

**Summer Training at
Max Super Specialty Hospital (MSSH),
Saket, New Delhi
(April 9th-June 3rd, 2012)**

**A Report on Observation Learning
&
A Personal project Report on “Needle Stick Injury”**

**By
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**Under the guidance of
Mr. Abhishek Dadhich**

**Post Graduate Diploma in Hospital and Health Management
2011-2013**



**Institute of Health Management Research,
Jaipur
2012**

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Certificate

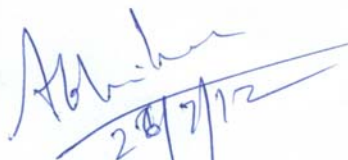
This is to certify that Dr Tripti Ojha from Institute of Health Management Research, Jaipur has undergone Summer Training at Max Super Specialty hospital, New Delhi from 9th April, 2012 to 3rd June, 2012.

The candidate herself carried out the project. Her approach to the study has been sincere, scientific and analytical. This summer training is partial fulfillment of the course requirement is recommended for the award of post graduate diploma in health and hospital management.

I wish her success in all her future endeavors.



Dr P. R. Sodani
Dean Academics and Student Affairs
IHMR, Jaipur



Mr Abhishek Dadhich
Assistant Professor
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June 02, 2012

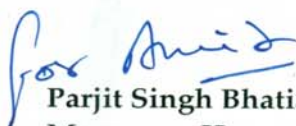
TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Dr. Tripti Ojha** has completed her training in the department of Medical Administration from April 09, 2012 till June 02, 2012.

During her tenure she was found industrious, intelligent & honest towards her assignment.

We wish her all the best in her future endeavors.

For, Max Healthcare Institute Limited



Parjit Singh Bhatia
Manager – Human Resources

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New Delhi-110 020

Acknowledgement

This observational report is a part of summer training at Max Super Specialty Hospital, Saket, New Delhi. This report is based on the learning, day to day operational management of various departments and identifies the issues associated with them.

First of all, we wish to thank Dr Sehar Qureshi, Deputy Medical Superintendent for her unlimited support, guidance, giving a through insight of the hospital and her constant virtual presence despite of her busy schedule. During our term in the hospital she provided us with ample opportunities to explore our areas of interest and acquire knowledge about functioning of all the departments that we visited.

We thank Dr Ghulam Abbas Zaidi, Assistant Manager Medical Quality for his guidance with timely and benevolent comments, support and friendship. His trust and faith in our abilities motivated us and helped us to come up with innovative ideas.

We also express our sincere gratitude towards Dr Shalini, Mrs. Rajni Wadhwa, Dr Bindu Sharma, Dr Bineet Sachdeva, Dr Ubaid and Dr Hema Lal and all the support staff including the clinicians, nursing staff, GDA, House Keeping Staff and ward secretaries who provided us with the fundamental aspects of various departments.

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Acronyms / Abbreviations

CSSD	Central Sterile Supply Department
HRD	Human Resource Department
NMD	Nuclear Medicine Department
ICU	Intensive Care Unit
OT	Operation Theatre
IPD	Inpatient Department
OPD	Out Patient Department
PHP	Preventive Health Programme
TPA	Third Party Administrator
CPRS	Computerized Patient Record System
BCMS	Bar Code Medication System
HIS	Hospital Information System
SCM	Supply Chain Management
PCC	Patient care coordinator
PCE	Patient Care Executive
HOD	Head of department
TAT	Turn Around Time
FO	Front Office
Pre Auth	Pre- Authorization Form

Service location distribution

South Block

- **Lower Basement**
 - Novalis Rapid Arc Linac
- **Upper Basement**
 - Brachytherapy Suite
 - Minor OT
- **Ground floor**
 - Radiation Oncology
 - CT Stimulator
 - Mould Room
 - Treatment Room
 - Nuclear Medicine
 - PET-CT
 - SPECT-CT
 - Thyroid Uptake
- **First floor**
 - OPD- Cancer Care
 - Surgical Oncology
 - Medical Oncology
 - Radiation Oncology
 - Day Care Ward
 - Tumour Board Room
 - Counsellors
 - Sample collection
- **Second floor**
 - OT
 - ICU
 - HDU
- **Third floor**
 - Economy ward
 - IP Ward No
- **Fourth floor**
 - IP Ward
- **Fifth floor**
 - Institute of Minimal Access,

East Block

- **Upper Basement**
 - Institute for Allied Medical Services OPD
 - Dialysis Unit
- **Ground floor**
 - OPD
 - Emergency services
 - Apex coronary care
 - Radiology & nuclear medicine
 - Diagnostics (including non-invasive cardiology)
- **First floor**
 - CTVS ICU/HDU
 - Cath recovery
 - Cardiac cath labs
 - Operation theatres
- **Second floor**
 - Inpatient area
 - High dependency unit
 - Minimal Access Surgery recovery area
- **Third floor**
 - Inpatient area
- **Fourth floor**
 - Inpatient area (Institute for Allied Medical Services)
- **Fifth floor**
 - Inpatient area
 - Blood bank

Metabolic & Bariatric Surgery

‣ Sample Collection

‣ **Sixth Floor**

‣ Meeting Room

‣ Executive Offices

Services and Facilities

MSSH is a centrally air-conditioned hospital with the following facilities:

- a total bed capacity of 490 beds (Suite, Deluxe, Standard and Economy)
- 20 operation theatres
- 2 cardiac cath labs
- 17-bed CTVS ICU
- 16-bed apex coronary care
- 11-bed cath recovery
- 9 - Bed Onco Surgical ICU
- 12 - Bed Medical ICU
- 11- Bed Minimal Access Surgery recovery
- 8-bed high dependency unit
- 17-bed Dialysis Unit
- 2 Cath labs
- 5 types of ICUs
- 2 MRIs and 1 CTs across an integrated network

Section 1: Observational Learning Report

Emergency Department:

Introduction:

Emergency as in any other hospital is like a mini hospital unit running individually within a bigger one, with all its units working meticulously to their proficiencies to make treatment work not just to its perfection but with minimal time consumption.

The patient is charged 500/hour during the stay in emergency; the maximum which can be charged in the emergency is 3100 Rs for the stay. As are the norms, eight hours are the prescribed timings of patient stay in emergency. But MSSH a benchmark of 6 Hours is being followed, i.e. a patient is not allowed to stay in the emergency for more than 6 hours, even if he does the charges remain the same as for 6 hours.

- The Senior Resident has a fixed shift from 9am to 5pm.
- All other staff members are rotated in 3 shifts.
- Shifts are of 8 hours each

Procedures:

- (i) Initially categorization of Patients in Triage is done as follows :

Class 1: Top emergency immediate attention.

Class 2: Disorders 10-15min unnoticed may be fatal.

Class 3:

(a) Problem treatment.

(b) Not fatal but to be attended.

Class 4: Walk in patients least complicated.

- (ii) Subsequent Procedures:

Very critical patient are kept in Resuscitation unit of emergency. More so, then taken to:

- Apex Coronary Care Unit.
- Cath recovery.
- Desired Category- single, double, economy.

