

**Summer Training at
Asian Institute of Medical Sciences (AIMS)**

- **Hazard Identification Risk Assessment**
- **Gas Manifold & Blood Bank**
- **Clinical Audit on Indication of Lower Segment Caesarean Section**
- **Patient Safety Device Audit**
- **Discharge Summary Protocol Compliance as per NABH Standards**

**By
Ruchika Narwat**

**Under the guidance of
Dr. J.P. Singh**

**MBA Hospital and Health Management
2015-2017**



**The IIHMR University, Jaipur
2016**

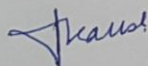
TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Dr. Ruchika Narwat** student of MBA Hospital and Health Management (MBA HM) from The IIHMR University, Jaipur has undergone internship training at **Asian Institute of Medical Sciences**, from 01.04.2016 to 1.06.2016.

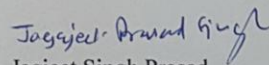
The Candidate has successfully carried out the study designated to her during internship training and her approach to the study has been sincere, scientific and analytical.

The Internship is in fulfillment of the course requirements.

I wish her all success in all her future endeavors.



Col. Dr. Ashok Kaushik
Dean, Academics and Student Affairs
The IIHMR University, Jaipur



Jagjeet Singh Prasad
Associate Professor
The IIHMR University, Jaipur

Certificate of Internship Completion

Date: 1st June'16

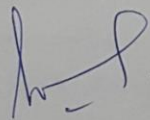
TO WHOM IT MAY CONCERN

This is to certify that Dr. Ruchika Narwat – pursuing MBA in Hospital & Healthcare Management from Indian Institute of Health Management & Research (IIHMR), Jaipur has successfully completed her internship at Asian Institute of Medical Sciences, Faridabad in the Department of Quality & Operations - from 1st Apr'16 to 1st June'16. She has successfully completed project on "Hazard identification and Risk Management in Gas Manifold".

She also was a part of following projects:

- Hazard identification and Risk Management in Blood Bank
- Patient Safety Device Audit
- Clinical Audit on Indications of Cesarean Section
- Discharge Summary protocol compliance as per NABH Standards
- Active and Medical Record Audits

During the period of her internship programme, she was found punctual, hardworking and inquisitive. We wish her good luck for all her future assignments.



Dr. Ankur Kathuria

Manager – Quality & Operations

Asian Institute of Medical Sciences

ACKNOWLEDGEMENT

We are exceptionally thankful to all the professionals at **ASIAN INSTITUTE OF MEDICAL SCIENCES (AIMS)** for sharing generously their knowledge and precious time. We owe a great debt to **Dr. Ramesh Chandna** (Director- Quality, Blood bank, Labs and CSSD) for sharing their valuable views in spite of their busy schedule. It has been our privilege to work under his dynamic supervision in the hospital.

We express our sincere gratitude to **Dr. Ankur Kathuria** (Manager Quality and operations) and we would also like to grab the opportunity to thanks Dr. Sapna Goyat (Coordinator of Quality and Operations), Dr Shashi Tiwari (Senior Executive of Quality and Operations) and Himanshi chaudhary (assistant manager of Quality) for their helping hand, keen interest and valuable suggestions in the compilation of the report without their guidance and regular encouragement my project would not have been compiled.

We would also like to grab the opportunity to thanks **Dr. Uma Rani** (H.O.D Blood bank, Lab) and her whole team of blood bank and **Bio-Medical team** as data collection and my learning would have not been possible without in depth discussion with them.

We are highly grateful to all the departmental heads and staff for giving us time and helped in learning the process. Without the active cooperation and participation of **ASIAN TEAM** it would not have been possible to accomplish my project.

Most importantly we would like to thank our college Mentor Jagjeet Prasad Singh (Associate Professor) and Suresh Joshi(Associate Professor) for guiding and supporting us on our given project work and **FACULTY OF IIHMR UNIVERSITY JAIPUR** for providing facilities for our study.

TABLE OF CONTENT

Chapters	Page Number
1. Hospital profile	12
2. Introduction to summer training	12
2.2. Objective	12
2.2. Methodology	
2.2.1. Study design	12
2.2.2. Type of data collection	12
3. Organization Structure	13
4. Department of Critical Care	13-15
5. CTV's	16
6. Emergency room	17-18
7. CSSD	19-22
8. IPD Pharmacy	23-26
9. Blood Bank	27-30
10. Gas-Manifold	31-32
11. Stores	33-32
12. Medical Record Department	34-36
13. Clinical Nutrition & Dietician	37-38
14. Laundry Services	38
15. Projects undertaken	40-41
15.1. Project- 1 {Hazard identification and risk assessment}	
15.2. Introduction	42-44
15.3. Review of Literature	45-47
15.4. Problem Statement	47
15.5. Aim	47
15.6. Objective	47
15.7. Methodology	47

15.7.1 Study Design	47
15.7.2 Study Duration	47
15.7.3 Study Tool	47
15.7.4 Type of Data Collection	47
16.1. Introduction to Manifold and Medical Gas System	48
16.2 Risk Assessment and Rating	49-29
16.3 HIRA in Gas Manifold	51-54
16.4 Discussion	60-61
16.4.1 Operation	
16.4.2 Mechanical	
16.5. Recommendation	62
16.6. Conclusion	62
17 Case-2 Blood Bank	
17.1 HIRA in Blood Bank	63-76
17.2 Discussion	77
17.3.1 Operation	78
17.3.2 Biological	78
17.3.3 Mechanical	78
17.4 Recommendation	79
17.5 Conclusion	79
18 PROJECT REPORT: 2 Clinical Audit on Lower Segmentation Cesarean Section	
18.1 Background	80
18.2 Review of Literature	81-83
18.3 Problem Statement	84
18.4 Rationale	84
18.5 Objective	84
18.6 Methodology	85
18.6.1 Study Design	85

18.6.2	Study Area	85
18.6.3	Sampling and Sample Size	85
18.6.4	Study Tool	85
18.7	Ethical Consideration	85
18.8	Data Collection Procedure	85
18.9	Analysis	86-90
18.10	Discussion	91
18.11	Conclusion	91
18.12	Recommendation	91
19	Project number:-3 Patient Safety Device Audit in I.P.D Area	
19.1	Introduction	92
19.2	Aim	93
19.3	Objective	93
19.4	Methodology	93
19.4.1	Study Design	93
19.4.2	Study Data	93
19.4.3	Location	93
19.4.4	Parameters	93-94
19.5	General Findings	94-98
19.6	Gaps	99
19.7	Recommendations	99
20	Project number 4:- Compliance of Discharge Summary Form as per NABH Standards\	
20.1	Introduction	100
20.2	Aim	101-103
20.3	Objective	101-103
20.4	Methodology	103
20.4.1	Study Design	103
20.4.2	Study Duration	103
20.4.3	Type of Data Collection	103
20.5	NABH Mandated Component	103-104
20.6	Findings	105-111

20.7	Post Review Correction	111
21	Conclusion	112
22	References	112
23	Annexures	113
23.1	Checklist of clinical audit on LSCS Cesarean Section	113-115
23.2	Checklist of Patient Safety Device	116-145

ABBREVIATIONS

1. **NABH:-** National Accreditation Board of Health and Hospital
2. **NABL:-** National Accreditation Board for Testing and Calibration Laboratories
3. **OT:-** Operation Theater
4. **ICU:-** Intensive Care Unit
5. **IMCU:-** Intensive Medical Care Unit
6. **CCU:-** Critical Care Unit
7. **CCD:-** Causality Medical Director
8. **CTV;s:-** Cardio Thoracic Vascular Surgery
9. **ER:-** Emergency Room
10. **OPD:-** Out Patient Department
11. **ETO:** Ethylene Oxide
12. **CMO:-** Chief Medical Officer
13. **HOD:-** Head Of Department
14. **GDA:-** Ground Duty Assistants
15. **MLC:-** Medico-Legal Case
16. **MRD:-** Medical Record Department
17. **MTP:-** Medical Termination Of Pregnancy
18. **PNDT:-** Pre Natal Determination Test
19. **TPA:-** Third Party Administration
20. **FDA:-** Food & Drug Administration
21. **HDU:-** High Depending Unit
22. **LDR:-** Labour Delivery Recovery Room
23. **IVF:-** In- Vitro Fertilization
24. **HDR:-** High Dynamic Range imaging
25. **SLED,CRRT:-** Sustained Low-Efficiency Dialysis, Continuous Renal Replacement
26. **EEG:-** Electro Encephalogram
27. **EMG:-** Electromyography
28. **RFA:-** Radio Frequency Ablation

- 29. LED:-** Light Emitting Diode
- 30. P:-** probability
- 31. L:-** Likelihood
- 32. R.S:-** Risk Score
- 33. PET/CT:-** Positron Emission Tomography/ Computerized Tomography
- 34. Psig:-** Pounds per square inch gage
- 35. Hg:-** Inches of mercury
- 36. O2:-** Oxygen
- 37. CO2:-** carbon dioxide
- 38. N2O:-** Nitrous Oxide
- 39. MA:-** Medical Air
- 40. CCTV:-** Closed-circuit Television
- 41. SRM:-** Safety and Risk Management
- 42. ISO:-** International Organization for Standardization
- 43. WHO:-** World Health Organization
- 44. LSCS:-** Lower Segment Caesarean Section

HOSPITAL PROFILE



ASIAN INSTITUTE OF MEDICAL SCIENCES, a 350 bed super specialty tertiary care hospital is truly futuristic in its services & technology and brings together some of the most talented medical professionals in India. The hospital has been accredited with NABH and NABL accreditations and is equipped with state-of-the-art technology. The hospital provides preventive, diagnostic, therapeutic, rehabilitative, and palliative and support services all under one roof and is designed to meet patient care and research requirements of the new millennium.

Situated in the national capital region of Delhi, the hospital is centrally located in Sector 21A, Faridabad, easily accessible from New Delhi International airport, New Delhi Railway station and New Delhi Interstate bus terminal.

ASIAN INSTITUTE OF MEDICAL SCIENCES, has been rated seventh best hospital in Delhi NCR by “The Week” magazine as per the “A C Nielson Survey”. The hospital is the vision of Padmashri awardee, Dr. Narendra Kumar Pandey, FRCS (Edinburgh), FRCS (Glasgow) FACS, FICS. Dr. Pandey is also recipient of Dr.B.C Roy National Award, the highest award in medicine instituted by the Government of India. He was honored for his pioneer work in Video Assisted Thoracoscopic Surgery (VATS)

Asian Institute of Medical Sciences provides comprehensive multi-specialty tertiary care facilities through its thirteen centers of excellence.

The ASIAN CANCER CENTRE offers end to end services – from prevention, early detection to comprehensive treatment and Palliative care. The first hospital in North India to deploy the Varian’s Rapid Arc on a Trilogy system along with several high end equipment’s such as PET/CT, DUAL head Gamma Camera and HDR brachy-therapy among others....

The ASIAN HEART CENTRE provides comprehensive cardiac care including non-invasive, interventional and surgical facilities. The hospital runs the most advanced cardio thoracic

vascular surgery program including Bypass, open heart and valvular heart surgery. The Centre is equipped with the most advanced cath-lab for angiography and angioplasties.

The ASIAN CENTRE FOR ADVANCED SURGERY is manned by highly skilled surgeons, fitted with ultra-modern surgical and diagnostic tools to tackle the most complicated surgical procedures. The 11 modular operation theaters are equipped with LED lights, media bridges, laminar air flow, operating microscopes, image intensifiers, laparoscopic equipment, harmonic, RFA, Hepa-filters, Laser, Cusa etc.

The ASIAN CENTRE FOR NEUROLOGY AND NEUROSURGERY is fully equipped to treat all kinds of disorders of the brain and spine. The department is equipped with latest high end machines like Digital EEG, EMG etc.

The ASIAN CENTRE FOR UROLOGY & KIDNEY TRANSPLANT is a state of the art facility providing excellent care for all urological conditions such as kidney stones, prostrate, laparoscopic urology & uro-oncology.

The ASIAN CENTRE FOR RENAL DISEASES offers all forms of dialysis- hemodialysis, SLED, CRRT, Peritoneal dialysis and provision to dialysis hepatitis and HIV+ patients. The center is also successfully running Renal Transplant programs.

The ASIAN CENTRE FOR BONE & JOINTS offers one of the most COMPREHENSIVE treatments of bone and joint ailments. The hospital offers extensive expertise in joint replacement surgeries like knee, hip and other joints.

The high end and innovative technologies in the ASIAN CENTRE FOR ADVANCED IMAGING gives patients access to a reliable and intensive diagnosis. The Imaging department of the hospital is equipped with state of the art Phillips equipment including a 1.5T MRI, Mammography, Bone Densitometer, 4 D Ultrasound and Digital X Ray. The center has PET/ CT and dual head Gamma camera installed for early detection of cancer.

THE ASIAN CENTRE FOR GASTROENTEROLOGY is a state of the art facility providing excellent diagnostic and curative facilities in gastro intestinal problems, with the most experienced specialists for a wide spectrum of Gastro intestinal problems like: Gaseous Distension, Dyspepsia, Jaundice, Constipation, Bleeding from mouth & rectum.

VISION

“To be the most trusted healthcare partner for people through our unsurpassed quality & care and by striving to provide **accessible, affordable** and best **available** healthcare services in India”.

MISSION

- To give world class patient care.
- To revolutionize our healthcare services by genuinely caring.
- To be an active participant in the local community and provide the very best medical expertise for general welfare & well-being.
- To make specialized medical care available to every individual.

MOTO

Will to Serve...

....Skill to Cure

PUNCH LINE

Caring for what matters most

INTRODUCTION

As an integral part of the **MBA course**, the summer training helps us in understanding the overall functioning of the hospitals from a managerial point of view. Keeping this factor in view, I tried to visit different hospital departments of **ASIAN INSTITUTE OF MEDICAL SCIENCES (AIMS)** with a special focus on understanding the various procedures in place. I visited different departments, met the department In-charge and interacted with the doctors, nurses and other staff.

The **Aim** of the summer training was:

“To study the functioning of ASIAN INSTITUTE OF MEDICAL SCIENCES (AIMS) by undertaking the special projects” .

Objectives:

- ☐ To learn the daily operational management of the Organization and its various departments / areas.
- ☐ To identify issues / problems associated with some specific departments / areas.
- ☐ To undertake the projects / special tasks assigned to us.

Methodology:

Study design-

- ☐ Type of study- Cross sectional Descriptive study, Observational study

Type of Data collected -

- ☐ Primary data collected by visiting the different departments.
- ☐ Secondary data from the various Hospital policies, documents in various departments.

ORGANIZATION STRUCTURE

DEPARTMENT OF CRITICAL CARE

Components: ICU, IMCU

Layout: 3rd Floor

ICU ADMISSIONS

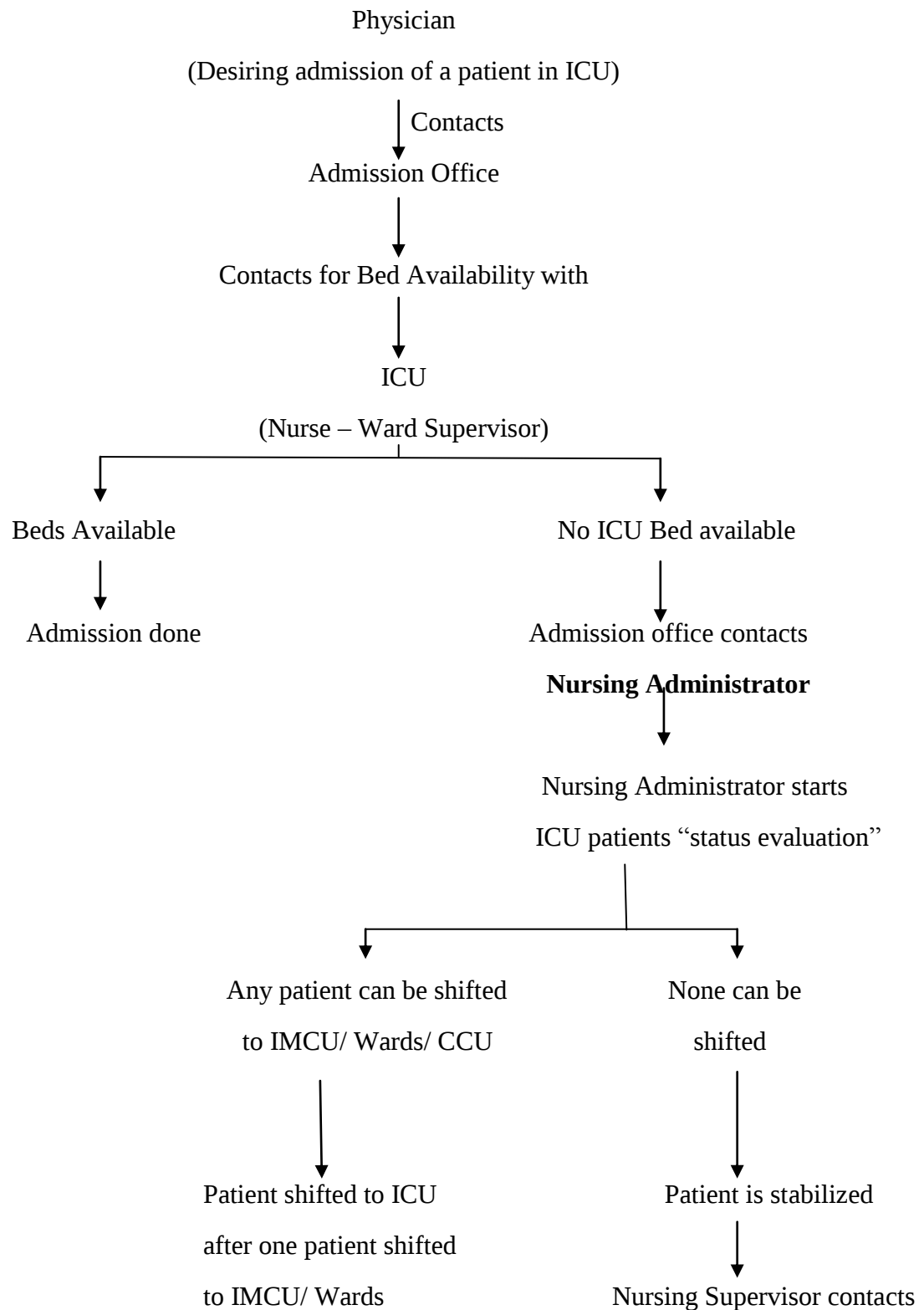
Admission in ICU can occur from:

- Inpatient wing of the hospital
- OT
- Emergency complex
- From other hospitals
- Transfer from IMCU
- Sometimes directly from OPD
- Rarely from Bronchoscopy, Endoscopy, Dialysis unit

Ownership of patient care in ICU:

- ICU & IMCU are running under **“Semi-Open Model”**.
- Patients are admitted under consultants of various medical and surgical specialties.
- Thereafter, patients are managed jointly by: **ADMITTING TEAM & CCM TEAM**.
- All admissions must be notified by Duty Doctor to both the teams.

Patient admission procedure in ICU

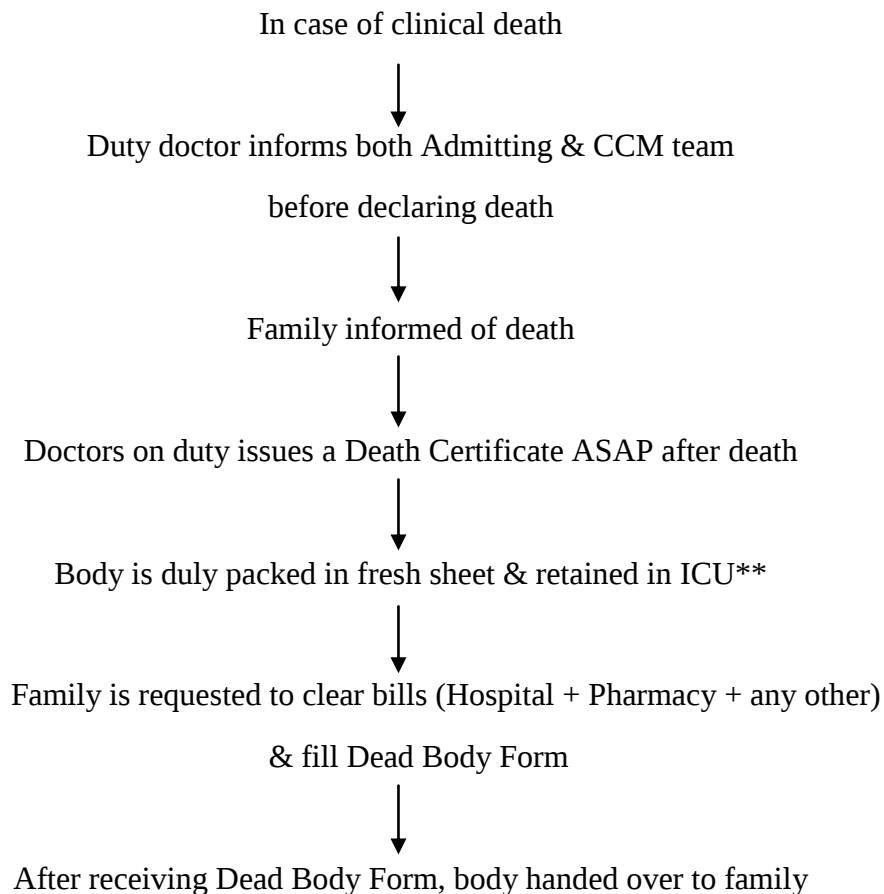


Administrator on-call

↓
He authorize transfer of
patient to other hospital**

**AIMS Physician is responsible to locate a physician who will admit the patient to another hospital.

DEATH PROTOCOL



** Body retained in ICU for a maximum of 1 hr. after death and upto 4 hrs in exceptional situation on orders of Duty Doctor & beyond that on orders of GM (Admin). Thereafter body is sent to Mortuary and security is informed.

