

Therapeutic Management of Acute Myocardial Infarction Patients as per JCI Guidelines

By

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TO WHOMSOEVER MAY CONCERN

This is to certify that **Dr. Archana Singh** student of MBA Hospital and Health Management from The IIHMR University, Jaipur has undergone dissertation training at **Max Health Care, Saket, New Delhi**, from 8-02-2016 to 06-05-2016.

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

I wish her all success in all her future endeavors.



Dr. Ashok Kaushik
Dean, Academics and Student Affairs
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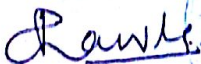
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This is to certify that Dr. Archana Singh has completed Internship in the department of Medical Quality from 8th February 2016 to 6th May 2016 at Max Super Specialty Hospital, Saket, New Delhi.


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CERTIFICATE BY SCHOLAR

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Archana Singh
Signature

ACKNOWLEDGEMENT

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1. HOSPITAL OVERVIEW



Max Super Specialty Hospital is a 535 bedded Hospital and is a part of Max India Limited which is a public limited company founded in 1985.

Max Super Specialty Hospital is divided into two blocks, namely the East Block and the West Block. The East Block mainly provides world class cardiovascular care with a service focus and creates unparalleled standards of medical and service excellence. It is committed to pursuing independent as well as collaborative research in all aspects of cardiology, cardiothoracic and vascular surgery and other medical specialties. The West Block mainly provides the diagnostic services like radiology and pathology.

Total numbers of beds in East block are 324, out of which 95 are ICU beds and in west block total 211 numbers of beds, out of which 71 are ICU beds.

Vision:

Deliver world class healthcare with a service focus by creating an institution committed to the highest standards of medical and service excellence, patient care, scientific knowledge and medical education.

Mission:

- Create empanelled standards of medical and service excellence;
- Care provider of first choice;
- Principal choice for physicians;
- Ethical practices;
- Create national centre of excellence for selective super-specialities;
- Build towards international reach by creating patient confidence through professional skills, research and technology.

Awards and Accreditations:



- Max Super Speciality Hospital, honoured with the first Global Green OT Accreditation.
- Max Institute of Minimal Access recognized as centre of excellence in APAC.
- Max Healthcare is ISO 9001:2000 and ISO 14001:2004 certified organization.
- Medical Quality Performance Standards Surpassed International Benchmarks in Nosocomial infection.
- NABH accredited hospital.
- FICCI award for operational excellence in Healthcare delivery.
- Max Healthcare laboratories have successfully obtained NABL accreditation in the field of medical testing.
- DL Shah National Award on – “Economics of Quality”.
- India’s first fellowship in Emergency medicine established in conjunction with George Washington University.

Objectives:

- Satisfying customer needs
- Enhancement of quality systems
- Effective performance measurement & compliance systems
- Continuous Improvement loop
- Engage every employee in quality drive

Hospital – Scope of Services:

1. Clinical Services

- Anaesthesia
- Esthetic Surgery

- Cardiac Anaesthesia
- Cardiology
- Cardiothoracic Surgery
- Dermatology and Venereology
- Endocrinology
- Emergency Department
- General Medicine
- General Surgery
- Geriatrics
- Gynaecological Oncology
- Medical Oncology
- Nephrology
- Nuclear Medicine
- Orthopaedics & Joint Replacement
- Otorhinolaryngology
- Pediatric Cardio Thoracic Vascular Surgery
- Pediatric Cardiology
- Psychiatry
- Radiation Oncology
- Surgical Oncology
- Urology
- Vascular Surgery

2. Diagnostic Services

- 2D Echo
- Audiometry
- Gamma Camera
- Holter Monitoring
- PET
- Spirometry
- Tread Mill Testing
- Urodynamic Studies

3. Laboratory Services & Transfusion Services(Shared Services)

- Blood Bank
- Blood Transfusion Services
- Clinical Bio Chemistry
- Clinical Microbiology & Serology
- Clinical Pathology
- Cytopathology
- Genetics
- Haematology
- Histopathology

4. Pharmacy

- Dispensary

5. Professions Allied to Medicine

- Ambulance
- Dietetics
- Occupational Therapy
- Physiotherapy
- Speech and Language Therapy

Blood Bank:

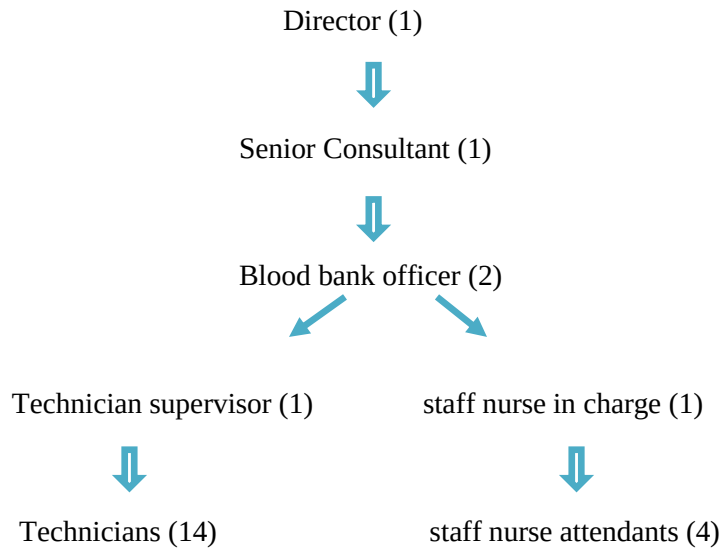
Max Super Speciality Hospital has its own blood bank. All blood groups are available. But it is preferred that patient arranges blood through his relatives or any friend and should give replacement. It receives 30-40 units of blood per day on an average. It maintains a stock of 250 units/day of each blood group.

Blood bank consists of:

- Reception area
- Donation area
- Apheresis room
- Component room

- Transfusion Transmitted Infection (TTI) room
- Storage area
- Issue counter

Hierarchy:



Emergency Department:

The emergency department of Max super speciality hospital is fully equipped with world class infrastructure, state of art emergency response and management system operating 24×7.

The emergency department has a separate dedicated entrance and located at the ground floor, operating for 24 hours a day.

