Gap analysis in Medical Imaging Services According to NABH Standards

By

Ashima

Dissertation submitted for the partial fulfillment of the

MBA Hospital and Health Management

Academic year, 2015-2017

The IIHMR University, Jaipur

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INSTITUTE OF HEALTH MANAGEMENT RESEARCH
(WHO Collaborating Centre for District Health System Based on Primary Health Care)

IIHMR UNIVERSITY

TO WHOMSOEVER IT MAY CONCERN

This is to certify that Dr. Ashima, student of MBA Hospital and Health Management from The IIHMR University, Jaipur has undergone internship training at National Jindal Institute of Medical Sciences, Hisar, Haryana from 6th February to 6th May, 2017.

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

The Internship is in fulfillment of the course requirements.

I wish her success in all her future endeavors.

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

Dr. Alok Mathur
Associate Professor,
The IIHMR University, Jaipur

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Ph : 01662-221169, 220169, 220511, Fax : 01662-221700, email : info@ncjims.org

The certificate is awarded to

DR. ASHIMA

In recognition of having successfully completed her
Internship in the department of

OPERATIONS

and has successfully completed her Project on

Gap Analysis in Medical Imaging Services According to NABH Standards

9th may, 2017

Jindal Institute of Medical Sciences, Hisar, Haryana

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

We wish him/her all the best for future endeavors

Senior Manager Operations

Head-Human Resources

IIHMR UNIVERSITY

THE IIHMR UNIVERSITY, JAIPUR

CERTIFICATE BY SCHOLAR

This is to certify that the dissertation **"Gap Analysis in Medical Imaging Services according to NABH Standards".** and submitted by **Ashima** Enrollment No. **0264** under the supervision of **Dr. Alok Mathur** for award of MBA in Hospital and Health Management in Health and Hospitals of the University carried out during the period from **6th February 2017 to 6th May 2017** embodies my original work and has not formed the basis for the award of any degree, diploma associate ship, fellowship, titles in this or any other institute or other similar institution of higher learning.

Signature

THE IIHMR UNIVERSITY, JAIPUR

CERTIFICATE BY SCHOLAR

This is to certify that all ethical issues have been considered while collecting data for my dissertation titled **"Gap Analysis in Medical Imaging Services According to NABH Standards".**

Signature of student

Non-Disclosure Clause

1.)Please put an NDA(Non-Disclosure) clause in this report :

All the data/information used in the report exclusively belongs to JIMS, which is being used only for preparation of this Thesis. IIHMR University and its officials are not permitted to share of use any such information for any purpose.

2) Also do not share this report with anybody except your university.

Regards,

Shekhar Sinha
(Medical Director)
Jindal Institute of Medical Sciences

Contents:

Abstract

INTRODUCTION:

The NABH Standards for Medical Imaging Services having standards for evaluation of Medical Imaging Service of hospital and award accreditation. The NABH accredited hospital has its standards set and provide quality of care to patients, improve diagnostic services, safety and it also increases the patient satisfaction. Once the standards are set then quality environment and services at all levels in an organization and across all the functions like close association with clinical colleagues, verification of result (correlation of reports with clinical diagnosis) and proper maintenance and calibration of the equipment, Recording number of re-dos, Number of reporting error, Hand hygiene, Adherence to safety precautions by employees working in diagnostics of Medical Imaging Service.

BACKGROUND :

A study was conducted to understand the role of NABH standards and its impact on quality of a hospital. The study provides the data which shows the gap between the existing services and the standards of NABH in different departments of the hospital. Primary data collected through observation, discussion with staff and patients and Secondary data was collected from hospital records like manuals, policies, Self assessment toolkit in which corrective preventive actions are recommended to reduce the gaps.

OBJECTIVES:

- To identify the gaps to assess the existing service delivery status of Radiology department at Hospital as per NABH standards.

MATERIALANDMETHODS:

STUDY DESIGN: The study is descriptive & observational, was done in two parts i.e. present status of department & compliance against NABH standards.

SETTING: Research work was conducted in Radiology Department Jindal Institute Of Medical Sciences, Hisar, Haryana.

DURATION OF STUDY: 3 Months (February to April) 2017.

SAMPLE SIZE: All available services was compared against set standards.

SAMPLE TECHNIQUE:

Primary Data: Direct observation, Conversation with the Hospital staff, Discussion with the patients of the hospital.

Secondary Data: Hospital Manuals and Policies, Records (e.g. Register of these departments).

CONCLUSION: This study demonstrated that Gap Analysis done in comparing the actual performance with the pre set standards of NABH in Medical Imaging Services and then implementing corrective actions results in the enhancement of quality and safety in delivering Radiology services and making it more effective for all economic strata's.

KEYWORDS: Standards of NABH, Imaging services, Patient care and safety, Gap analysis

1. Acknowledgement

"Mentoring is a brain to pick, an ear to listen and a push in the right direction"

I would take the opportunity to acknowledge the people without whom this project wouldn't have seen the light of the day.

I got the opportunity to pursue my Dissertation from Jindal Institute of Medical Sciences, Hisar, Haryana. I am thankful to Dr Shekhar Sinha (Director NCJIMCARE and OPJICACRE) for providing me opportunity to conduct my study in NCJIMCARE and OPJICACRE Hospital.

I would seriously like to mention the significant role in project mentoring and help during the course of Dissertation by my mentor.

I would like to thank my mentor and guide Mrs. Kumkum Roy Chaudhary ,(Senior ManagerOperations), Mr. Surjeet Singh Bhogal, (Senior Manager Operations) and Mr. Sandeep Dalmia(Strategic and Business Manager),Jindal Institute of Medical Sciences, Hisar, Haryana and Dr. AlokMathur, (Associate Professor), IIHMR, Jaipur for providing an opportunity to carry out the project work and utilizing the facilities available. Without their valuable guidance and consistent support, this project would not have got underway.

I'm thankful to all staff and doctors of Jindal Institute of Medical Sciences, Hisar, Haryana for being there to guide me for the entire period of my Dissertation, for helping me improve the quality of my work and for helping me identify areas where I lack and work upon them and also thankful to all those who have directly or indirectly encouraged me and supported me to complete this project.

