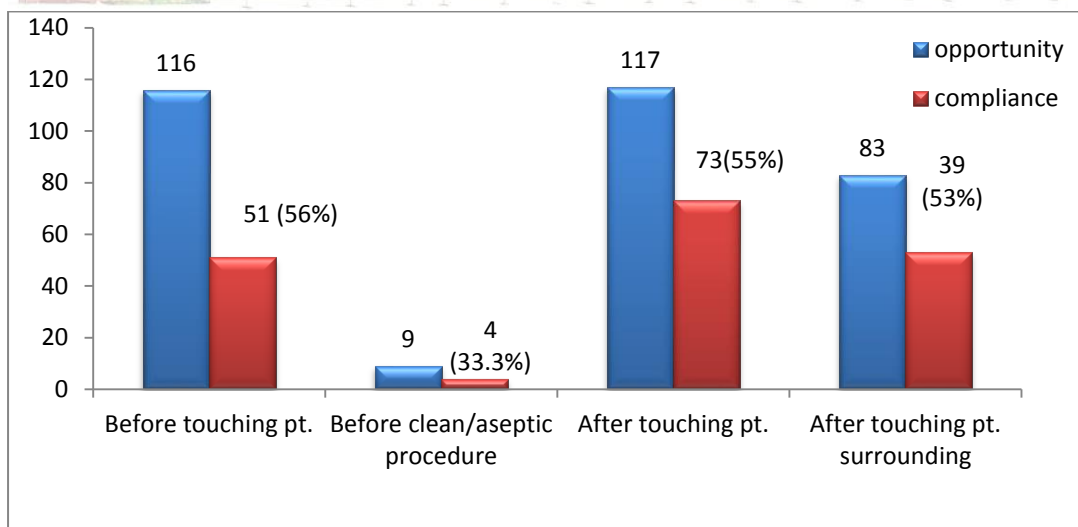
The table shows the distribution of participants and observed hand hygiene and missed opportunity.

|       | opportunity | compliance | Non-compliance | % compliance |
|-------|-------------|------------|----------------|--------------|
| Doc   | 124         | 54         | 70             | 58.3%        |
| Nurse | 158         | 89         | 69             | 43.6%        |
| GDA   | 39          | 20         | 19             | 26.02%       |
|       |             |            |                |              |

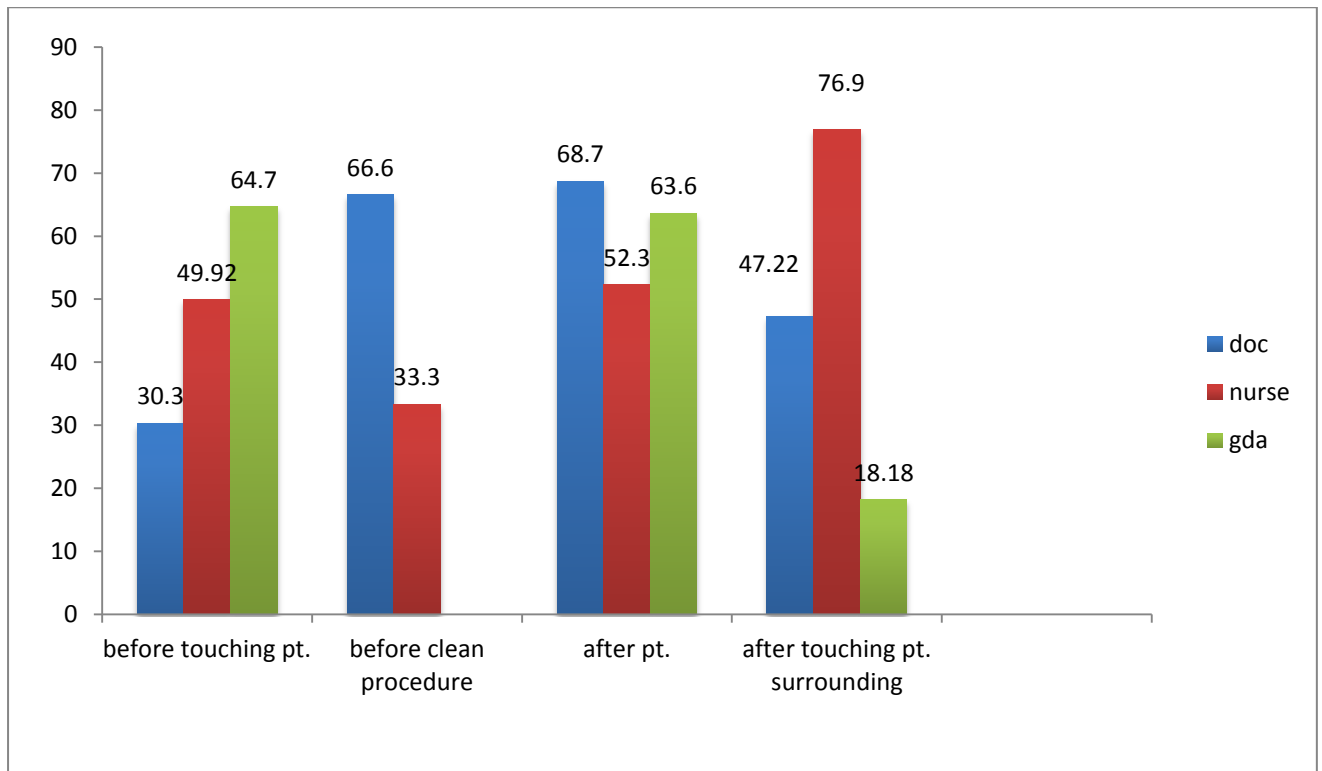
Chart showing the total opportunity available for hand hygiene and the actual compliance to it