Ambulance - 2 ACLS (with CCTV camera for telemedicine) and 4 BCLS

Response Time:

- EMO response time < 1 min
- Consultant response time < 60 min
- Code blue response time < 3 min
- Ambulance response time < 10 min

Infrastructure:

Total 24 bedded

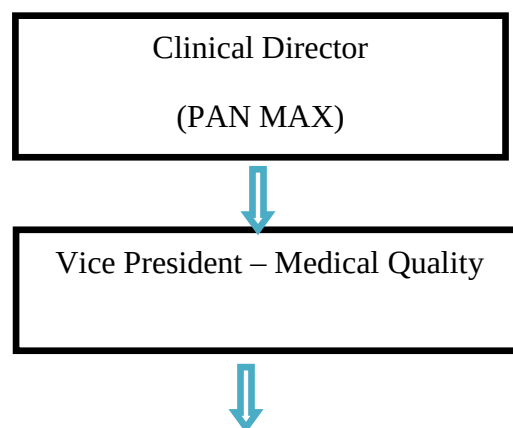
- Triage trolley - 2
- Resuscitation suite – 2
- Urgent care area – 6
- Observation area – 12
- Clinical decision unit – 2
- Doctor Room – 1
- Doctor work station – located at the centre of urgent care area
- Store room – located behind the reception. Medications are filled twice a day and stock of two days is kept in advance for Sunday. Narcotics are also available and kept in safe.
- Hospital Information System (HIS) and CPRS
- Waiting area for patient's attendants is outside the department.

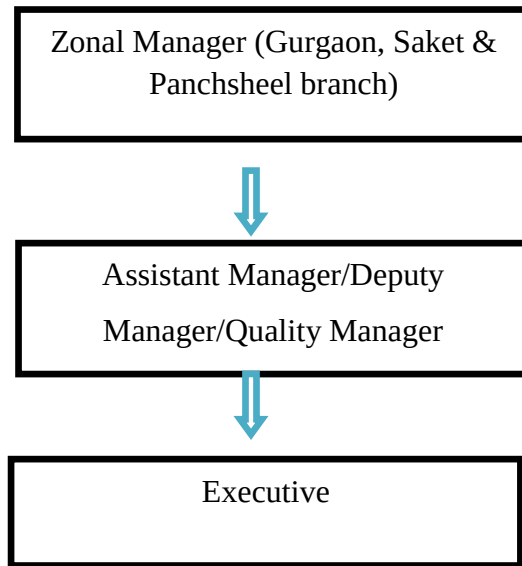
Staffing:

- Senior consultant (Emergency Department)
- Team leader
- Emergency Physician
- Nurses: Male
Female
- Reception
- Paramedical staff for ambulance
- GDA

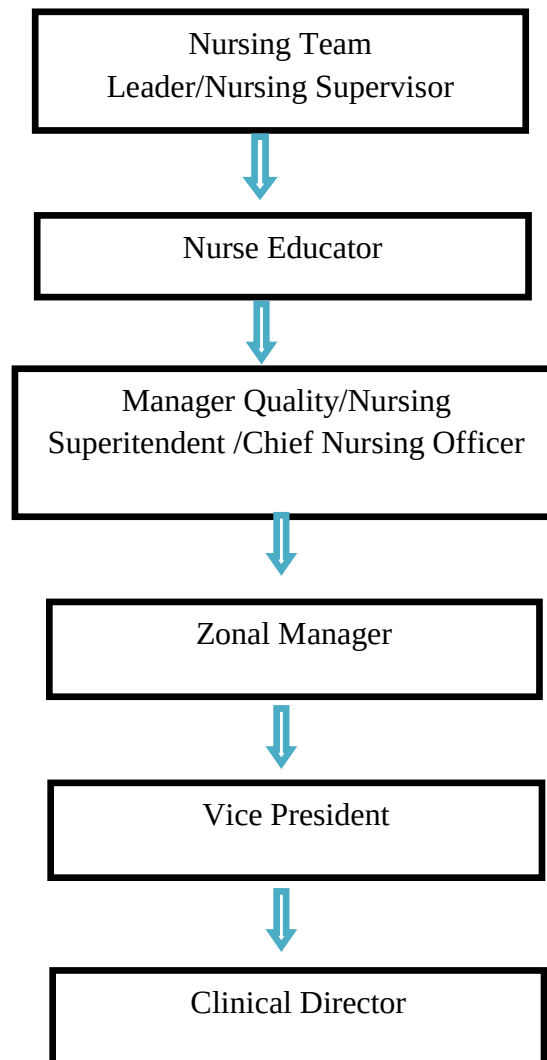
Medical Quality Department:

Organogram of the department:





Flow of reporting the Quality Team:



The different indicators of medical quality are:-

- Falls
- Nosocomial infections
- Phlebitis
- Medication errors
- Near miss(incidents might have occurred)
- Needle stick injury
- Pressure sores
- Hypoglycemia
- Adverse drug reactions
- Blood transfusion related errors
- Infection outbreak
- Notifiable diseases
- Sentinel events – wrong patients, wrong side, foreign body left inside cavity.
- Code blue – Rapid Response Team(RRT)
- Mortality – data categorized by area, speciality, age
- Other adverse events
- Readmission within 14 days of discharge/Return to Emergency within 7 days
- Return to OT within 7 days
- Return to ICU within 7 days

Nursing Quality Department:

There are a total of seven indicators of nursing quality:

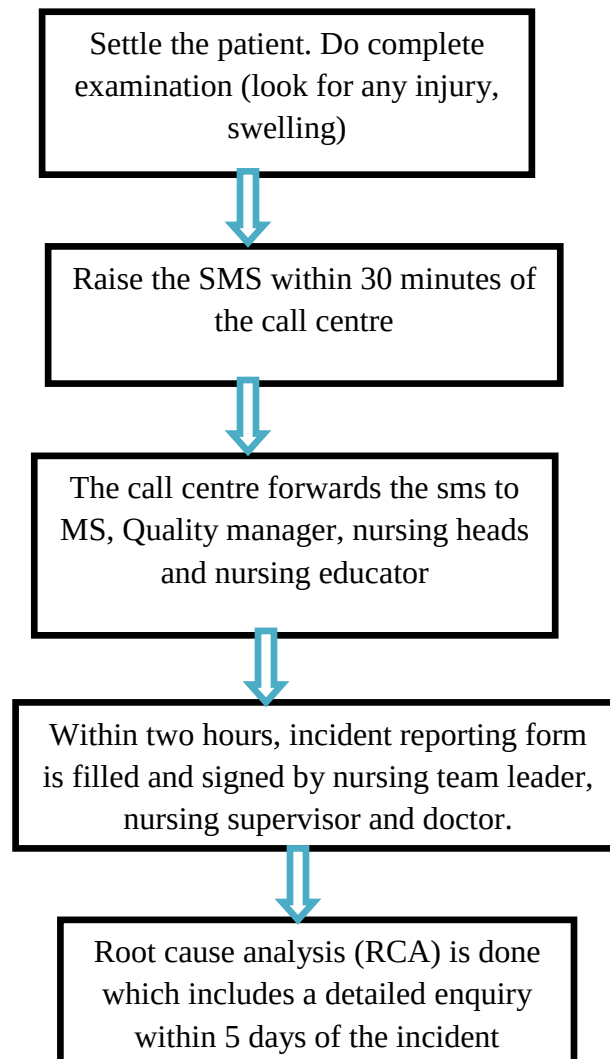
1. Patient falls
2. Medication error is of four types:
 - a. Prescription error: mistake of doctors
 - b. Dispensing error: mistake of pharmacist
 - c. Administration error: mistake of nurses
 - d. Documentation error: mistake of nurses where they fail to document after administration of medicines
3. Pressure sores: outside-inside pressure sores:

Outside pressure sores means those acquired before the admission while inside pressure sores means those acquired post admission.

There are special wound care nurses who look after pressure sore dressings and work jointly with plastic surgeon's team.

4. Hypoglycemia: Random blood sugar level falling below 60 mg/dl has to be informed. It is called negligence if nurse doesn't inform doctor or fails to recheck the blood sugar.
5. Needle-stick injury.
6. Health care associated infection is of four types:
 - a. CAUTI: Catheter Associated Urinary Tract Infection
 - b. CLABSI-Central Line associated Blood Stream Infection
 - c. SSI-Surgical Site Infection
7. Phlebitis: It is defined as inflammation of vein which has different signs and symptoms like redness, swelling, pain and inflammation. A phlebitis checklist is maintained.

Flow of reporting as adverse event:



Central Sterile Supply Department (CSSD):

The objective of establishing a CSSD is to make reliably sterilized articles available at the required time and place for any agreed purpose in the hospital as economically as possible, having regard to the need to conserve the time of users.

The department is centralized for the hospital and situated in an area of 1500 sq. feet in basement 1 of east wing. The aim is to bring down microbial count from 10^6 to 10^{-6} which is the minimum acceptable sterility assurance level, to ensure sterilization.

Areas:

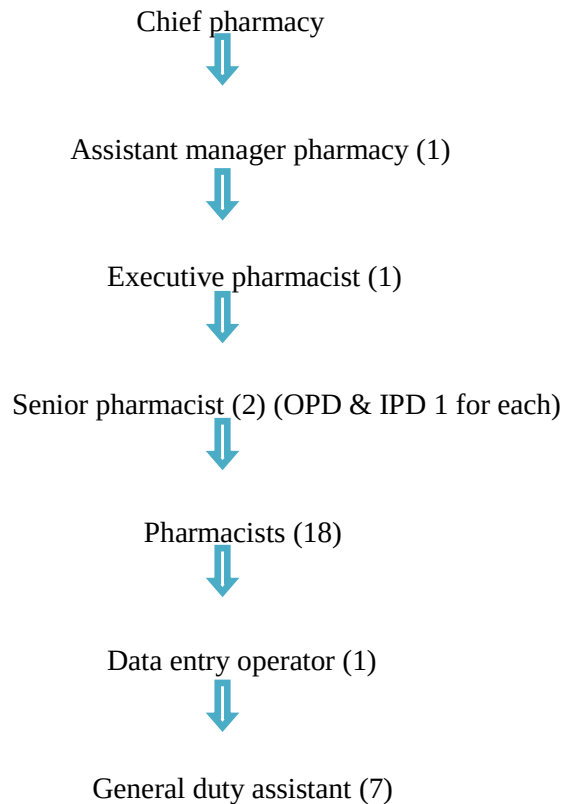
- Receiving area and contamination area
- Instrument and gauze packaging area
- Sterile zone and sterile storage zone
- Separate room for linen
- Issue counter

List of equipments:

- Ultrasonic cleaner – 1
- Washer Disinfectant – 5
- Plasma Sterilizer – 1
- Ethylene Oxide(ETO) – 1
- Automatic drier – 1
- Autoclave – 3
- Process challenging device – 1
- Water jet – 2
- Air jet - 2

Pharmacy:

Centralized Pharmacy Store (CPS) of Max Healthcare is in Okhla, New Delhi from where the drugs are delivered to IPD and OPD stores of the hospital on demand. Role of CPS is storage & distribution of drugs and negotiation with vendors.

Hierarchy:**OPD Pharmacy:**

The OPD pharmacy is open 24*7 and anyone can purchase medicine on doctor's prescription. All medicines are given along with billing and the medicine is explained to the patient according to doses. All medicines except OTC are given on the prescription.

IPD Pharmacy:

Max hospital runs inpatient pharmacy which works 24*7 throughout the year. It is located in the Basement-1 of the building.

Procurement of drugs in the Pharmacy:

- Auto indent is generated by Central pharmacy store at Okhla on weekly basis according to pharmacy's EOQ analysis.
- This indent is checked briefly by the pharmacist in the pharmacy store and alterations are done if required
- The order is delivered by CPS next day to the pharmacy store. In an urgent need, it can be procured from the local vendor also.