2. List of Abbreviations

JIMS – Jindal Institute of Medical Sciences

HICC – Hospital Infection Control Committee

AMS – Antimicrobial stewardship

OT – Operation Theater

OR – Operation Room

BME – Bio Medical Engineering

CT-scan – Computed Tomography

MRI – Magnetic Resonance Imaging

USG – Ultra Sonography

NABH – National Accreditation Board for Hospitals and Health care providers

AAC –Access, Assessment and Continuity of Care

COP - Care Of Patients

MOM - Management Of Medication

PRE -Patient Rights And Education

HIC - Hospital Infection Control

CQI - Continual Quality Improvement

ROM - Responsibility Of Management

FMS - Facility Management Safety

HRM - Human Resource Management

IMS - Information Management Safety

O.E. - Objective Element

ADR - Adverse Drug Reactions

CSSD - Central Sterile

MLC - Medico-Legal Case

OPD - Out-Patient Department

MCI - Medical Council Of India

CPR - Cardio-Pulmonary Resuscitation

3. Organization Overview

Jindal Institute of Medical Sciences is a upgraded secondary level charitable and multispecialty hospital managed by O.P. Jindal Group running under support of N.C. Jindal Charitable Trust and Om Savitri Jindal Charitable Society. This hospital has 560 beds at present covering a population of about 70 lacs and is the biggest referral hospital in south Haryana and neighboring Rajasthan & Punjab,. With almost 48 years of dedicated service, this medical institute has won the trust of community and is approached by one and all with confidence for ethical, affordable, reliable and quality health care services, constant up gradations and expansion to keep pace with improving medical technology, The management has kept the pricing low and within reach of the community to maintain charitable character of the hospital. Jindal family gives liberal donations for any new project, costly medical equipment and technology. Otherwise, this institute is financially self sustaining due of high volume and turnover of patients. Hospital is located in the Model Town area of Hisar city with 15 acres of land having state of art buildings, lush green lawns, spacious parking, in-house pharmacy, cafeteria, shopping complex and multi storey residential campus to house doctors and staff.

Organ

N.C. Jindal Institute of Medical Care & Research

O.P. Jindal Institute of Cancer & Research

O.P. Jindal Institute of Cancer and Cardiac Research

Savitri Jindal Institute of Nursing

Jindal Institute of Medical Sciences Campus Area

At present JIMS has 100+ doctors including resident doctors, about 1300 paramedical and supporting staff, a turnover of 4.6 Lac outpatients, 50000 inpatients and 16000 surgeries and procedures per year.

Secondary And Tertiary Level Of Services

Secondary Level		Tertiary Level
Medicine	Orthopedics	-Medical Oncology
General Surgery	Paediatrics	-Radiation Oncology
Eye	ENT	-Neuro Surgery & Neurology
Gynae.&Obs.	Psychiatry	-Plastic Surgery
Anaesthesia& Critical Care	Dermatology	Gastroenterology & GI Surgery
Radiology	Pathology &Microbiology	-Cardiology & Cardiac Surgery
Physiotherapy	Dentistry	-Nephrology
		-Urology

Vision

Be a "Centre of Excellence" for providing comprehensive health care & training in medical science

Mission

Quality Medical Care at Affordable Cost

Values

- Practice Dignity and Equity in relationships. Provide opportunities for people to realize their full potential.
- Manage our operations with high concern for patient's right.
- Stay updated with latest technological advancement and managerial expertise to enhance patient satisfaction**.**
- Inculcate cost consciousness and concept of effectivity and efficiency with concern for patient's affordability.

Hospital Beds

Number Of Beds

Category	No. of Beds
General Ward Beds	85
Economy Beds	19
Private Rooms	153
Deluxe Rooms	19
Super Deluxe	4
HDU	107
CRITICAL CARE (ICU, PICU, NICU, CTVS ICU, CCU 1, MICU, H.CMD)	126
Daycare (Eye, Gastro, Chemotherapy, Dialysis)	47
Total	**560 Beds**

Preventive Health Checkup Programmes

We at JIMS believe in the age old dictum - Prevention is better than cure. Our Preventive Health Programme provides a comprehensive and complete health check up from the best available hands, followed by advice on relevant lifestyle changes.

- ✓ Specially designed Health screening packages to suit individual needs.
- ✓ Convenience of investigations, multi-disciplinary consultation, and effective treatment, all under one roof.
- ✓ Individualized corrective lifestyle advice.

Jindal Institute of Medical Sciences is empanelled with many government & public sector institutions as under :

- ✓ Haryana State Government
- ✓ Employee State Insurance Corporation (ESIC)
- ✓ Guru Jambheshwar University of Science & Technology
- ✓ CCS Haryana Agriculture University
- ✓ Dakshin Haryana BijliVitran Nigam

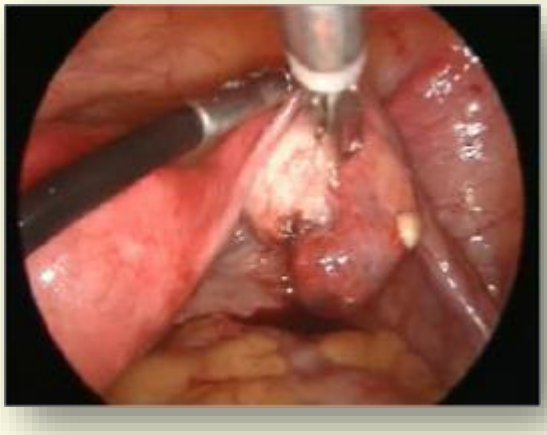
Name of Departments with the services provided

Name of Departments

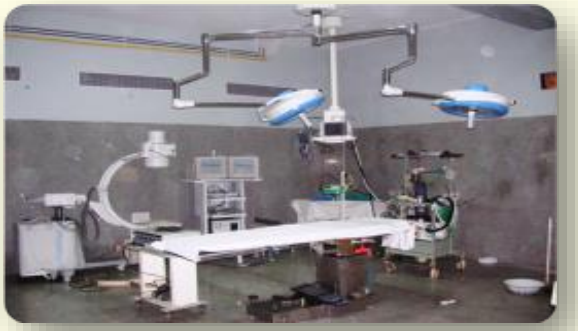
Department of Neuro Surgery & Neurology Facilities ➢ EEG ➢ NCV ➢ Brain Microsurgery ➢ Spinal Cord Surgery ➢ 24 Hrs Trauma Support ➢ Advance Life Support Ambulance ➢ Intensive care unit ➢ Ventilators	Department of Cardiology & Cardiac Surgery Facilities ➢ ECHO ➢ TMT ➢ Holter ➢ Angiography ➢ Angioplasty ➢ Pacemaker Implantation ➢ Cardiac Care Unit
Department of Nephrology Facilities ➢ Dialysis ➢ Nephrology HDU ➢ Kidney	Department of Urology Facilities ➢ PCNL ➢ Lithotripsy ➢ CO2 Laser
Department of Medical & Radiation Oncology Facilities ➢ Chemotherapy ➢ Brachytherapy ➢ Telecobalt ➢ Linear Accelerator ➢ Preventive Oncology ➢ In-house Onco Pharmacy	Department of Plastic Surge Facilities ➢ Burns Unit ➢ Burns ICU ➢ Flap & Reconstructive Surgery
Department of Gastroenterology & GI Surgery Facilities ➢ ERCP ➢ Diagnostic Endoscopies	Department of Medicine Facilities ➢ Medical ICU with Ventilators ➢ Dialysis

