Internship

at

Apollo Hospital, Chennai

By

Reshma Ramesh

Dissertation submitted in partial fulfillment of the requirements of the degree

MBA Health and Hospital Management

Academic year, 2017-2019

The IIHMR University, Jaipur

1, Prabhu Dayal Marg, Sanganer, Airport
Jaipur 302029, Rajasthan
Ph: 0141 3924700, Fax: 3924738
Website: www.iihmr.edu.in

ORGANISATION REPORT:

Apollo Hospitals, Greams Road, Chennai.

Apollo Hospital, Chennai was first established in 1983 with 150 beds. Presently this tertiary care centres has 550 operational beds which aims in bringing value at every stage focusing on customer driven technology.

In the years since, it has scripted one of the most magnificent stories of success that India has seen. Today it is one of the most respected hospitals in the world and is also amongst the most preferred destinations for patients from several parts of India, as well as for medical tourism and medical value travel.

The hospital has created a name for itself in the healthcare sector, it is called the 'Architecture of Healthcare of India' through cutting-edge innovation in medical procedures and technological advancements. It has over 60 departments equipped by internationally trained and skilful medical experts who are supported by dedicated patient care personnel. They have state-of-the-art facilities for various health ailments and disorders. At Apollo Hospitals, we unite exceptional clinical success rates and superior technology with centuries old traditions of care and warmth.

The organisation is first largest in Asia and fourth largest in the world. The hospital has a success rate of 95% in renal surgeries and 99.6% in cardiac surgeries. Apollo Hospitals expands itself to the community by Apollo clinics which acts as a brand manger in the local community.

VISION	***MISSION***
"Our Vision is to make India a global Healthcare destination".	*"Our mission is to bring healthcare of international standards within the reach of every individual. We are committed to the achievement and maintenance of excellence in education, research and healthcare for the benefit of humanity".*

QUALITY POLICY:

"Apollo Hospitals is committed to provide excellence in patient care."

- It is dedicated to provide personalised, excellent, efficient Medicare of international standards at optimum cost.
- Meet the ever-increasing demand of the patient needs through continuous upgradation of the systems, including Quality Management Systems."

QUALITY OBJECTIVE:

- "To provide efficient effective timely care with a human touch to our patients
- To create congenital work environment and provide training on Quality concepts to al concerned.
- To provide facilities to proper disposal of waste as per statutory requirements."

CENTRES OF EXCELLENCE:

There are dedicated centres for several super specialties called 'Centre of Excellence'. Each Centre of Excellence have a unique state-of-art facilities which provides high quality clinical care to all the patients. The organisation has robust quality standards which has led to precision in diagnosis and treatment plan. This has enhanced infection and safety protocols to render them the most appropriate treatment.

The various centres of excellence at Apollo Hospitals, Chennai are

Apollo Heart Institute	Orthopaedics
Cancer Care	Gastroenterology
Institute of Liver Sciences	Neurosciences
Nephrology & Urology	Spine
Critical Care	Emergency
Robotics	Paediatrics
Plastic Surgery	Colorectal Surgery

MILESTONES ACHIVED:

- India’s first Double Lung transplant for Hermansky- Pudlak syndrome.
- Apollo Hospitals, Chennai successfully performed Asia's first en-bloc combined heart & liver transplant.
- The first hospital in Southern India to introduce “the Ideal Knee" - the future of Total Knee Replacement through a new technique - Attune Rotating Platform Knee Replacement.
- First in the country and South East Asia to successfully separate male Pygopagus twins.
- The first hospital in India to conduct ECMO (Extracorporeal membrane Oxygenation) Procedure in India.
- Apollo Hospitals, Chennai introduced TamilNadu’s First Movement Disorder Clinic in Chennai.
- First American Gets A Successful Heart Transplant at Apollo Hospitals, Chennai.
- The Hospital was the pioneer in India for the Ilizarov technique.
- Apollo Hospitals, Chennai is the first to introduce Shape Metal Alloys to treat Scoliosis.
- The first Hospital which performed the first successful emergency heart transplant in the country.
- Apollo Hospitals, Chennai performed the first heart transplantation in 1995. This patient survived for 14 years which was the longest Indian transplant survivor

ORGANOGRAM OF QUALITY SYSTEM OFFICE (QSO)