If MLC case, packed body is sent to mortuary & handed over to police by security.

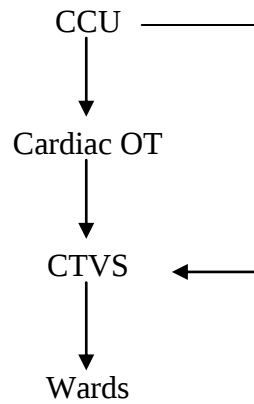
GAPS:-

- Nursing handover is not filled by nursing staff.
- Pacemaker functioning is not checked daily.

CTVS

- **Layout:** 3rd floor
- **Beds:** 6
- **Store room:** 1
- **Doctor's room:** 1
- **Clean utility room:** 1
- **Dirty utility room:** 1

Workflow:



GAPS:

- No signage for attendants to wear mask and head cap before entering CTVS.
- No signage of CTVS- ICU at entrance.

EMERGENCY COMPLEX

Layout: -1 Basement

N:P Ratio: 1:1

AMBULANCE SERVICE FLOW

Call centre executive attends the emergency call



Transfer the call to Emergency's CMO



Notes down necessary details like:

- Place/address
- Time of call received
- Details of call
- Name & contact no of caller



Informs Casualty Nurse incharge



2 male nurse + 2 wardboys + 1 RMO (if required)

get ready

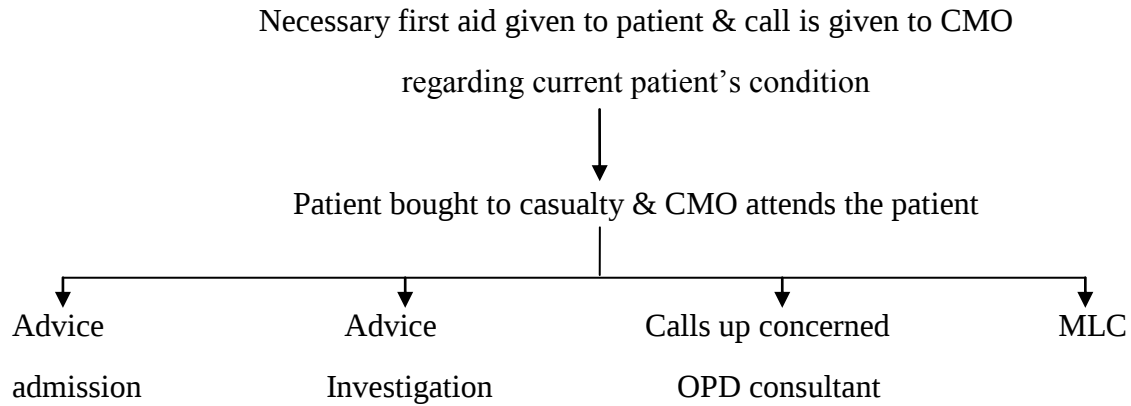


Ambulance dispatched within 5 mins.



Ambulance picks up patient





STRENGTH:

- Staff is trained and competent.
- Records are maintained properly.
- Jump kit and disaster kit is stored properly.

GAPS:

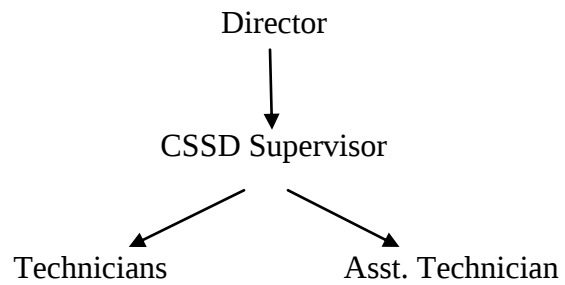
- Sitting arrangement for nursing staff poor.
- Shortage of almirahs & racks.
- Only 1 fire extinguisher in whole ER Complex.
- City's & NCR region map not available with ambulance driver.

CSSD

(Central Sterile Supply Department)

Layout: 4th floor (“U” shaped layout)

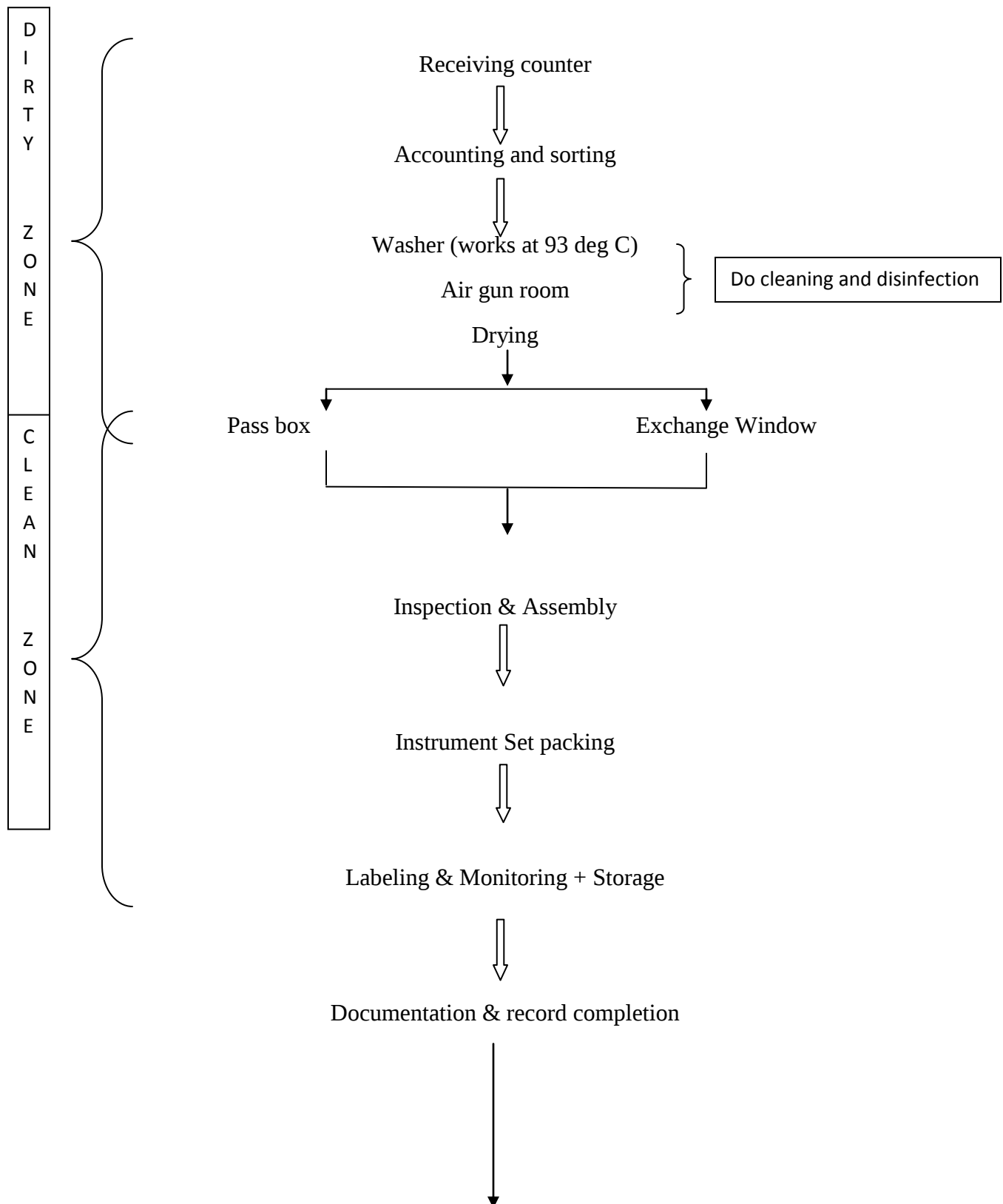
Organogram:

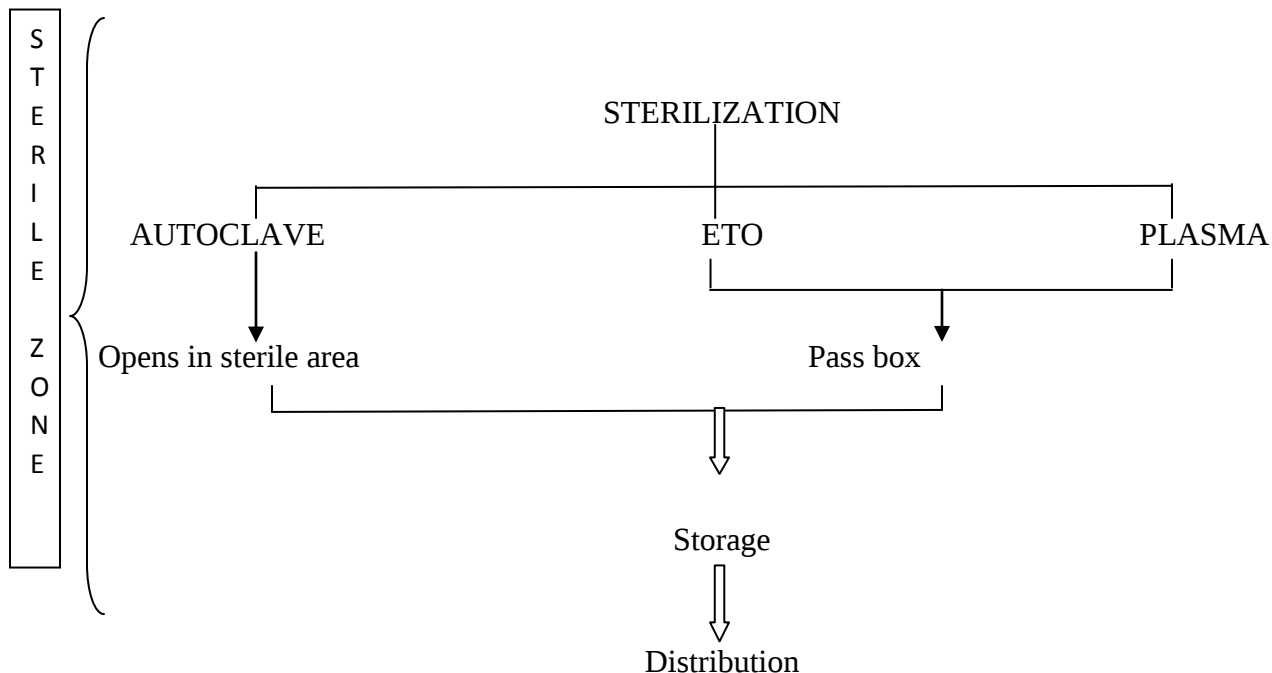


Infrastructure:

- Desktop -1
- Intercom -1
- Printer -1
- Autoclaves (Pulse vacuum type) -2
- ETO -1
- Plasma sterilizer -1
- Steam boiler -3
- Auto sealer -1
- Loader -2

DEPARTMENT WORK FLOW:





METHODS OF STERILIZATION USED:

<u>AUTOCLAVE</u> <u>(Steam sterilization)</u>	<u>ETO</u>	<u>PLASMA</u>
- No. of autoclaves – 2 - Type – Pulse vacuum type - No of cycles per day – Acc. to load. <u>Temp/time/pressure.</u> 121 deg C/ 15 mins/ 1.2 kg 134 deg C/ 4 mins/ 2.2 kg STERILIZATION CHECK : <u>Bowie Dick Indicator</u> (Chemical Indicator) Once a day <u>Biological Indicator :</u> <u>G. Stereothermophilus</u> Once a week	- Number – 1 - No of cycles – usually 1 / day (But can vary acc. to load) <u>Temp</u> – 54 deg C 12 hour cycle STERILIZATION CHECK : ✓ <u>Biological indicator</u> <u>Bacillus atrophaeus :</u> Each load.	- Number – 1. - Not regularly used. Used in case of emergency; when ETO not in use. <u>Temp</u> – 45 deg C 50 min cycle. STERILIZATION CHECK : ✓ As such no biological indicator available. ✓ Therefore, its use is limited and only for emergency purpose. ✓ But <i>Bacillus atrophaeus</i> can be used.

--	--	--

MONITORING:

PHYSICAL MONITORING	CHEMICAL MONITORING	BIOLOGICAL MONITORING
• Gauges • Graphs • Process Logic Controller (PLC)	• Class I Indicator : Interlocking Tape applied on packs. • Class II Indicator : Bowie Dick + Batch Monitor • Class VI Indicator : To be put in packs.	• <i>G.stereothermophilus</i> • <i>B.atrophaeus</i>

Packing paper used :

1. Linen
2. Medical grade paper: - Used for ETO
- Lasts up to 6 months
3. Tyvec paper: - Used for plasma
Expensive

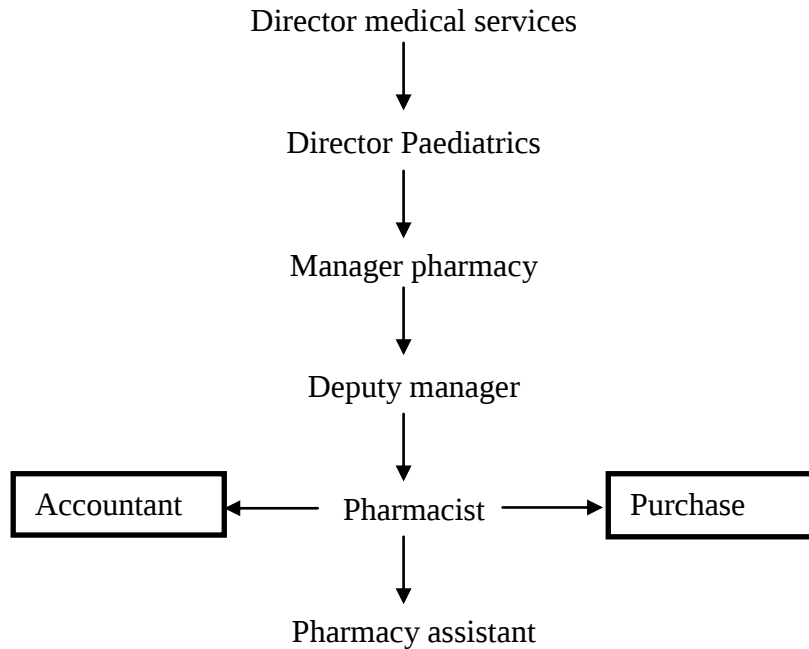
Strength:

- State of art equipments.
- Experienced staff
- Strong focus on sterilization, its monitoring and continuous physical, chemical, biological monitoring is done.

IPD PHARMACY

Layout:- Basement 2

Hierarchy:



Staffing:-

- Senior pharmacist → 2
- Pharmacist → 6
- Purchase assistant → 1
- Assistant pharmacist → 5
- Non pharmacist → 2

Infrastructure and Equipment Required:-

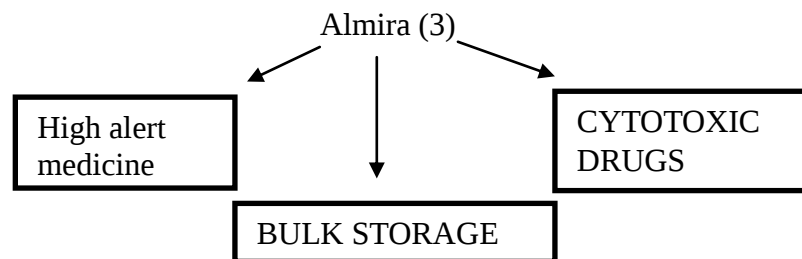
AREA :-

- 180 square feet
- 10 feet height

EQUIPMENT:-

- Billing software navision

- Printer → 2
- System → 3
- Racks for storage of drugs → above 20
- Walking cooler → 1 → temp. 2 to 8°C → Onco drugs, vaccines.
- Fridge → 1 → Insulin, high risk drugs.



Colour Coding and Labelling:-

(Look Alike ,Sound Alike drugs [LA SA]):-

- LA drugs are GREEN color coded.
- SA drugs are YELLOW color coded.
- LASA drugs have been identified and stored separately, read back procedure being followed for verbal order,
- Fast Moving Drugs:- stored in separate rack and labeled.
- Medicines are arranged in alphabetically order.
- High risk drugs are coded by RED colour.
- Cut piece of medicine is stored in different sealed bag marked with batch number , expiry date, brand name in same box of medicine.

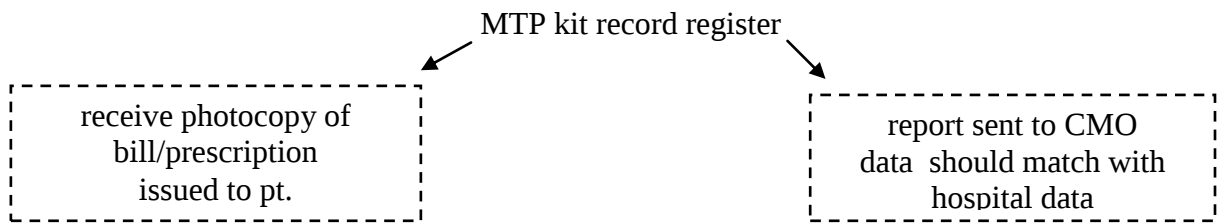
Analysis:-

- ABC analysis has been done for all medicine regularly...
- FIFO(first in first out)

Record Maintain Register:-

- Room temperature log book
- Fridge -1 temperature register [High Risk Alert]
- Fridge -2 temperature register

- Verbal order registers → doctor order medicine on telephone to pharmacy.



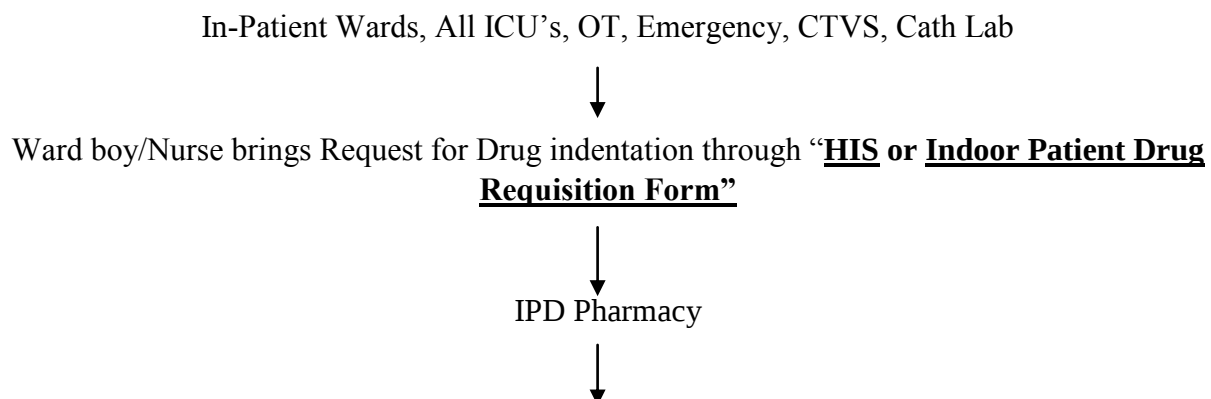
Licenses:-

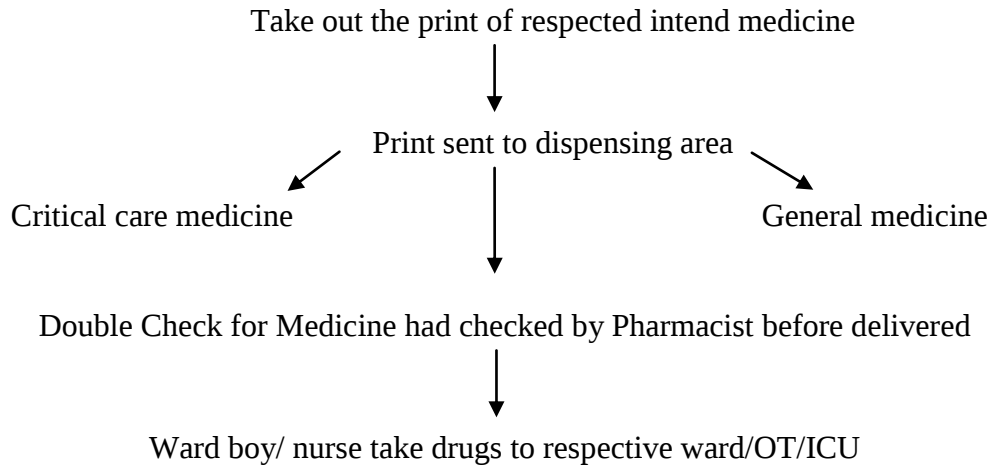
- 4 main license is issued by the drug controller office
- Distributing and sales form no:- 21
- Schedule `X drug form no:-20
- Narcotics form no:-24 under NDPS rule, 1985

Storage of Drugs:-

- Emergency drug:- about 10 patient stalk of drug stored in I.P.D Pharmacy and about 50 pt. stalk of drug are stored in emergency dept.
- High risk drug:- stored in different LOCK & KEY at separate place (cytotoxic drugs ,high alert medicine.
- Narcotic drug:- stored in DOUBLE LOCK \$ KEY almira.
- Oncology drugs and vaccines:- are stored in walking fridge at 2 to 8`C
- High nutrient meal:- under table they are light sensitive.
- Cool & dry place:- general medication at room temperature 22 to 28`C

Work Flow:





STRENGTH:

- Drugs are kept in organized manner, LASA drugs are kept separately and inventory is managed by ABC analysis.
- High risk and narcotics drugs are kept under lock & key.