➢ Therapeutic Endoscopies ➢ Oesophageal Stents ➢ Bariatric & Other GI Surgery	➢ Cardiac Monitors ➢ Defibrillators ➢ Echocardiography ➢ TMT ➢ Video Endoscopy ➢ Spirometry
Department of Gen. Surgery & Surgical Oncology Facilities ➢ Laproscopic Surgery ➢ Onco Surgery ➢ TURP ➢ Cystoscopy ➢ Colonoscopy	Department of Orthopedics Facilities ➢ Arthoscopy ➢ Arthoplasty ➢ Knee Replacement Surgery ➢ Total Hip Replacement Surgery ➢ Laminar Flow Operation Theater ➢ C-Arm Image Intensifier ➢ Physiotherapy o TENS o Ultrasonic Massage o Interferrential Therapy o Wax Bath o Short Wave Diathermy o Computerised Traction o Neuro-Muscle Stimulator o Moist Heat Therapy Unit
Department of Ophthalmology Facilities ➢ Micro Surgery ➢ Phacoemulsification Surgery ➢ Cornea Transplant Surgery ➢ Vitrectomy ➢ Nd. Yag Laser ➢ Double Frequency Green Laser ➢ Fundus Fluorescein Angiography ➢ Automated Perimetry ➢ Auto Refractometer ➢ Non ContactTonomter ➢ LASIK Laser	Department of ENT Facilities ➢ Sinus Endoscopy ➢ Micro Ear Surgery ➢ Laryngeal Surgery ➢ CO2 Laser Surgery ➢ Skull Base Surgery ➢ Digital Audiometry ➢ Speech Therapy ➢ Hearing Aid ➢ Cochlear Implantation
Department of Peadiatrics Facilities ➢ Neo-Natal Nursery ➢ Pediatric HDU ➢ Neonatal & Pediatric Ventilators ➢ Exchange Transfusion	Department of Gynae& Obs. Facilities ➢ Air Conditioned Labour Room ➢ Painless Normal Delivery ➢ Hysteroscopy ➢ Non Descend ViginalHysterctomy ➢ Colposcopy

	➢ Cardiac Tocogram
Department of Radiodiagnosis Facilities ➢ Color Doppler ➢ Computerised X Ray ➢ 125 Slice CT Scan ➢ 1.5 T MRI ➢ Ultrasonography ➢ Mammography ➢ Special Diagnostic Investigations	Department of Psychaitry Facilities ➢ ECT ➢ Biofeed Back ➢ Multi-BehaviourTharapy ➢ Clinical Psychology
Department of Dermatology Facilities ➢ Skin Biopsy ➢ Electro Cautry ➢ Blister Grafting in vitilogo ➢ Electrolysis	Department of Anaesthesia& Critical Care Facilities ➢ Intensive Care Unit ➢ Pain Clinic
Department of Pathology Facilities ➢ Automated Analyzers ➢ Hematology ➢ Biochemistry ➢ Microbiology	Department of Dentistry Facilities ➢ Dental X-ray ➢ Maxilofacial surgery ➢ Orthodontic surgery ➢ Dental Prosthesis and Implants



Laproscopic Surgery



10 Modern Operation Theaters

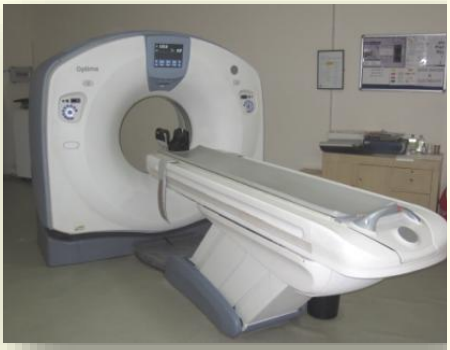
Private Rooms

24 Hrs Trauma Support

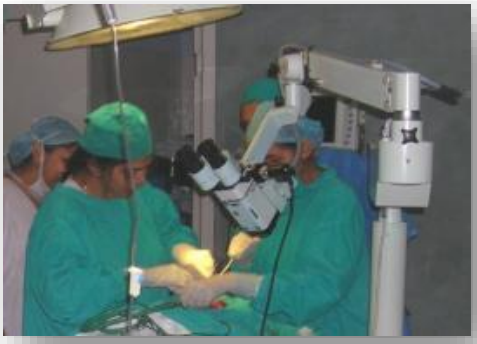
Intensive Care Unit

Advance Life Support Ambulance

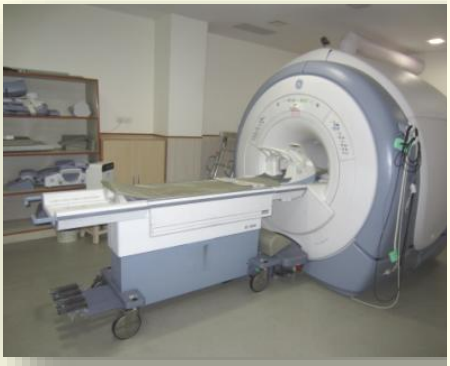
Medical ICU



128 Slice CT Scan



Micro Ear Surgery



1.5 Tesla MRI

Nursery

Mammography

Auditorium

Laundry Area

Solar Heater

PROJECT REPORT

GAP ANALYSIS IN MEDICAL IMAGING SERVICESACCORDING TO NABH STANDARDS

1. Preamble:

National Accreditation board for hospitals and healthcare providers (NABH) is an organization that is responsible for providing accreditation to various hospitals. Accreditation helps hospitals to improve the standards, quality, process, structure and clinical outcomes.

National Accreditation Board for Hospitals and Healthcare Providers (NABH) is a board of Quality Council of India (QCI), set up to establish and drive accreditation programs for hospitals. NABH helps hospitals to improve and encourage uninterrupted quality development so that hospitals can achieve complete patient satisfaction.

LogoOf NABH:

International LinkageOf NABH:

- NABH is an Institutional Member as well as a Board member of the International Society for Quality in Health Care.
- NABH is a member of the Accreditation Council of International Society for Quality in Health Care.
- NABH is on the board of Asian Society for Quality in Healthcare.

NABH Standards:

Chapters – 10

Standards – 105

Objectives – 683

The NABH Standards for Medical Imaging Services having standards for evaluation of Medical Imaging Service of hospital and award accreditation. The NABH accredited hospital has its standards set and provide quality of care to patients, improve diagnostic services, safety and it also increases the patient satisfaction. Once the standards are set then quality environment and services at all levels in an organization and across all the functions like close association with clinical colleagues, verification of result (correlation of reports with clinical diagnosis) and proper maintenance and calibration of the equipment, Recording number of re-dos, Number of reporting error, Hand hygiene, Adherence to safety precautions by employees working in diagnostics of Medical Imaging Service. Quality assurance of radiation equipment is done externally by an Horizon meditech pvt Ltd(outsource party). The QA is done based on the checklist provided by AERB & it is present on the AERB website.