Distribution of drugs from IPD Pharmacy:

- **For Nursing Stations**
 - Requisition from different wards is sent by nurse through HIS on a fixed day of week.
 - Next day, Drugs are dispensed in paper envelop and printout of the indent is stapled on it.
 - Then the drug is sent physically by the GDA to respective nursing station.
 - However, in case of emergency indent is generated and drugs is delivered at the same time.
- **For Patients**
 - In the pharmacy no cash transaction takes place and no relative has to go there.
 - Any drug required by the patient, Indent is generated with IP (inpatient) no. of the patient by nurse to the pharmacy.
 - Drugs are dispensed in paper envelop and printout of the indent is stapled on it.
 - Then the drug is sent physically by the GDA to respective nursing station.
 - This transaction is picked up through the HIS by the Billing Department directly according to the IP no. and added to bill of the patients.

Inventory management: 7 days

Turn over: Drugs which have date of expiry within coming 3 months are sent back to the vendors through central pharmacy. They use the drugs on the basis of first comes first out.

Inventory measurement parameters are:

- ABC Class
 - A items : 7 days
 - B items : 10 days
 - C items : 15 days

Human Resource Management Department:

The human resource management is a function which is held overall responsibility of implementing strategies and policies relating to the management of individuals (i.e. the human resource).

Functions:

- Development of HR strategies, policies
- Manpower planning
- Hiring, Promotions
- Salary Determination
- Performance appraisal
- Employee resignation
- Consultation and advisory services to management and employees
- Provide benefits – Health care insurance, disability insurance, retirement as per company, Leave policy, training opportunities and training plan.

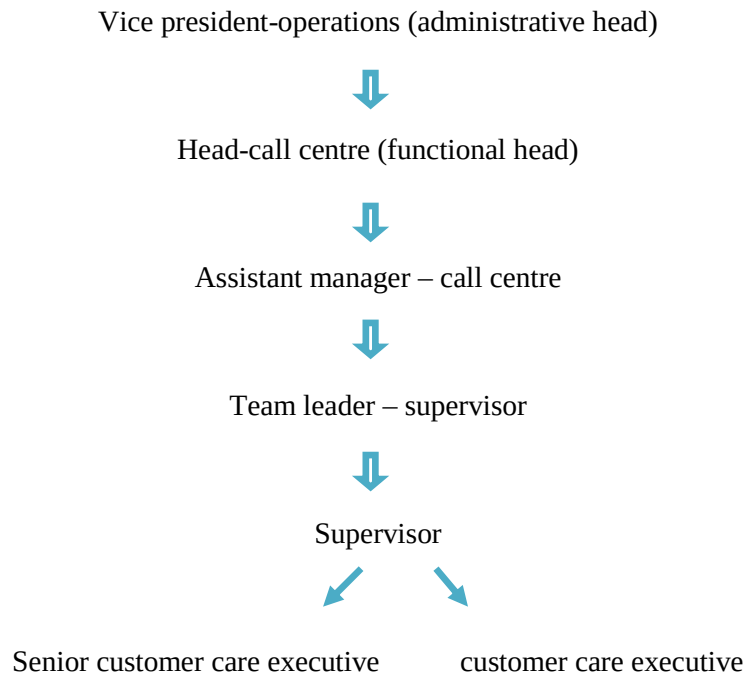
Call Centre:

Call centre of Max hospital, Saket operates at 24*7. It is centralized patient contact centre for saket. It can be used as an information centre for all customers.

Call Centre deals with:

- Doctor's appointment
- Health check ups
- Radiology and diagnostic appointments
- Patient's information
- Doctor's information
- Employee's information
- Speciality information
- Other department information
- It handles internal emergency e.g. Blue code

Organization chart:



House Keeping Department:

House-keeping department is responsible for three main processes:

❖ Infrastructure Cleaning – It includes:

- **Exterior cleaning:** Cleaning of Parking area, main entrance road, ramp area, glasses, biomedical waste collection area, rooftop/terrace.
- **Interior cleaning:** Cleaning of Hospital entrance, lobby, OPD, emergency department, radiology department, ICU, OT, dialysis area, waiting lounge, elevators, IPD, discharge room, diagnostic rooms, isolation ward, washroom.

❖ General and Biomedical Waste Handling

• Waste collection Process:

Waste is segregated in different colours of bags and bins namely Red, Blue, Black, Yellow and White Puncture Proof boxes.

- Black is for general waste.
- Blue is for plastic waste.
- Red is for infected cotton materials.
- Yellow is for anatomical waste.
- White puncture proof box is for sharps.

• Waste Treatment and Disposal process:

Waste is collected from the source of all the areas and kept in Dirty Utility Room with the bags sealed. Bags are labeled according to the area and date and taken to the biomedical waste collection area with the help of trolleys.

Vendor then collect and weighs all the waste. The same is recorded in register which is signed by housekeeping staff, security and the vendor.

❖ **Linen and Uniform Management**

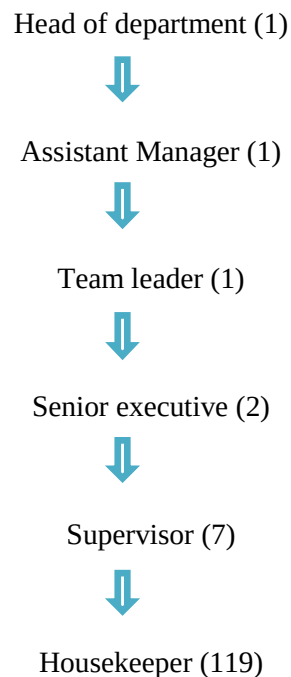
- **Linen Management:**

It ensures optimum availability of fresh linen and patient dress in all patient areas. List of linen required is received from nursing and requirement is checked by linen in-charge. Existing stock is checked. If required, indents are placed for the procurement. The fresh linen is exchanged against soiled which is then discarded.

- **Uniform management:**

Employees are provided with three sets of uniform. At a time one set is used, second is in linen room and the third set is in the laundry.

Hierarchy:



Security and Safety:

The security department is an eye and ear of every organization acting as a liaison between management and staff. The control room of security Department is located on Basement-1 of east block, Max hospital, Saket.

Functions of security Department: The security department performs four main functions as discussed below.

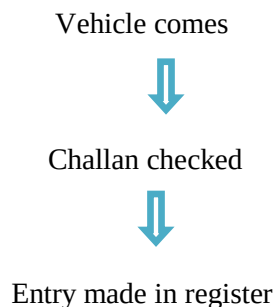
- Security management:

1. Selection of people (guards and supervisors)
2. Deploying of security staff to different floors and departments
3. Checking of people entering hospital
4. Turnout and grooming of security staff
5. Training of security staff
6. MLC handling
7. Dispute handling

- Material management:

It includes management of both incoming and outgoing materials.