GAPS:

- Space constraints.

BLOOD BANK

Layout: 4th Floor

Staffing:-

- Director- Dr. Ramesh Chandra
- Medical officer- Dr. Uma rani
- Technical supervisor- vishwajeet sarkar
- Laboratory technician- 8

Area required:-

- Total → 150 square feet
- 100 m sq. for its operations
- 50 m sq. for preparation of blood components.

Storage and shelf life:-

WHOLE BLOOD→450 or 350 ml (>60kg)→blood loss→1-4°C→35 to 42 days,→(-40°C→1 Year)

RBC→250 ml red cell, 100ml SAGM~CPD→O₂ transport→1 to 6°C→42 days.

Platelets apheresis→200-300ml→20 to 22°C→5 days

Cryoprecipitate→-80 to -40°C→1 Year

Fresh frozen plasma→-40 to -80°C→1 Year

Labelling on bag:-

1. **Color scheme:-**

- Blood group O- Blue
- Blood group A- yellow
- Blood group AB- white
- Blood group B- pink

2. Storage temperature, expiry date, Rh type

3. Name, address and manufacturing license number

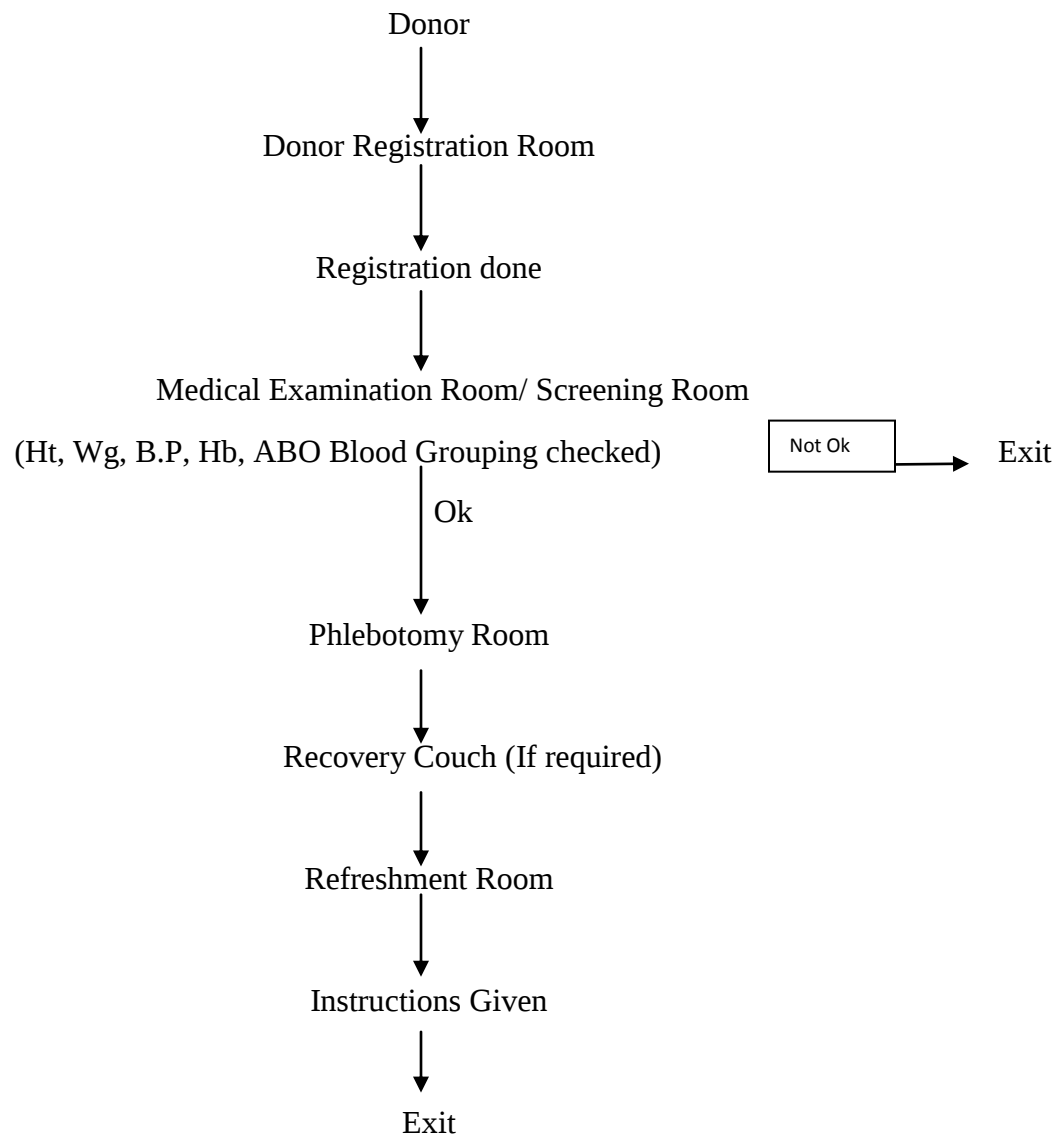
4. Volume of blood.

5. Type of donor

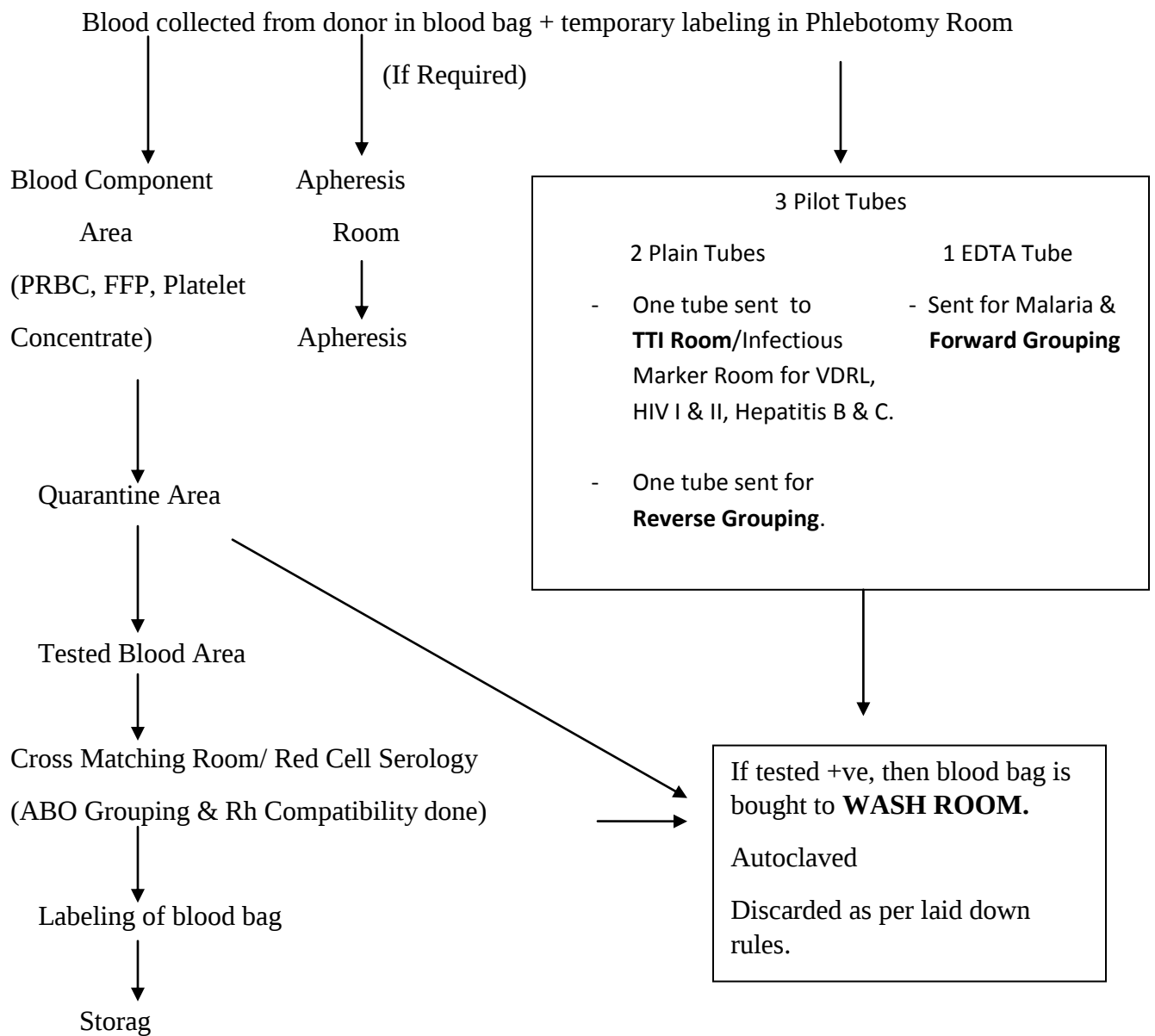
License for Blood Bank:-

- Licensed by State Drug Controlle. (panchkula, Haryana.)
- Regulated by Drugs and Cosmetic's Act.
- Licensed for processing whole blood and for prepration of its components. [lic. No.680B(H)]

FLOW OF DONOR:



Movement of Donor's Blood:



Label Colour codes to be used -

- | | |
|----------|------|
| - Yellow | - A |
| - Pink | - B |
| - Blue | - O |
| - White | - AB |

Infrastructure of the blood bank:-

- **Donor Registration Room**
- **Medical Examination Room**
- **Donor room/Phlebotomy/Bleeding room-** Blood is collected in this room.
- **Apheresis Room**
- **Refreshment Room-** After donating the blood, refreshments are provided here.
- **Component Room:** Here collected blood is formed into different components.
- **TTI/ Infectious Markers Room-** Here Blood is checked to rule out any kind of infection in the collected blood.
- **Cross matching Room (Serology room) -** Here Blood is tested & cross matched.
- **Store Room/ Record Room-** All the records and inventories are stored here.
- **Wash & sterilization Room-** Here any blood tested +ve for any infection or unmatched blood is discarded.

Strength:-

- Staff is trained and competent.
- Record maintenance was excellent.
- Preventive maintenance sticker was placed on all equipment's.

Gaps:-

- Blood bags are not carried in trays or thermocol boxes.
- Post care instructions are not written in bilingual language.

BIO MEDICAL ENGINEERING DEPARTMENT

(GAS MANIFOLD)

Location:- 2 Basement

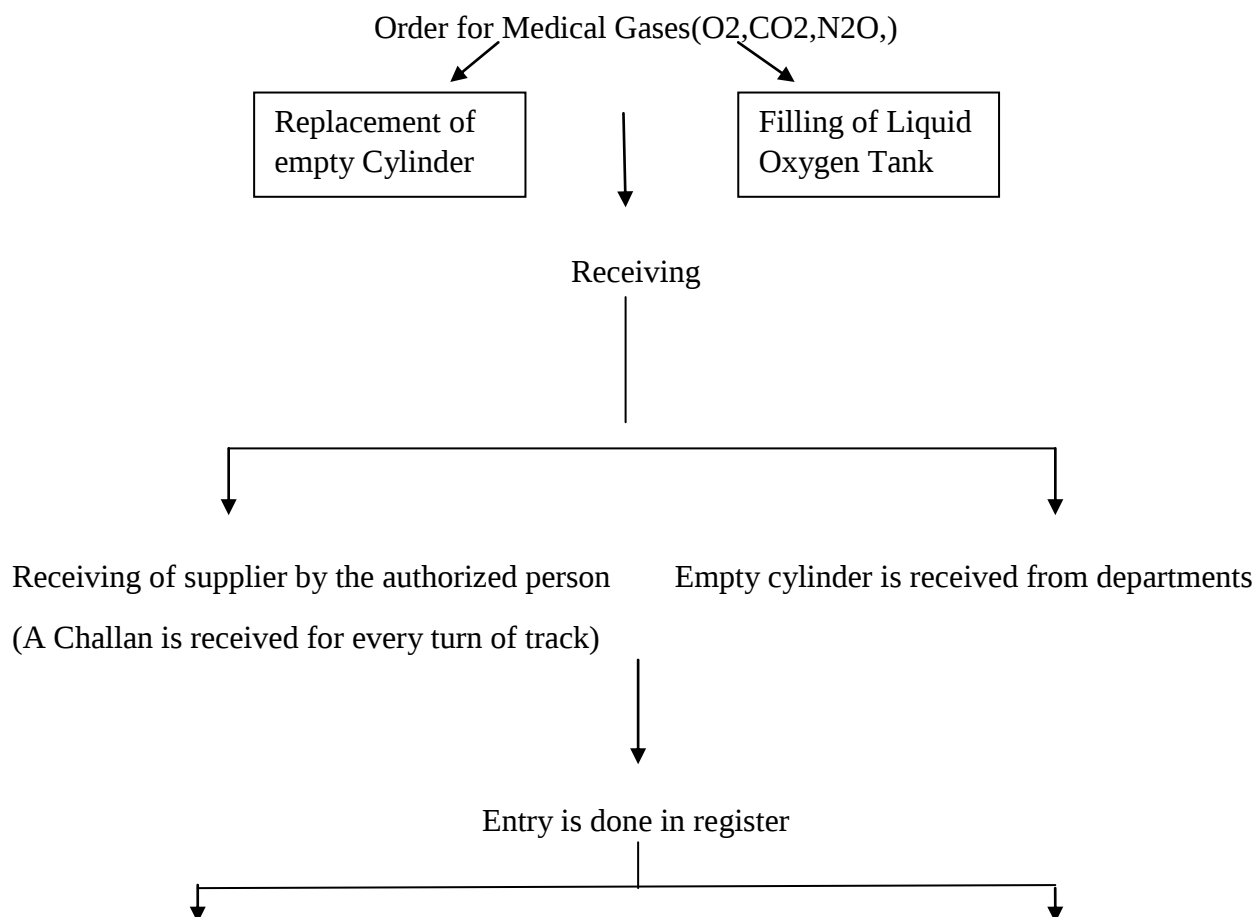
Staffing:- 3

Supervisor:- Mr.Mishra

Records Maintained:-

- Gas Manifold Log Book for Oxygen, Nitrous Oxide
- Complaint Register
- Cylinder Issue Register
- Cylinder (Out Party) Register
- Shift Register

WORK FLOW



For issuing a cylinder in department

Hourly Reading is monitored for every Machine

Gaps:

- No CCTV Camera is present in gas manifold area
- Liquid oxygen tank is not covered by shed
- Poorly sitting arrangement for staff
- Maintenance sheet is not filled on time

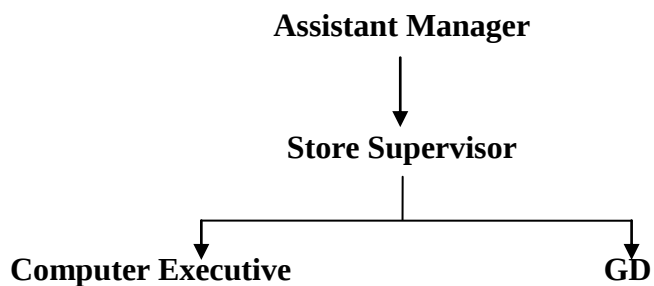
Strength:-

- Trained and Competent staff and every morning training is provided to the GDA's regarding handling of cylinder
- Medical gas supply systems are often monitored by various alarm systems
- Medical air is supplied by a special air-compressor, through a dryer(in order to maintain correct dew point levels)
- Inlets and outlets are colour coded
- Pin index safety system is used to prevent errors of identification of cylinders
- Standardized colour coding is done on cylinder

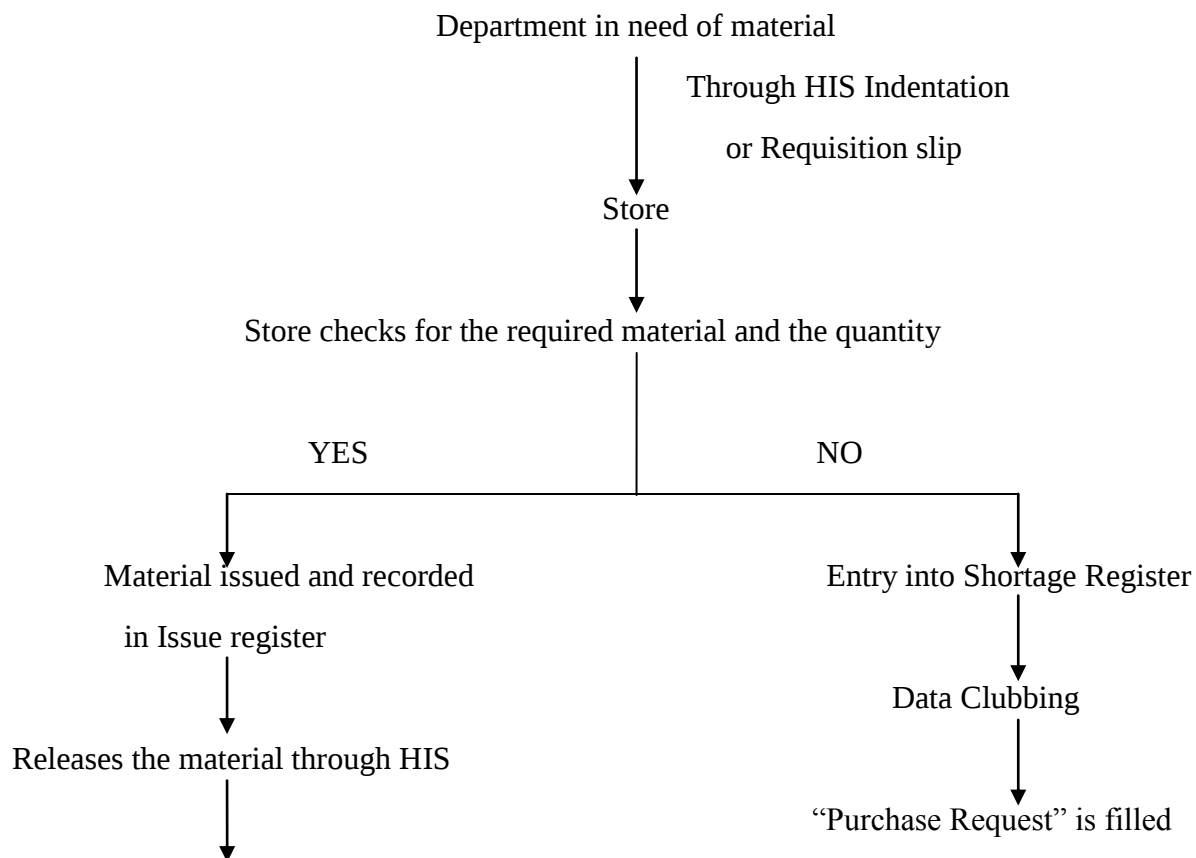
STORES

Layout: -2 Basement

Hierarchy:-



WORK FLOW



Print out of material released
is given to department's, ward boy
with his initials.