Graph depicts the opportunity available for the various steps of hand hygiene and its compliance



Percentage hand hygiene compliance by health service providers for the different steps in hand hygiene

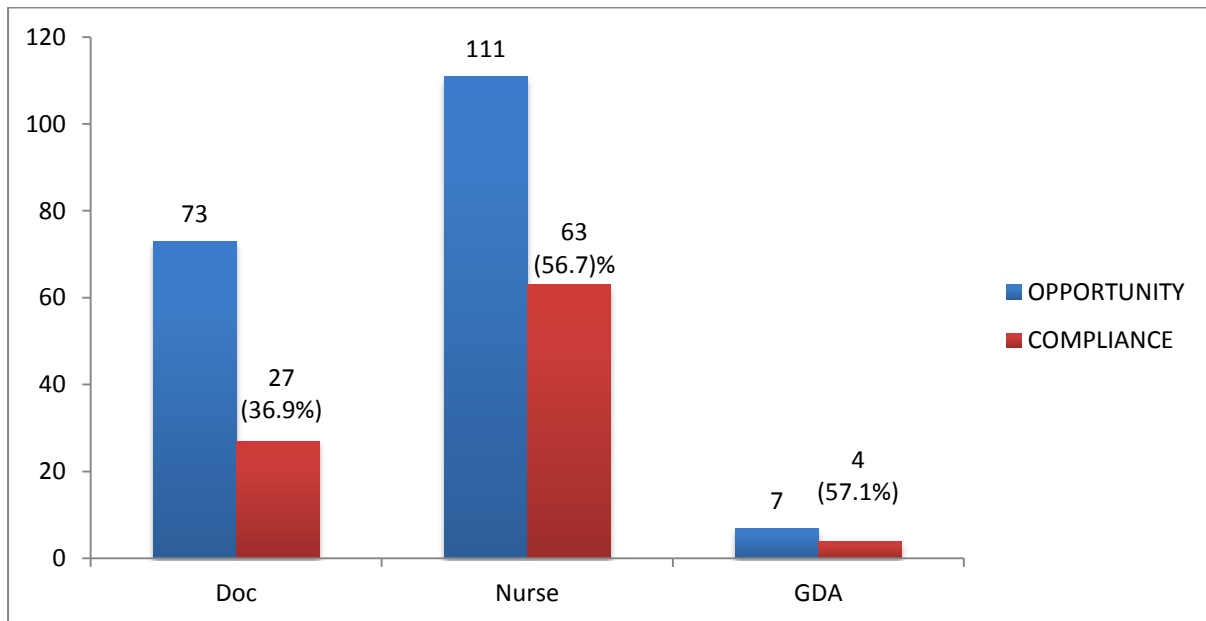


- **MICU 2**
- The table shows the distribution of participants and observed hand hygiene and missed opportunity.

|       | opportunity | compliance | Non-compliance | % compliance |
|-------|-------------|------------|----------------|--------------|
| Doc   | 73          | 27         | 46             | 36.9         |
| Nurse | 111         | 63         | 48             | 56.7         |

|     |   |   |   |      |
|-----|---|---|---|------|
| GDA | 7 | 4 | 3 | 57.1 |
|-----|---|---|---|------|

Chart showing the total opportunity available for hand hygiene and the actual compliance to it



The table shows the distribution of participants and observed hand hygiene and missed opportunity.