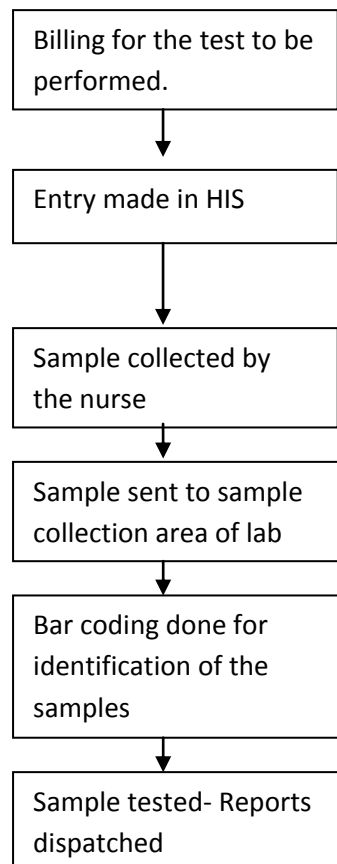
Laboratory Medicine:

- Serological Examinations
- Hematological Examination
- Bio-Chemistry analysis
- Blood Culture
- Cytological Examination
- Histopathology Test
- Oncology Test
- Microbiological Examination

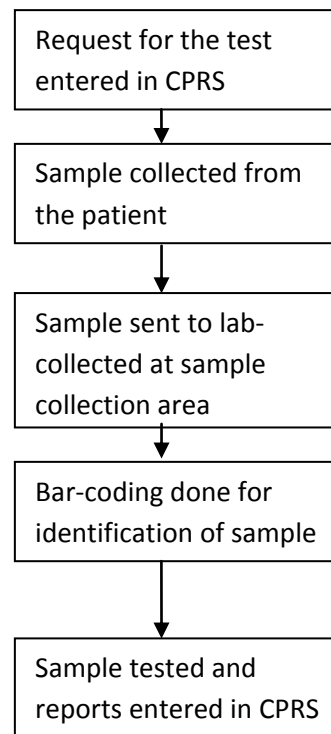
The lab is accredited by NABH, ISO15189 2007. It is a lean lab with no segregation of testing areas i.e. all the tests were performed at a same place.

Process:

OPD



IPD



Merits

- TAT is maintained at 2 hours for feasible tests

- Patients in ICU and Triage are given priority for testing
- There is a backup of every machine present in the lab

Problems Faced

- Time lag due to presence of more touch points in receiving the sample

Department of Transfusion Medicine- Blood Bank

Process followed

Generation of blood requirement by the patient



Request sent to the request counter of blood bank in paper



Attendant called to the blood bank for arranging blood donor



Blood donation form filled by the donor



Vitals and hemoglobin of the donor checked



Blood taken from the donor and preceded with screening



Donor card issued by the blood bank



Blood cross matched and stored at required temperature

Merits

- More than 50-60 units of each blood group is available at any time in the blood bank
- There are more than 17 voluntary donors present who are contacted incase of any emergency
- Software called Accuvena is used for record maintenance

Demerits

- The blood replacement cannot be done for the international patients due to non availability of attendants
- The records are maintained on papers and not in CPRS which leads to waste of time and resources and the information of blood bank cannot be viewed in other departments.

Accounts and Finance Department: Financial Year – 1st April – 31st March

Functions Performed:

Annually:

- Balance sheet
- Profit and loss account

Monthly:

- Managing business Report
- Unit review

DAILY

- Managing daily flash report (DFR)
- Daily cash report (DCR)
- Cash flow statement

CASH IN FLOW

Type of Customers (Paying modes):

- Cash
- Credit –TPA (insurance) (sundry debtors)
- Credit cards

CASH OUT FLOW

Sundry creditors – Material purchase, Machine repair, Maintenance, Uniforms, Laundry, catering, Depreciation, Salaries and other payments to be made to outsourced employees.

Daily payments (petty cash): Diesel, Courier, home care nurses, cell phone bills etc

Doctor's payroll

- Visiting consultant
- Retainer ship
- Permanent resident clinicians
- Admitting consultant

Audit

- Has expense incurred as per budget or did it exceed?
- Has the expense been booked to correct reference?

Dialysis

The dialysis unit located in the basement comprises of 15 beds and 15 dialysis machines.

Patients who undergo dialysis treatment at the facility come:

- Via referral note from the other hospitals or doctors.
- Through a prescription from a doctor who can be from MSSH or form another facility.

The time prescribed for the dialysis treatment can be continuous or dis-continuous. The people engaged here are from the wards and the patients who have come for treatment.

When the patient walks in for dialysis he is required to fill a consent form for haemodialysis, after that the patient is guided towards the bed. The procedure of hemo-dialysis takes about 4-5 Hrs (from the entry of the patient till he walks out), after the procedure for dialysis is completed the dialysis treatment sheet is recorded in which the parameters during and after dialysis are noted.

Quality indicators to ensure the proper efficiency of the dialysis treatment are as follows:

- TAT: The TAT from the time the AV fistula needle is entered for haemodialysis till the completion of the process should be less than 4.15 Hrs.
- HD Machine Disinfection: The time taken to disinfect the HD machine after the dialysis procedure should be 30 mins.
- Adherence to haemodialysis patient records register
- Adherence to dialysis daily consumption sheet.
- Nursing audit score should be more than 90 %
- NSI should be 0%
- Hand hygiene practice should be 100%

CSSD: Central Sterile and Supply Department

The center of sterilization and supply department has been divided into:

1. Receiving counter: At the receiving counter all the hospital utilities to be sterilized are received and an entry in the computer is made for them. This receiving counter is aloof of the decontamination area.

2. Decontamination area:

Step 1

Decontamination of the hospital utilities take place with the help of double door washers for 45 minutes to 1 hour at 90-95 degree in steam. The equipments which cannot be washed in the washer undergo through ultrasonic device for decontamination.

Step 2

The decontaminated equipments are received in the other room through a second door of the washer to avoid the chances of contamination. Here the hospital utilities are packed in crape or SMS paper with double covering to keep it sterile for 180 days.

Step 3

The packed equipments are further sterilized through autoclave. The autoclave machines have infection control indicators which can ensures 100% sterilization.

3. Sterile area

The equipments which are autoclave are received in sterile area which maintains high air pressure. The equipments are issued from the issue counter to the staff which is adjoining to the sterile area.

Supply Chain Management:

Commercial Department Process:

Requirement or Indent is raised for a medical consumable (for e.g. ECG machine), this request is then evaluated by the Head of the Bio-medical Department for the reality of its requirements. After the request is cleared it goes to the GM operations for cross evaluation of all aspects (cost, quality, requirements, and arrangement from another branch).

If the request is a capital expenditure then a CER (Capital Expenditure Request) is created and if it's then SER (Special Expenditure Request) is created

Then the request goes to the finance department for approval, they check if the material or equipment required lies within the budget assigned to the particular department, the finance department then codes this request so that it can be viewed using that code in the future.

The bio-medical department quotes the brand of the machine that they want, but the commercial department takes all the other brands into consideration.

The purchase is done after 3-4 rounds of negotiation with the vendor. Once this step is completed then the MOU is signed by the commercial heads and vendors

The main factors taken into consideration when purchasing equipment are

- After sale service
- AMC: Negotiate it between .75 to 2 % of the price of the equipment, these include manpower, spares etc.
- CMC: It is all inclusive; the standard varies between 5-8% and a 5% escalation considered.
- The warranty of the equipment is negotiated and the commercial department and vendor come to a consensus after discussion.

TPA (Third Party Administrator)

Process: Step 1

- Patient will approach with a TPA proof (TPA Card or Policy Paper) to front office (FO).
- The FO checks for the tie-up and provides the pre-auth form of the respected TPA with the list of items which are not covered by the TPA.
- While providing the form brief the patient about how to get the form filled.
- Inform the patient or his attendant that minimum 24Hrs of hospitalization will be required as per the guidelines provided by the TPA. And treatment purely for investigations will not be covered by any TPA.
- Inform TAT of TPA replies i.e. 6 to 24 Hrs for the 1st reply.
- Ask for the category he or she would like to opt for. However it will be decided by the TPA as per patient's policy guidelines or entitlement.