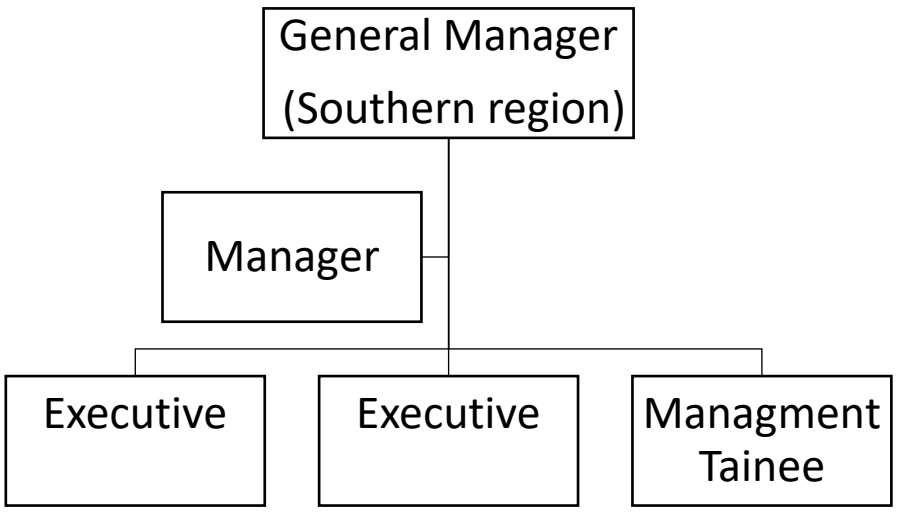

Fig:1.1 Organogram of QSO

ROLES AND RESPONSIBILITIES:

- The General Manager of QSO attends the daily hurdle meeting daily. Head of all the Department along with the Chief Executive Officer discuss various issues raised in the incident reporting system. The intensity of the issue is scored according to NSW, a severity assessment tool. The corrective action is discussed, and the copy of the report is mailed to the DMS and CEO.
- The Department plans the agenda for the month i.e. preparing the monthly activity, facilitate across different departments for patient safety videos , preparing minutes of meeting for various meetings held for the month.
- The executive co-ordinates with various clinical and non-clinical departments for the quality monitors .The data for the indicators are consolidated and is presented in the monthly Clinical Excellence meeting.
- The management review meeting is conducted twice a year and safety committee meetings are conducted once in three months.
- The department conducts EOC rounds which is scheduled according to the annual events calendar.

DEPARTMENTAL VISIT:

1: INFECTION CONTROL DEPARTMENT

The Infection Control Team at Apollo Hospitals, Chennai is a multi-disciplinary team comprising of specially trained Infection Control Nurses (ICN), Infectious Disease (ID) consultants, Clinical Microbiologist, Housekeeping staff and CSSD. The ICN are majorly assisted by the Infection Control (IC) Champions. The nurse in-charge of every ward or an ICU is designated the post of IC Champions. They ensure the staff nurses and other healthcare workers adhere to the infection control practises. For every 100 beds in a hospital, there

Infection Control Team (ICT):

The team is concerned with day to day surveillance and activities. They meet bi-monthly and informally once a week .

The members of ICT are

1. Infectious Disease Senior Consultant, the Chairman of Hospital Infection Control Committee
2. Infectious Disease Consultant.
3. Infectious Disease Junior Consultant
4. ICN – In charge
5. ICN – Wards
6. ICN - OT
7. ICN- ICU
8. ICN – Antibiotic Surveillance Nurse.

Hospital Infection Control Committee (HICC):

The members of HICC includes the members of ICT and the following members from various departments

- Chief Executive Officer
- Directorate of Medical Services
- Joint Directorate of Medical Services
- General Manager of QSO
- General Manager of Housekeeping
- Assistant Nursing Director
- Senior Executive – OT & CSSD

Roles and Responsibilities:

ICN- Wards:

- The ICN nurse conducts daily rounds in the wards to check the compliance of isolation protocol.
- Initiation of Isolation protocol based on MDR culture reports:
- The Clinical Microbiologist directly informs the ICN in case of multi drug resistance culture reports. The ICN informs the consulting physician counsels the patient and his bystander about the situation and initiates isolation protocol. Depending upon the

Multidrug Resistant Organism (MDRO) the type isolation is decided i.e. Airborne precaution Droplet Precaution or Contact Precaution.