In HIS

Gaps:-

- Space constraint
- Inventory is poorly organized

Strength:-

- ABC analysis is done for the inventory by the quality department

MEDICAL RECORD DEPARTMENT

Layout: -1 Basement

Functions of MRD

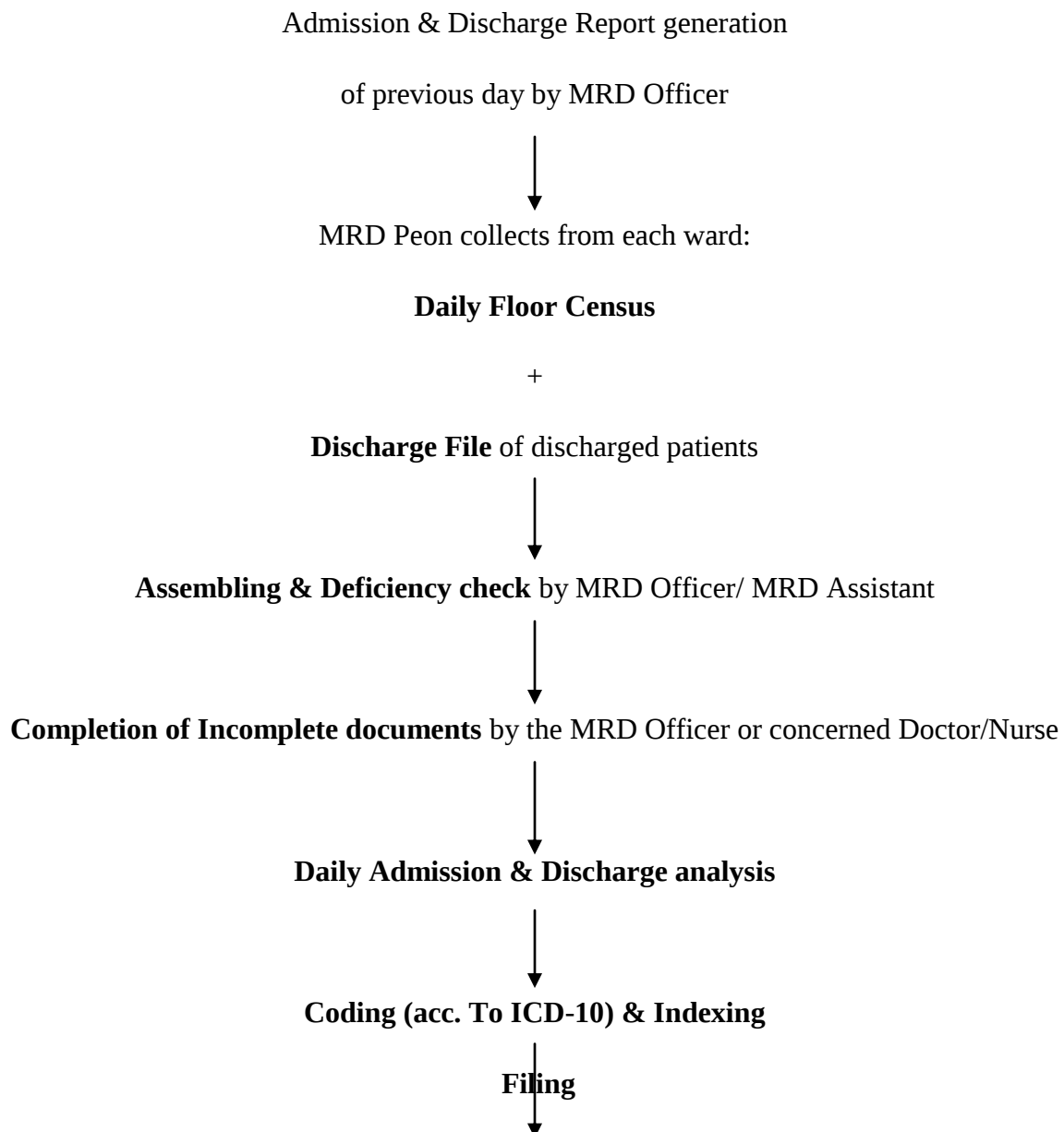
- To ensure that the AIMS Hospital has complete & accurate medical record for every patient.
- Public dealings wrt. to TPA **queries, Bill verification, MLC cases and dealing with Summons to the doctors, hospital.**
- To maintain high level of confidentiality as far as patient's records are concerned.
- To ensure that the records are Identified and stored safely to prevent unauthorized changes and easily retrieved whenever required.
- Issuing **Emergency, Medical, Birth & Death certificates.**
- To generate **Bed Occupancy reports** (daily & monthly), **P.N.D.T, M.T.P** reports (monthly).

Record Retention Periods:

- IP Record : 05 years

- Emergency Register : 02 years
- MLC Records : Not to be destroyed
- Birth/Death Register : Not to be destroyed
- OPD documents : Handed over to the patient's Relatives

WORKFLOW:



Filing Order:

1. Face sheet
2. Patient's Discharge Records
3. Discharge sheet (Discharge, DOR, LAMA, Death)
4. Emergency & OPD card
5. History sheet
6. Investigation flow chart
7. Consultation form
8. Informed consent
9. Valuable handover form
10. Undertaking for payment Primary/ ADHOC PTCA
11. Angiography- Angioplasty Checklist
12. Cardiac Anesthetic Record
13. Consultation for surgical & medical treatment
14. Pre-operative instruction checklist
15. Anesthesia record
16. Surgical safety checklist
17. Operation note, Delivery note
18. Post-operative evaluation form
19. Labor chart
20. Progress note
21. Temperature chart
22. Intake output chart
23. Blood sugar
24. Diabetic Monitoring chart
25. Drug prescription & Administration Record
26. NICU Observation Chart
27. Nurses Record
28. ICU & CCU Observation chart
29. Medical Certificate cause of death
30. Release of dead body certificate
31. Final Bills (MLC case)
32. Any other relevant document concerning to patient

GAPS:

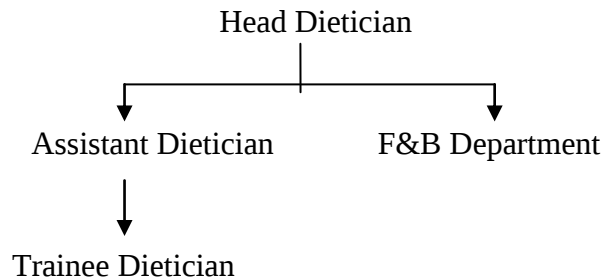
- No color coding format (for year identification) followed.

CLINICAL NUTRITION & DIETICS DEPARTMENT

Layout: -2 Basement

Head Dietician: Dr. Shilpa Thakur

Organogram:



Functions:

- Catering to Inpatients, Hospital staff, Patient attendants.
- Diet counseling
- Education
- Smooth provision of laid out 9 diets to the patients.
- To check the patient, Attendant & Staff food for quality, preparation, presentation and packing.
- Coordinating closely with the Nursing shift in charges for changes in the patient's diet or new admissions etc.

Areas in Kitchen

- **Receiving & Storage Area**
- **Preparation Area:** For peeling, cutting, chopping, slicing, mincing.
- **Cooking Area**
- **Tray Layout & Packing Area**
- **Service Area:** From here food is transferred to patient's on trolleys.

Other Areas:

- Dish washing & pot washing area
- Dietician Room

Brand List

	<u>Diet Card Color</u>	<u>Tray Color</u>
Normal	White	Red
Diabetes Mellitus	Yellow	Yellow
Chronic Renal Failure	Green	Green
Renal Stone	Pink	

Flowchart of Dietician and Inpatient Interaction:

The Dietician takes details of new patients such as name, UHID, doctor's name, diagnosis and diet prescribed.



Then Dietician takes a detailed round wherein she meets every patient and determines patients' actual intake. Dietician then provides nutritional counseling and education, ensures patients' compliance to recommended diet. She also recognizes personal eating and food preferences.



Afterwards, the dietician does nutritional screening in order to know about patients' clinical condition, appetite and tolerance to food and acceptance to hospital diet, personal preferences, disliking and food allergies if any.



After the rounds, detailed food summary sheets are planned and prepared for every patient keeping in mind medical history and preferences of patient as well.

Flowchart of Dietician & Nursing staff interaction:

Dietician receives a daily diet requisition once a day from all nursing station.



Dietician cross-checks received diet requisition from time to time with nurse both during rounds and on phone constantly.



Dietician updates changes with respect to new admissions/ transfers/ discharges/ changes. in diet

Gaps:-

- Gloves were not used by food handlers.
- Food handlers had long nails.
- Daily temperature was not recorded for walking cooler.
- Daily cleaning sheet was not filled for food trolley.

LAUNDRY SERVICES

Layout: -2 Basement

Records Maintained:

- Department Register
- Items Received register
- Items issued register
- Detergent register
- Machine records

GAPS:

- No barrier between soiled linen & infected linen.
- No sewing machine for repair

PROJECTS UNDER TAKEN ARE:-

1. Hazard Identification Risk Assessment.
 - Gas Manifold
 - Blood Bank
2. Clinical Audit on indication of Lower Segment Caesarean Section
3. Patient Safety Device Audit
4. Discharge summary protocol Compliance as per NABH Standards

Project Report number:-1

HAZARD IDENTIFICATION RISK ASSESSMENT

ABSTRACT

Workplace hazard identification, assessment and control are an on-going process. It is often more effective and easy to eliminate hazards if risk management approaches used at the planning and design stages for process and place of work.

Risk Management is a part of decision making processes and an integral part of all organizational processes as it addresses uncertainty and facilitates continual improvement of organization. There should be proactive risk management across the organization including clinical as well as non-clinical. Risks management includes risk identification, prioritization, and risk alleviation. It shall be monitored and reviewed for continued effectiveness. For risk assessment,

The objective of the study was to eliminate and assess the risk of the blood bank and gas manifold department in the hospital was conducted in the organization along with the flaws and to suggest various changes that can be carried out in the existing system to increase the safety of the patients and of the handlers for which a qualitative risk assessment has been prepared.

This document summarizes the risk associated with dangerous goods storages in general and with bulk oxygen facilities in particular. Some of the risk elements are taken from the NABH 4th Edition being the “particular risks” which are required to be assessed and mitigated.

INTRODUCTION

RISK: The effect of uncertainty on objectives (ISO 31000)

Risk is often characterized by reference to potential events and consequences, or a combination of these.

Hazard: A condition or set of circumstances that present a potential for harm.

Risk Identification: Risk identification involves the identification of risk sources, events, their causes and their potential consequence.

Risk Assessment: It is an Overall process of risk identification, risk analysis and risk evaluation

Consequence: Outcome of an event affecting objectives

Likelihood: Chance of something happening.

Risk Management: Coordinated activities to direct and control an organization with regard to risk.

Hazards are the main cause of occupational health and safety problems. Therefore, finding ways of eliminating hazards or controlling the risks is the best way to reduce workplace injury and illness.

Hazards are identified on past incidents to be examined to know what had happened and whether it could occur again. Staff can be interviewed for this purpose for considering safety issues. Workflow has to be observed and brainstorming is to be done as what can go wrong here.

Identification of hazards is followed by **Risk Assessment**. It considers the possible result of someone being exposed to a hazard and likelihood of this occurring. It determines how severe a risk is, whether controlling measures are effective and what action should be taken to control risk and how urgently actions need to be taken. Factors are identified that may contribute to the risk, the risk is relevant or not, duration and of risk, how severe the harm is, determining its likelihood. Actions are recognized that will help in controlling the risk.

Risk Assessment Matrix is used to assess the likelihood and severity or consequence of each hazard and a risk rating is assigned.

		PROBABILITY				
		Frequent (5)	Likely (4)	Occasional (3)	Seldom (2)	Unlikely (1)
SEVERITY	Catastrophic (4)	E (20)	E (16)	H (12)	M (8)	L (4)
	Critical (3)	H (15)	H (12)	M (9)	M (6)	L (3)
	Marginal (2)	H (10)	M (8)	M (6)	L (4)	L (2)
	Negligible (1)	M (5)	L (4)	L (3)	L (2)	L (1)

RISK RATING = Probability/Likelihood*Severity/Consequence

PROBABILITY:

FREQUENT - Occurs often, continuously experienced

LIKELY - Occurs several times

OCCASIONALLY - Occurs sporadically

SELDOM - Unlikely, but could occur at some time

UNLIKELY- Can assume will not occur

SEVERITY:

CATASTROPHIC - Death or permanent total disability, system loss, major property damage.

CRITICAL - Permanent partial disability, temporary total disability in excess of 3 months, major system damage, significant property damage.

MARGINAL - Minor injury, lost workday accident, compensable injury or illness, minor property damage

NEGLIGIBLE - First aid minor supportive medical treatment, minor system impairment

Having identified the hazards, assessed their risks and reviewed the existing controls, as all hazards must be managed before people are hurt, become ill or there is damage to plant, property or the environment, if not then additional controls are required. Hazards should be deal within order of priority and most effective control need to be selected to eliminate or minimize risks. **Control** is a measure taken to modify risks. It include any process, policy, device, practice or other actions which modify risk

Risk treatments deal with negative consequences are sometimes referred to as “risk mitigation”, “risk elimination”, “risk prevention” and “risk reduction” .It can create new risk or modify existing risk.

SARA	Share	Avoid	Reduce	Accept
ACAT	Avoid	Control	Accept	Transfer
4 Ts	Terminate	Treat	Tolerate	Transfer

Risks remain after Risk Treatment is **Residual risk**. These are unidentified or retained risks.
those risk

REVIEW OF LITERATURE

Behind each fatality or serious injury there are thousands of at risk behaviors and unidentified hazards that contributed to the incident, if we have good safety management program we can not only avoid injuries but also other incidents that are costly, time consuming, stressful and inconvenient. Safety management is important as it will increase productivity, avoid injury and avoid costly, time consuming, stressful and inconvenient incidents. Safety in any operation works best if the person or people in charge take a leading role in managing safety and health.

The idea of risk management has been used in banking and insurance services since the early 1970's. Risk management has been an acknowledged practice in industries in the West since the 1900s and in hospitals in the U.S. since the mid-1970s. Risk management behavior was inducted into the healthcare industry in retort to the growing national malpractice insurance costs.

HIRA is an unending process, regularly review the effectiveness of hazard assessment and control measures. Undertake a hazard and risk assessment when there is a change to the workplace including when work systems, tools, machinery or equipment change. Provide additional supervision when new employees with reduced skill levels or knowledge are introduced to the workplace. The effectiveness of control measures can be checked through regular reviews as well as consultation with workers. Continual checking, supervising, critically observing or determining the status in order to identify change from the performance level required or expected.

A study “organizing patient safety research to identify risks and hazards” was conducted by J B Battles and R J Lillford” concluded that in order to increase patient safety the research should be done in following ways, first Identify risk/hazards then Design, Implement and evaluate patient safety practices and Maintain vigilance Any one methodology cannot be adopted in implementing these researches; we need 2 or more methodologies to work for the better safety of patients in the hospitals.

A study on “Safety and risk management in hospital” stated that Research evidence for safety interventions in hospitals has remained limited. Published studies predominantly report on positive effects; however, the methodological quality of the studies is generally weak. The diversity of the collected material made it problematic to combine studies quantitatively. SRM

interventions applied in a hospital setting are multifaceted and therefore it was difficult to disentangle the effects from the context in which they were implemented. This makes it challenging to formulate recommendations for future implementation to professionals and policy-makers. There is therefore a pressing need for high-quality evaluations of the effectiveness – and cost-effectiveness – of SRM interventions.

According to Netherlands Med Care more extensive research is needed in this field of study, particularly in field of continuous learning and safety analysis techniques.

Another study concluded that Risk assessment should be seen as a continuing process. The sufficiency of control measures should be subject to continual review and revised if necessary.

According to NABH, hospitals must ensure proactive risk management across the organization. It should include clinical and non-clinical risks .This shall have risk identification, prioritization, risk alleviation .Risk management plan shall be documented risks identification, actions taken to alleviate it should be a part of the plan. There should be a mechanism for informing staff regarding the same. Risk Management plan should be monitored and reviewed for effectiveness at-least annually.

PROBLEM STATEMENT:

1. Preventing the patients from different risks arise from different hazards and to increase patients and staff safety in Gas Manifold.
2. Identifying the hazards in Blood Bank so that donor, patient can be prevented from different risks and increase the donor, patient and staff safety level in the department, identifying not only the risks but their causes and consequences, in order to promote accident avoiding situations. Blood bank is an essential department of the hospital, there may be number of hazards that can be identified in this department.

AIM:- The purpose of the study was to increase the safety of the patient and staff/ handler of the Gas Manifold and Blood Bank department though assessing the risk in respective department in the organization and as well as to improve quality of services to the patient.

OBJECTIVE:-

- Identifying various hazards in blood bank and in gas manifold.
- Analyzing the risks due to hazards.
- Quantifying the risk on the basis of likelihood and severity using a risk matrix.
- Increasing donor, patient and staff safety.

Methodology

- **Study design:-** Observation study
- **Study duration:-** 1st April to 1st June 2016
- **Location:-** Gas Manifold and Blood Bank department in Asian Hospital, Faridabad
- **Study Tool:-** Risk Matrix
- **Type of data collected :-**
 - Primary data collected by visiting the department and by communicating with the staff.
 - Secondary data from the various Hospital policies, documents in various departments.

Most of the information was collected through observations. Participative observation is used in learning the function and working of the department.

INTRODUCTION TO MANIFOLD AND MEDICAL GAS SYSTEM

The manifold is the structural foundation for pipelines, control equipment and safety systems which are required to operate the system with high integrity. Medical gases form the very backbone of a hospital. Without them it would be impossible to run a hospital, as they play an essential role in the functioning of critical care units and key operational areas like OR, ICUs, HDUs and high risk procedural areas.

MEDICAL GAS SYSTEM

“An assembly of equipment and piping for the distribution of nonflammable medical gasses such as oxygen, nitrous oxide, compressed air, carbon dioxide, and nitrogen”

*NFPA 99C, Chapter 3, Definitions

In Asian Institute of Medical Sciences, Centralized medical gas system is used which provides as efficient, economical and dependable medical life support network that supplies:

- a) Medical gases (oxygen and nitrous oxide)
- b) Vacuum (suction)
- c) Compressed air for operating rooms and ICUs

Oxygen is used primarily for respiratory therapy and anesthesia. Constant supply and immediate availability throughout the hospital is essential. The system is designed to provide 60 psig at the outlets. Nitrous oxide is used primarily used in OT area. Pressure required at each outlet of 60 psig.

Medical air (compressed air) is primarily used for respiratory therapy in areas like nurseries, emergency rooms, intensive care areas, etc. It is also widely used in OT area. The air used for medical purpose must be free from oil, moisture and contaminants. The system is designed to provide an outlet pressure of 60 psig.

Although vacuum is not a medical gas, it is an essential part of medical gas system. Vacuum is widely used throughout hospital facilities in patient treatment and in laboratory. In surgical recovery and intensive care areas, it is used to remove fluids from incisions and assists vital post-operative drainage. Vacuum systems are normally designed to provide 15-20” of Hg at the furthest point from the central vacuum system.

RISK ASSESSMENT AND RATING

RISK MATRIX:- A **Risk Matrix** is a matrix that is used during risk assessment to define the various levels of risk as the **product** of the harm probability categories and harm severity categories. This is a simple mechanism to increase visibility of risks and assist management decision making.