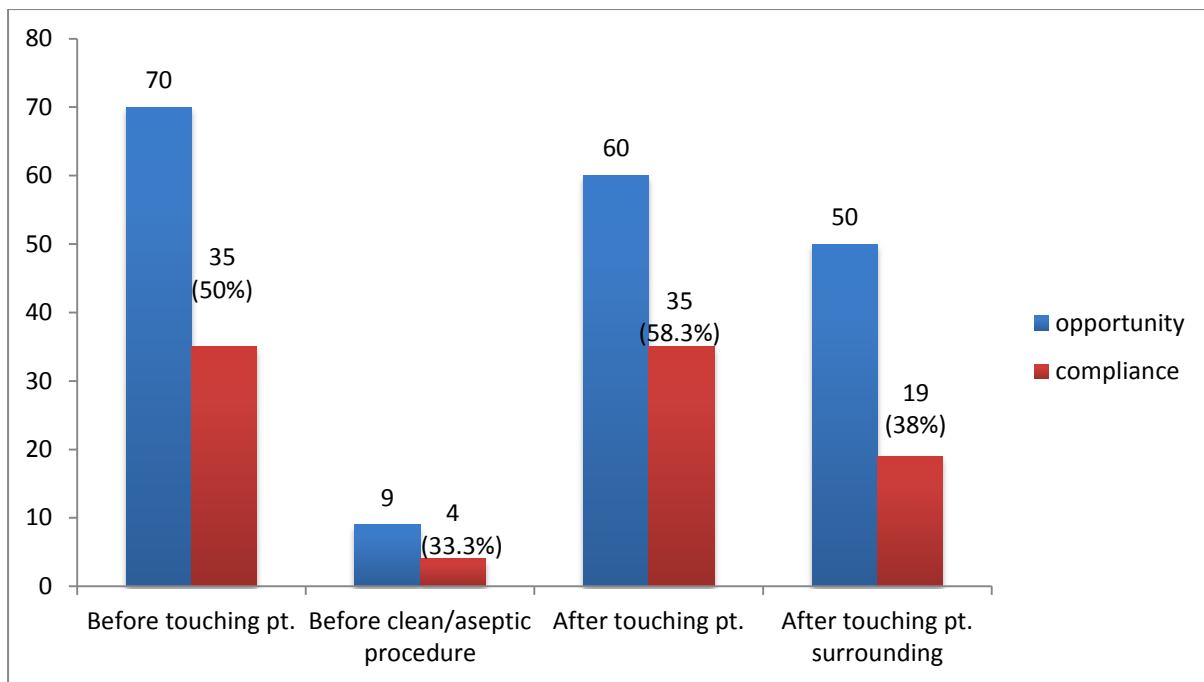
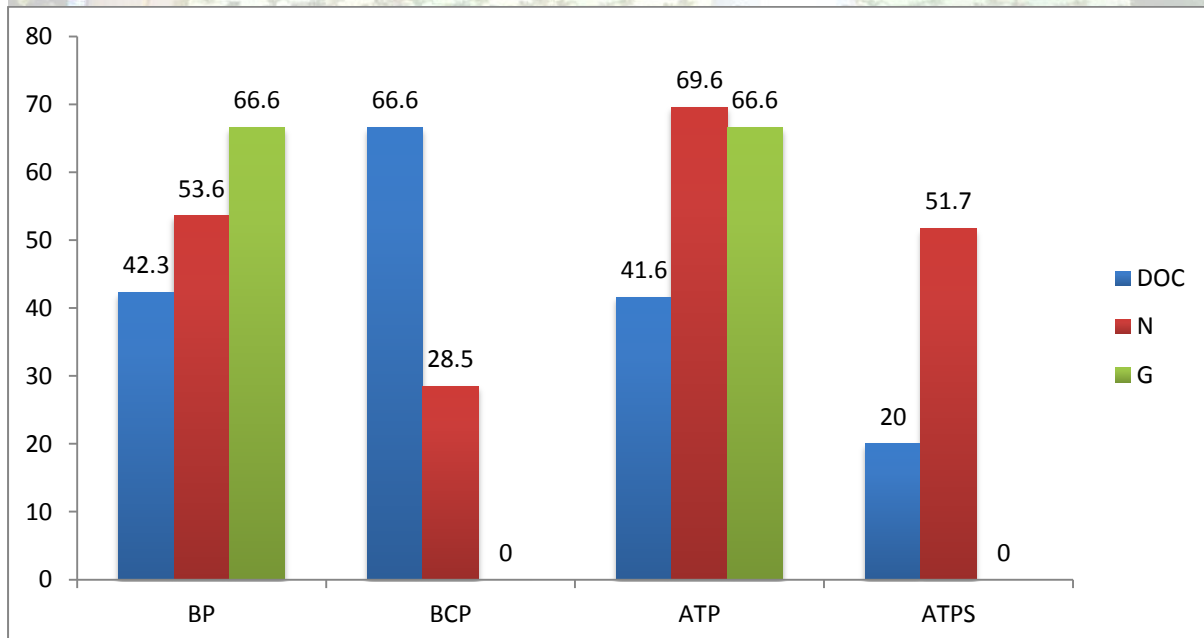