- The ICN nurse maintains a checklist and audits the compliance on Bio-medical waste segregation, presence of hand rub in all bed sides, pressure monitor in negative pressure rooms, hand hygiene practise daily, proper discard of soiled and infected linen.
- Bundle care compliance for single used devices:
- The nurse audits the bundle care form for CAUTI, CLABSI daily to ensure adequate care is given to the patients. In case of evidence based CAUTI or CLABSI, the nurse follows the case and documents it.
- Post-operative follow-up calls:

  A 30 day follow up and 90 day follow up is done depending upon the type of surgery via telephonic call by all ICN nurses monthly. This is to rule out an infection at the surgical site after discharge from the hospitals, which is used for the calculation of the Quality monitor – Post operative SSI follow up.

ICN -OT:

- The ICN charts down the list of surgeries for the day ensuring the infected cases are taken at the end of the day.
- Ensures parameters humidity, temperature, positive pressure are within the specified range within the O.R complex. In case of non-compliance, the Engineering team is informed.
- Performs Hand hygiene and Surgical scrub Personal Protective Equipment Audit, BMW segregation and Cidex OPA Potency Test.
- Cidex OPA Potency Test: A high-level disinfectant is used which disinfects the sterilised surgical instruments before use. The same solution is used for a period of seven days and a dipstick test is done to check it potency.
- Training classes are conducted to educate the non-healthcare workers who are working inside the OR complex.
- Reporting of Surgical Site Infection (SSI) monthly A Root cause analysis is done in case of any SSI.

ICN- Antibiotic Surveillance:

Plays an important role in the Antibiotic Stewardship Program.

- Daily rounds is done in MDCCU and wards on patients receiving high end antibiotics.
- Collects data for Ant biometrics every month.
- Compliance of High-End Antibiotic Form in the Medical records of the patient.
- Bed side education to nurses as when required.
- Maintenance of culture surveillance reports is done daily and is documented.

ICN- ICU:

- Conducts Hand Hygiene audits:

  Every day the nurse conducts an audit for 20 mins which may be accompanied by the junior consultant for ensure all the staff nurse are following hand hygiene practise.
- The ICN checks if all the PPE's are maintained in the Isolation cupboard which is stationed near the isolation unit. Assess negative pressure control rooms
- The nurse will have to calculate days on the patient was on single use devices like central line, urinary catheter, mechanical ventilators. This data helps to calculate the quality monitors like CAUTI, CLABSI, VAP every month.
- Maintance of Surveillance Culture report:

  The nurse keeps a track on patients who has underwent culture sensitivity test who are suspected of an underlying infection. All the ICN staffs are given weekly rotation to collect MDRO reports directly from Microbiology laboratory. This enables the ICN to initiate isolation protocol as fast as possible.
- Bed side teaching for nurses as and when required.
- Conduct Infection control sessions:

  These sessions are a part of induction class where the ICN educate the newly joined nurses on the infection control practises which are followed in the hospital.

2: DEPARTMENT VISIT: MDCCU

(Critical Care Unit)

There are 24 beds in critical care unit with 4 beds equipped with negative pressure rooms for Air borne isolation. The unit is a multi-disciplinary set up which admits critically ill patients from all specialities and super specialities. The unit follows a semi-open system.

To admit a patient in the CCU, it has to full fill the following criteria,

Hemodynamic, Neurology, Gastro-intestinal and Respiratory, Surgical, Drug ingestion and over dose and Endocrine parameters. Since care cannot be abstained to a person who have communicable diseases a strict isolation protocol is in practise to reduce the risk of cross infection between patients.

The three types of precautions followed are

1. Airborne Precaution
2. Contact Precaution
3. Droplet Precaution

Soiled infected linen are put in water soluble cover which is made of gelatine. Infected linen are washed separately at the end of the day to prevent cross contamination.

1.Airborne Precaution:

It is designed to reduce the risk of transmission of infection through air.

- Clinical Condition which require Airborne precaution:

Varicella, Herpes, Herpes in immuno-compromised patients, TB and measles infection require Airborne precaution.

- N-95 mask much be worn by all those who are in contact with the infected patient.