		LIKELIHOOD / PROBABILITY				
		Frequent (5)	Likely (4)	Occasional (3)	Seldom (2)	Unlikely (1)
CONSEQUENCE / SEVERITY	Catastrophic (4)	E (20)	E (16)	H (12)	M (8)	L (4)
	Critical (3)	H (15)	H (12)	M (9)	M (6)	L (3)
	Marginal (2)	H (10)	M (8)	M (6)	L (4)	L (2)
	Negligible (1)	M (5)	L (4)	L (3)	L (2)	L (1)

CONSEQUENCE / SEVERITY:-

1: NEGLIGIBLE: First Aid needed at scene, minor supportive medical treatment, minor system impairment, No man-day lost

2: MARGINAL: Hospital treatment needed, Minor injury, lost workday accident, compensable injury or illness, minor property damage, Man-day lost (Patient/ attendant/ staff)

3: CRITICAL: Major Injury, temporary total disability in excess of 3 Months, major system damage, significant property damage, Critical to personnel (patient/ attendant/ staff) health

4: CATASTROPHIC: Death or Permanent disability, system loss, major property damage

LIKELIHOOD / PROBABILITY:-

- 1: Unlikely:** Can assume will not occur
- 2: Seldom:** Unlikely, but could occur at some time
- 3: Possible/ Occasional:** Occurs sporadically
- 4: Likely:** Occurs several times
- 5: Very Likely/ Frequent:** Occurs often, continuously experienced

RISK:-

- 1-5: LOW RISK:** Acceptable, no further action needed
- 6-10: MODERATE RISK:** Adequate, look to improve at next review
- 11-15: HIGH RISK:** Tolerable, look to reduce risk
- 16-20: EXTREMELY HIGH RISK:** Unacceptable, stop activity & make immediate improvements

HAZARD IDENTIFICATION RISK ASSESSMENT IN GAS MANIFOLD

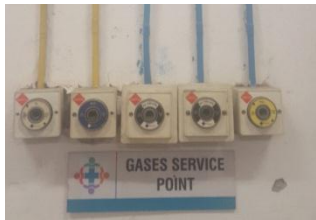
PROCESSES	POTENTIAL HAZARDS	P	S	R.S	RISK RATING	CONTROLS	RESIDUAL RISKS			
1.ORDERING							P	S	R.S	R.R
Intimating the supplier regarding the replacement of empty gas cylinders (O ₂ , CO ₂ , N ₂ O) and filling of liquid oxygen tank.	Delay in intimation may hamper the patient care	2	3	6	M	Staff is trained and competent and in case of emergency spare cylinders are used	1	1	1	L
2.RECEIVING										
Supplier replaces the cylinder	Leaking of gas due to broken seal and defective or open valve that can cause health hazards (convulsions)	2	3	6	M	Supervisor check the seal on the cylinders 	1	1	1	L
	High pressure in cylinder leads to burst	2	3	6	M	pressure in cylinder is checked by the supervisor on attached regulator	1	1	1	L
	Wastage of gas due to damaged valve outlet	1	3	3	L	supervisor is vigilant while receiving the cylinder	1	1	1	L

										
Supplier fills the liquid oxygen tank(volume 990 liters)	Low quality of gas compromised patient safety	1	3	3	L	Quality of gas is received with AIR PURITY certificate from authorised person	1	2	2	L
	Under-filling may hamper the patient care	2	3	6	M	Reading is monitored on the meter by the supplier and supervisor both	1	2	2	L
	Over-filling of tank can lead to burst	2	4	8	M		1	2	2	L
	Personnel exposure or loss of containment	1	3	3	L	Use of personal protective equipment while filling the tank ,personnel is trained so spreading is prevented	1	1	1	L
3.STORAGE										
a) CENTRAL BULK OXYGEN STORAGE SYSTEM	Pilferages	2	3	6	M	signage is there in place, unauthorised entry is restricted and guarded or manned 24 hours 	1	1	1	L

	Fire, explosion	2	4	8	M	Plastic wrapping on valve is checked before receiving, stored away from source of ignition, warning signage of NO SMOKING is there in place	1	1	1	L
	Improper storage leads to fall of cylinder that may cause damage to cylinder	2	4	8	M	Cylinders are kept secure with the safety chains so falling of cylinders can be prevented	1	2	2	L
b)LIQUID OXYGEN TANK										
	Fire	2	4	8	M	Located outdoors, preferably in a secure cage and away from the public area	1	1	1	L
						There should not be overhead wires and should kept under shed area				L
						Stored at least 8 metre away from combustible material				L
4)HANDLING										
a)CYLINDERS	If valve not open properly it will cause heat generation that damage other parts of Medical gas pipeline	2	3	6	M	Staff is trained in handling of cylinders	1	1	1	L
	Dragging of cylinders can cause cut or abrasion in the surface of metal and damage to valve/cylinder leads to leakage of gas	2	3	6	M	Appropriate or specific size of trolley is used for transportation of cylinders	1	2	2	L
	Fire or explosion can occur if regulators are contaminated with oil	2	3	6	M	Valves and regulators are kept free from oil or grease and gloves of the handler should not be contaminated with oil or grease and lotion	1	1	1	L

	In manual handling wrong posture leads to disc injury, sprains and strains when the muscles of hands are stretched	1	3	3	L	Heavy loaded cylinders are transported in proper size of trolley 	1	1	1	L
b)LIQUID OXYGEN TANK	Frost bite, cold burns and extensive tissue damage can occur while handling the liquid oxygen tank	2	3	6	M	Use of personal protective equipment while handling the liquid oxygen tank	1	2	2	L
5)TRANSPORTATION										
Transportation of cylinder to ward	Wrong picking of cylinder	1	4	4	L	Empty and filled cylinders are kept at specified places and signage's are there in place for empty and filled 	1	1	1	L

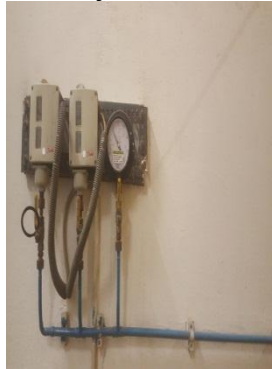
										
	Falling of cylinder while transporting can cause injury to the staff	2	3	6	M	Transport in specific size of trolley and GDAs are instructed for the same	1	1	1	L
6)SUPPLY OF GASES (CO2,N2O,02,MA)										
	Unreliable , improper reading on flow meter may hamper the patient care	1	3	3	L	Flow meter is calibrated 	1	1	1	L
	Failure of alarm system (line pressure) compromised patient care	2	4	8	M	Monitoring is done on regular basis by dropping pressure of gas manually	1	1	1	L
	Wrong identification of medical gas(02,N2O,MA,CO2)	1	3	3	L	Inlets are colour coded and training is provided to the staff	1	1	1	L

									
Failure of Pressure gauge cause interruption to the centre gas supply	1	3	3	L	Readings on gauge are noted in log book by staff in every hour	1	1	1	L
Failure of in-built ON-OFF sensor of alarm system leads to delay in providing services to patient	2	3	6	M	Regular monitoring of an audio visual alarm system for high and low level of gases (O ₂ , N ₂ O, MA) 	1	1	1	L
Electricity failure hamper the flow of gas supply	2	3	6	M	Calibration of electric panel is being done; Back-up generators are used and correct the fault by informing the maintenance team	1	1	1	L
Failure of regulators in control panel(control lever) stop the automatic change-over of (in-use or reserve bank) that may hamper the gas supply	2	3	6	M	Calibration of Control Panel is done in every 6 month 	1	1	1	L

In Liquid oxygen tank, temperature is -118 degree Celsius. Heat exchanger allows the fresh supply of oxygen in main centre pipeline. Oxygen vapour passed through series of regulators and convert in gas	Regulator failure leads to hamper the supply	2	3	6	M	Regulator and pressure gauge is monitored on daily basis 	1	1	1	L
	Freezing of Vaporizer or accumulation of ice on freezer may hamper the supply of oxygen	3	4	12	H	Vaporizer is monitored in every hour and water is sprinkle on vaporiser to prevent accumulation of ice 	1	2	2	L
7)AIR COMPRES SOR										

	Acoustic injury due to high level of noise production from motors	3	3	9	M	Ear protectors are used to avoid ear injury 	1	2	2	L
	High pressure content or failure and misuse of the equipment damaged the hoses	1	3	3	L	Air compressor is operated and maintained in accordance with the manufacturer's instructions	1	1	1	L

8)VACCU M SYSTEM

	Automatic sensor failure leads to false alarm	1	3	3	L	calibration is done in every 6 months  	1	1	1	L
--	---	---	---	---	---	---	---	---	---	---

9)ANAEST HETIC GAS SCAVENG ING

SYSTEM										
	Failure of AGSS results in spillage of gaseous or vaporised anaesthetic agents into the use area	2	3	6	M	Maintenance is done in every 6 months, if any fault occurs in between that time period BME team is informed 	1	1	1	L
10)MEDICAL AIR OR SURGICAL AIR										
	Water or any other contamination in air	3	3	9	M	Dual Air Dryer system is used to filter the air and remove moisture from the air 	1	2	2	L

DISCUSSION

As per the interpretation of hazards in the hospital there are mainly 2 types of Hazards that can happen in gas manifold department.

a. Operational Hazard

Hazards that occur due to the errors during various operations in the hospital. Due to these hazards the quality of patient care is hampered.

Various types of hazards that can happen are:-

- a. Low quality of gas
- b. Under filling of liquid oxygen tank
- c. Over filling of liquid oxygen tank
- d. Personnel exposure or loss of containment
- e. Improper storage of cylinders
- f. Improper or poor handling of cylinder by staff or handler
- g. Not using the personal protective equipment while handling the liquid oxygen tank or cylinder
- h. Insufficient training to staff regarding handling or transportation of the cylinder

2. Mechanical Hazard

These hazards mainly occur due to malfunction of some machine that prevents the proper working of the process.

Various types of hazards that can happen are:-

- a. Defective or open valve of cylinder or liquid oxygen tank
- b. Carrying improper size of trolley while transportation of cylinder
- c. Improper or wrong calibration of:-
 - i. Flow meter
 - ii. Control panel of oxygen or nitrous oxide gas
 - iii. Electric control panel

- iv. Alarm system
- v. Weighing machine
- vi. Pressure gauge
- vii. Air compressor
- viii. Vacuum system
- ix. Anesthetic gas scavenging system

Based on these hazards there are various precautions that are taken to prevent these hazards. In the Table above it has been clearly shown how these hazards can happen and what are the precautions need to be taken to prevent those hazards.

RECOMMENDATION

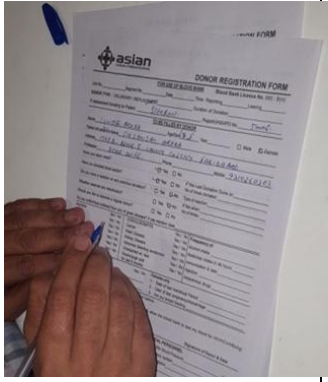
- Liquid oxygen tank should be located under the shed
- Handler should wear proper personal equipment while handling the Liquid Oxygen Tank and Cylinders
- Proper marking should be mentioned on the cylinders (filling date, expiry date, damaged cylinder)
- Gas manifold room should be under CCTV Surveillance.

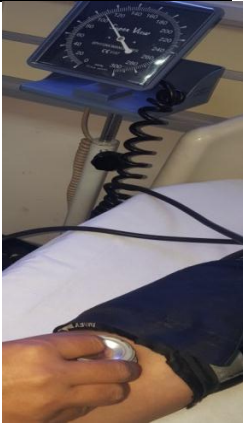
CONCLUSION

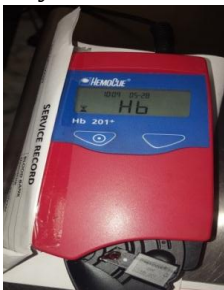
Hazards risks identification in hospitals is one of the most important works that would help to increase patient safety and therefore increasing patient satisfaction. It will also help in identify, analyze and prioritize all hazards in gas manifold department. This case study takes into account for the vulnerabilities of a specific hazard, consequences if a hazard is realized and means to prevent those hazards.

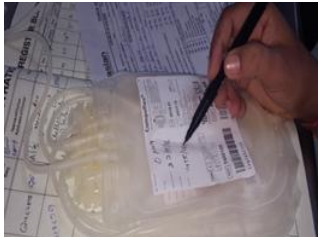
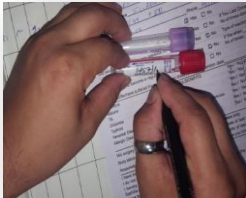
The staffs of the Gas Manifold department are getting trained for proper technique of handling and usage of the equipment to avoid hazards in the department. Equipment's are timely calibrated to avoid failure during procedure. This study illustrated what are the types of hazards that can happen in the department and how to prevent them.

HAZARD IDENTIFICATION RISK ASSESSMENT IN BLOOD BANK

Process	Hazards	Recipients	Likelihood	Severity	Risk Score	Risk Rating	Preventive measures taken by hospital
1.DONOR REGISTRATION	Risk of professional donor	Patients	2	3	6	M	Professional donor are identified by the staff and deferred from donation.
	If Incorrect information filled in the form can result in donor outside of established criteria allowed to donate without proper authorization.	Patients / Donor	1	3	3	L	Staff instructs the donor about filling the details in the form and importance of the same. 
2.Donor Screening							
	Incorrect reading on sphygmomanometer, Low B.P leads to syncope/hypovolemic shock and High B.P leads to syncope/hypovolemic shock	Donor	2	3	6	M	Calibration of equipment is done timely. Trained and competent staff. Defined deferral policy.

							
	Incorrect reading on thermometer, High temperature cause shivering, chills, muscular pains, dehydration in donor and blood collected from such donor will harm the patient as there are chances of bacterial or viral infection.	Donor/ Patient	2	3	6	M	Calibration of equipment is done timely. Trained and competent staff. Defined deferral policy.
	Low pulse can cause fainting of donor and High pulse can cause anxiety/panic attack.	Donor	1	3	3	L	Trained and competent staff Defined deferral policy.
	Weighing machine malfunction leads to error in measurement, low weight leads to syncope. 	Donor	2	3	6	M	Calibration of equipment is done timely.
	Incorrect reading on	Donor/	1	3	3	L	Calibration of equipment is done

	hemoglobinometer, Low hemoglobin patient donates blood make him suffer from severe anemia and High hemoglobin indicates donor suffering from polycythemia vera or any bacterial or viral infection.	Patients					timely. 
	Presence of lesions at the site of venipuncture is an indication that he is suffering from bacteria or viral infection or allergy.	Patients	1	3	3	L	Skin is examined carefully by the staff in screening area and such donors are deferred by the staff.
	Donor infectious disease or past history is not documented.	Patients	3	3	9	M	Policy is defined, question is added to the consent form and infectious disease status is documented.
	Wrong blood group identification due to low avidity/titration or substandard antisera.	Patients	1	3	3	L	Antisera are checked periodically and two different antisera are used in problem cases. 
	Needle stick injury	Staff/Donor	2	3	6	M	Staff is being adequately trained on needle stick injury.
3.PHLEBO							

TOMY							
	For low weight donor Quadriple bag can be selected.	Donor	1	3	3	L	Defined policy, single bag is selected for donor having weight less than 50 kg and Quadriple for donor having weight above 55 kg.
	Wrong segment number/blood group/collection date mentioned on bag.		3	3	9	M	Staff should cross-check the entries 
	Distortion of labeling		2	3	9	M	Staff should cross-check the entries
	Wrong ID placed on pilot tubes		3	3	9	M	Staff should cross-check the entries 
	Selection of basilic vein when median is available may lead to intermittent flow or may require double prick.	Donor	2	2	4	L	Staff is trained and has proper knowledge about the selection of vein 
	If Not following	Donor	2	3	6	M	3 swab technique is

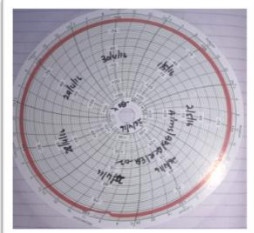
	aseptic technique leads to infection.						followed by the staff to prevent infection.
	Incorrect technique of puncturing the vein can lead to damaging of underlying muscles, nerve, tendon, and hematoma.	Donor	2	3	6	M	Staff is competent and trained
	Needle stick injury	Staff	2	3	6	M	Staff is being adequately trained on needle stick injury.
	Poor handling of combimix may result into improper mix of blood with Citrate Phosphate Dextrose or clot formation.		1	3	3	L	After puncturing the vein, staff starts combimix to prevent any delay or clot formation. 
	Improper monitoring leads to hypotension, syncope, shock etc.	Donor	2	3	6	M	Assigned staff or assistant timely observe the donor during the whole procedure of phlebotomy.
	Hematoma can occur	Donor	2	2	4	L	Gauze piece is placed at the site to prevent hematoma or phlebitis
	Phlebitis at the site	Donor	1	3	3	L	
	Improper labeling on EDTA tubes.		2	4	8	M	Labeling should be cross checked by the

							staff.
	Improper sealing leads to leaking of bag.		1	3	3	L	Sealing is immediately done after collection of blood. 
	Needle stick injury during discarding of needle.	Staff	2	3	6	M	Staff is being adequately trained on needle stick injury. 
	Dropping of bag while placing in fridge leads to blood wastage and exposure of technician to unscreened blood.	Staff	2	3	6	M	Advised to carry in baskets or box. 
	If Stored in screened blood area and issuing of the same leads to transfusion of unscreened blood in patients.	Patients	1	4	4	L	Unscreened blood is stored in quarantine area by the staff. All the blood bags in screened area carry an additional sticker which should be cross-checked while taking out blood

	Keeping bag horizontally does not allow the settling of cells.		1	3	3	L	After collection of blood bag is kept vertically for settling of cells.
4.Apheresis							
	Donor may be in window period	Patient	2	3	6	M	In routine Staff or blood bank instruct to use chemiluminescence method.
	Improper adjustment of kit leads to contamination of red cell with platelet and kit wastage.	Patient	1	3	3	L	Staff is trained and competent.
	Not following aseptic technique leads to infection	Donor	2	3	6	M	3 swab technique is followed by the staff to prevent infection.
	Incorrect technique of puncturing the vein leads to damage to underlying muscles, nerve, tendon, hematoma and needle stick injury.	Donor	2	3	6	M	Staff is train and competent and being adequately trained on needle stick injury
	Improper monitoring leads to hypotension,syncope,shock etc.	Donor	2	3	6	M	Assigned staff or assistant timely observe the donor during the whole procedure of Apheresis.
	Fall of bag while placing in refrigerator leads to		2	2	4	L	Bags are handled carefully by the staff and advised to carry bags in basket or

	loss of a product.						thermocool box.
5. Post Donation Care							
	Donor is not guided properly after donation which can lead to cold sensation, dizziness, nausea, hematoma, pain; bleed at the site, allergy or shock.	Donor	2	3	6	M	Donor counseling is being done and poster is display on wall. Regular and timely training to the staff for handling these complications, provision of oxygen cylinders and emergency drugs for the same. 
6. Component Preparation							
	If not follow proper time frame after collection of blood results into inadequate or hemolysed blood product or quality control failed.		2	3	6	M	Staff is trained and competent
	Malfunctioning of refrigerated centrifuge leads to delay in process		1	3	3	L	Preventive maintenance label is in place and any malfunctioning report to the biomedical engineer.

	Rupture of bag and spillage inside the centrifuge.		2	3	6	M	Staff is trained and competent 
	Wrong programming leads to inefficient separation of components or suboptimal product.	Patient	2	3	6	M	Programme number is selected as stipulated in SOPs 
	Poorly fit tubing of bag leads to RBC Contamination with FFP.	Patient	2	3	6	M	Tubes are fixed properly in Optipress to prevent RBC contamination.
	Malfunctioning of Optipress		1	3	3	L	Preventive maintenance label is in place and any malfunctioning report to the biomedical engineer
	Mention wrong expiry date lead to expired unit can lead to the disposal of unit.		2	4	8	M	Staff is competent and trained, expiry date is cross checked by other staff.
	Stored at incorrect temperature leads to blood wastage.		2	4	8	M	Refrigerator automatically generate a graph which records the temperature and then that graph is pasted on a log book which is periodically

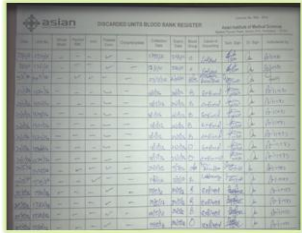
							 monitored by H.O.D, in case of non- functioning "Back ups" are in place and staff inform the biomedical team.
	If unscreened blood is stored in screened blood area and issuing of the same lead to risk of TTI in patients.	Patient	1	4	4	L	Unscreened blood is stored in quarantine area. 
	Malfunctioning of platelet agitator or refrigerator can result into wastage of product 		2	4	8	M	"Backups" are required and is discussed in the transfusion committee meeting.
7.TTI							
	Equipment failure	Patients	2	4	8	M	Calibration of equipment is done

							timely
	Test results are read wrongly lead to infusion of contaminated blood without taking precautions.	Patient	1	4	4	L	Staff is trained and competent
	Not putting the bag in biohazardous red bag		2	3	6	M	Reactive units are discarded by covering with biohazardous red bag and then send to bio medical waste for incineration
8.Cross Matching							
	Error in labeling of test tubes	Patient	1	3	3	L	Labeling should be cross checked by the staff
	Substandard anti-sera	Patient	1	3	3	L	Quality check is done
	Malfunctioning of incubator and centrifuge		2	3	6	M	Preventive maintenance label is in place and any malfunctioning report to the biomedical engineer



							
	Error in interpretation of results leads to infusion of a wrong unit	Patient	1	3	3	L	Trained and competent staff and results are matched with reverse grouping
	Unfresh pool cells leads to misinterpretation of result	Patient	1	4	4	L	Freshly prepared pool cells are used and monitored regularly
	Expired gel card 		2	3	6	M	In case of expired gel card test tube method is used
	Improper placement of gel card in the centrifuge		1	2	2	L	Staff is trained and adheres to the procedure stipulated in SOPs
	Mentioned incorrect id of patient		1	3	3	L	Entry should be cross-checked by the staff
9.Component Storage							
	Leaking of bag		3	3	9	M	Bags are monitored

							regularly.
	Mixing of screened and unscreened bag		2	4	8	M	Screened and unscreened blood is stored in different area. Staff is aware of the policies.
	Pilferages due to unauthorized entry		1	3	3	L	Restricted entry signage is there in place.
10.Reporting							
	Incorrect UHID of patient mentioned on the form leads to identification error.		2	3	6	M	Nurses cross-checked the form before sending to blood bank.
	Fails to write urgent or routine requirement of blood.		2	4	8	M	On consultant's order nurses mark the urgent or routine requirement of blood.
	Request not communicating to the other staff members leads to untimely delivery of blood.		1	3	3	L	Staff respond immediately to the urgent/special requirement of blood and noted in the log book and place on the notice board and deliver urgent requirement of blood within 30 minutes of defined time frame.
	Failure to deliver urgent requirement of blood		1	4	4	L	
11.Discard							
	Error in entry leads to disposal of		2	3	6	M	Staff is vigilant while entering in the register

	wrong unit.						
	Not putting the bag in biohazardous red bag.		1	3	3	L	Defined policy, bag is autoclaved in the bio hazardous red bag and then sends for incineration. 

Discussion

As per the interpretations of hazard there are mainly three types of hazards identified in the blood bank:

1. Operational Hazard:

These hazards occur due to various operations in the hospital. These hazards can hamper the quality of patient care.

- a) Wrong identification of blood group due to substandard antisera or unfresh pool cells
- b) Improper monitoring of donor
 - a) Multiple puncture at the phlebotomy site
 - b) Aseptic techniques are not followed
 - c) Donor is not guided properly
 - d) Improper sealing of bag
 - e) Improperly fit tubing of bag in Opti-press
 - f) Fall of bag
 - g) Wrong documentation of :
 - donors infectious disease or past history
 - wrong id placed on tubes, blood bag or in register
 - wrong expiry on the blood bags
 - h) Improper placement of bag in centrifuge
 - i) Improper adjustment of kit during Apheresis
 - j) Wrong programming in centrifuge
 - k) If stored unscreened blood in screened blood area
 - l) Leaking of bag
 - m) Storing PRBCs, FFP, Platelet at incorrect temperature
 - n) Test results are read wrongly
 - o) TTI sticker not placed on the bag
 - p) Pilferages

- q) Untimely delivery of units
- r) Issuing of wrong blood group
- s) Not putting the bag in bio hazardous red bag

2) Biological hazard

Those biological substances that can harm any living organisms are called biological hazards or biohazards.