Scope & Out of scope of Imaging Services in Hospital:

To provide imaging service commensurate to the service provided by the hospital

Scope of Imaging Services

• Computed Radiography (CR)	• X-Ray
• Contrast X-ray	• USG
• CT-scan (Computed Tomography)	• MRI (Magnetic Resonance Imaging)
• Mammography	• Colour Doppler
• PET CT(MOU)	• Portable X-ray

Space & zoning of radiology services

To provide adequate physical space for providing defined scope of service.

The space & zoning of radiology department is as per government guidelines & approved by AERB(Atomic energy regulatory board)

X ray, CT scan, MRI machine design:

- The room housing is designed under the guidelines of the Bhabha atomic research center, which is the local governing body for Radiation protection and monitoring.
- There is incorporation of 1.5 mm lead within the doors and the glass window to prevent radiation leakage.

Room size is big enough to house the machine.

Key Performance Indicators in Imaging Services:

- % of reporting errors
- Rate of re-dos
- % of reports co-relating with clinical diagnosis
- % of adherence to safety precautions by employees working in diagnostics
- % of admission with adverse drug reaction(only for IPD)
- Incidence of fall
- Critical equipment down time
- Waiting time for services including diagnostics
- Incidence of patient identification errors
- Compliance to hand hygiene

Surveillance in radiology department:

The following will be tracked

- Day to day activity
- Use of PPE/TLD badges
- Dose reduction practices
- Correct proportion for correct settings
- Turnaround time
- Critical test reporting
- Equipment calibration, down time, operational maintenance plan, preventive maintenance plan, breakdown plan.
- KPI Monitoring

Signages and posters to be displayed in Imaging Services:

1. Radiation hazard	2. PNDT board
3. PNDT registration certificate	4. Use of mobile is prohibited
5. Name of the radiologist, qualification & timing	6. Biological waste Management
7. Scope of services	8. Code red posters
9. Spill cleaning	10. Display of anaphylaxis chart
11. CPBR chart	12. emergency code of hospital
13. needle stick injury	14. hand washing poster
15. MSDS for sodium hypochlorite	16. MSDS of HIRA

2. Background :

Quality Management System and Accreditation are multipurpose tools to ensure equity in healthcare services and meeting the increasing aspirations of people. Gap Analysis helps an organization to compare its actual performance with the pre set standards of NABH. It reveals the areas of improvement in the existing services system. It is an efficient base to implement a modern management system. The hospital should serve as place of safety for patients, staff and the general public. Thus the quality of service provided in various department including Medical imaging services is of prime concern for any hospital.

A study was conducted to understand the role of NABH standards and its impact on quality of a hospital. The study provides the data which shows the gap between the existing services and the standards of NABH in different departments of the hospital. Primary data collected through observation, discussion with staff and patients and Secondary data was collected from hospital records like manuals, policies, Self assessment toolkit in which corrective preventive actions are recommended to reduce the gaps.

3. **Research Question:**

Is there gap between the expected and actual status of Imaging Services (Radiology Services) as per NABH standards.

4. Objective:

- To identify the gaps to assess the existing service delivery status of Radiology department at Hospital as per NABH standards

5. Research Methodology:

Study Design:

The study is descriptive & observational, was done in two parts i.e. present status of department & compliance against NABH standards.

Study Area:

Research work was conducted in Radiology Department, JIMS.

Duration of Study:

Three months (February 2017 – May 2017)

Sample size:

All available services in radiology department was compared against set standards

Data collection tool:

Primary Data: Direct observation, Conversation with the Hospital staff, Discussion with the patients of the hospital.

Secondary Data: Hospital Manuals and Policies, Records (e.g. Register of these departments) and using NABH toolkit.

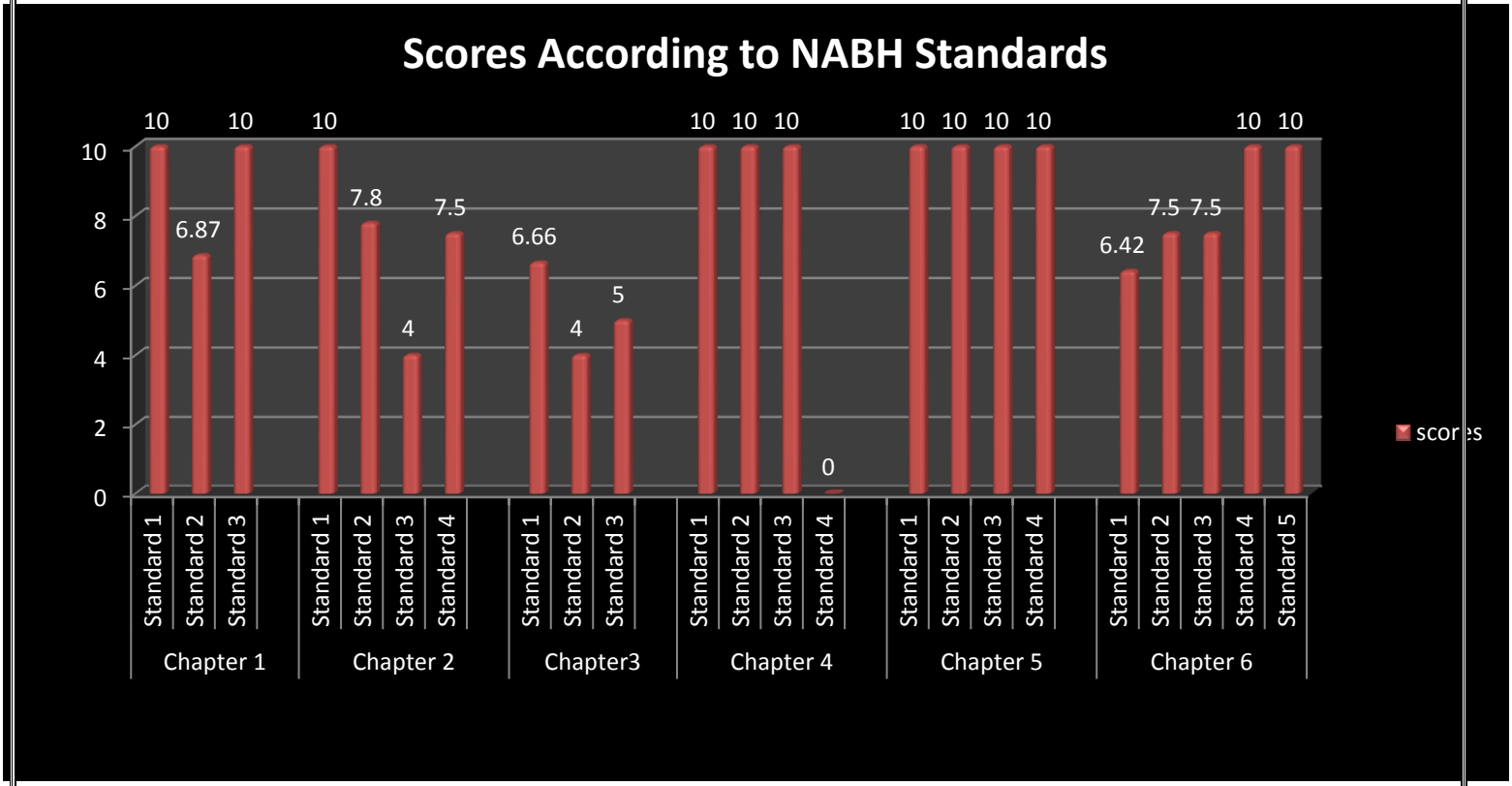
6. Observational Analysis:

Scores According to NABH Standards

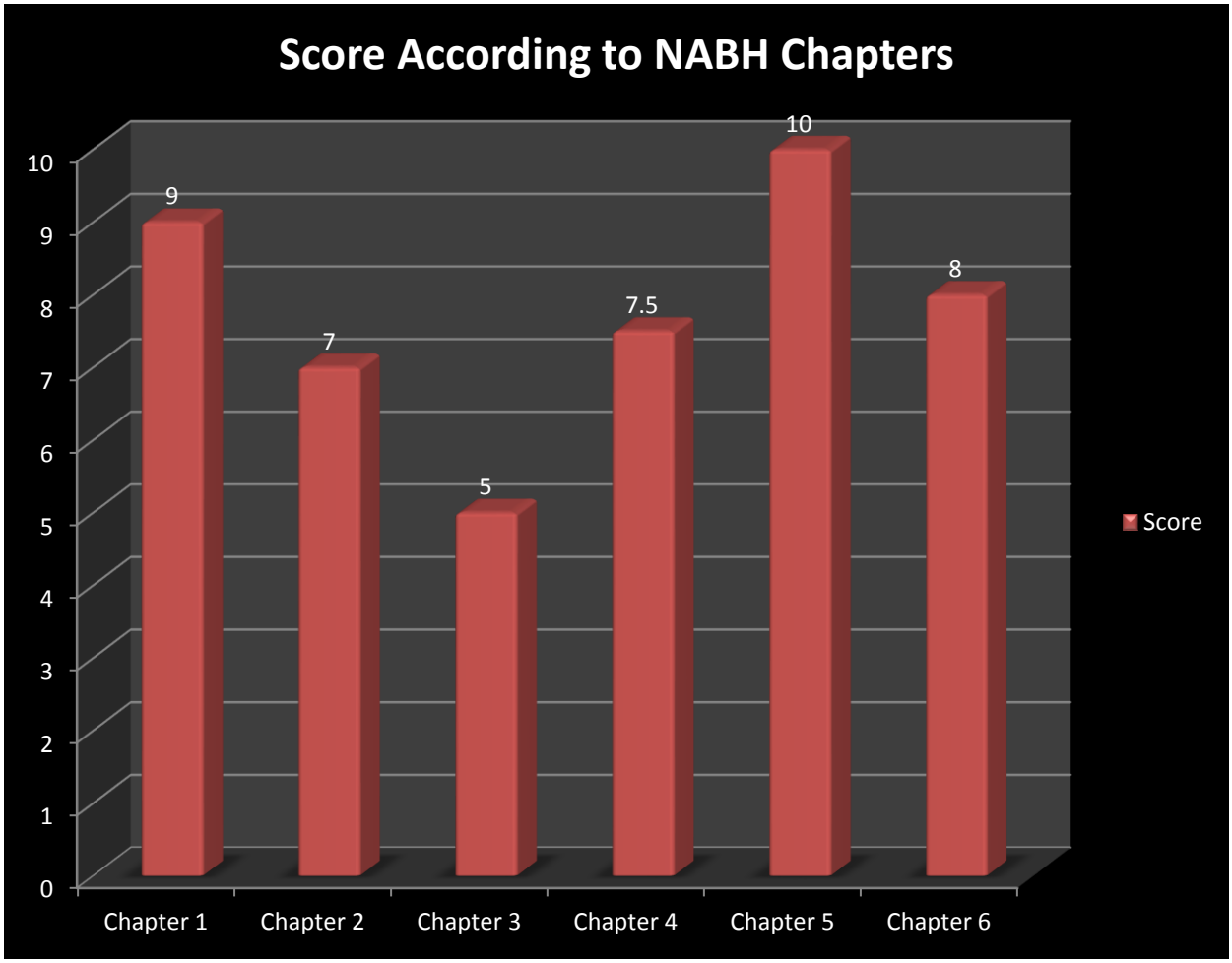
CHAPTERS	STANDARDS	SCORES	AVERAGE SCORES
Chapter 1	Standard 1	10	
	Standard 2	6.87	9
	Standard 3	10	
Chapter 2	Standard 1	10	
	Standard 2	7.8	
	Standard 3	4	7
	Standard 4	7.5	
Chapter3	Standard 1	6.66	
	Standard 2	4	5
	Standard 3	5	
Chapter 4	Standard 1	10	
	Standard 2	10	
	Standard 3	10	7.5
	Standard 4	0	
Chapter 5	Standard 1	10	
	Standard 2	10	
	Standard 3	10	10
	Standard 4	10	
Chapter 6	Standard 1	6.42	
	Standard 2	7.5	