2. Contact Precaution:

It is designed to reduce the risk of transmission of infection of important micro-organisms by direct and indirect contact. Indirect contact involves contact with susceptible host, inanimate and patient environment.

- Clinical Condition which require Contact precaution: MRSA, Candida aureus, Scabies, Congenital rubella, Clostridium difficle, multi drug resistant organisms.
- A yellow coloured cupboard is placed outside the isolation room which has the following personal protective equipment. Disposal Gowns, Gloves, face mask, hand rub.

3. Droplet Precaution:

- Clinical Condition which require Droplet precaution: Mumps, influenza, H1N1, pertussis, rubella
- A three-layer surgical mask, hand rub is placed outside the yellow coloured cupboard.

NOTIFIABLE COMMUNICABLE DISEASES:

- There are certain diseases which are notifiable to the law.
- It is the responsibility of the consulting physician to notify the disease.
- It is important since the public health takes measures to prevent future cases.
- Statistics can be maintained. Epidemiology studies can be carried with the data to understand the risk factors and limit the disease spread.

The notifiable diseases are:

Acute Gastro Enteritis	Cerebrospinal Fluid
Chikungunya	Epidemic influenza
Haemorrhagic fever	HIV+
H1N1	Infectious Hepatitis
Leprosy	Leptospirosis
Cholera	Chicken Pox
Whooping cough	Dengue fever
Diphtheria	Enteric fever/typhoid
Malaria	Measles
Plague	Poliomyelitis
Rabies	Scarlet Fever
Small Pox	Scrub Typhus
Tetanus	Tuberculosis
Viral Encephalitis	Yellow Fever

Procedure to notify:

The disease is documented in the notification book in the respective wards in the in-patient department. In the outpatient set up, it is directly reported from the microbiology Lab to MRD. The MRD notifies the Zonal Officer of the State Government. Suspected

Tuberculosis must also be notified to the Government, a monthly report is generated from MRD for both OP and IP Department.

HAND HYGYIENE PRACTICE:

The practice of maintaining a proper hand hygiene has proven to be the most effective way to prevent cross infection between patients through healthcare workers. Implementing such a practice seems easy but adherence to such a practice by every healthcare worker is easier said than done. With growing burden of Hospital Acquired infection, it is important to involve all the stakeholders in the hospital. The World Health Organisation had specific guidelines on to promote improved hand hygiene practices in hospitals and reduce transmission of microorganisms and the communicable infections, which lead to increased morbidity, mortality, lengths of stay, and costs of care to the patients. A higher level of compliance is required for the program to be effective.

At Apollo Hospitals, Chennai a series of activities and audits are conducted to ensure the practice is hardwired into a behaviour change. The infection control Nurse performs an audit in every ward for 20 minutes daily, assessing the five moments of hand hygiene practice. Various healthcare professionals like registrars, residents, consultants, nurses , technicians and housekeeping staffs are assessed. Based on this a monthly report is generated and training is given to specific group of HCW. In addition, the audits are supplemented by surveillance activities in patient care areas like Cafeteria, outpatient Departments etc. Patients and their bystanders are educated on the importance of clean hands.

THE FIVE MOMENTS OF HAND HYGYIENE :

1. Before physical examination of the patient
2. After physical examination of the patient
3. Before performing an Aseptic procedure
4. After performing an Aseptic procedure
5. After encountering with patient’s environment like respiratory infusion pumps, dressing, drains, linen.

4. DATA VALIDATION OF CQI INDICATORS

One of the efficient ways to maintain a Continuous Quality Improvement is collecting and analysing the data. This can be achieved using Quality indicators which are evidences to gauge performances in health care. These indicators helps to measure the standards of patient care and patient safety in the clinical and non-clinical departments. Validation and verifying the analysed data is important since it ensures the reliability at any given point of time.

INDICATIONS OF DATA VERIFICATION AND VALIDATION:

- If there is a change in the process owner:
  When the person in charge for collecting and data has been changed , it is necessary to validate the analysed data.
- Sudden variation in CQI indicators.
- As a part of routine , it is done a once year.