1. Flow for incoming materials: The incoming materials are received either from a company or a contractor to Max. The process flow is as under:-



2. Flow for outgoing materials:

Two types of gate pass are issued which are:

- a) **Returnable gate pass (RGP)** issued when something sent for repair/modification and has to come back to Max. Is of two types- company RGP and contractor RGP
- b) **Non-returnable gate pass (NRGP)** issued when material sold as scrap and doesn't come back to organization. Is of two types- company NRGp and contractor NRGp.

3. Disaster management:

There are six emergency codes:

- Red – Fire
- Black – Bomb threat
- Blue – Cardiac arrest
- Yellow – External disaster like earthquake
- Violet – Violent patient
- Pink – Missing patient

The SOP's and disaster management plans are prepared by the security department. Fire management system includes smoke detectors, sprinklers fitted on ceiling and fire shafts in all corridors.

Walkies talkies are an important source of communication.

Other disasters include floods, water logging, terrorist attacks.

4. Valet management:
 - a. Helps to optimally utilize the parking space.
 - b. Within a time frame of maximum 7 minutes, vehicle is handed over to customer when asked for in porch.

DISSERTATION REPORT

2. INTRODUCTION:

2.1 Acute Myocardial Infarction

Acute myocardial infarction condition occurs when blood flow to the heart is abruptly cut off because of narrowing of blood vessel, causing tissue damage. This is usually occurs because of a blockage in one or more of the coronary arteries.

Myocardial reinfarction was defined by two or more of the three criteria: new onset of chest pain or discomfort; definitive new ECG changes consistent with ischaemia or infarction; and new cardiac enzyme or biomarker elevation.

The mechanism of an MI often involves the complete blockage of a coronary artery mostly caused by a rupture of an atherosclerotic plaque and are less commonly caused by coronary artery spasms, which may be due to cocaine, significant emotional stress, and extreme cold, among others.

Risk factors include high blood pressure, smoking, diabetes, lack of exercise, obesity, high blood cholesterol, poor diet, and excessive alcohol intake, among others.

Cardiovascular diseases (CVDs) are the major cause of death globally, which are a group of disorders of the heart and blood vessels. It has reached epidemic proportions in India. Urban Indians carry a 4-fold

higher risk of coronary artery disease (CAD) than the Americans and CAD in Asian Indians appears to be greater at younger ages when compared to the west, leading to loss of productive life years.¹

According to data of National center for biotechnology information (NCBI) India has shown high prevalence of the disease, approximately 11% in the urban population and 7% in the rural population across India, which may be due to greater sedentary behaviour and alcohol intake among urbans. There are estimated 65 million patients of CAD in India in 2015. Prevalence of CAD is high in urban areas of Tamil Nadu and Kerala where it ranges between 11 to 13%, followed by Delhi, Uttar Pradesh, Jammu, Punjab and, Rajasthan where it ranges between 6-10%. Similarly it is high in rural areas of Kerala and Jammu & Kashmir, where it ranges between 6-7%.

Younger patients show marginal decline in coronary interventions over previous years but still it's in a higher end in Women.

Incidence of percutaneous coronary intervention (PCI)-related mortality rate was significantly higher among patients with ST segment elevation myocardial infarction (STEMI) compared with those with non-ST segment elevation myocardial infarction (NSTEMI). The ST segment elevated MI is higher (60.6%) and the mortality is more (8.6%) in Indian population than that of developed countries. The multilevel analysis which included only the hospital variance showed a significant inter-hospital variation in 30-day in-hospital mortality.⁽¹¹⁾

Antiplatelet agent: long-term low-dose aspirin reduces overall mortality, nonfatal re-infarction, nonfatal stroke and vascular death.

2.2 Using Dual antiplatelet therapy: ⁽⁷⁾

- Aspirin resistance is one limitation of aspirin monotherapy.
- Studies of aspirin resistance in patients with ischemic stroke have shown that the antiplatelet effect of aspirin is not constant over time and may place patients at risk for breakthrough vascular events.
- Combinations of aspirin with other oral antiplatelet agents, such as clopidogrel, ticlopidine, or dipyridamole, may provide enhanced antiplatelet effects for preventing recurrent events in different vascular beds..
- Dual antiplatelet therapy with aspirin plus clopidogrel is warranted in many patients to further reduce their risk of future cardiovascular events.

2.3 Using Beta-Adrenoceptor Blocking Agents:

Recommendations for Therapy ⁽⁷⁾

- Patients without a contraindication to Beta-adrenoceptor blocker therapy who can be treated within 12 hours of onset of infarction, irrespective of administration of concomitant thrombolytic therapy or performance of primary angioplasty.
- Patients with continuing or recurrent ischemic pain.
- Patients with tachyarrhythmias, such as AF with a rapid ventricular response.
- Patients with moderate to severe LV failure.

During the first few hours of infarction, Beta-adrenoceptor blocking agents may diminish myocardial oxygen demand by reducing heart rate, systemic arterial pressure, and myocardial contractility.

In addition, prolongation of diastole caused by a reduction in heart rate may augment perfusion to injured myocardium, particularly the subendocardium.

As a result, immediate Beta-adrenoceptor blocker therapy appears to reduce

- The magnitude of infarction and incidence of associated complications in subjects not receiving concomitant thrombolytic therapy and
- The rate of reinfarction in patients receiving thrombolytic therapy.

2.4 Smoking Cessation:

- Smoking cessation is essential in patients with AMI. It reduces rates of reinfarction. ⁽⁷⁾
- Smoking triggers coronary spasm, reduces the anti-ischemic effects of Beta-adrenoceptor blockers, and doubles mortality after AMI.

2.5 Angiotensin-converting enzyme (ACE) inhibitors:

- These reduce mortality and also reduce the risk of nonfatal heart failure.
- Titrate the dose upwards to the maximum tolerated or target dose.
- Measure renal function, electrolytes and blood pressure before starting an ACE inhibitor and again within 1-2 weeks.