	Standard 3	7.5	8
	Standard 4	10	
	Standard 5	10	

Total Average Score is 7.75



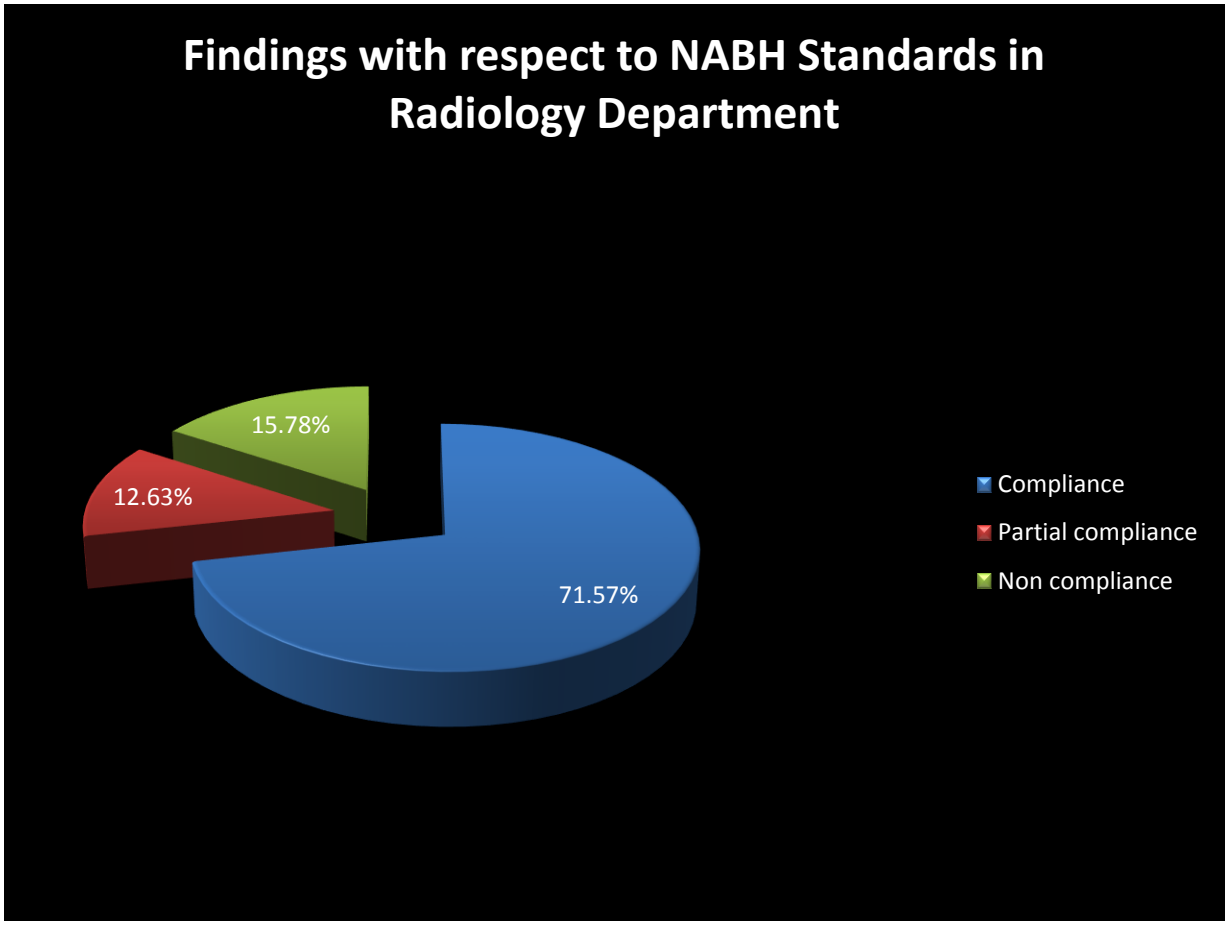
Scores According to NABH Chapters



Chapter	Score
Chapter 1	9
Chapter 2	7
Chapter 3	5
Chapter 4	7.5
Chapter 5	10
Chapter 6	8

COMPLIANCE

Total objective		**95**
Compliance	71.57%	68
Partial compliance	12.63%	12
Non compliance	15.78%	15



7. FINDINGS:

The study revealed that as per NABH Standards the total average score achieved is 7.75 and minimum score required is 7 so Therefore, hospital is eligible for final assessment for NABH in Imaging Services.

Radiology department has 29% gaps where, 13% are partial gaps and 16% are complete gaps.

8. **GAP IDENTIFICATIONS AND CORRECTIVE ACTIONS :**

Sr. No.	STANDARDS	GAPS	CORRECTIVE ACTION
1	Medical imaging services ensure that the information about specific procedure is available to patients & attendants.	Patients & attendants are not informed by the imaging department.	Corrective action should be a patient hand book/hand out in which he can have an insight regarding procedure being done & approximate cost.
2	Medical Imaging Services ensure that patient and attendants are informed about expected cost prior to imaging.	Patients & attendants are not informed by the imaging department.	Corrective action should be a patient hand book/hand out in which he can have an insight regarding procedure being done & approximate cost in relevant format & language.
3	Medical Imaging Services ensure safety of patients, attendants and their belongings while in the facility.	Poster on patient safety not present and no measure has been practiced for safety of patient belonging in X-ray and USG but in CT-scan and MRI lockers are present for patients to keep their belongings.	Locker can be installed in X-ray and USG also + patient belonging Handover register can be implemented.

4	Medical Imaging Services ensure safe transport of the patients within, to and from the facility whenever required.	As observed Imaging Department does not facilitate any transportation from imaging department to wards.	As seen the, patients from IPD & emergency department are accompanied by nursing staff & GDA but then imaging should also have a provision of transportation of patients.
5	Medical Imaging Services ensure that design and construction of the facility supports specific needs of the patient population (including children and those with special needs) a	There is less number of seats in Imaging department and Waiting area need to be improved	Patient & attendant waiting area to have more seating area.
6	Medical Imaging Services ensure appropriate quality of images and reports for teleradiology services	Teleradiology is not practiced.	Teleradiology need to be added as the transmission of radiological patient images, such as x-rays, CTs, and MRIs, from one location to another for the purposes of sharing studies with other radiologists and physicians. Radiology

			improves patient care by allowing radiologists to provide services without actually having to be at the location of the patient. Teleradiology allows for trained specialists to be available 24/7.
7	Medical Imaging Services ensure that the risk, the expected outcome and alternative treatment protocols are explained to the patient, the attendant and the referrer; and same is documented.	not practiced	patient handbook must include this

8	Medical Imaging Services ensure that protocols for prescription, purchase, storage, supply, handling and labeling of drugs, isotopes, contrast media and radiopharmaceuticals are defined, documented, implemented and monitored.	Radiopharmaceuticals are not used.	It's a new technology need to be included

9	Medical Imaging Services ensure that protocols for administration of drugs, isotopes, contrast media and radio pharmaceuticals to the patients including corrective action taken in case of adverse drug/contrast reaction are defined, documented, implemented and monitored.	Radiopharmaceuticals are not used.	Only Radiopharmaceuticals are used for others everything is defined
10	Medical Imaging Services ensure that policies and procedures for selection, recruitment, retention and succession planning of staff are defined, documented and implemented	Not practiced	Redesigning of the HR policies with respect to Imaging.

11	Roles and responsibilities of the management of human resource per training to staff benefits, appraisals, disciplinary action and grievance handling are clearly defined.	Policies exist in the organization but imaging department is unaware.	Redesigning of the HR policies with respect to Imaging.
12	Medical Imaging Services ensure that policies and procedures regarding disciplinary action against any staff is defined, documented and communicated.	Policies exist in the organization but imaging department is unaware.	Imaging Department should revise & implement more policies.
13	Roles & responsibilities for replacement of existing equipment & planning for new equipment for expansion of service are defined.	Department personnel have no idea regarding this	Imaging Department should have a separate planning roster

14	Medical Imaging Services ensure that equipment replacement and/ or up gradation is planned and implemented in accordance with scope of services and expansion plan.	Department personnel have no idea regarding this	Imaging Department should have a separate planning roster
15	Medical Imaging Services ensure that policies and procedures to identify, assess, manage and minimize the risk of violence and aggression to staff, patient and others are defined, documented, implemented and monitored.	Policy Exist but radiology personnel have no idea about it	There should be a proper team to combat such situation if arises and staff must be trained.
16	Medical Imaging Services ensure that incidents & errors pertaining to risks of violence and aggression are reported, investigated,	As stated no incidents has occurred so far so no plan & team.	There should be a proper team to combat such situation if arises.

	recorded, analyzed, acted upon and used to guide and plan the future action.		