VERIFICATION & VALIDATING METHODOLOGY:

- The Head of concerned Department sets the criteria for the respective CQI indicators.
- Data will be recollected by second person not involving in the original data collection using data collection sheet.
- Sample size will be defined using proper statistical evidence (Considering acceptable percentage of tolerance)
- Re-collected data will be compared with original data using appropriate statistical test (If applicable).
- Accuracy level will be measured; accuracy level more than 95% will be acceptable.
- When data elements are found not to be the same, reason for same will be found, noting the reasons (for example, unclear data definitions) corrective actions will be taken.
  Evidence Document: Any Document which is used for the calculation of the quality indicator.
  Verifying Document: The primary data verified against other resources from MRD, similar records maintained in other departments.

Percentage of Data accuracy = (number of cases accurate/ total number cases validated)*100

1. Catheter associated Urinary tract infection rate.

Indicator	Catheter associated Urinary tract infection rate

Type of Indicator	Rate Based indicator
Numerator	Number of urinary catheter associated UTIs in a month
Denominator	Number of urinary catheter days in the same month
FORMULA:	$\frac{\text{Numerator}}{\text{Denominator}} \times 1000$
Evidence Document:	Back end data from infection Control Department
Verifying Document:	MRD files – verified the progress notes, CCU Master chart and nursing notes and online bundle forms-HMIS.

Defining the sample size :

Using proper statistical evidence , the sample size (k) is defined.

K value = n/N

Where N is the total population and n is the frequency at which the random sampling done.

Here, N=533

For population more than 450 , the n value is defined as 48

K = 533/48

= 11.

This means for every 11^{th} patient case file must be verified to validate the data.

Total cases to be verified and validated = 48

Percentage of accuracy = (43/48)*100 = 90%

2. Central line associated Bloodstream infection rate.

Indicator	Central line associated Bloodstream infection rate
Type of Indicator	Rate Based indicator
Numerator	Number of central line associated blood stream infection in a month
Denominator	Number of central line days in the same month
FORMULA:	$\frac{\text{Numerator}}{\text{Denominator}} \times 1000$
Evidence Document:	Back end data from Infection Control Department.
Verifying Document:	MRD files – verified the progress notes, CCU Master chart and nursing notes and online bundle forms-HMIS.

Defining the sample size :

Using proper statistical evidence , the sample size (k) is defined.

K value = n/N

Here, N=

For population more than 450 , the n value is defined as 48

K = 460/48 =10

This means for every 10th patient case file must be verified to validate the data.

Total cases to be verified and validated = 46

Percentage of accuracy = (43/46)*100 = 93%

3. Ventilator Associated Pneumonia Rate.

Indicator	Ventilator Associated Pneumonia rate
Type of Indicator	Rate Based indicator
Numerator	Number of ventilator associated pneumonia in a month
Denominator	Number of ventilator days in the same month
FORMULA:	$\frac{\text{Numerator}}{\text{Denominator}} \times 1000$
Evidence Document:	Back end data from Infection Control Department
Verifying Document:	MRD files – verified the progress notes, CCU Master chart and nursing notes and online bundle forms-HMIS.

Defining the sample size :

Using proper statistical evidence , the sample size (k) is defined.

K value = n/N

Here, N=503

For population more than 450 , the n value is defined as 48

K = 503/48

= 10.

This means for every 10th patient case file must be verified to validate the data.

Total cases to be verified and validated = 50

Percentage of accuracy = (47/50)*100 = 94%

4. Surgical site infection Rate.

Indicator	Surgical Site infection rate
Type of Indicator	Rate Based indicator
Numerator	Number of ventilator associated pneumonia in a month
Denominator	Number of ventilator days in the same month
FORMULA:	$\frac{\text{Numerator}}{\text{Denominator}} \times 1000$
Evidence Document:	Back end data from Infection Control Department
Verifying Document:	MRD files – verified the progress notes, CCU Master chart , Operation notes.

Defining the sample size :

Using proper statistical evidence , the sample size (k) is defined.

K value = n/N

Here, N=1000

For population more than 1000 , the n value is defined as 48

K = 1000/48

= 21.

This means for every 21st patient case file must be verified to validate the data.

Total cases to be verified and validated = 48

Percentage of accuracy = (48/48)*100 = 100%

CONCLUSION: The above-mentioned indicator were verified and validated and found to have an accuracy more than 90 % Hence the given CQI indicators are reliable when analysed at any given point of time.