- a) Leaking of bag
- b) Exposure of staff to unscreened blood
- c) During preparation of component, contamination of RBC with FFP
- d) During Apheresis contamination of red cell with platelet
- e) Transmission of unscreened blood from donor to patient

3) Mechanical hazard

Hazards occur due to malfunctioning of some machine that prevents the proper working of the process

- a) Malfunctioning of Sphygmomanometer
- b) Malfunctioning of Haemoglobinometer
- c) Malfunctioning of Weighing machine
- d) Malfunctioning of Refrigerated centrifuge
- e) Malfunctioning of Optipress
- f) Malfunctioning of Refrigerator
- g) Malfunctioning of Incubator

Recommendation

- Advised to carry blood bags in box or basket from phlebotomy room to component preparation room.
- Post donation care instructions displayed in phlebotomy and in apheresis room should be in bi-lingual language
- Provision of “Back-ups” for platelet agitator.

- All entries should be cross-checked with two identifiers.
- Donors can be provided with the leaflet or booklet having post donation instructions.
- Staff should use personal protective equipment during any procedure.

Conclusion

Hazards risks identification in hospitals help in identifies the hazards and the risk associated with it. It is significantly increase patient safety and therefore increasing patient satisfaction. The application of this study is used in blood bank by identifying, analyze and prioritize all hazards in blood bank department. This case study takes into account for the vulnerabilities of a specific hazard, consequences if a hazard is realized and means to prevent those hazards.

This study illustrates what are the types of hazards that can happen in the department and how to prevent them; various hazards are identified and classified under operational, biological and mechanical. The study also depicts about the preventive measures taken by hospital so that the risks are reduced to its lower level.

The staffs of the blood bank department are trained and provide donor and patient care. Staff is competent in usage of the equipment to avoid hazards in the department. Equipments are timely calibrated to avoid failure during procedure.

HIRA is one of the pillars for building a safety culture in health service areas.

Project report number: - 2

CLINICAL AUDIT ON INDICATIONS OF LOWER SEGMENT CESAREAN SECTION (LSCS)

BACKGROUND

The rate of Lower segment cesarean deliveries is escalating globally further than the suggested rate of 17%-18% (according to WHO) of all deliveries. When medically justified, a cesarean

section can efficiently avert maternal and perinatal mortality and morbidity, yet there is no indication showing the benefits of cesarean delivery for women or infants who do not require the procedure.

In addition, high lower segment cesareans section (LSCS) rates lead to high cost of healthcare, increased workload and challenges in ensuring improved quality of care. This issue persists in developing countries. To perk up the total quality of LSCS care prior to any medical strategies can be planned the current clinical practice needs to be audited and the optimal institutional rate of caesarean deliveries identified factoring in its population characteristics.

An **audit** is a quality improvement process that seeks to improve patient care and outcomes through methodical review of care against unambiguous criteria and the implementation of change. A **clinical audit** is a systematic review of the quality of clinical care based on standards agreed upon by all the relevant health care workers. Clinical audits are often intra-institutional, based on the management principles of total quality management and continuous quality improvement. It identifies the problem or area of concern or area of concern and encourages teamwork among the healthcare providers to work against the problem.

It is an integral part of clinical governance and can be carried out by any practitioner involved in the treatment of patients. It is mainly the extent of practice against agreed standards and implementing change to make sure that all patients receive care to the same standard.

It is a practice to ensure that clinician working in the hospitals is performing to satisfactory standard. It makes certain the high quality of care and patient safety. Clinical audits specify the structure, process and its expected relevant outcome and deepen the outcome. Through audit day to day practices are identified and then these practices are compared to the previous one. It helps in improving the record keeping, continuous professional development and hence increasing accountability and responsibility.

REVIEW OF LITERATURE

Medical audit has become a usual concept in the recent years in context of health services and is now a regular part and routine practice in many hospitals. The definitive intend of an audit that it

should direct in improvement of patient care and perhaps the only aspect in which there is harmony. The most commonly quoted definition of audit is, “Clinical audit is the systematic and critical analysis of the quality of clinical care, including the procedures used for diagnosis, treatment and care, the associated use of resources and the resulting outcome and quality of life for the patients”. In audit the first step to do is observation of current practices, followed by setting standards with which the practice can be measured. The final steps of the cycle are to compare current practice to the standards, suggest solutions for the deficiencies identified and implement the changes to improve the delivery of care.

A range of method can be used for auditing, such as case-note reviews, case presentation, criterion based audit and use of routinely collected data. In this research study tool used is checklist which has different indications for LSCS. It involves a review of process whereby clinicians first agree on a number of explicit and realistic criteria of good quality, adapting external guidelines to take into account the local resource context. Study parameters are selected based on the relevance to the audited topic, the strength of the research and ease of measurement in using hospital case notes. To assess current practice against standard practice an auditor reviews a large number of case notes for their compliance with the set criteria.

LSCS are an important component of obstetrics care as it reduces maternal mortality and perinatal morbidity and mortality. The rates of caesarean deliveries have been increasing worldwide. This boost is ascribed to the dawn of electronic fetal monitoring measuring the heart sound and indications shifting from urgent to prophylactic. The rate has been greater than before as it is associated with peri-operative morbidity and mortality and increased cost of delivery, making it obligatory to retain LSCS as a preserve of important and urgent indications. This necessitates periodic review of compliance to local and international recommended standards in performance of LSCS as an aspect of quality control.

The ongoing wide-ranging rate of cesarean LSCS particularly in resource rich countries is an enduring subject of question in numerous obstetrics forums. In opposing, the rates of LSCS have largely remained the same in some developing countries. In rural Areas, the indications of LSCS are stringent and tend to be maternal Fetal indications are often neglected. In economies countries, with a large gap between the poor and the rich, rates of caesarean deliveries may also vary between different levels of hospitals, private or public hospitals and with referral centers

and private hospitals having the highest level of caesarean rate. The overall LSCS rate is higher among women residing in urban areas compared to their rural counterparts. Monetary incentives, convenience, defensive practice or inexperience may be implicated. An unknown number of rich and well-insured mothers seem to prefer operative delivery as convenient method of childbirth.

According to WHO, Based on the WHO systematic review, increases in cesarean section rates up to 17-18% at the population level and are associated with decreases in maternal, neonatal and infant mortality. Above this level, increasing the rate of cesarean section is no longer associated with reduced mortality. It is likely that socioeconomic factors can explain most of the association between increased caesarean section rates and lower mortality. WHO conducted worldwide ecologic study found that a substantial part of the crude association between cesarean section rate and mortality appears to be explained by socioeconomic factors. However, below a cesarean section rate of 10%, maternal and neonatal mortality decreased when caesarean section rates increased. As cesarean section rates increased above 10% and up to 30% no effect on mortality rates was observed. The analysis took a longitudinal approach, using country-level data and adjusting for socioeconomic development and they conclude cesarean sections are effective in saving maternal and infant lives, but only when they are required for medically indicated reasons. Cesarean sections can cause significant and sometimes permanent complications, disability or death particularly in settings that lack the facilities and/or capacity to properly conduct safe surgery and treat surgical complications. Cesarean sections should ideally only be undertaken when medically necessary.

WHO proposes the Robson classification system as a global standard for assessing, monitoring and comparing cesarean section rates within healthcare facilities over time, and between facilities. In order to assist healthcare facilities in adopting the Robson classification, WHO will develop guidelines for its use, implementation and interpretation, including standardization of terms.

Group 1: Nulliparous women with single cephalic pregnancy, ≥ 37 week's gestation in spontaneous labour

Group 2: Nulliparous women with single cephalic pregnancy, ≥ 37 weeks gestation who either had labour induced or were delivered by caesarean section before labour

Group 3: Multiparous women without a previous uterine scar, with single cephalic pregnancy, ≥ 37 weeks gestation in spontaneous labour

Group 4: Multiparous women without a previous uterine scar, with single cephalic pregnancy, ≥ 37 weeks gestation who either had labour induced or were delivered by cesarean section before labour

Group5: All Multiparous women with at least one previous uterine scar, with single cephalic pregnancy, ≥ 37 weeks gestation

Group6: All nulliparous women with a single breech pregnancy

Group7: All multiparous women with a single breech pregnancy, including women with previous uterine scars

Group8: All women with multiple pregnancies, including women with previous uterine scars

Group9: All women with a single pregnancy with a transverse or oblique lie, including women with previous uterine scars

Group10: All women with a single cephalic pregnancy < 37 weeks gestation, including women with previous scars

Based on WHO and other studies common indications are derived for study of indications of LSCS such as fetal distress, failed labour induction, previous C- section, failure to progress, overtly large baby, oligohydroamios, Meconium stained liquor, pre-eclampsia and breech presentation.

The challenges of cesarean deliveries in developing countries are different when compared to the developed countries. These include limited resources, low-trained work force, poor transport facilities and low compliance to the international standards of care, which is associated with high maternal and perinatal mortality. Improving the quality of obstetric care in developing countries is therefore an urgent priority. This will require regular obstetric audits and revision of management strategies and techniques.

PROBLEM STATEMENT:

The rate of LSCS in the hospital is exceeding the standard set by WHO, so determining the indication of LSCS and level of compliance to national and international standard by a clinical audit.

RATIONALE:

LSCS have been on a steady increase in AIMS from last few years as AIMS is a well -positioned in providing the best care and consultants are competent in handling high-risk pregnancies that are more likely to end up with caesarian delivery. With the rising rates, hospital is concern about the quality of care given and consultants have been questioned as why the decision has been taken to perform LSCS during monthly departmental mortality meetings. This audit sought to examine the current hospital practices surrounding LSCS and to see the compliance as it is similar to the international standard or vary.

Clinical audit will help in improving the quality of care, Appropriate LSCS rates, Good perinatal outcome, improved record keeping, and cost-effective healthcare systems and thus helped in professional development.

OBJECTIVE:

1. To determine the LSCS rate in the hospital.
2. To determining the indications of LSCS.

METHODOLOGY:

Study design-

It is descriptive retrospective study based on existing data within a specified period. It is required to evaluate preferred aspects of concern for cesarean deliveries. It is designed to determine the indications of LSCS.

Study area-

The study area is Asian institute of medical sciences.

Sampling and sample size-

Convenience sampling, during the duration all files from 31st December to 30th April has been audited. Total 103 files have been audited.

Study tool:

A quantitative tool (checklist) was designed in which indications of LSCS were noted down and approved by Director Gynecology. For checklist refer annexure.

Ethical Considerations:

Ethical approval to conduct the study is granted by Asian Institute of Medical Sciences. This study does not pose any ethical issue. Confidentiality was taken care while collecting the data as only IPD number was recorded and no names were written on the data collection sheets. The information obtained from the records was used only for the purpose of this study.

Data collection procedure:

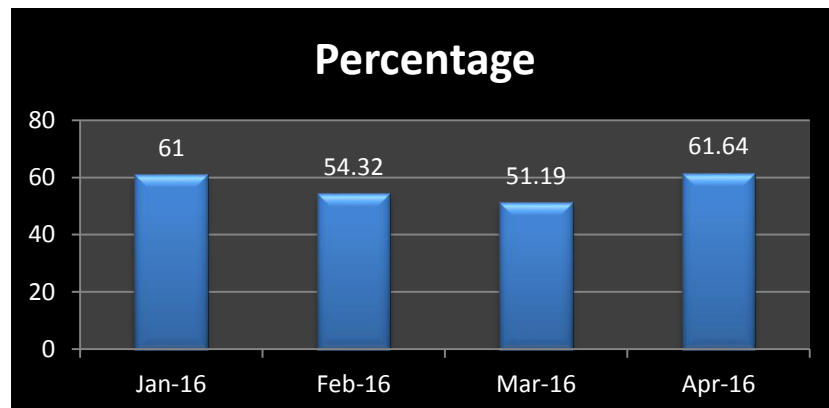
The hospital provided us the data of LSCS rate of the month January 2016 to April 2016. Then all files were traced in MRD from the same month that went under LSCS. The information is collected from the face sheet, history notes, progress sheet, labour chart, operation notes and discharge summary, and then the 10% of sample is discussed with DNB students and Director of Quality.

Analysis:-

Below is the data for the month of Jan-16 to April-16. The total percentage of LSCS is calculated.

Month	Total Delivery	LSCS case	Percentage
Jan-16	100	61	61
Feb-16	81	44	54.32
Mar-16	84	43	51.19

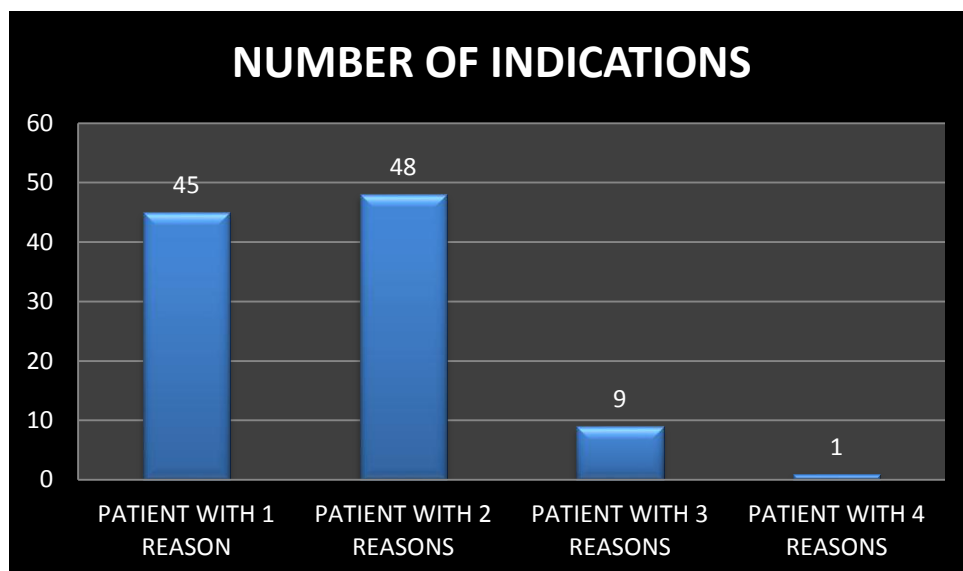
Apr-16	73	45	61.64
--------	----	----	-------



The average LSCS for these 4 months is 57.04%. WHO suggested rate is 17-18%, the LSCS rate is higher in hospital. To determine the reasons for LSCS a checklist is prepared and 103 files have been audited for the same and data has entered,

In 103 patients we found total 172 reasons.

	INDICATION RANGE	NO OF FILES	NO. OF REASONS
PATIENT WITH 1 INDICATION	1	45	45
PATIENT WITH 2 INDICATION	2	48	96
PATIENT WITH 3 INDICATION	3	9	27
PATIENT WITH 4 INDICATION	4	1	4
		103	172

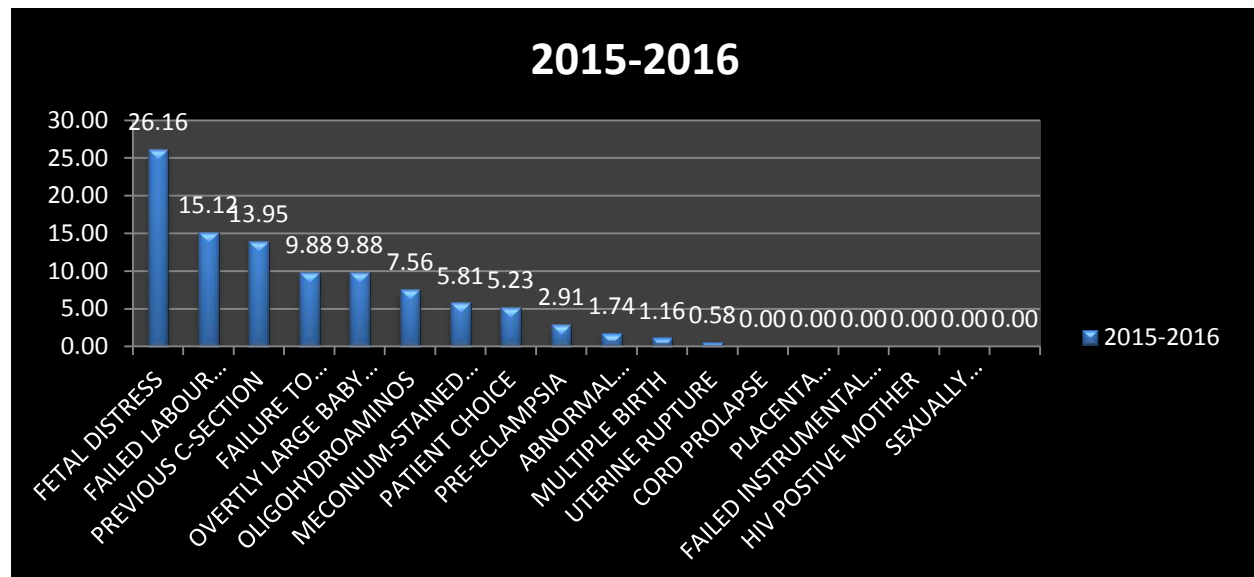


In 1 patient there were 4 indications, although 1 indication is enough for LSCS. Those 4 indications were oligohydroamios, Meconium stained liquor, failed labour induction that leads to fetal distress.

All indications were analyzed and the table is drawn below:

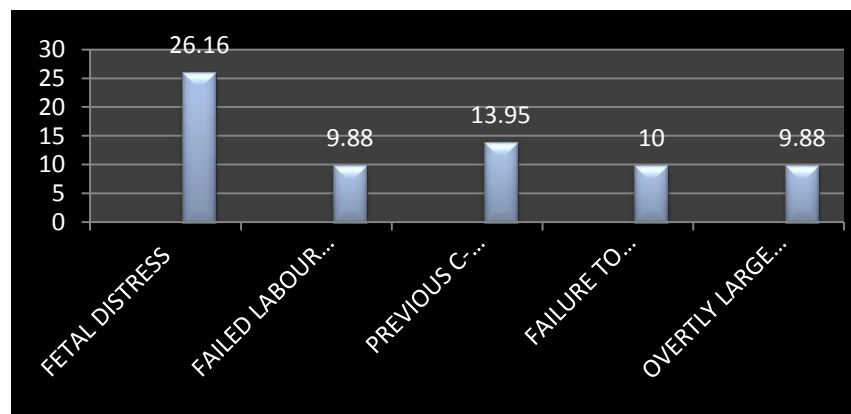
	INDICATIONS	sample size:- 103 (percentage)
S.N	CESAREAN SECTION	2015-2016
0		
1	FETAL DISTRESS	26.16
2	FAILED LABOUR INDUCTION	15.12
3	PREVIOUS C-SECTION	13.95
4	FAILURE TO PROGRESS/DYSTOCIA(NPOL)	9.88
5	OVERTLY LARGE BABY (macrosomia)/CEPHALOPELVIC DISPROPORTION	9.88
6	OLIGOHYDROAMIOS	7.56

7	MECONIUM-STAINED LIQUOR	5.81
8	PATIENT CHOICE	5.23
9	PRE-ECLAMPSIA	2.91
10	ABNORMAL PRESENTATION(BREECH OR TRANSVERSE POSITION)	1.74
11	MULTIPLE BIRTH	1.16
12	UTERINE RUPTURE	0.58
13	CORD PROLAPSE	0.00
14	PLACENTA PRAVIA/APH (VELEMENTOUS INSERTION)	0.00
15	FAILED INSTRUMENTAL DELIVERY (By forceps or ventouse)	0.00
16	HIV POSTIVE MOTHER	0.00
17	SEXUALLY TRANSMITTED INFECTION SUCH AS GENITAL HERPES/WARTS	0.00
18	COMPLETE PERINIUM TEAR REPAIRED/MENCHESTER REPAIR	0.00



According to study, there are 5 most common indications found in the patients:

Top 5 indications		PERCENTAGE
1	FETAL DISTRESS	26.16
2	FAILED LABOUR INDUCTION	9.88
3	PREVIOUS C-SECTION	13.95
4	FAILURE TO PROGRESS/DYSTOCIA(NPOL)	10
5	OVERTLY LARGE BABY (macrosomia)/CEPHALOPELVIC DISPROPORTION	9.88



Fetal distress was the most common indication found and then the reasons for fetal distress among these patients were found mentioned below:

- Failed labour induction
- Non progress of labour
- Cephalo- pelvic disproportion
- Oligohydroamnios
- Meconium stained liquor
- Decreased fetal movement
- Cord around the neck
- Premature rupture of membrane
- Gestational diabetes mellitus
- Intra –uterine growth restriction
- Pre –mature labour pain

- High resistance in umbilical artery
- Persistent tachycardia
- Post-term pregnancy

Discussion:

The aim of the study is to determine the LSCS rate in the hospital and the indications associated with it. This data is then used as a baseline to compare it with WHO guidelines. The average LSCS rate is 57.04% which is very high from the set standards. Fetal distress was the highest 26.16% among the patients, failed labour induction was 15.12% and previous c-section was a indication among 13.95% patients. Failure to progress/dystocia (NPOL) and Cephalo- pelvic disproportion was among 9.88%. Oligohydroamios was among 7.56% patients and Meconium stained liquor was found in 5.23% patients. Only 5.23% patients opted for elective cesarean section and pre-eclampsia , abnormal breech presentation , multiple birth and uterine rupture was found few patients between 1-3% in patients.