Chart showing the total opportunity available for hand hygiene and the actual compliance to it.



HDU:

The table shows the distribution of participants and observed hand hygiene and missed opportunity.

|       | <b>opportunity</b> | <b>compliance</b> | <b>Non-compliance</b> | <b>% non compliance</b> |
|-------|--------------------|-------------------|-----------------------|-------------------------|
| Doc   | 63                 | 24                | 39                    | 38%                     |
| Nurse | 130                | 89                | 69                    | 63%                     |
| GDA   | 20                 | 10                | 10                    | 50%                     |



Graph depicts the opportunity available for the various steps of hand hygiene and its compliance:

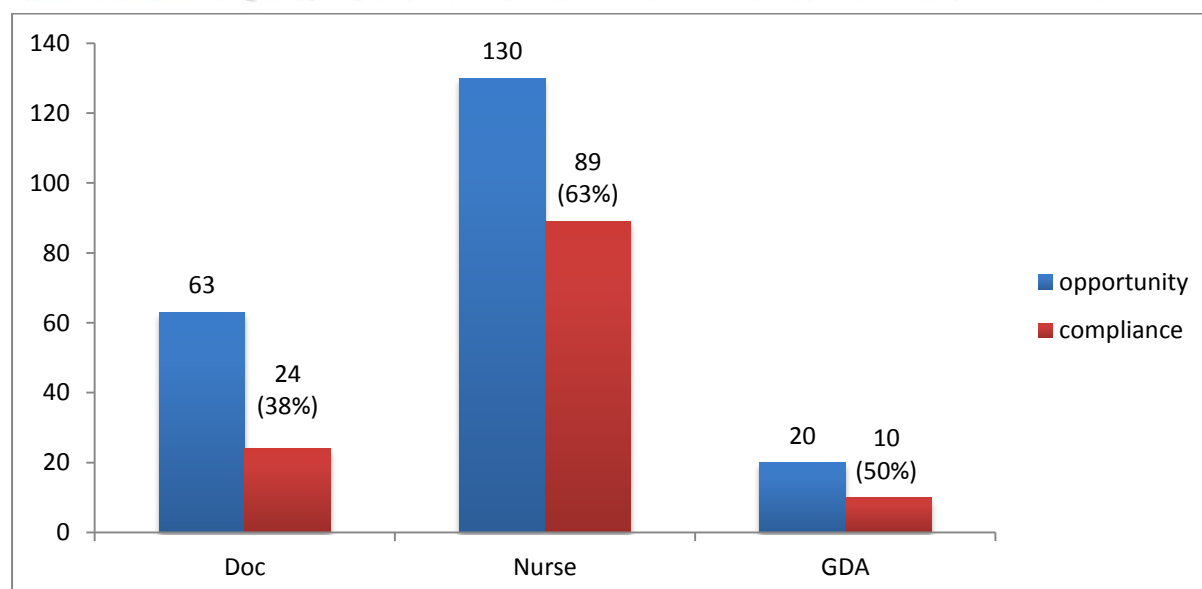
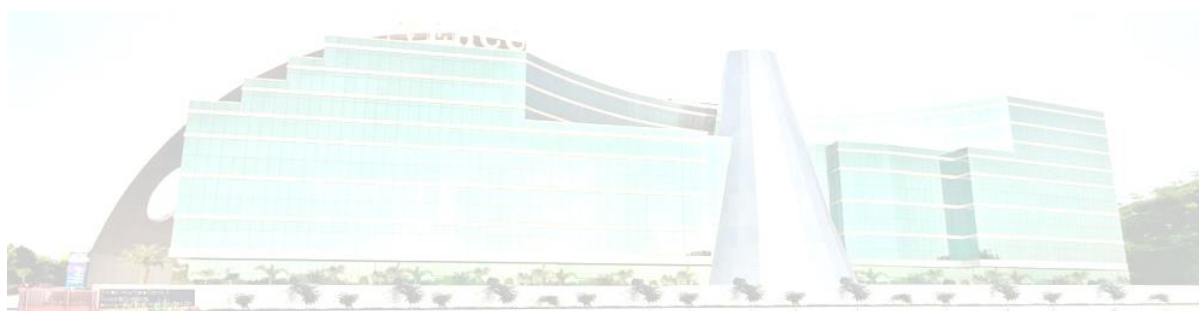
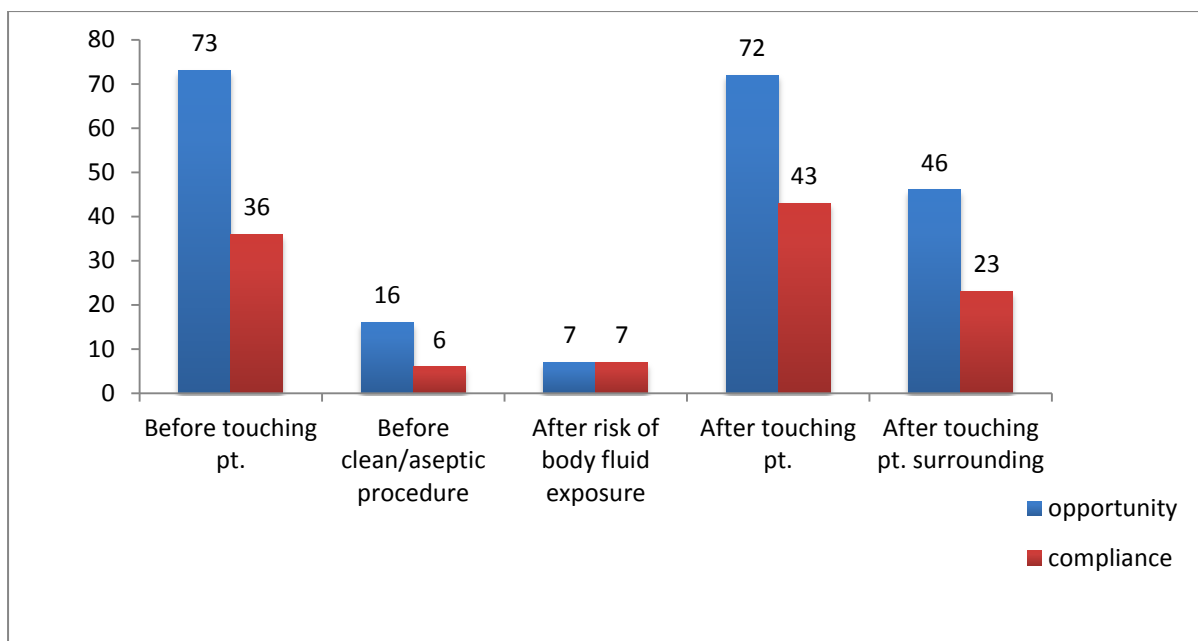
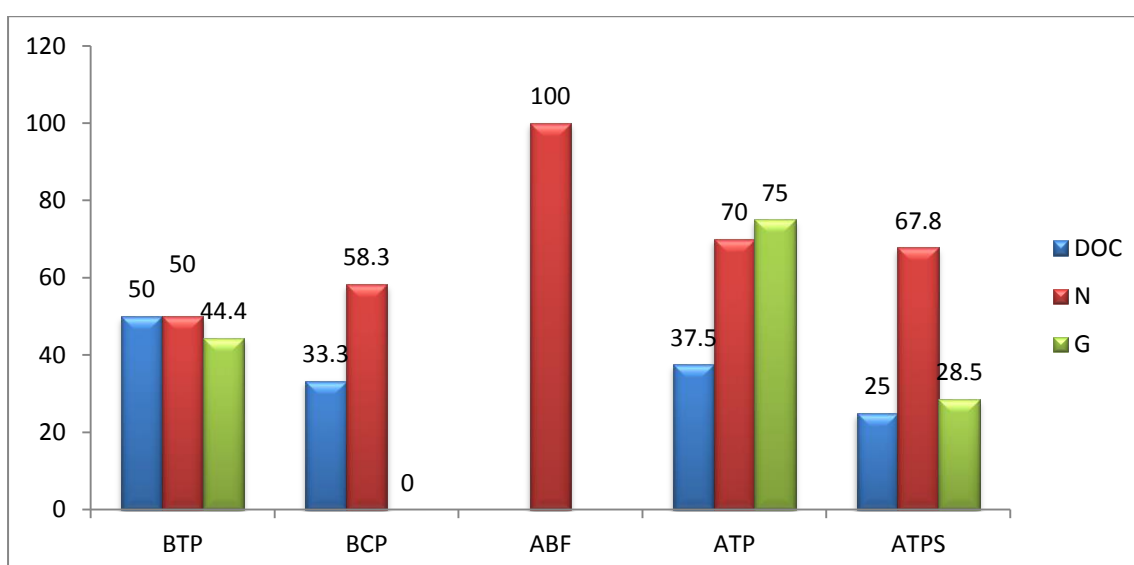