9. CONCLUSION:

All the implementations were made considering NABH standards so that the best quality in terms of services is delivered to patients. NABH is a very rigorous process and requires continuous monitoring in order to sustain unpredictable changes. Since quality cannot be achieved in a single day; it requires close and strict monitoring. If gaps will be fulfilled then Medical imaging services will be ready to go under NABH process and provide quality health care services to its patients.

10. SUGESSION:

- There should be a patient hand book/hand out in which he can have an insight regarding procedure being done & approximate cost.
- Lockers for patient belonging and Handover register.
- Patient & attendant waiting area to have more seating area.
- Poster on patient rights & responsibility.
- Tele radiology should be practiced.
- One stretcher to keep in all Imaging Services for transportation of patient in any emergency condition.

11. REFERENCES:

- http://nabh.co/international/benefits_of_accrediation.html
- http://nabh.co/images/PDF/mis-gib.pdf
- http://hospitaladmn.blogspot.in/2010/09/nabh-accreditation.html
- http://nabh.co/introduction.aspx
- http://nabh.co/MIS.aspx
- http://nabh.co/mis-gib.aspx
- JIMS Radiology Manual

12. **ANEXXURE:**

SELF ASSESSMENT TOOLKIT						
SELF ASSESSMENT TOOLKIT FOR IMAGING SERVICES						
Elements			**Documentation (Yes/ No)**	**Implementation (Yes/ No)**	**Evidence (cross reference to documents/ manuals etc.)**	**Scores (0/ 5/ 10)**
Chapter 1: CONTROL OF SERVICES (CS)						
CS.1: Medical Imaging Services shall address system to ensure delivery of the service from point of referral to discharge.						
	a	Roles and responsibilities of each area of service delivery are defined.				
	b	Medical Imaging Services ensure justification of referrals according to patients condition, urgency of diagnosis and radiation risk.				
	c	Medical Imaging Services ensure that protocols for imaging pathways and processes are defined, documented, implemented and monitored.				
	d	Medical Imaging Services ensure appropri a t e s cheduling and prioritisation of referrals according to patients condition and urgency of diagnosis.				
	e	Timeframe to manage imaging pathways from receiving of referral to discharge from the Medical Imaging Services is defined, documented, implemented and monitored.				
CS.2: Medical Imaging Services ensure that delivery of services is patient focused.						
	a.	Roles and responsibilities of staff managing each area of service to the patient (information, delivery of service and care, safety, privacy) are defined.				
	b.	Medical Imaging Services ensure that the information about specific procedure is available to patients and attendants in relevant format and language.				
	c.	Medical Imaging Services ensure that patient and attendants are informed about expected cost prior to imaging.				
	d.	Medical Imaging Services ensure safety of patients, attendants and their belongings while in the facility.				

	e.	Medical Imaging Services ensure safe transport of the patients within, to and from the facility whenever required.				
	f.	Medical Imaging Services ensure privacy and dignity of the patient without any discrimination.				
	g.	Medical Imaging Services ensure that patients feedback is utilised to improve the service delivery system.				
	h.	Medical Imaging Services ensure that staff is aware about patients rights and responsibilities.				
CS.3: Medical Imaging Services ensure appropriate management of facility and environment.						
	a.	Roles and responsibi l i t ies of management of each area of facility are defined				
	b.	Medical Imaging Services ensure vsignage in appropriate language and format to guide the patient and attendant to and within the facility.				
	c.	Medical Imaging Services ensure that design and construction of the facility is in accordance with the legal requirements pertaining to the equipment and the services offered.				
	d.	Medical Imaging Services ensure that design and construction of the facility supports specific needs of the patient population (including children andthose with special needs) and staff.				
	e.	Medical Imaging Services ensure that access to particular areas is restrictedaccording to specific needs and risks with proper barrier and signage.				
	f.	Medical Imaging Services ensure that water, electricity, ventilation and medical gases & vacuum installation in all area of service is maintained with provision of alternate sources.				
Chapter 2: CONTROL OF IMAGING PROCESSES AND PROCEDURES (CPP)						
CPP.1: Medical Imaging Services ensure acquisition of optimal diagnostic quality images and performance of diagnostic procedures.						
	a	Roles and responsibilities of staff for management of each area of image acquisition and image quality are defined.				
	b	Medical Imaging Services ensure that protocols for image acquisition for all examination are developed, defined, document ed, communi c a t ed, implemented and monitored.				
	c	Medical Imaging Services ensure quality of diagnostic images and procedures.				

	d	Medical Imaging Services ensure analysis of feedback on images and procedures through documented process of internal verification & external validation.				
CPP.2: Medical Imaging Services ensure the quality of reports (clinical and technical).						
	a	Roles and responsibilities for staff reporting the images are defined.				
	b	Medical Imaging Services ensure that the structure, content and format of report is standardized.				
	c	Medical Imaging Services ensure the generat ion, verification and amendments of reports are within appropriately defined timeframe.				
	d	Medical Imaging Services ensure that all attempts are made so that the imaging interpretation is collated with relevant clinical laboratory and previous imaging details.				
	e	Medical Imaging Services ensure communication of reports to patient and/or referrer within appropriately defined timeframe.				
	f	Medical Imaging Services ensure appropriate quality of images and reports for teleradiology services				
	g	Medical Imaging Services ensure analysis of feed back from Referrer/Professional colleagues on the content and quality of reports through defined & documented process.				
CPP.3: Medical Imaging Services ensure quality of diagnostic and therapeutic interventional procedures.						
	a	Roles and responsibilities for staff conducting diagnostic and therapeutic interventional procedures are defined.				
	b	Medical Imaging Services ensure that the risk, the expected outcome and alternative treatment protocols are explained to the patient, the attendant and the referrer; and same is documented.				
	c	Medical Imaging Services ensure that protocols for all diagnostic and therapeutic interventional procedures are defined , documented , implemented and monitored.				
	d	Medical Imaging Services ensure that appropriate sedation/anaesthesia, clinical and emergency support is available before, during and after the procedure.				
	e	Medical Imaging Services ensure that the outcomes of diagnostic and therapeutic interventional procedures are monitored.				
CPP.4: Medical Imaging Services ensure proper management of drugs, isotopes, contrast media and radiopharmaceuticals.						
	a	Roles and responsibilities for staff in the area of drugs, isotopes, contrast media and radiopharmaceuticals are defined.				