Although during audit documentation was satisfactory but some limitations are found as Final diagnosis is not properly mentioned in discharge summary as mentioned in face sheet. Lot of

abbreviations is used. Labour chart is not signed by the staff. Root cause is not mentioned properly. In some consent forms risks were not mentioned.

Conclusion:

LSCS rate was high (57.04%) as per the WHO recommended rate. The most common indication found in patient is fetal distress. Records are properly maintained and few documentation gaps were found. Clinical audit helps in improving the documentation and record keeping.

Recommendations:

This audit and its finding should be circulated widely to all the staff of Gynecology department. Documentation need to improve more and Clinical audits of this nature should be made regular and routine to improve the standard of care over time.

Project Report number:-3

PATIENT SAFETY DEVICE AUDIT IN I.P.D AREA

INTRODUCTION

PATIENT SAFETY:

Patient safety is to prevent harm to the patient and provide safe and secure environment for patients. In healthcare system it emphasizes on reporting, analysis, and prevention of errors that sometimes lead to adverse events. It helps in adopting innovative technologies, educating providers and consumers, enhancing error reporting systems, and developing new economic incentives. Benefits of patient safety is to reduced average length of stay, reduced waste lean management, improvement of facilities, better patient care and patient delight.

PATIENT SAFETY DEVICE:

Patient safety device ensures patient safety in the hospital and reduce the fall risk. Patient safety devices according to NABH guidelines are call bells, grab bars, side rails, sign posting, safety belts on stretchers and wheelchairs, warning signs like radiation or biohazard, fire safety devices and special toilet for physically challenged.

Wheelchairs and stretchers help to transfer the patients and provide proper fit and postural support, comfortable for both patients and medical workers and most important protect the patient from fall. Side rails benefits aid in turning and repositioning within the bed, provides a feeling of comfort, security and reduces the risk of patients falling. It also provides easy access bed controls and personal care items. Call bells increase sense of security, enables a patient to alert the nurse and seeks their assistance and useful for those patients who is confined to bed has no other way of communicating the staff. Grab bars designed to enable a person to maintain balance, lessen fatigue while standing or to grab in case of a slip or fall. Sign posting directs the patients to access the services. Special toilets provide service to the disabled patients. Warning signs ensure the safety of patients, visitors and staff.

Patient safety device audit is an independent assurance, unbiased and objective view. It is mandatory for smooth operation flows and identifies risk, evaluates them, assists management in the improvement of internal controls. It ensures patient safety in the hospital reduces the risk of fall as many hospitalized patients are at risk for falls, and almost half of those who fall suffer an injury. It increases the average length of stay, so it is very important for a hospital to keep a check on these devices to prevent injury to the patients and provide enhanced patient care for even operations of hospital.

AIM : To evaluate patient safety device through an audit and encourage the continuous improvement for patient safety.

OBJECTIVE:

- To evaluate patient safety device.

- To identify the concern areas and providing solution for identified areas of concern.

Methodology

- **STUDY DESIGN:** - Observational study
- **STUDY DATA :-**
 1. Questionnaire
 2. Interviewing nurse
 3. Housekeeping staff, GDA(ground duty assistant)
- **LOCATION:-** In Patient Department
- **PARAMETERS:-** Parameters on which audit is done:
 1. Bed rails
 2. Call bells
 3. Toilet grab bars
 4. Fire exit plan at the back of door
 5. Wheelchairs
 6. Stretchers
 7. Male /female signage in toilets
 8. Do not lock sticker (bilingual) behind the toilet doors
 9. Disabled patient toilet (signage, grab bars, working slider doors)

GENERAL FINDINGS:

- **Bed locks** are tight in ctv's of 3RD floor

Call bells	Not ok
6th floor	Rooms 602,641 A
5 th floor	Rooms 503,533a,538 a & b , 547,542, 501-9/12, 502-4/6/8
2 nd floor	Rooms 201-16,203-1/3/5,204- 2/3/6,205-3, 206-6, 207-1/5/6
1 st floor	Rooms 103 -1/10/14/16/18- 101-3

- In wards walker/ wheelchair is provided for the access to the toilet(1ST floor & 2nd floor)

- **Grab bars**

Grab bars	Not present
6 th floor	CW and CCU
5th floor	Room 521, general ward 501,502
3 rd floor	Pre hold

- **Fire exit plan** at the back of door is not present in IMCU, Pre-hold and in the first floor's general ward 138, 141, 142.

- **Wheelchairs**



Floors	Seatbelt (not ok)	Foot paddles (not ok)	Breaks (not ok)	Wheel (not ok)	Handle (not ok)	Seat (not ok)
6 th floor						
Private (2)	2		2			
Semi cabin(2)	2		2			
5th floor						
Private(2)	2					
Semi cabin A (2)	2					
Semi cabin B (2)						
General ward(2)					1(right)	
		2				
4 th floor	1					
General ward						
Private room						

Isolation room						
3 rd floor						
Imcu (1)	1		1			
Prehold (1)	1			1	1(right)	
2 nd floor						
201-203(1)	1		2			
204-207(3)						
Ist floor						
101(3)	1					1
Total wheelchairs (34)	13	2	8	1	2	1

- stretchers



Floors	Seatbelts	Siderails	Breaks	Wheels	Height adjuster
6 th floor					
Private	1				
Semi cabin	1				
Suite	1				
Cardiac	1				
4 th floor					1
General ward					
5 th floor					
Private			1		
General ward	1		1		
Semi cabin A			1		
Semi cabin B			1		
3 rd floor					
Recovery room 1		Loose		1	
2nd floor			1		1
Labor room1					
Labor room 2					
1 st floor					
Semi	1		1		

cabin(101,102)					
General ward (103)					
Total (19)	6	1	1	1	2

- Head-on is jammed in stretcher for recovery.
- Do not lock sticker (bilingual) in toilets is not present in room number 612, 506, 523, 547 and in 5th general wards, in 3rd floor, in 2nd floor and in 1st floor.

GAPS :

- Marking is not proper on the wheelchairs and stretchers, difficult to distinguish the wheelchairs of different department.



- GDAs and housekeeping staff are not properly trained about the importance of the devices of wheelchairs and stretchers.

RECOMMENDATIONS:

- Marking on the wheelchairs and stretchers should be proper for example if 2 chairs are allotted in 5th private, then the marking should be like 5th private 1/2 & 5th private 2/2.
- Barcode provision can be done for the labeling of wheelchairs and stretchers.
- Color coding can be done for the wheelchair and stretchers of different departments.
- Proper sensitizing of the housekeeping staff and GDAs regarding the importance of the each device of wheelchair and stretchers.
- Improve monitoring of the wheelchairs and stretchers for effective service.

Project report number:- 4

DISCHARGE SUMMARY PROTOCOL COMPLIANCE AS PER NABH STANDARDS

INTRODUCTION:

Hospital discharge summaries serve as the primary documents communicating a patient's care plan to the post-hospital care team. Often, the discharge summary is the only form of communication that accompanies the patient to the next setting of care. High quality discharge summaries are generally thought to be essential for promoting patient safety during transitions between care settings, particularly during the initial post-hospital period.

The Discharge Summary Form is standardized in the hospital. Every patient was given a discharge summary form at the time of discharge from the hospital including patients leaving against medical advice and on request. The organization hand over the discharge summary and reports to the patient/attendant in all cases and a copy is retained in the medical record. The information was written using concrete explanations and contextual clues, while adhering to the standard template. The discharge form is explained to the patient or their relatives in their respective language (English, Hindi) by the hospital staff. To improve the understanding and knowledge regarding the post-operative care some modifications has being done in the form of every department in the hospital according to the NABH 4th Edition.

AIM :- The aim of the study is to modify the content of the discharge summary form as per the 4TH Edition of National Accreditation Board of Health and Hospital.

OBJECTIVE:-

1. Addition of new parameters in current discharge summary form.
2. To promote and enrich the understanding of patients regarding post-operative care.

METHODOLOGY:

- **Study design:** retrospective
- **Study duration:-** 1st April- 31st May 2016
- **Type of data collection:-**
 1. Primary data collected from the existing discharge form
 2. Secondary data collected from the NABH 4th Edition guideline

NABH Mandated Component

The National Accreditation Board For Hospital And Healthcare Providers(NABH) has established standards (Access Assessment and Continuity of Care (AAC)14 Objective element-(a,b,c,d,e,f,g).

These components are:-

1. Patient's name
2. Unique identification number
3. Date of admission
4. Date of discharge
5. The reason of admission
6. Significant findings
7. Diagnosis
8. Patient's condition at the time of discharge
9. Information regarding investigation results
10. Any procedure performed
11. Medication administered and other treatment given
12. Follow-up advice
13. How to obtain urgent care
14. In case of death cause of death
15. Signed by treating doctor or by his/her team
16. Patient/family acknowledges the receipt of the same

In AIMS hospital some definitions were created using common terms found in medical documentation:-

NABH-mandated component definitions

NABH-mandated components	Consensus definition

Reason for hospitalization	Chief complaint (any description of the patient's primary presenting condition); AND/OR
	History of present illness (a description of a patient's initial presentation to the hospital admission including a description of the initial diagnostic evaluation)
Significant findings	Primary diagnoses (admission/discharge diagnoses noted in the discharge summary)
Procedures and treatment provided	Hospital course (a description of the events occurring to a patient during his/her hospital stay); AND/OR
	Hospital consults (a description of surgical, medical, other specialty or allied health consults a patient experienced as an inpatient or a specific statement that "no consults" occurred); AND/OR
	Hospital procedures (a description of surgical, invasive, non-invasive, diagnostic or technical procedures a patient experienced as an inpatient or a specific statement that "no procedures" occurred)
Patient's discharge condition	patient's health status on discharge
Patient/family Instructions (as appropriate)	Discharge medications advice (a listing of all discharge medications OR a statement noting that admission medications are unchanged AND a listing of admission medications OR a statement noting that admission medications are unchanged except for a specific number of medications AND a listing of the altered medications AND a listing of admission medications); AND/OR

	Dietary instructions (a listing of a patient's recommended dietary intake); AND/OR
	Plans for medical follow-up (clinic for medical follow-up AND/OR a specific listing of appointment dates and times for medical follow-up AND/OR a specific time frame for medical follow-up)
	When and how to obtain urgent care
Patient/family acknowledges	Patient/family signature in form of declaration that (The post hospital care instruction set forth above has been explained to me in my language. I understand the importance of following them as specified. I have received all the copies/original documents.) On the discharge summary form.
Attending physician's signature	Signature by the attending physician or by his/her team on the discharge summary

In the process of upgrading the discharge summary, reviewing of the entire current summary is done to check whether discharge summary is as per the NABH 4th edition.

During the process, in some summary

Follow up advice was not present and in some when to obtain urgent care was missing.

According to recent edition of NABH patient declaration should be there in summary, which does not exist in the same.

These parameters are important in order to provide care for patients. After discharge follow up advice must be explained to the Patients, what all preventive measures they have to take. They should know in which condition or complication they must contact the hospital so that future complications can be avoided.

Findings:-

Contents were not present in following departments:-

CONTENT	DEPARTMENT
FOLLOW-UP ADVICE	1. RESPIRATORY MEDICINE CC&SLEEP MEDICINE 2. SURGICAL ONCOLOGY 3. PAEDIATRIC 4. PSYCHIATRIC

WHEN AND HOW TO OBTAIN URGENT CARE	1. INTERNAL MEDICINE 2. CARDIOLOGY 3. SURGICAL ONCOLOGY 4. PAEDIATRIC 5. ORTHOPEADIC 6. OPHTHALMOLOGY 7. PSYCHIATRIC
REASON FOR ADMISSION	1. OPHTHALMOLOGY

Declaration line:-

THE POST HOSPITAL CARE INSTRUCTIONS SET FORTH ABOVE HAVE BEEN EXPLAINED TO ME IN MY LANGUAGE. I UNDERSTAND THE IMPORTANCE OF FOLLOWING THEM AS SPECIFIED. I HAVE RECEIVED ALL THE ORIGINAL/COPY OF DOCUMENTS.
PATIENT/RELATIVE SIGNATURE.....

FINDINGS:-

CONTENT	ENT	MEDICINE CC&SLEEP MEDICINE	UROLOGY	GY&RENAL TRANSPLA NT	NEUROSUR GERY	MEDICAL ONCOLOGY	INTERNAL MEDICINE	SURGERY	IC GYN&ECOL OGY	RADIATION ONCOLOGY	CTV/S	CARDIOLO GY	SURGICAL ONCOLOGY	PAEDIATRI C	ORTHOPEA DIC	GASTROEN TROLOGY	COSMETIC SURGERY	OPHTHALMO LOGY	PSYCHIATR IC
PATIENT'S NAME	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
UHI D NU	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

MBE R																			
DAT E OF AD MIS SIO N	OK	OK	OK	OK	O K	OK	O K	O K	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
DAT E OF DISC HAR GE	OK	OK	OK	OK	O K	OK	O K	O K	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
REA SON S FOR AD MIS.	OK	OK	OK	OK	O K	OK	O K	O K	OK	OK	OK	OK	OK	OK	OK	OK	OK	NO	OK
SIG NIFI CAN T FIN DIN GS	OK	OK	OK	OK	O K	OK	O K	O K	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
DIA GNO SIS	OK	OK	OK	OK	O K	OK	O K	O K	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
PATI ENT; S CON DITI ON AT TIM E OF DISC HAR GE	OK	OK	OK	OK	O K	OK	O K	O K	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
INV ESTI GAT ION RES ULT S	OK	OK	OK	OK	O K	OK	O K	O K	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
PRO CED	OK	OK	OK	OK	O K	OK	O K	O K	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

URE PER FOR MED																			
MED ICA TION AND MINI STE RED	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	N/A	OK
OTH ER TRE ATM ENT GIV EN	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	NO
FOL LOW UP ADV ICE	OK	NO	OK	OK	OK	OK	OK	PK	OK	OK	OK	OK	NO	NO	OK	OK	OK	OK	NO
MED ICA TION AND OTH ER INST RUC TION S	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
WHE N &HO W TO OPT AIN URG ENT CAR E	OK	OK	OK	OK	OK	OK	NO	OK	OK	OK	OK	NO	NO	NO	NO	OK	OK	NO	NO

[illegible]

DISCHARGE SUMMARY

Patient Name:	«Contact_Name»	IPD :	«IPD_No»
Age:	«Contact_Date_of_Birth»	UHID :	«Contact_No»
Sex:	«Contact_Sex»	DOA :	«Admission_Datetime»
Ward :		DOD :	«Discharge_Datetime»
Unit :	DR. ROHIT NAYYAR / DR. NAVEEN SANCHETY		

Nil

PHYSICAL EXAMINATION :

SURGERY:

OPERATIVE FINDINGS :

POST OPERATIVE PERIOD : Uneventful.

CONDITION AT DISCHARGE : Stable

DISCHARGE ADVICE

S. No.	Drug	Route	Dosage	Interaction with meals	Duration
1	Tab. Augmentin 625mg	Oral	1 tab thrice daily	After food	5 days.
2	Tab. Pan 40mg	Oral	1 tab once daily	Before breakfast	5 days.
3	Tab. Signoflam	Oral	1 tab thrice daily	After food	5 days.

WHEN TO OBTAIN URGENT CARE:

In case of any medical emergency.

NEXT APPOINTMENT

Review in Surgical Oncology OPD on Monday on 18/04/2016 with histopathology report.

In case of any medical emergency come to Asian Institute of Medical Sciences Sec- 21A, FBD, Badkal Flyover, Faridabad or may call at 0129-4253000 or 105758

No declaration by patient

No follow-up advice

RESIDENT/REGISTRAR

CONSULTANT

DIRECTOR

POST- REVIEW CORRECTIONS:-

After findings all the gaps in discharge form of every department in an organization, we corrected all the gaps in the form with the help of the medical transcript and consultant of the respective departments to enhance the care of patient at home.

DEPARTMENT OF SURGICAL ONCOLOGY

DISCHARGE SUMMARY

Patient Name:	«Contact_Name»	IPD :	«IPD_No»
Age:	«Contact_Date_of_Birth»	UHID :	«Contact_No»
Sex:	«Contact_Sex»	DOA :	«Admission_Datetime»
Ward :		DOD :	«Discharge_Datetime»
Unit :	DR.XYZ		

DIAGNOSIS :

COMORBIDITY :

Nil

PRESENTATION :

PHYSICAL EXAMINATION :

INVESTIGATIONS :

TUMOR BOARD

Case was discussed in tumor board and patient planned for surgery

SURGERY :

.

OPERATIVE FINDINGS :

POST OPERATIVE PERIOD : *Uneventful.*

CONDITION AT DISCHARGE : *Stable.*

Patient Name:	«Contact_Name»	IPD :	«IPD_No»
----------------------	----------------	--------------	----------

DISCHARGE ADVICE

S. No.	Drug	Route	Dosage	Interaction with meals	Duration
<i>1</i>	<i>Tab. Augmentin Duo</i>	<i>Oral</i>	<i>1 tab twice daily</i>	<i>After food</i>	<i>5 days.</i>

	<i>1gm</i>				
<i>2</i>	<i>Tab. Pan D</i>	<i>Oral</i>	<i>1 tab once daily</i>	<i>Before breakfast</i>	5 days.
<i>3</i>	<i>Tab. Dolo 650mg</i>	<i>Orally</i>	<i>1 tab thrice daily</i>	<i>After food</i>	<i>5 days.</i>
<i>4</i>	<i>Cap. Becosule</i>	<i>Orally</i>	<i>1 cap twice daily</i>	<i>After food</i>	<i>5 days.</i>

PREVENTIVE STRATEGIES: *Diet as advised*

PENDING REPORTS: *Ni*

WHEN TO OBTAIN URGENT CARE:

In case of severe pain, discharge & bleeding from wound (surgical site) or fever.

Review in Surgical Oncology OPD after 1 week

In case of any medical emergency come to Asian Institute of Medical Sciences Sec- 21A, FBD, Badkal Flyover, Faridabad or may call at 0129-4253000 or 105758

The post hospital care instructions set forth above have been explained to me in my language. I understand the importance of following them as specified. I have received all the copies/original documents.

Patient/Relative signature.....

Relationship to patient.....

RESIDENT/REGISTRAR

***CONSULTANT
SURGICAL ONCOLOGY***

***DIRECTOR
ASIAN CANCER CENTRE***

CONCLUSSION:

The hospital discharge is a prototypical condition for the patient safety movement. The gaps identified in the discharge summary have been implemented across the entire discharge summary of different departments in the hospital as High quality discharge summaries are generally thought to be essential for promoting patient safety during transitions between care settings, particularly during the initial post-hospital period. Improving the process and content of hospital discharge form is one of the right ways to improve the quality

REFERENCES:-

HIRA GAS MANIFOLD:

Agah, J., Baghany, R., Safiabaditali, S.H., Tabarraei, Y. and Rad, A., 2015. Maternal side effects of continuous vs. intermittent method of Entonox during labor: a randomized clinical trial. *Iranian Journal of Pharmaceutical Research*.

Kandemir, T., Muslu, S., Kandemir, E. and Case, R., 2015. Sudden Appearance of Water in Flowmeter During Air/Oxygen and Sevoflurane Anaesthesia. *Turkish Journal of Anesthesia & Reanimation*

St-andrews.ac.uk/staff/policy/healthandsafety/publications/gascylinders-safeuseofgascylindersguidanc/#reduce_risks

Bacoline.co.uk/en/sheq/gas-safety/dispense-gas-safety/handling-of-cylinders/handling-of-cylinders.html

Jakobsen.P., 2014. Subsea Gas Transition Hubs

Uws.edu.au/data/asests/pdf_file/0020/12917_Hazard_Identification,_Risk_Assessment_and_control_Procedure.pdf

Callan.B., Laphone.K., 2013. Proposed Bulk Oxygen Tanks. *Report on proposed oxygen tanks*.