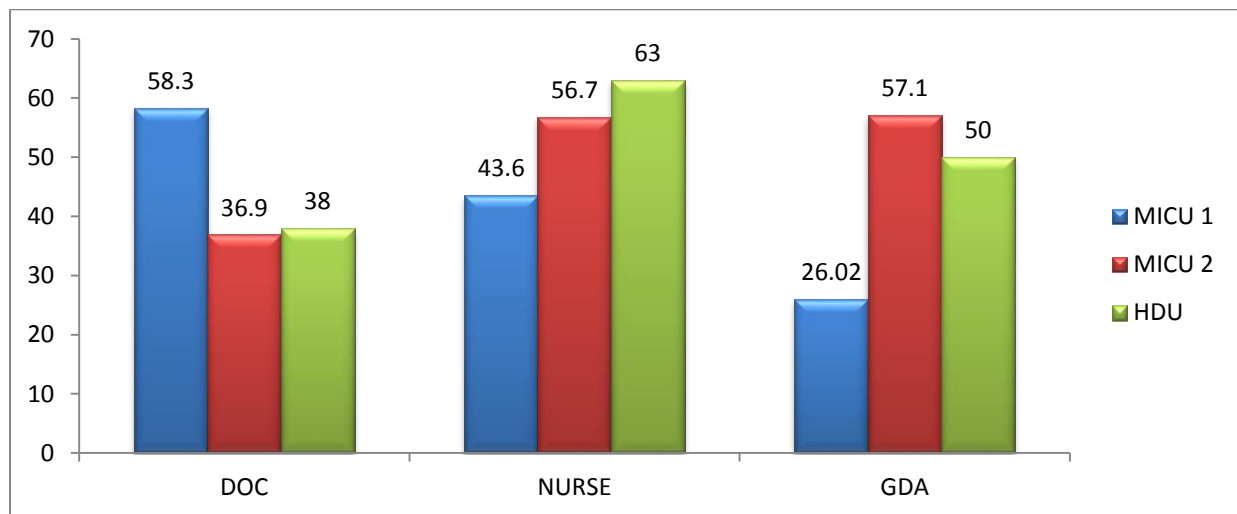
Chart showing the total opportunity available for hand hygiene and the actual compliance to it



Percentage hand hygiene compliance by health service providers for the different steps in hand hygiene



## PERCENTAGE COMPARISON OF THE 3 WARDS FOR HAND HYGIENE COMPLIANCE



## CONCLUSION:

We found out that the average level of compliance of hand washing practices among health care workers were far below the level needed in ICU and HDU. Although the hand hygiene procedure is considered to be simple, its application is complicated which cannot be easily explained or altered. So its high time that we start considering that all future interventions must be supported by improving the facilities for hand-hygiene.