Joint Commission International (JCI) works to improve patient safety and quality of health care in the international community by offering education, publications, advisory services, and international **accreditation** and certification.

The International Library of Measures contains 10 inpatient population-specific measure sets for acute medical and surgical hospitals. The Library includes a combination of 36 process and outcome measures.

The Accreditation Participation Requirement (APR) section of the new Joint Commission International Accreditation Standards for Hospitals, 5th edition, consists of specific requirements for participation in the accreditation process. Joint Commission International (JCI) standards specify that organizations must collect data as part of their quality improvement system.

The Joint Commission International Library of Measures provides uniform, precise specifications for the collection of data standardized to permit comparison over time within a hospital and for comparisons among hospitals.

These JCI norms can be used to assess the existing clinical management of acute myocardial infarction and help to improving according to JCI norms.

3. REVIEW OF LITERATURE:

The Beta-Blockers [BB] have been used extensively in the last 40 years after acute myocardial infarction [AMI] as part of therapy and in secondary prevention. All hemodynamically stable AMI patients receive BB to reduce chest pain, as well as to reduce the risk of re-infarction and Ventricular arrhythmias. There may be a slight reduction in mortality if the patient has not previously been treated with BB. One of the earliest studies suggesting benefit of beta-blockers after AMI was the Norwegian timolol trial. It was a double-blind randomized study of 1,884 patients which examined the effect of timolol administered 7-28 days after AMI, and followed patients for 12-33 months.⁽⁴⁾ The authors found that use of timolol resulted in a 39.4% reduction in mortality, a 44.6 % reduction in sudden-death, and a 28.4% reduction in re-infarction rates. These findings were similar to those in the American beta-blocker Heart Attack Trial (BHAT), the Goteborg metoprolol Trial and the Stockholm metoprolol Trial. The majority of the data suggests that there is a reduction in total mortality, re-infarction and sudden cardiac death in the first 3 years of beta-blocker use, especially in patients who are at high risk, but the benefit emerges in the early phase after MI.

Cardioembolism is responsible for approximately 1/6 of cerebrovascular events and nonvalvular atrial fibrillation is the commonest cause of cardioembolic stroke. Combination therapy is particularly important in the patient receiving coronary stents. It is used for a minimum of 28 days peri- and post-procedurally to lower the incidence of acute (<24 hour) and subacute (1 to 30 days) stent thrombosis. Furthermore, patients receiving clopidogrel plus aspirin for 1 year after a percutaneous

coronary intervention (PCI) had a combined incidence of death, myocardial infarction, or stroke of 8.5%, compared with 11.5% in patients receiving combination therapy for 28 days followed by aspirin alone.⁽⁵⁾ Treatment with combination therapy for an average duration of 9 months lowered the incidence of cardiovascular death, myocardial infarction, and stroke at 12 months to 9.3% as compared with 11.4% in patients receiving aspirin alone.

There is increase in global mortality rate due to IHD. In 2010, 7 million deaths occurred globally due to IHD. IHD death rate has increased in Eastern Europe, Central Asia, South Asia and East Asia. South Asia has the highest number of life years lost to premature IHD deaths.⁽⁹⁾

According to national data registry 2013, there are 404 centers for coronary intervention with cath lab which increases 624 in numbers according to NIC 2014. Despite increase in access to care seen in 2014, India remains a country with highly under-diagnosed cardio vascular disease and even less treated through coronary interventions.⁽¹⁰⁾

A study published in Journal of American college of Cardiology on Prediction of Mortality after Primary Percutaneous Coronary Intervention for Acute Myocardial Infarction: The CADILLAC Risk Score, the statistics shows 0.83 and 0.81 for 30-day mortality and 0.79 and 0.78 for 1-year mortality, respectively.²

4. AIM OF STUDY

- To evaluate the drug therapy received by the acute MI patient in the hospital and incorporation of the JCI recommendation.

5. OBJECTIVES OF STUDY

- To assess the existing clinical management of acute myocardial infarction as per JCI norms.
- To find the gaps and give suggestion to remove the non compliance in the path of JCI accreditation for the management of Acute Myocardial infarction cases.

6. METHODOLOGY

6.1 Study design:

Retrospective study and data is captured for entire year 2015.

6.2 Sample size:

108 Patient with acute myocardial infarction.

6.3 Data collection method:

Data was collected through record files.

6.4 Data analysis plan: M S Excel

6.5 Study location:

Study was conducted in cardiology department of Max Hospital, Saket.

6.6 Study Duration:

The study was conducted in a time frame of 3 months from 8th February 2016 to 6th May 2016.

7. ANALYSIS

7.1 I-Acute Myocardial Infarction-1

I-Acute Myocardial Infarction (I-AMI)		
Measure Code	Measure Short Name	Measure Description
I-AMI-1	Aspirin at Arrival	Aspirin received within 24 hours of arrival to the hospital for patients having an acute myocardial infarction (AMI).

Table.1.1 I-AMI-1

Observations:

- Adequate availability of aspirin stock and its 100% administration to the patient on arrival to the hospital.

7.2 I-Acute Myocardial Infarction-2

Measure Code	Measure Short Name	Measure Description
I-AMI-2	Aspirin Prescribed at Discharge	Aspirin prescribed at discharge for patients who had an acute myocardial infarction.

Table.1.2 I-AMI-2

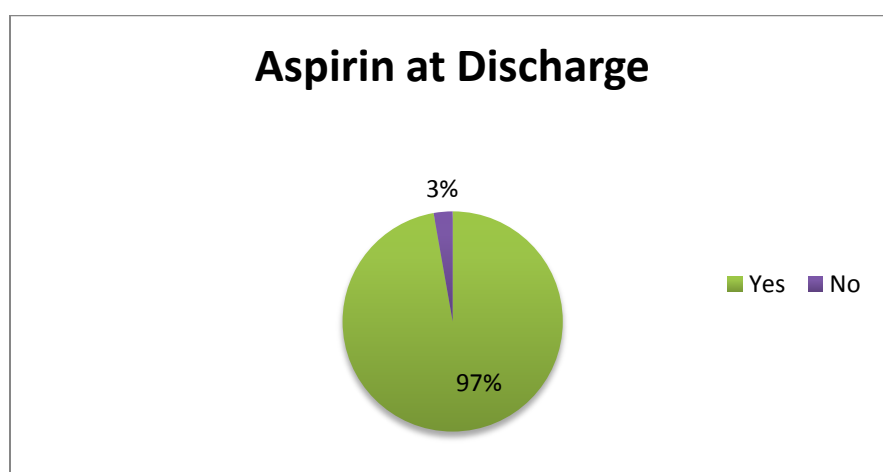


fig.1.1 Aspirin at discharge

Observations:

- Out of sample size of 108 patients, 105 patients received aspirin at the time of discharge i.e. about 97.2% Patients receiving the medication at discharge.