- Keep patient or the attendant informed about if in case the TPA sends the A/L with room rent capping or differ in category the remaining or difference in amount as per clause provided by the TPA will be recovered from the patient directly.
- Also inform the patient that any TPA will not pay more than a single room category.
- While admitting the patient kindly check for the approval letter from TPA desk, if in case approval is awaited take the required deposit as per the policy of MAX.

Step 2

- After receiving the form from the attendant/patient fax it to the concerned TPA along with the relevant documents as required by the TPA.
- Confirmation of the fax is to be taken from the TPA just after the fax.
- We do regular follow-ups for every case whenever required.
- In reply from the TPA we may receive approval/query/denial.
- In case of denial attendant or patient has to be informed. And the whole bill amount will be recovered from the patient directly.
- In case of query we fulfill the requirements and fax them again. Kindly note that query may be related the patient policy or may be related to medical history.
- In case of approval there are few things to be noted:
 - Amount approved
 - Clauses if any
 - Room entitlement
 - Length of stay approved
 - Diagnosis
 - Patient name spelling
 - Date of admission
- At the time of discharge, patient or the insured member is authorized to sign the bills. However in case the insured person being the patient who is not able to sign his wife or vise versa can attest the bill.
- A claim form of the insurance company form where the patient go the policy is also to be attested along with the final bill.
- All payment recovered from the patient, related to non-medical items or drugs are to be mentioned in the prescribed format in the IPD files.

International TPA

- ❖ International SOS and Meera Rescue/ East West Rescue:-

Patient from international SOS will approach to FO while the health card issued by SOS. Usually international SOS is aware of the patient's arrival. In these cases no pre-auth is required except for Japanese patients. For patients from all the other nationalities the approval is sought out telephonically. Patients covered by Meera Rescue always come with the medical representative and the authorization letter.

Marketing Department:

It has been divided into two major sub sections

- Domestic marketing
- International marketing

There are various channels for Domestic marketing

1. Sales channels
2. Referral channels (tertiary)
3. Public sector channels (e.g. ONGC)
4. Corporate tie ups
5. Private limited
6. RSWAS

All the above channels are into customer engagement activities (CEA).

Also annual, biannual, monthly and weekly camps are scheduled in Max group of hospitals as CSR.

Common modes of media which are used in this hospitals marketing are:

- Internet marketing
- Print media
- Medical journals
- Social gatherings
- PROs

All these methods are unit specific and the unit themselves chooses the best suitable method as their marketing stunts.

International marketing

It deals with marketing international patients coming mostly from Afghanistan, UAE and Russia and often from other parts of the world.

It provides international patients with facilities like:

1. Query resolution
2. Travel arrangements
 - Airport pickup facility
 - Tours and Travels
3. Relationship Managers: Single person of contact
4. Interpreter Services
5. Accommodation Arrangements
6. Visa added arrangements
 - FRRO Registration
 - Internet calling card
 - Currency exchange/ wire transfer
 - Car Hire
 - Special cuisine arrangements
 - Updates of patients programs

- Post discharge query handling

It has three offices at three locations:

- ❖ Afghanistan
- ❖ Bangladesh
- ❖ Nigeria

International alliance partners are Asia medical assistance, HTH worldwide, Asia rescue and medical services, CIGNA International, East West rescue, Emergency assistance Japan, Europe assistance India, Global Benefit Group, GML services, Meera rescue, International SOS, Prestige International, 7 cones JNC, Vanbrida international.

Max Healthcare has a tie up with the Afghanistan Red Cross Society thus a patients are send for treatment to the facilities of Max Healthcare in India.

Max Cancer Centre

Max cancer centre incurred Surgical Oncology, Radiation Oncology, Medical Oncology and the concerned specialty.

The centre is also equipped with facilities for Brach-therapy.

Right from cancer screening, early detection, multi-disciplinary treatment to rehabilitation. the Intraoperative MRI BrainSUITE™, integrated with Novalis Tx Radiosurgery, which gives a unique advantage in treating cancers related to the brain.

For chemotherapy patients a day care is maintained where patient are injected chemo medicine. There are two medical ICU, 1 surgical ICU and 1 HDU present for oncology.

Tumor Board: At Max Cancer Centre, a team of our experts from Surgical Oncology, Radiation Oncology, Medical Oncology and related disciplines come together in the Tumor Board meetings to discuss various cases and form a customized/ joint decision on the treatment plan.

PHP (Preventive Health Program)

Preventive Healthcare Programme is a comprehensive set of tests, which have been specially designed keeping in mind your needs. It's a one-time process where you get a comprehensive head-to-toe screening check-up with quick results. This preventive programme is also directed to help us take precautionary measures against communicable and non-communicable diseases.

Platinum Programme - It is one of the most comprehensive and thorough health check programmes in the world! It's a one-time process where you get a comprehensive head-to-toe screening check-up with quick result

Cancer Screening Package:

- Obesity Screening Packages
- Basic Screening, Bronze, Silver and Gold PHP
- Specialty Preventive Programmes
- Diabetes Screening Packages
- Thyroid Package
- Cardiac PHP

Pharmacy:

The pharmacy has been divided into three major sections:

1. Out Patient Pharmacy (no control) (OPP)
2. In-Patient Pharmacy (IPP)
3. Settle Pharmacy Store – Procurement and operation policy

Process of IPP:

The doctors prescribe medicines to a patient. Enters the drugs in the CPRS. The pharmacy receives a pop up of the drugs to be sent to various floors for specific patients in specific packets. The packets are then collected on floors by nurses for their specific patients.

Payment mode

- Cash
- Company credit

E Care / EPR are the software used in pharmacy for keeping record of the drugs.

Inventory management by Economic order Quantity analysis is carried out by the pharmacy for deciding the stock to be kept in pharmacy at a particular moment of time

Operation Theatres

The operation theatre complex is located exclusively on the first floor. Sealed modular operation theatres utilize HEPA filters and hand/foot operated sliding sensor doors to minimize surgical site infections. The birthing suite has a separate caesarean section OT and labour room. A large post-operative area houses both surgical and day-care patients.

The operation theatres are equipped with state-of-the-art equipment:

- C-arms
- operating microscopes
- Blood gas analyzers
- Anesthesia machines
- Phacoemulsification machines

The hospital includes 11 OTs dedicated for Adult Cardiac Surgery, Pediatric Cardiac Surgery, Vascular Surgery, Onco (Cancer) Surgery, Minimal Access Surgery, Aesthetic and Reconstructive Surgery and other allied specialties.

There are 17 CTVS ICU beds, 9 Onco Surgical ICU beds, 11 bed Minimal Access Surgery recovery rooms and 8 bed High Dependency Units.

Intensive Care Units

The 71-bed multi-specialty ICU:

- is operational 24 hours a day
- is supported by a dedicated team of experienced intensivists and nurses
- has the most advanced monitoring systems, ventilators, PCA pumps, and syringe and infusion pumps
- has personalized nursing care (dedicated nurse for every patient)
- supports patients suffering from life-threatening conditions such as trauma, asthma, accidents, pneumonia, encephalitis, cardiac ailments, severe infections and post-operative multi-specialty surgical cases

Neonatal Intensive Care Unit (NICU)

14-bed state-of-the-art neonatal intensive care units

- Multi-specialty care for premature/sick babies
- Two consultant neonatologist and consultant level doctors in attendance round the clock
- Technical support includes incubators, ventilators, nitric oxide, neonatal surgery, surfactant therapy, state-of-the-art monitors and high frequency ventilators

Pediatric Intensive Care Unit (PICU)

Eight-bed state-of-the-art PICU

- Staffed by highly experienced and internationally trained team of paediatric
- Intensivists and experienced nurses

- Provides care to critically ill children (round the clock)
- State-of-the-art technology: ventilators, nitric oxide, high frequency oscillators, sophisticated invasive procedures and bispectral sedation monitors with invasive hemodynamic monitoring.