HIRA IN BLOOD BANK:-

Carvalho,S.M.L.and Silva,M.G.C.,2002, Preliminary risk analysis applied to healthcare, *Brazilian journal of Chemical Engineering*

Palmer, P.J., 2004, evaluating and assessing process hazard analysis, *Journal of Hazardous Materials*

Trucco, P, and Cavallin, M.,2006, A quantitative approach to clinical risk assessment: The CREA method, *safety sciences*

Isbister, J.P., 1996, Risk Mangement in Transfusion Medicine, *Reviews*

Hergon, E., Moutel, G., Duchange , N., Bellier, L., Rouger, P.and Herve, C,2005, Risk Management in Transfusion Medicine after the HIV blood contamination crisis in france: The impact of the precautionary principle, *Transfusion Medicine Reviews*

CLINICAL AUDIT:-

Raheem M. and Salloum M. Clinical audit: obstetric performance after caesarean section. Journal of Obstetrics & Gynaecology. 2003;

Department Of Health Clinical audit – meeting and improving standards in health care. DoH, London. 1993:

Morrell C. and Gill H. The clinical audit handbook- improving the quality of health care. 1999:

Ronsmans C., Holtz S. and Stanton C. Socioeconomic differentials in caesarean rates in developing countries: a retrospective analysis. The Lancet. 2006;

Buekens P. Over-medicalisation of maternal care in developing countries. Studies in Health Services Organisation and Policy. 2001;

Bilar M. Evolution of indications for caesarean section between 1991 and 2000 in materials from the Pathology Clinic in the Department of Pregnancy and Labour, Pomeranian Medical University in Szczecin. Annales Academiae Medicae Stetinensis. 2003;

Koc I. Increased Caesarean section rates in Turkey. The European Journal of Contraception & Reproductive Health Care. 2003;

Maine D., Akalin M. Z., Ward V. M. et al, The Design and Evaluation of Maternal Mortality Programs. Centre for Population and Family Health, School of Public Health, Columbia University, New York. 1997: Van D. J., Meguid T., Petrova V. et al, Caesarean section in a semi-rural hospital in Northern Namibia. British Medical Journal; Pregnancy and Childbirth 2007

Haider G., Zehra N., Munir A.A. et al, Frequency and indications of caesarean section in a tertiary care hospital. Pakistan Journal of Medical Science 2009;

DISCHARGE SUMMARY:-

NABH 4TH EDITION

Joint Commission on the Accreditation of Healthcare Organizations. [Accessed March 31, 2008]. Standard IM.6.10, EP 7 Website. Available at: http://www.jointcommission.org/NR/rdonlyres/A9E4F954-F6B5-4B2D-9ECF-C1E792BF390A/0/D_CurrenttoRevised_DC_HAP.pdf.

Van Walraven C, Rokosh E. What is necessary for high-quality discharge summaries? AmMed Qual. 1999;14:160–169. [PubMed]

Tulloch AJ, Fowler GH, McMullan JJ, et al. Hospital discharge reports: Content and design. Br Med J. 1975;4:443–446. [PMC free article] [PubMed]

Joint Commission on Accreditation of Healthcare Organizations. 2008 National Patient Safety Goals Hospital Program. [Accessed March 31, 2008]. Available at: www.jointcommission.org/PatientSafety/NationalPatientSafetyGoals/08_hap_npsgs.htm.

ANNEXURES:-

1) CLINICAL AUDIT:-

<u>Checklist:-</u>		IPD No.	IPD No.	IPD No.	IPD No.	IPD No.
1	FAILURE TO PROGRESS/DYSTOCIA(NPOL)					
2	FETAL DISTRESS					

3	CORD PROLAPSE					
4	UTERINE RUPTURE					
5	PLACENTA PRAVIA/APH (VELEMENTOUS INSERTION)					
6	ABNORMAL PRESENTATION(BREECH OR TRANSVERSE POSITION)					
7	FAILED LABOUR INDUCTION					
8	FAILED INSTRUMENTAL DELIVERY (By forceps or ventouse)					
9	OVERTLY LARGE BABY (macrosomia)/CEPHALOPELVIC DISPROPORTION					
10	PRE-ECLAMPSIA					
11	MULTIPLE BIRTH					
12	HIV POSTIVE MOTHER					
13	SEXUALLY TRANSMITTED INFECTION SUCH AS GENITAL HERPES/WARTS					
14	PREVIOUS C-SECTION					
15	COMPLETE PERINIUM TEAR REPAIRED/MENCHESTER REPAIR					
16	MECONIUM-STAINED LIQUOR					
17	OLIGOHYDROAMNIOS					
18	PATIENT CHOICE					
<u>Comments :</u>						

Date:-

Auditor:

2) PATIENT SAFETY DEVICE:-

Patient Safety Device Audit 1st floor:-

Floors	Particulars	Room No.	No. of Beds	Bed Rails (Working properly/ Not working properly)	Call Bells	Fire exit plan at back of door	Remarks
1st Floor	Day Care	101	1				
			2				
			3				
			4				
			5				
			6				
			7				
			8				
			9				
			10				
			11				
			12				
			13				
			14				
			15				
			16				
	Onco ward	102	1			PRESENT	BED NO. 7,8 ATTACHED CALL BELL
			2				
			3				
			4				
			5				
			6				
			7				
		103	1			PRESENT	
			2				
			3				

			4				
			5				
			6				
			7				
			8				
			9				
			10				
			11				
			12				
			13				
			14				
			15				
			16				
			17				
			18				
	Semi Cabin	138	A				
			B				
		139	A				
			B				
		140	A				
			B				
		141	A				
			B				
		142	A				
			B				

No of wheelchairs on floor: 05						
		Wheelc hair 1 (103)	Wheelc hair 2 (103)	Wheelc hair 3 (101)	Wheelc hair 4 (101)	Wheelc hair 5 (101)
Seatbel	Present/ Not present					

t	Torn (Yes/ No)					
	Buckle (Ok/ Not Ok)					
Foot Padles	Right: Working Ok/ Not Ok					
	Left: Working Ok/ Not Ok					
Breaks	Right: Working Ok/ Not Ok					
	Left: Working Ok/ Not Ok					
Wheel	Alignment OK/Not Ok					
Seat	Ok/ Not Ok					

No of stretchers on floor: 02			
		Stretch er 1	Stretch er 2
Seatbelt	Upper: Present/ Not present		
	Lower: Present/ Not present		
	Upper: Torn (Yes/ No) - mention R/L		
	Lower: Torn (Yes/ No) - mention R/L		
	Upper: Buckle (Ok/ Not Ok) - mention R/L		
	Lower: Buckle (Ok/ Not Ok) - mention R/L		
Side Rails	Right: Working Ok/ Not Ok		

	Left: Working Ok/ Not Ok		
Wheel	Alignment OK/Not Ok		
Breaks	Front Right: Working Ok/ Not Ok		
	Front Left: Working Ok/ Not Ok		
	Back Right: Working Ok/ Not Ok		
	Back Left: Working Ok/ Not Ok		

TOILETS	Total Patient Toilet Cabins	
	Patient toilet Cabins with GRAB BARS	
	Male Toilet Signage (In English and Hindi both)	
	Female Toilet Signage (In English and Hindi both)	
	Locks- Working/Not Working	
	Stickers - "Do not lock" - bilingual	

Disabled Patient Toilet	Signage (Bilingual) + pictorial	
	Grab bar	
	Working slider door	

REMARK:-

WARNING SIGNAGE	Any Warning: Radiation & Biohazard signages. If yes, mention locations	
----------------------------	---	--

Patient Safety Device Audit 2nd Floor:-

Floors	Particulars	No. of Beds	Bed Rails (Working properly/ Not working properly)	Call Bells	Fire exit plan at back of door	Grab Bars in Toilet	Remarks
Second Floor	201	1					
		2					
		3					
		4					
		5					
		6					
		7					
		8					
		9					
		10					
		11					
		12					
		13					
		14					
		15					
		16					
		17					
		18					
	202	1					
		2					
		3					
		4					
		5					
		6					

	203	7				
		1				
		2				
		3				
		4				
		5				
		6				
		7				
		8				
	204	1				
		2				
		3				
		4				
		5				
		6				
		7				
	205	1				
		2				
		3				
		4				
		5				
		6				
		7				
	206	1				
		2				
		3				
		4				
		5				
		6				
		7				
	207	1				
		2				
		3				
		4				
		5				
		6				
		7				
	PNW	1				
		2				
		3				
		4				

		5				
		6				
		7				
		8				
		9				
		10				
	ANW	1				
		2				
		3				
		4				
		5				
		6				
		7				
		8				
	LDR	1				
		2				
		3				

Patient Safety Device Audit 3rd Floor:-

Floors	Particulars	Room No.	No. of Beds	Bed Rails (Working properly / Not working properly)	Fire exit plan at back of door
3rd Floor		ICU	1		
			2		
			3		
			4		
			5		
			6		
			7		
			8		

			9		
			10		
			11		
			12		
			13		
			14		
			15		
			16		
			17		
			18		
		IMCU	1		
			2		
			3		
			4		
			5		
			6		
			7		
			8		
			9		
			10		
			11		
			12		
			13		
			14		
			15		
			16		
		CTVS	1		
			2		
			3		
			4		
			5		

		RECOVERY	1		
			2		
			3		
			4		
			5		
			6		
			7		
			8		
			9		
			10		
			11		
		PRE HOLD	1		
			2		
			3		
			4		
			5		

No of wheelchairs on floor: 06

		Wheelchair 1 imcu	Wheelchair 2 prehold	Wheelchair 3 recovery	Wheelchair 4 imcu	Wheelchair 5 icu	Wheelchair 6 ctv
Seatbelt	Present/ Not present						
	Torn (Yes/ No)						
	Buckle (Ok/ Not Ok)						
Foot Padles	Right: Working Ok/ Not Ok						
	Left: Working Ok/ Not						

	Ok						
Breaks	Right: Working Ok/ Not Ok						
	Left: Working Ok/ Not Ok						
Wheel	Alignme nt OK/Not Ok						
handle	present/ not present						
Seat	Ok/ Not Ok						
No of stretchers on floor: 05							
		Stretcher 1 recovery	Stretche r 2 recovery	Stretche r 3IMcu	Stretche r 4 ICU	Stretche r 5	
Seatbelt	Upper: Present/ Not present						
	Lower: Present/ Not present						
	Upper: Torn (Yes/ No) - mention R/L						

	Lower: Torn (Yes/ No) - mention R/L					
	Upper: Buckle (Ok/ Not Ok) - mention R/L					
	Lower: Buckle (Ok/ Not Ok) - mention R/L					
Side Rails	Right: Working Ok/ Not Ok					
	Left: Working Ok/ Not Ok					
Wheel	Alignme nt OK/Not Ok					
Breaks	Front Right: Working Ok/ Not Ok					
	Front Left: Working Ok/ Not Ok					

	Back Right: Working Ok/ Not Ok					
	Back Left: Working Ok/ Not Ok					

TOILET S	Total Patient Toilet Cabins	
	Patient toilet Cabins with GRAB BARS	

WARNI NG SIGNAG E	Any Warning : Radiatio n & Biohaza rd signages. If yes, mention locations	
--------------------------------------	--	--

PATIENT SAFETY DEVICES AUDIT CHECKLIST 5th Floor

Floor	Particulars	Room No.	Bed No.	Bed Rails (Working properly/ Not working properly)	Call Bells (Working properly/ Not working properly)	Fire exit plan at back of door	Grab bars in Toilet (Available/Not Available)
5th Floor	Single Rooms	501	1				
		502	1				
		503	1				
		504	1				
		506	1				
		507	1				
		508	1				
		509	1				
		510	1				
		511	1				
		512	1				
		512-A	1				
		514	1				
		515	1				
		516	1				
		517	1				
	Suit Rooms	519	1				
		520	1				
		521	1				
		522	1				
		523	1				
		524	1				
		525	1				
	Semi	531A,	2				

	Cabin B	B					
		532A, B	2				
		533A, B	2				
		534A, B	2				
		535A, B	2				
		536A, B	2				
	Semi Cabin A	537 A,B	2				
		538 A,B	2				
		539 A,B	2				
		540 A,B	2				
		548 A, B	2				
		549 A, B	2				
	Single Room A	541	1				
		542	1				
		547	1				
	Isolation Room	543	1				
	Triple Sharing	545 A, B, C	3				
	General Ward	501	1				
			2				
			3				
			4				
			5				
			6				
			7				
			8				
			9				

			10						
			11						
			12						
		502	1						
			2						
			3						
			4						
			5						
			6						
			7						
			8						
			9						
			10						
			11						

No of wheelchairs on floor: 8							
		Wheelc hair 1 (PRIV ATE SIDE)	Wheelc hair 2 (PRIV ATE SIDE)	Wheelchair 3 (SEMI CABIN - B)	Wheelc hair 4 (SEMI CABIN - A)	Wheelc hair 6 (SEMI CABIN - A)	Wheelch air 7 (GENER AL WARD)
Seatbel t	Present/ Not present						
	Torn (Yes/ No)						
	Buckle (Ok/ Not Ok)						
Foot Padles	Right: Workin g Ok/ Not Ok						
	Left: Workin g Ok/						

	Not Ok						
Breaks	Right: Workin g Ok/ Not Ok						
	Left: Workin g Ok/ Not Ok						
Wheel	Alignme nt OK/Not Ok						
Seat	Ok/ Not Ok						

RIGHT HANDLE
IS NOT OK

No of stretchers on floor: 04					
		Stretche r 1 (PRIVA TE SIDE)	Stretcher 2 (GENERAL WARD)	Stretch er 4 (SC - B)	Stretch er 4(5 SC - B)
Seatb elt	Upper: Present/ Not present				
	Lower: Present/ Not present				
	Upper: Torn (Yes/ No) - mention R/L				

	Lower: Torn (Yes/ No) - mention R/L				
	Upper: Buckle (Ok/ Not Ok) - mention R/L				
	Lower: Buckle (Ok/ Not Ok) - mention R/L				
Side Rails	Right: Working Ok/ Not Ok				
	Left: Working Ok/ Not Ok				
Align ment OK/N ot Ok					
Break s	Front Right: Working Ok/ Not Ok				

	Front Left: Working Ok/ Not Ok				
	Back Right: Working Ok/ Not Ok				
	Back Left: Working Ok/ Not Ok				

TOILETS	Total Patient Toilet Cabins	
	Patient toilet Cabins with GRAB BARS	
	Male Toilet Signage (In English and Hindi both)	
	Female Toilet Signage (In	

Disabled Patient Toilet	Signage (Bilingual) + pictorial	
	Grab bar	
	Working slider door	

	Engli sh and Hindi both)	
	Locks - Work ing/N ot Work ing	
	Sticke rs - "Do not lock" - biling ual	

WARN ING SIGNA GE	Any Warn ing: Radia tion & Bioha zard signa ges. If yes, menti on locati ons	
--------------------------------------	---	--

PATIENT SAFETY DEVICES AUDIT CHECKLIST 6th Floor

Floor	Particulars	Room No.	Bed No.	Bed Rails (Working properly/ Not working properly)	Call Bells	Call Bells (Working properly/ Not working properly)	Fire exit plan at back of door	Grab bars in Toilet (Available/Not Available)
5th Floor	Single Rooms	501	1					
		502	1					
		503	1					
		504	1					
		506	1					
		507	1					
		508	1					
		509	1					
		510	1					
		511	1					
		512	1					
		512-A	1					
		514	1					
		515	1					
		516	1					
		517	1					
	Suit Rooms	519	1					
		520	1					
		521	1					
		522	1					
		523	1					
		524	1					
		525	1					
	Semi Cabin B	531A, B	2					

		532A , B	2					
		533A , B	2					
		534A , B	2					
		535A , B	2					
		536A , B	2					
	Semi Cabin A	537 A,B	2					
		538 A,B	2					
		539 A,B	2					
		540 A,B	2					
		548 A, B	2					
		549 A, B	2					
	Single Room A	541	1					
		542	1					
		547	1					
	Isolation Room	543	1					
	Triple Sharing	545 A, B, C	3					
	General Ward	501	1					
			2					
			3					
			4					
			5					
			6					
			7					
			8					
			9					
			10					
			11					
			12					
		502	1					
			2					

			3					
			4					
			5					
			6					
			7					
			8					
			9					
			10					
			11					

No of wheelchairs on floor: 8								
		Wheelc hair 1 (PRIV ATE SIDE)	Wheel chair 2 (PRIV ATE SIDE)	Wheelch air 3 (SEMI CABIN - B)	Wheelc hair 4 (SEMI CABIN - B)	Whee lchair 4 (SEM I CABI N - A)	Wheelc hair 6 (SEMI CABIN - A)	Whee lchair 7 (GEN ERA L WAR D)
Seatbel t	Present/ Not present							
	Torn (Yes/ No)							
	Buckle (Ok/ Not Ok)							
Foot Padles	Right: Working Ok/ Not Ok							
	Left: Working Ok/ Not Ok							
Breaks	Right: Working Ok/ Not Ok							
	Left: Working Ok/ Not Ok							

Wheel	Alignment OK/Not Ok							
Seat	Ok/ Not Ok							

RIGHT
HANDLE
IS NOT
OK

No of stretchers on floor: 04						
		Stretch er 1 (PRIVA TE SIDE)	Stretcher 2 (GENERA L WARD)	Stretc her 3 (5 SC - A)	Stretc her 4 (SC - B)	Stretch er 4(5 SC - B)
Seatbelt	Upper: Present/ Not present					
	Lower: Present/ Not present					
	Upper: Torn (Yes/ No) - mention R/L					
	Lower: Torn (Yes/ No) - mention R/L					
	Upper: Buckle (Ok/ Not Ok) - mention R/L					
	Lower: Buckle (Ok/ Not Ok) - mention R/L					
Side	Right:					

Rails	Working Ok/ Not Ok					
	Left: Working Ok/ Not Ok					
Align ment OK/N ot Ok						
Break s	Front Right: Working Ok/ Not Ok					
	Front Left: Working Ok/ Not Ok					
	Back Right: Working Ok/ Not Ok					
	Back Left: Working Ok/ Not Ok					

TOILE TS	Total Patie nt Toilet Cabin s	
	Patie nt toilet Cabin s with GRA	

Disabled Patient Toilet	Signa ge (Bilin gual) + pictor ial	Signa ge (Bilin gual) + pictor ial	
	Grab bar	Grab bar	

	B BAR S	
	Male Toilet Signa ge (In Engli sh and Hindi both)	
	Fema le Toilet Signa ge (In Engli sh and Hindi both)	
	Locks - Work ing/N ot Work ing	
	Sticke rs - "Do not lock" - biling ual	

	Work ing slider door	Work ing slider door	

WARN ING SIGNA GE	Any Warn ing: Radia tion & Bioha zard	
--------------------------------------	--	--

	signa ges. If yes, menti on locati ons							
Floors	Partic ulars	Room No.	Bed No.	Bed Rails (Working properly/ Not working properly)	Call Bells	Fire exit pla n at bac k of doo r	Grab Bars	
	Single Room	601	1					
		602	1					
		603	1					
		604	1					
		606	1					
		607	1					
		608	1					
		609	1					
		610	1					
		611	1					
		612	1					
		614	1					
		615	1					
		616	1					
		617	1					
	Suite Room	619	1					
		620	1					
		621	1					
		622	1					
		623	1					
		624	1					
		625	1					
	Semi Cabin	640	doctor duty room					
		641	A					
			B					
		642	A					

			B					
		643	A					
			B					
		644	A					
			B					
		645	A					
			B					
		646	A					
			B					
		647	A					
			B					
	Cardiac ward		1					
			2					
			3					
			4					
			5					
			6					
			7					
	CCU		1					
			2					
			3					
			4					
			5					
			6					
			7					
			8					
			9					
			10					
			11					
			12					
			13					
			14					
			15					
			16					

No of wheelchairs on floor: 06						
	Wheelchair 1 private	Wheelchair 2 private	Wheelchair 3 semicabin	Wheelchair 4 semicabin	Wheelchair 5 cardiac ward	Wheelchair 6

						/ccu	
Seat belt	Present/ Not present						
	Torn (Yes/ No)						
	Buckle (Ok/ Not Ok)						
Foot Paddles	Right: Working Ok/ Not Ok						
	Left: Working Ok/ Not Ok						
Breasts	Right: Working Ok/ Not Ok						
	Left: Working Ok/ Not Ok						
Wheels	Alignment OK/Not Ok						
Seat	Ok/ Not Ok						

No of stretchers on floor:						
		Stretcher 1 private	Stretcher 2 suite	Stretcher 3 semi cabin	Stretcher 4 caediac ward	Stretcher 5
Seat belt	Upper: Present/ Not present					
	Lower: Present/ Not present					
	Upper: Torn (Yes/ No) - mention R/L					
	Lower: Torn (Yes/ No) - mention R/L					
	Upper: Buckle (Ok/					

	Not Ok) - mention R/L					
	Lower: Buckle (Ok/ Not Ok) - mention R/L					
Side Rails	Right: Working Ok/ Not Ok					
	Left: Working Ok/ Not Ok					
Wheel	Alignment OK/Not Ok					
Breaks	Front Right: Working Ok/ Not Ok					
	Front Left: Working Ok/ Not Ok					
	Back Right: Working Ok/ Not Ok					
	Back Left: Working Ok/ Not Ok					

TOILETS	Total Patient Toilet Cabins	
	Patient toilet Cabins with GRAB BARS	
	Male Toilet Signage (In English and Hindi both)	

Disabled Patient Toilet	Sign age (Bilingual) + pictorial	
	Grab bar	
	Working slide r door	

	Female Toilet Signage (In English and Hindi both)	
	Locks-Working/Not Working	
	Stickers - "Do not lock" - bilingual	

WA RNI NG SIG NAG E	Any Warning: Radiation & Biohazard signages. If yes, mention locations	
--	---	--