Dual Antiplatelet Therapy:

Combinations of aspirin with other oral antiplatelet agents, such as clopidogrel, prasugrel or ticagrelor provide enhanced antiplatelet effects for preventing recurrent events of MI.

Findings show that out of 108 cases, 105 cases receive Aspirin at discharge whereas administration of Aspirin at admission is 100%

Maximum combination of Aspirin is seen with Prasugrel i.e. 53 cases, followed by Ticagrelor i.e. 26 cases and Clopidogrel i.e. 25 cases.

In rest three cases where aspirin was not prescribed, clopidogrel (2 cases) and prasugrel (1 case) were prescribed.

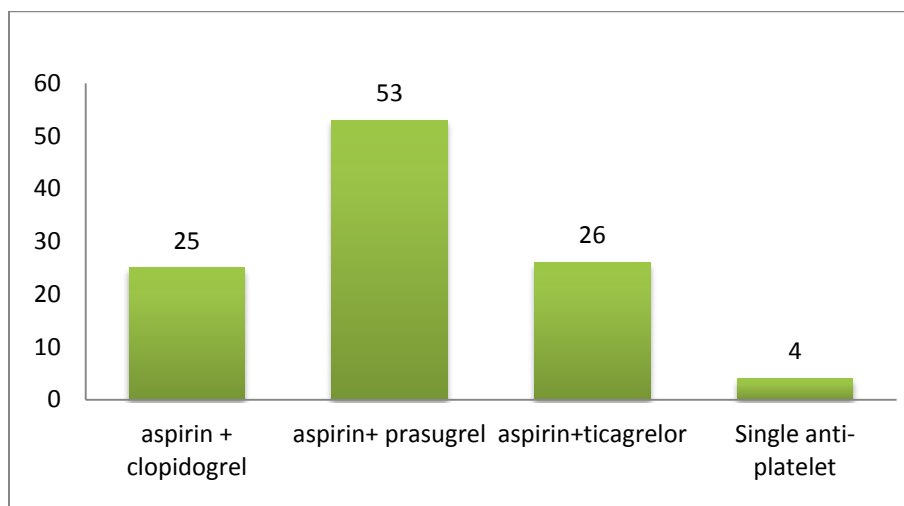


fig.1.2 Dual Antiplatelet therapy

7.3

I-Acute Myocardial Infarction-3

Measure Code	Measure Short Name	Measure Description
I-AMI-3	ACEI or ARB for LVSD	ACEI (angiotensin converting enzyme inhibitor) or ARB (angiotensin receptor blocker) for patients who have LVSD (Left Ventricular Systolic Dysfunction) after having an acute myocardial infarction.

Table.1.3 I-AMI-3

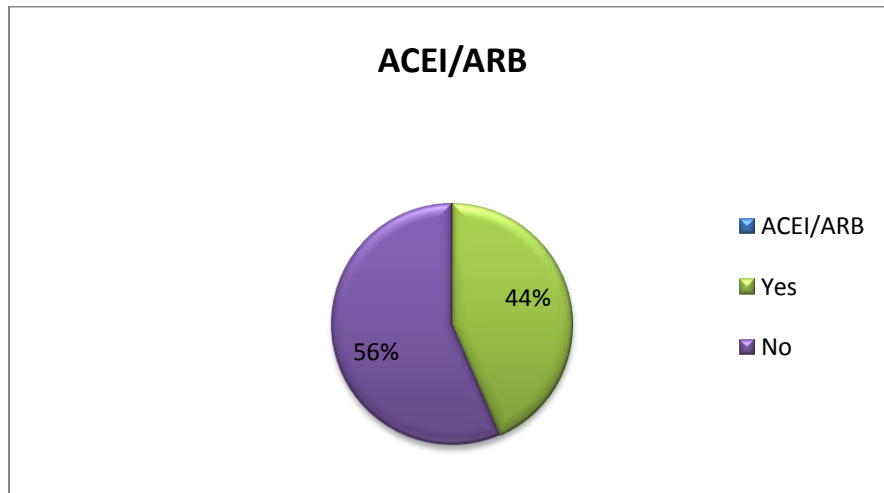


Fig.1.3 ACEI/ARB

Observations:

- Out of sample size of 108 patients, 47 patients received ACEI or ARB i.e. about 44% Patients get ACEI or ARB after having an acute myocardial infarction.

7.4 I-Acute Myocardial Infarction-4

Measure Code	Measure Short Name	Measure Description
I-AMI-4	Adult Smoking Cessation Advice/Counselling	Adult smoking (cigarette) cessation advice/counselling given to patients who had an acute myocardial infarction.

Table.1.4 I-AMI-4

Observations:

- No Adult smoking (cigarette) cessation advice/counselling given to patients who had an acute myocardial infarction.

Measure Code	Measure Short Name	Measure Description
I-AMI-5	Beta Blocker Prescribed at Discharge	Beta-blocker prescribed at discharge for patients who had an acute myocardial infarction. .