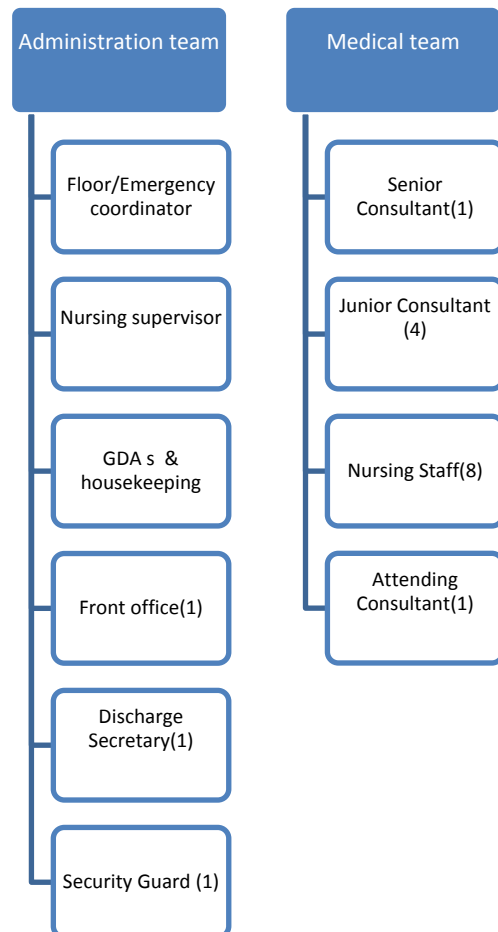
Other departments visited were Biomedical engineering department, Quality department, Human resource department where different projects were done, one of them is attached in section 2 of this report.

CRITICAL ANALYSIS OF WORK AREAS:

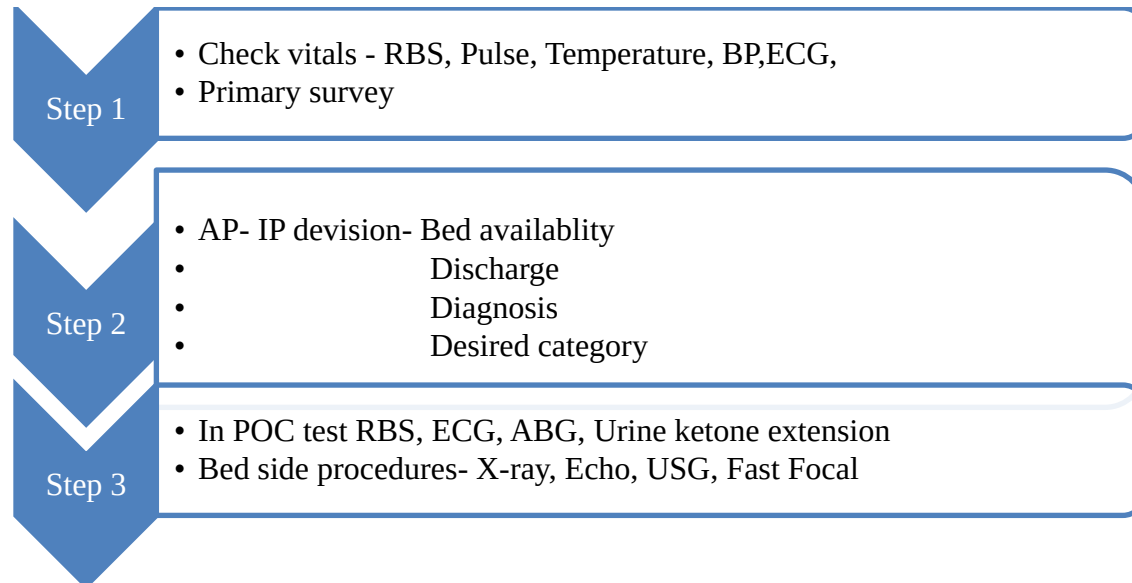
- The CSSD (Central Sterile Supply Department) did not have proper pressure maintained and it was not properly connected with the ICU and the OT with dumb waiters lifts.
- The Registration system in the CSSD for accepting the load was not properly maintained.
- The operations of day to day activities on nursing stations on various floors were un-organized.
- Triage area in the emergency station was not properly maintained and thus area for circulation is affected. The entrance was commonly used for purposes other than emergency patient entry.
- The service excellence program is a good initiative for improving the customer relations but training and integration with the day to day operations was not adequate.
- The area allocated to the oncology department is not adequate keeping in mind the patient load. The OPD area for the oncology department has to be increased.
- The Floor cleaning in CSSD department was insufficient.
- The pneumatic shoot system was not adapted as yet.
- No separate fire exit lift.
- The nurses were very much overburdened with their jobs, service excellence element was totally lacking from their behavior.

Annexure:
Containing Organogram of various departments

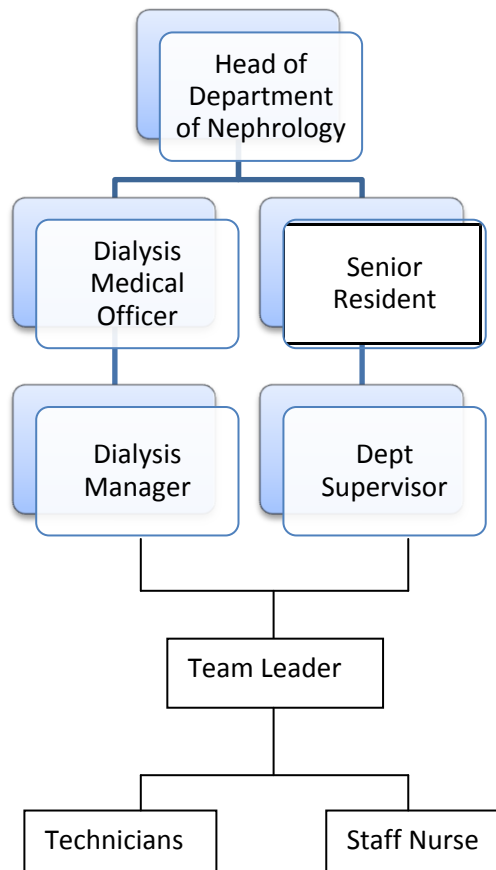
Emergency Organogram:



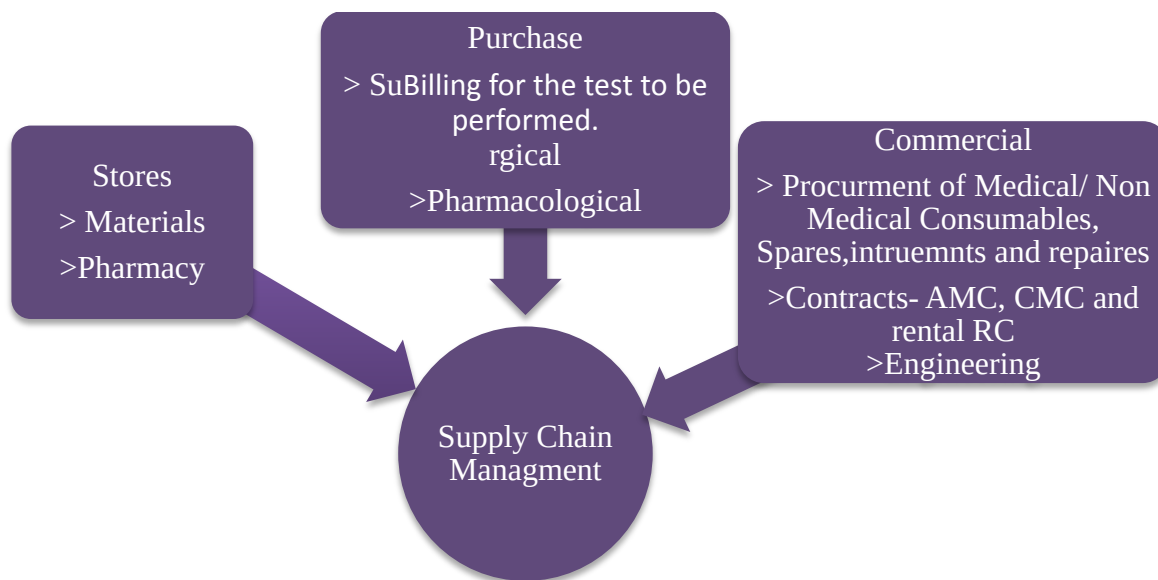
Procedure followed in the Emergency Dept



Organogram Transfusion Department



Supply Chain Management Flow Chart:



TPA Third Party Administrator:

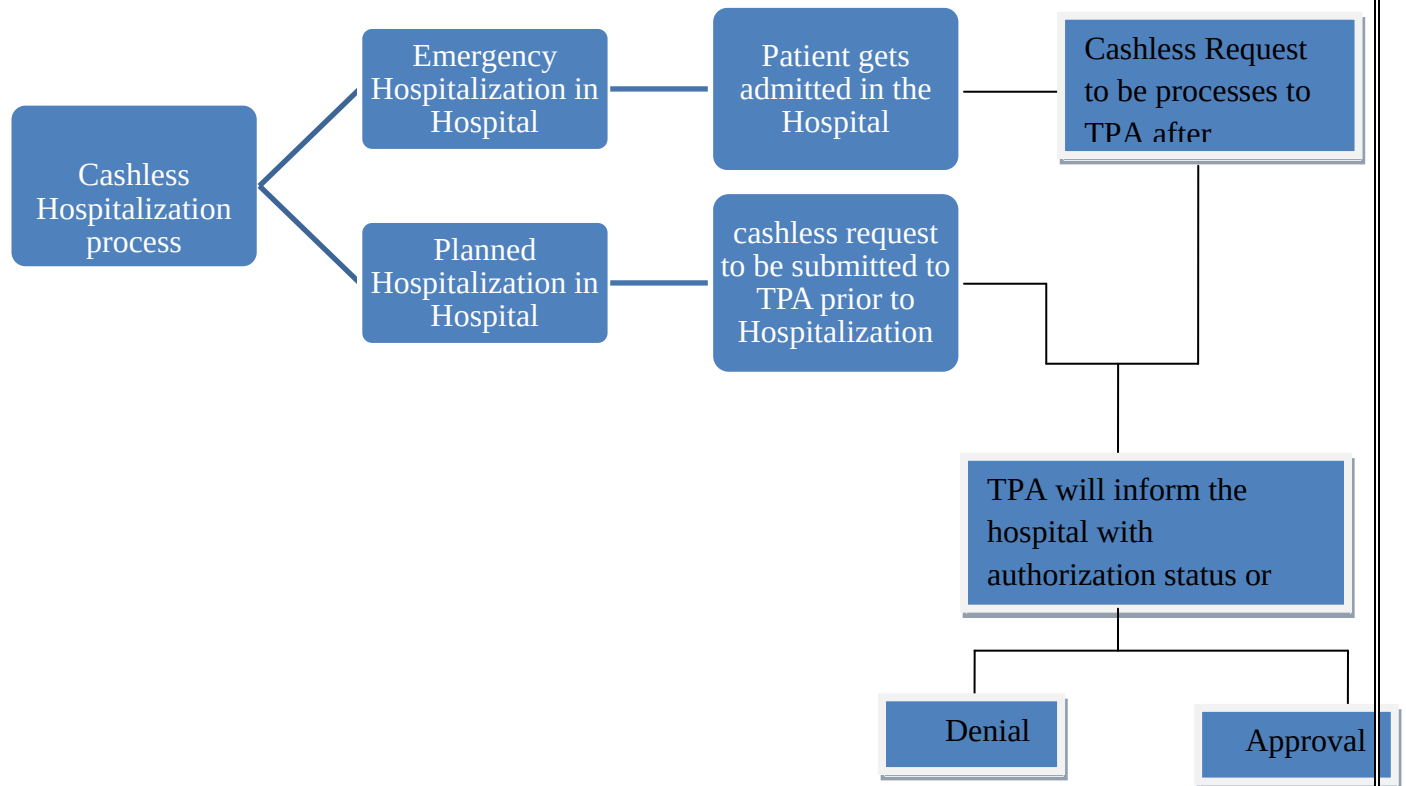
TPA Empanelled

Alankit
Bajaj Allianz
Cholamandalam
Dedicated Healthcare Services
E- Meditek Solutions
East West Assist
FHPL
Geninis
ICICI Lombard
Medsave
Medi-Assist
Medicare
Paramount
Park Mediclaim
Raksha
Safe Way Mediclaim
Star Health Allied
TTK Healthcare
United Healthcare
Vipul Medcorp

International TPA

International SOS
Meera Rescue
GMC Services
Vanbreda International
East West Rescue

TPA Process Flow Chart:



Section 2: A Personal project Report on “Needle Stick Injury”



Submitted By:

Dr Tripti Ojha (Trainee, Medical Administration, Max Saket)

PGDHM, Institute of Health Management Research, Jaipur

Table of Contents:

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5.	Objectives
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7.	Results
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10.	Annexure

Abbreviations:

HCW	Health care worker
HCO	Health care organisation
NSI	Needle stick injury
HBV	Hepatitis B Virus
HBC	Hepatitis C Virus
AIDS	Acquired Immuno Deficiency Syndrome
PEP	Post exposure Prophylaxis
NACO	National Aids Control Society
NABH	National accreditation Board for Hospitals
BMW	Biomedical Waste
GDA	General Duty Assistant
HIV	Human Immuno Virus

Acknowledgement:

This project report is a part of summer training at Max Super Specialty Hospital, Saket, New Delhi.

First of all, I wish to thank Dr Sahar Qureshi, Deputy Medical Superintendent for her unlimited support, guidance, giving a through insight of the hospital and her constant virtual presence despite of her busy schedule. During our term in the hospital she provided us with ample opportunities to explore our areas of interest and acquire knowledge about functioning of all the departments that we visited.

We thank Dr Ghulam Abbas Zaidi, Assistant Manager Medical Quality for his guidance with timely and benevolent comments, support and friendship. His trust and faith in our abilities motivated us and helped us to come up with innovative ideas.

We also express our sincere gratitude towards Dr Farah Deebea, Dr Shalini, Mrs. Rajni Wadhwa, Dr Bindu Sharma, Dr Hema Lal, Dr Madhur, Mr Prashant, Mr Praveen, Mr Rao, Mr Rajeev and all the support staff including the clinicians, nursing staff, front desk staff, GDA, House Keeping Staff, Security guards and ward secretaries who provided us with the fundamental aspects of various departments and helped us in all possible ways they could. Specially Dr Farah madam who organised the conference of Lean, Simpler at Max and Dr Abbas and Dr Bindu who allowed us to be a part of it.