## OBSERVATIONS:

- Various literature review on nosocomial infection in ICU showed infection rate of 15-27% , which were all due to non-compliance to hand hygiene.
- More compliance is seen for hand rub as compared to hand wash.
- All categories showed ignorance toward hand hygiene before and after using gloves.
- Hand hygiene compliance among consultant doctors was found to be less among all.
- Nursing staff was well aware on the need of hand washing before taking charge of patient as well as after handing over the patient to other nurse.
- There were posters depicting the steps and procedure of hand wash but it was placed in such a way that it went unnoticed.
- Opportunities of hand hygiene were much more frequent during busier time of the day and during care of critically ill patient.

## REFERENCES:

1. Lautenbach E, Shojania KG, Duncan BW, McDonald KM, Wachter RM, Markowitz AJ, editors. Making Healthcare Safer: A critical analysis of patient safety practices. Agency for Healthcare Research and Quality; 2001. [November 17, 2011]. Chapter 12. Practices to Improve Handwashing Compliance. <http://archive.ahrq.gov/clinic/ptsafety>
2. Centers for Disease Control And Prevention. Hand Hygiene in Health Care Settings: Hand hygiene basics. May 19, 2011. [November 16, 2011]. [www.cdc.gov/handhygiene/Basics.html](http://www.cdc.gov/handhygiene/Basics.html).
3. Martin-Madrazo C, Canada-Dorado A, Salinero-Fort MA, Abanades-Herranz JC, Arnal-Selfa R, Garcia-Ferradal I, Espejo-Matorral F, Carrillo-de Santa-Pau E, Soto-Diaz S: Effectiveness of a training programme to improve hand hygiene compliance in primary healthcare. BMC Public Health. 2009, 9: 469-10.1186/1471-2458-9-469.
4. WHO: WHO Guidelines on hand hygiene in health care: a summary. First Global Patient Safety Challenge Clean Care is Safer Care. 2009, Geneva: World Health Organization
5. Isaac D, Dickson H, O'Callaghan C, Sheaves R, Winter A, Moxon ER Hand washing and cohorting in prevention of hospital acquired infections with respiratory syncytial virus, *Arch Dis Child*. 1991 Feb;66(2):227-31.
6. Marra AR, Moura DF Jr, Paes AT, dos Santos OF, Edmond MB. Measuring rates of hand hygiene adherence in the intensive care setting: a comparative study of direct observation, product usage, and electronic counting devices. *Infect Control Hosp Epidemiol*. 010 Aug; 31(8): 796-801. PMID:20565261 <http://dx.doi.org/10.1086/653999>
7. Heczko PB, Kleszcz P. Handwashing practices in Polish hospitals: results of a survey conducted by Polish Society of Hospital Infection. *J Hosp Infect*. 2001 Aug; 48 Suppl A: S47-9.
8. Randle J, Arthur A, Vaughan N. Twenty-four-hour observational study of hospital hand hygiene compliance. *J Hosp Infect*. 2010 Nov; 76(3): 252-5. Epub 2010 Sep 20. PMID:20850899 <http://dx.doi.org/10.1016/j.jhin.2010.06.02>
9. Raman Sharma, Meenakshi Sharma, Vipin Koushal, Hand washing compliance among healthcare staff in Intensive Care Unit (ICU) of a Multispecialty Hospital of North India. *Journal of Hospital Administration*, December 2012, Vol. 1, No. 2
10. Haas J.P., Larson E.L.: Measurement of compliance with hand hygiene. *J Hosp Infect*. 2007 May; 66: 6-14. PMID:17276546 <http://dx.doi.org/10.1016/j.jhin.2006.11.013>
11. Van de Mortel T., Murgu M.: An examination of covert observation and solution audit as tools to measure the success of hand hygiene interventions. *Am J Infect Control*. 2006; 34(3): 95-99. PMID:16630970 <http://dx.doi.org/10.1016/j.ajic.2005.07.006>
12. Aragon D., Sole M.L., Brown S.: Outcomes of an infection prevention project focusing on hand hygiene and isolation practices.
13. AACN Clinical Issues. 2005 Apr.–Jun.; 16: 121-132. <http://dx.doi.org/10.1097/00044067-200504000-00002>
14. Pittet D., et al.: Effectiveness of a hospital-wide programme to improve compliance with hand hygiene. *Lancet*. 2000 Oct.; 356:1307-1312. Errata in *Lancet*. 2000 Dec. 23-30; 356: 2196.

## OTHER PROJECTS UNDERTAKEN:

1. Analysis of turnaround time of nursing bell.

2. Analysis of bundle compliance.
3. Gap analysis of food and beverage department.





10/10/2020