Table.1.5 I-AMI-5

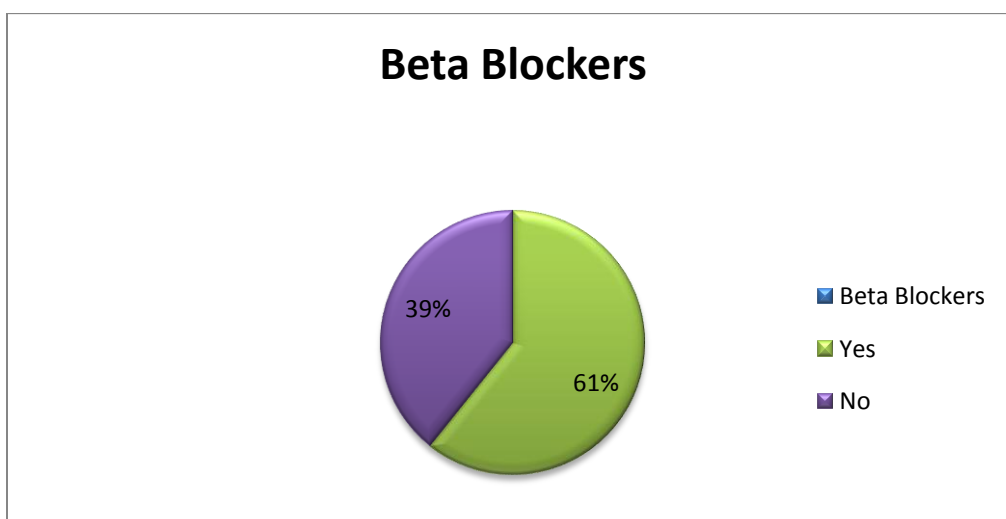


Fig..1.4 Beta Blockers

Observations:

- Out of total 108 patients of myocardial infarction , 65 cases were prescribed beta-blockers at the time of discharge

Measure Code	Measure Short Name	Measure Description
I-AMI-9	Inpatient Mortality	Acute myocardial infarction (AMI) patients who expire during the hospital stay

Table.1.6 I-AMI-9

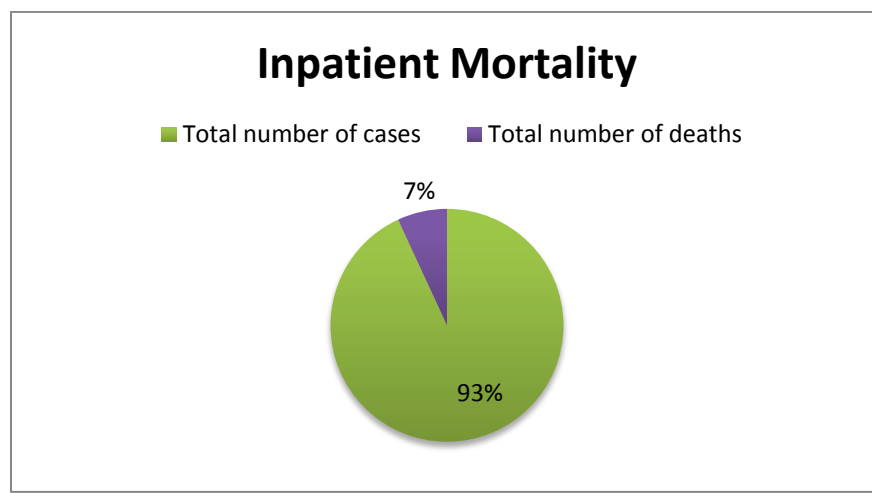


fig.1.5 Inpatient mortality

Observations:

- Out of total 108 patients of myocardial infarction, 8 cases expired during the hospital stay.

8. SUGGESTIONS

1. As hospital is going for JCI accreditation it should strictly follow the JCI guidelines.
2. Create smoking cessation awareness among MI patient, because it's a important factor for a treatment to be successful.
3. As the study suggested combination of all 3 drugs (ACEI, Beta Blocker and Dual antiplatelet) for a patient should be given.
4. With the appropriate use of drug therapy mortality rate can be further reduce.

9. CONCLUSION

The study suggested that aspirin was provided to almost all the patients during admission and discharge process as required in JCI norms. The main gap was in Beta-Blockers where at least 40% of the cases were not receiving the medication which is necessary as guided in JCI norms. Secondly, there was no record of smoking cessation counseling given to the patients with acute myocardial infarction.

JCI norms are important for international accreditation of the hospitals. Assessing the facility and removing the non-compliance can help in getting the accreditation done. As in the above study, prescribing Beta-Blockers at discharge and counseling for smoking cessation to the acute myocardial infarction patients can reduce the incidence of infarction and its related complications. This can also reduce the rate of re-infarction cases, thus helping the hospital to be JCI accredited.

10. REFERENCES

1. Suma M. Victor, Anand Gnanaraj, Vijayakumar S., Sushanth Pattabiram,b and Ajit S. Mullasari, Door-to-balloon: Where do we lose time? Single centre experience in India, Indian Heart J. 2012 Nov; 64(6): 582–587.
2. Amir Halkin, MD, Mandeep Singh, Eugenia Nikolsky, Cindy L. Grines, James E. Tcheng, Eulogio Garcia, David A. Cox, Mark Turco, Thomas D. Stuckey, Yingo Na, Alexandra J. Lansky, Bernard J. Gersh, William W. O'Neill, Roxana Mehran, Gregg W. Stone, Prediction of Mortality After Primary Percutaneous Coronary Intervention for Acute Myocardial infarction The CADILLAC Risk Score.
3. Roshen C Maharaj, Heike Geduld, Lee A Wallis, Door-to-needle time for administration of fibrinolytics in acute myocardial infarction in Cape Town,2012.
4. Suma M. Victor, Anand Gnanaraj, Vijayakumar S., Sushanth Pattabiram, and Ajit S. Mullasari, Door-to-balloon: Where do we lose time? Single centre experience in India, Indian Heart J. 2012 Nov; 64(6): 582–587.
5. <http://www.jems.com/articles/2012/02/expansion-golden-hour.html>
6. Zafari A Maziar, Myocardial Infarction Treatment & Management
7. ACC/AHA Guidelines for the Management of Patients with Acute Myocardial Infarction, 1999 Updated ACC/AHA AMI Guideline
9. Novak Katarina , Jure Aljinović, Sandra Kostić, Vesna Čapkun Pain to Hospital Times After Myocardial Infarction in Patients from Dalmatian Mainland and Islands, Southern Croatia
10. <http://www.nuhcs.com.sg/clinical-outcomes/acute-myocardial-infarction.html>
11. 2014 NIC Registry reveals 68% rise in patients requiring acute coronary interventions, 8 April 2015.