I would finally like to thank my mentor Mr Abhishek Dadhich, Assistant Professor, IHMR Jaipur for his constant support and guidance.

The knowledge I imbibed here is immense and words could not reveal its true meaning. I hereby give all credit of this project to all person involved.

Introduction:

The NSI is a common form of injury occurring in places as hospitals.

A needle stick or inoculation accident includes a skin prick, contamination, abrasion, spillage into eyes or onto mucus membrane (mouth, nose etc) heavy through intact skin or mucus membrane with blood or body fluids

Most of the hospital staff is at risk of getting NSI, but nurses and technician are maximally exposed.

Needle stick injuries are a common event in the healthcare environment. When drawing blood, administering an intramuscular or intravenous drug, or performing other procedures involving sharps, the needle can slip and injure the healthcare worker. This sets the stage to transmit viruses from the source person to the recipient. These injuries also commonly occur during needle recapping and as a result of failure to place used needles in approved sharps and containers. During surgery, a surgical needle may inadvertently penetrate the glove and skin of the surgeon or assistant. Penetrating accidents of the surgeon or assistant with the scalpel or other sharp instruments are also handled as a needle stick injury. Generally needle stick injuries cause only minor bleeding or visible trauma, however, even in the absence of bleeding the risk of viral infection remains. Scalpel injuries tend to be larger than a needle stick. In turn, a needle stick injury may also pose a risk for a patient if the injured health professional carries HBV, HCV or HIV. Needle stick injuries are not limited to the medical community. Any environment where sharps are encountered poses a risk.

The projected 2 million NSIs is probably a low estimate because of the lack of surveillance systems and underreporting of injuries. Research has shown 40–75% underreporting of these injuries. A study in India showed that under-reporting is very common even in doctors from different medical and surgical specialties in various non-government hospitals/nursing homes in Delhi. Estimates from the USA indicate that 600,000-800,000 such injuries occur annually and approximately half of these go unreported. Data from the EPI net system suggest that in an average hospital, workers incur approximately 27 needle stick injuries / 100 beds / year.

WHO reports in the World Health Report 2002, that of the 35 million health-care workers, 2 million experience percutaneous exposure to infectious diseases each year. It further notes that 37.6% of Hepatitis B, 39% of Hepatitis C and 4.4% of HIV/AIDS in Health-Care Workers around the world are due to needle stick injuries. A needle stick injury is a percutaneous piercing wound typically set by a needle point, but possibly also by other sharp instruments or objects.

Commonly encountered by people handling needles in the medical setting, such injuries are an occupational hazard in the medical community. These events are of concern because of the risk to transmit blood-borne diseases through the passage of the Hepatitis B Virus (HBV),

the Hepatitis C Virus (HCV), and the Human Immunodeficiency Virus (HIV), the virus that causes AIDS.

The financial impact of NSI includes both direct and indirect costs (6-8). The average percutaneous transmission rates for hepatitis B (HBV) and C (HCV) are 33.3 (6-33%) and 3.3 per cent (1-10%), respectively, while the seroconversion risk for HIV is 0.31 per cent (9). Although HBV exposures pose the highest risk for infection, it has an effective vaccine and post exposure prophylaxis (PEP) for HCWs which can dramatically reduce the risk. This is not so for HCV and HIV. Therefore, prevention is the only recourse for these. The first report of a health care worker infected with HIV by a needle stick was published in 1984, which led to an era of concern about the occupational transmission of blood-borne pathogens. Unlike developed countries, most developing countries do not have surveillance for occupational exposure to blood and body fluids as well as underreporting is very common in developed as well as developing countries. Both of these factors are responsible for difficulty in estimation of the exact magnitude of such accidental exposures. Needle stick injuries have direct as well as indirect consequences. Direct consequences are related to the HCW who gets NSIs and indirect consequences are related to health care services and resources.

Worldwide healthcare workers incur 2 million needle stick injuries (NSIs) per year that result in infections with hepatitis B and C and HIV. These injuries may result in 15 000 HCV, 70 000 HBV and 500 HIV infections. According to World Health Report 2002, the global burden of disease from occupational exposure was found to be 40% of the hepatitis B and C infections and 2.5% of the HIV infections among HCWs. In Indian scenario according to NACO the average risk of acquiring HIV infection from different types of occupational exposure is low compared to risk of infection with HBV or HCV. In terms of occupational exposure the important routes are needle stick exposure (0.3% risk for HIV, 9–30% for HBV and 1–10% for HCV) and mucous membrane exposure (0.09% for HIV). 79.5% of HCWs had one or more NSIs in their career. The average number of NSIs ever was 3.85 per HCW as per a cross-sectional study in a tertiary care hospital in Delhi, in the month of March 2008. While 90% of the occupational exposures occur in the developing world, 90% of the reports of occupational infection occur in the United States and Europe.

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Statistics from the World Health Organization (WHO) indicate that there are fewer than 10 physicians per 100,000 population in 15 sub-Saharan countries, as compared with nearly 250

physicians per 100,000 population in the United States.[20] With a population just above one billion people, the physician-to-population ratio in India is 50-60 per 100,000. Similar discrepancies exist between the numbers of nurses in these countries and the number of nurses. Any reduction in the work force further strains understaffed and overextended health care systems. In India, awareness regarding post exposure prophylaxis, and hepatitis B vaccines are low amongst HCWs.

Most blood exposures in health settings are preventable. No NSI can be regarded as 'could not have been prevented. The most common causes of needle stick injury are two-handed recapping and the unsafe collection and disposal of sharps waste. Health workers in areas such as operating, delivery and emergency rooms and laboratories have an enhanced risk of exposure. Cleaners, waste collectors and others whose duties involve handling blood-contaminated items are also at risk. In developing countries, the risk of occupational transmission is increased by the excessive handling of contaminated syringes. Post-exposure prophylactic medication has been demonstrated to reduce the risk of transmission of HIV following NSI by 80%.

Direct consequences are health related as well as emotional distress in health care workers. And if any one becomes seropositive, he/she can become a risk for transmission to others especially to patients he/she is handling.

Indirect consequences in health care delivery [like missed workdays] directly affects the health care services and resources especially in the developing countries, where already the qualified manpower is limited as compared to the disease burden in the population and financial limitations. In a study at a tertiary care hospital in Mumbai, approximately Rs 9000/- HCW / episode of needle stick injury are incurred as short term costs which includes initial first aid treatment, post-exposure prophylactic drugs, hepatitis B immunoglobulin, cost of baseline investigations and the inevitable cost of treating a disease once transmitted. Long term costs as anxiety, personal impact, adverse effect on work performance and potential litigation have not been factored in.

Strategies to protect health workers include implementation of Universal Precautions [used while caring for all patients regardless of diagnosis and are applied universally, which are immunization against hepatitis B, provision of protective equipment and the management of exposures. Successful implementation of these strategies requires an adequate surveillance mechanism, multi-pronged strategy to deal with NSI, effective infection control committee with support from the health management team.

There are certain common sources of getting NSI like:

- Two handed recapping a used needle
- Over filling of puncture proof containers(>3/4)
- Segregation of BMW by GDA and housekeeping staff
- Carelessness while handling needles. Sharps, surgical blades etc

- Unsafe collection and disposal of sharps waste
- Operative procedures like suturing, using forceps etc
- Inserting or withdrawing syringe.

There is a standardized protocol by NABH and certain guidelines by WHO for handling NSI.¹

About the Quality Flash which is software being used in Max as a constant checker of policies which are implemented for continuous quality improvement of the processes of this organisation.

The access to the quality flash is with:

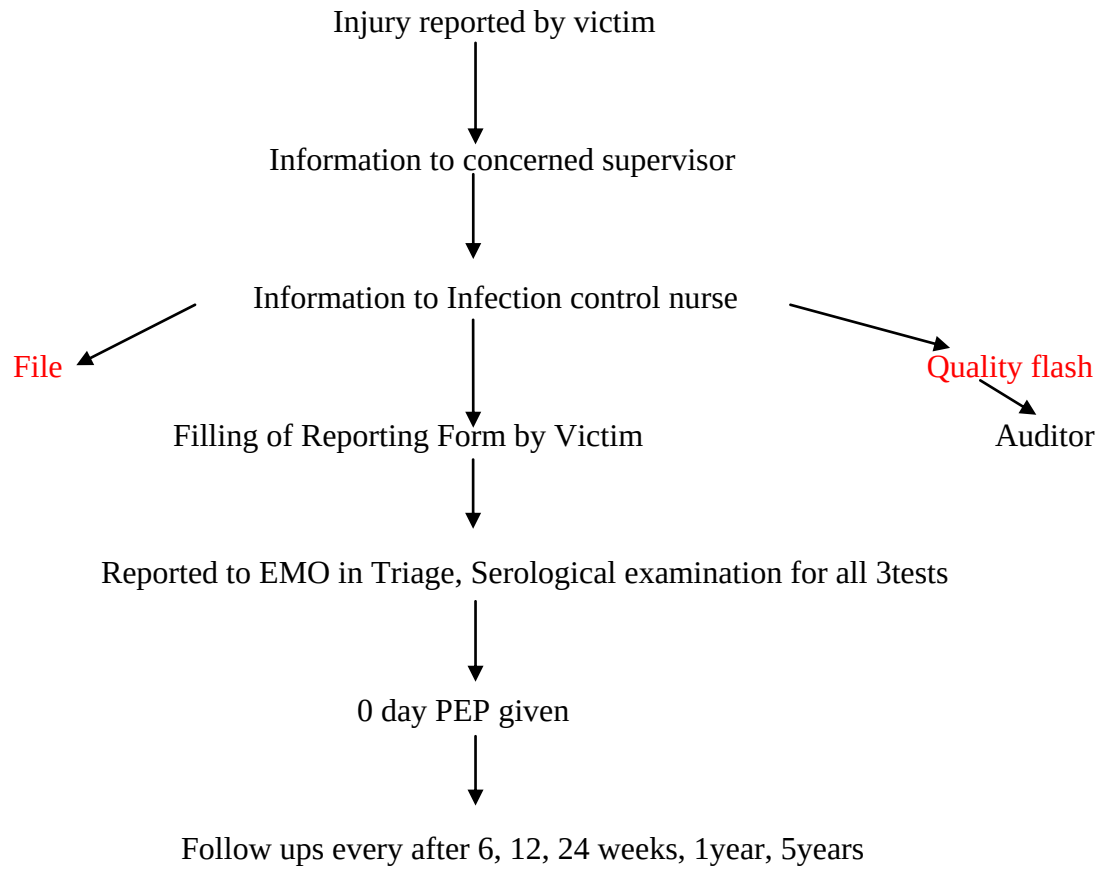
- Wound control nurse
- Nurse educator
- Diabetes nurse educator
- Infection control nurse

Quality Flash access also lies with HODs of the concerning and quality departments, who keep a check on various tools and policies running in the organisation for continuous quality improvement.

The NSI Checking process is thus an integral part of CQI procedures of Max Saket. The Reporting mechanism is:

¹ Annexure 1

:



Research Questions:

- If NSI accidents or their occurrence depend upon any specific factors?
- What are the various ways to prevent needle stick injury in health care workers of an organisation?
- To evaluate the occurrence and risk factors associated with needle stick injury in a hospital.
- To what extent safety devices are suitable tools in reducing needle stick injury and which role could be addressed to organizational measures?
- Does the quality control measures carried out by a HCO give any new direction to prevention and decrement of NSI?
- What role does a Infection control nurse plays in handling quality related issues of NSI and its prevention?
- What other methods are suitable for a HCO to carry out easily and economically to control the cases of NSI?
- What is the most important part of training schedule which should be provided to every HCW for preventing NSI?

OBJECTIVES:

- To assess the authenticity of data entered in Quality flash of Max Saket.
- To evaluate the occurrence and risk factors associated with needle stick injury in a hospital.
- To rule out any kind of deviation from reporting of NSI information in Max Saket east wing.
- To assess the knowledge and awareness level of staff (Nurses, GDAs, Housekeeping staff) about Needle stick injury
 - Its sources
 - Protocol to be followed
 - Process
- To reduce the incidence of NSI in HCW of Max Saket

Reporting mechanism and other related information as per requirements respectively for their posts individually and in totality

METHODOLOGY:

For analysing the authenticity of Quality flash data:

- The methodology which is followed is Cross-sectional analytic study.
- The technique followed is Interview technique with INC.
- The tool used is unstructured questionnaire.
- The ICN was audited and the data in Quality Flash was compared with the data filed by ICN.

For identifying the awareness level of employees:

- The type of study used is Cross sectional analytic study.
- size taken is 120:
 - 40 GDA
 - 40 nursing staff
 - 40 housekeeping staff
 - 1 infection control nurse
- Technique followed is Interview technique.
- Tools used are Semi structured questionnaire with both open and close ended questions.
- Place of study is MAX Saket East wing.
- The questionnaire used for study is attached.²

² Annexure 2,

RESULTS:

The reporting was 100%.And the data was Authentic and in accordance with actual number of cases happened.

The results which were found out by following interview method by involved staff through semi structured questionnaire amongst a sample size of 120 staff are:

- Knowledge of Sources of NSI -48.33%
- Knowledge of Protocol to be followed- 84.16%
- Knowledge of Reporting mechanism- 93.33%
- Initial training given to – 87.5%
- Continuous training given to – 81.66%
- Pre vaccination status vaccinated – 86.66%
- Usage of safety gloves practised -100%

The knowledge and awareness level of staff involved in the study are found out separately for separate points.

The excel sheet with compiled data is attached.³

³ Annexure 3

CONCLUSION:

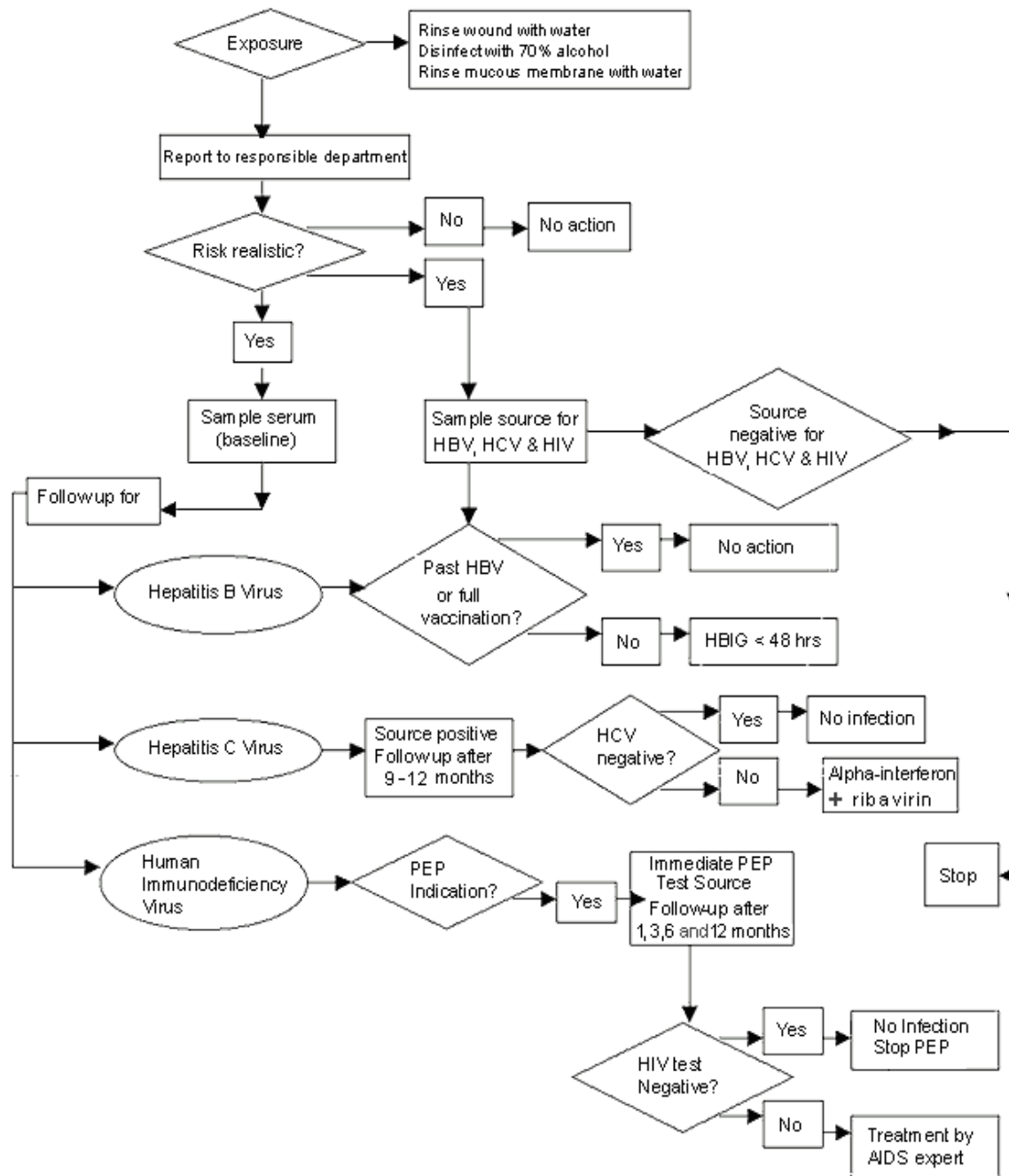
From the analysis and comparison done on the data of the month of April of Quality flash and data filed by INC, the reporting was found 100%, ruling out any under reporting.

The knowledge and awareness level of staff (nurses, GDAs, housekeeping) was found out to be good. However it was superficial and less than 50% of 120 staff of all floors and departments was aware of the common sources of NSI which they are frequently exposed to.

RECOMMENDATIONS:

- Biannual health check ups of all staff including housekeeping staff.
- Continuous training of staff regarding awareness about needle stick and other sources of infection which they are vulnerable to.
- Properly designed orientation program for nurses, housekeeping and other GDAs

ANNEXURES 1:



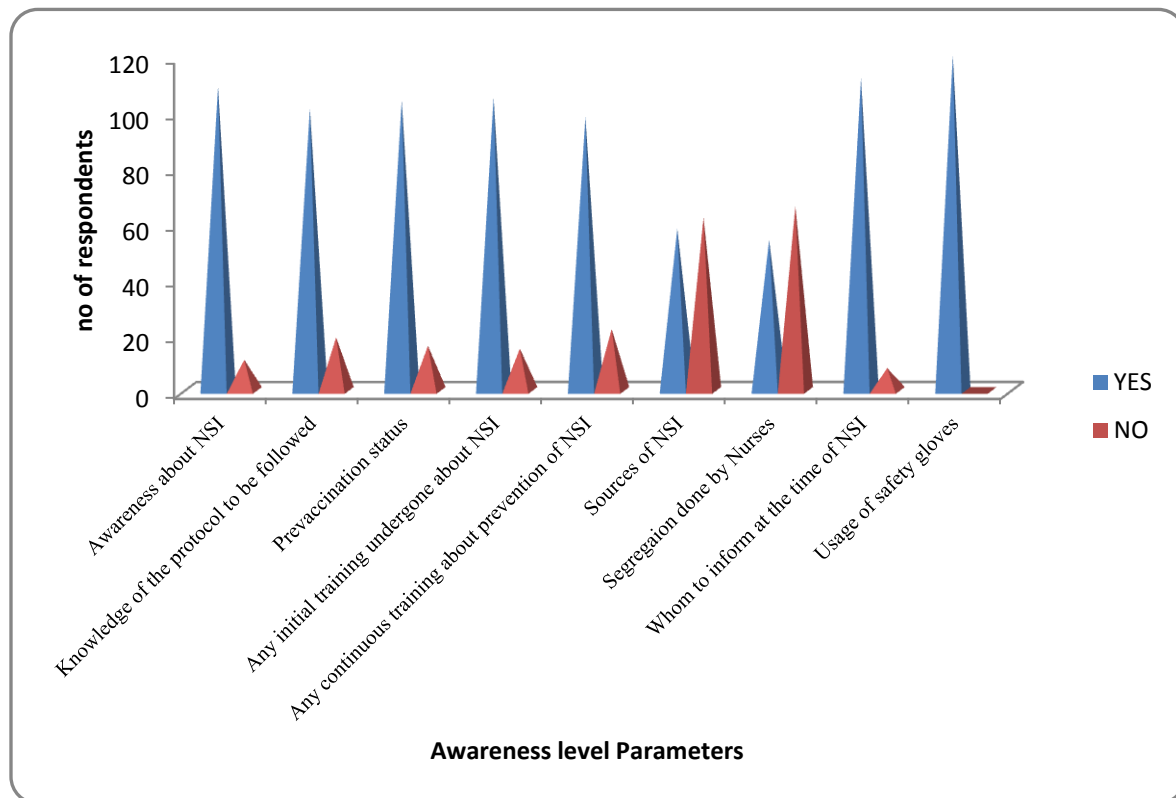
Annexure 2:

Check list for audit	Staff nurse/GDA/Housekeeping	
Name of employee		
Employee code		
Place		
	Yes	No
Awareness about NSI		
Knowledge of the protocol to be followed		
Pre vaccination status		
Any training undergone about NSI		
Any continuous training about prevention of NSI		
Whom to inform at the time of NSI		
Common Sources of NSI known		
Segregation by nursing staff done		

Name of Infection Control Nurse		
	Infection control Nurse	
CHECKLIST FOR AUDIT	Awareness	
	Yes	No
Awareness before		
Protocol followed		
Source details known		
Pre-vaccinated		
Informed required Stake persons		
Serological examination done		
NSI incident form filled		
Proper record maintenance done		
Proper Tracking pursued		
Reminder for subsequent vaccination done		

Annexure 3:

Questions	YES	NO	% YES	% NO
Awareness about NSI	109	11	90.83333	9.166667
Knowledge of the protocol to be followed	101	19	84.16667	15.83333
Pre-vaccination status	104	16	86.66667	13.33333
Any initial training undergone about NSI	105	15	87.5	12.5
Any continuous training about prevention of NSI	98	22	81.66667	18.33333
Sources of NSI	58	62	48.33333	51.66667
Segregation done by Nurses	54	66	45	55
Whom to inform at the time of NSI	112	8	93.33333	6.666667
Usage of safety gloves	120	0	100	0



NSI reporting in WHO health report 2002