	b	Medical Imaging Services ensure that protocols for prescription, purchase, storage, supply, handling and labeling of drugs, isotopes, contrast media and radiopharmaceuticals are defined, documented, implemented and monitored.				
	c	Medical Imaging Services ensure that protocols for administration of drugs, isotopes, contrast media and radio pharmaceuticals to the patients including corrective action taken in case of adverse drug/contrast reaction are defined, documented, implemented and monitored.				
	d	Medical Imaging Services ensure that patients at higher risk of adverse reactions to specific drugs, isotopes, contrast media and radiopharmaceuticals are assessed and managed.				
Chapter 3: CONTROL OF PERSONNEL (CP)						
CP.1: Medical Imaging Services ensure that the staff is appropriately qualified, competent and trained, to deliver the service assigned to them.						
	a	Roles and responsibilities for ma intenanc e of r e cord and verification of credentials of the staff are defined.				
	b	Medical Imaging Services ensure that policies and procedures for selection, recruitment, retention and succession planning of staff are defined, documented and implemented.				
	c	Medical Imaging Services ensure that there is a documented personal record for each staff member.				
CP.2: Medical Imaging Services ensure appropriate Human Resource Planning of staff to deliver the service.						
	a	Roles and responsibilities of management to carry out the processes of authorization, management and support to staff to deliver the service are defined.				
	b	Medical Imaging Services ensure that appropriate skill mix and staff complement exist in accordance with the scope of services for specific areas of task.				
	c	Medical Imaging Services ensure that job description and job specification for each category of staff is defined, documented and communicated.				
	d	Medical Imaging Services ensure that students, trainees & volunteers working in patient care areas have clearly defined roles and supervision as specified.				
	e	Medical Imaging Services ensure induction training and regular ongoing program for training and development of the staff.				
CP.3: Medical Imaging Services ensure fair and rational Human Resource Management.						

	a	Roles and responsibilities of the management of human resource per taining to s taf f benefi t s , appraisals, disciplinary action and grievance handling are clearly defined.				
	b	Medical Imaging Services ensure that there is provision for health checkups; health and other benefits to the staff.				
	c	Medical Imaging Services ensure that a system of regular service appraisals and personal development reviews exist for all employees.				
	b	Medical Imaging Services ensure that policies and procedures regarding disciplinary action against any staff is defined, documented and communicated.				
	e	Medical Imaging Services ensure that staff grievance handling procedures are clearly defined, documented and communicated.				
Chapter 4: CONTROL OF EQUIPMENT (CE)						
CE.1: Medical Imaging Services ensure appropriate procurement and installation of equipment.						
	a	Medical Imaging Services ensure that the policies and procedures for the procurement of all equipment and c onsumables are defined, implemented and monitored in a collaborative manner between user and management.				
	b	Medical Imaging Services ensure that the policies and procedures for the installation of equipments are defined, documented, implemented and monitored and record of same is maintained.				
CE.2: Medical Imaging Services ensure appropriate operation and working of equipment.						
	a	Roles and responsibilities for each area of the operation and working of all equipment are defined.				
	b	Medical Imaging Services ensure that the policies and procedures for operat ion and calibration of equipment are defined, documented, implemented, monitored and record of the same is maintained.				
CE.3: Medical Imaging Services ensure appropriate maintenance and repair of equipment.						
	a	Roles and responsibilities for maintenance, service and repair of the equipment are defined.				
	b	Medical Imaging Services ensure that equipment downtimes are monitored and managed within defined timeframe.				

	c	Medical Imaging Services ensure that policies and procedure for maintenance and repair of equipments are defined, documented, implemented and monitored and record of the same is maintained.				
CE.4: Medical Imaging Services ensure appropriate replacement of existing equipment & planning for new equipment for continuation and expansion of service.						
	a	Roles & responsibilities for replacement of existing equipment & planning for new equipment for expansion of service are defined.				
	b	Medical Imaging Services ensure that equipment replacement and/ or upgradation is planned and implemented in accordance with scope of services and expansion plan.				
Chapter 5: CONTROL OF DOCUMENTS AND RECORD (CDR)						
CDR.1: Medical Imaging Services ensure appropriate management of all the documents, images and records pertaining to the patient.						
	a	Roles and responsibilities for generation, maintenance, integration, safety, confidentiality and retrievability of all the documents, images and records pertaining the patient are defined.				
	b	Medical Imaging Services ensure that policies and procedures to identify, and classify documents, images and records pertaining to the patient are defined, preferably in computerised format.				
	c	Medical Imaging Services ensure that policies and procedures regarding retent ion, confidentiali ty and retrievability of all the documents, images and records pertaining to the patient are implemented and monitored.				
CDR.2: Medical Imaging Services ensure generation, revision, retention and dissemination of information data & documents for staff, patient and others.						
	a	Roles and responsibilities for generation, revision, retention and dissemination of staff and patient information data (in designated format and language) are defined.				
	b	Medical Imaging Services ensure that policies and procedures for generation, revision, retention and dissemination of staff and patient information & instruction data in designated format and language are defined documented and implemented.				

	c	Medical Imaging Services ensure that feedback from staff, patient and others are documented and utilized for continuous improvement of service.					
CDR.3: Medical Imaging Services ensure maintenance of documents of legal and statutory requirements related to facility, equipment, personnel and risk monitoring.							
	a	Roles and responsibilities for maintenance of documents of legal and statutory requirements related to facility, equipment, personnel and risk monitoring are maintained.					
	b	Medical Imaging Services ensure that documents of legal and statutory requirements related to facility, are maintained.					
	c	Medical Imaging Services ensure that document of legal and statutory requirements related to equipments are maintained.					
	d	Medical Imaging Services ensure that document of legal and statutory requirements related to all staff (including risk monitoring) are maintained.					
CDR.4: Medical Imaging Services ensure maintenance and updating of all records and documents pertaining to audit, quality control & quality improvement of all processes and services.							
	a	Roles and responsibilities for maintenance and updating of all records and documents pertaining to audit, quality control & quality improvement of all processes and services are defined.					
	b	Medical Imaging Services ensure that policies and procedures for audit, quality check, verification and validation are maintained.					
	c	Medical Imaging Services ensure that all documents related to quality improvement are maintained.					
Chapter 6: RISK CONTROL AND SAFETY (RCS)							
RCS.1: Medical Imaging Services ensure that the r isk associated with imaging, interventional and therapeutic procedures are identified, assessed, managed and minimised.							
	a	Roles & responsibilities for all levels of risk management in all areas of imaging are defined.					
	b	Medical Imaging Services ensure that the radiation doses are as low as reasonably possible for all patients (ALARP principle) especially for children, women of child bearing age, pregnant women and patients undergoing repeated exposures.					

	c	Medical Imaging Services ensure that there is a system in place to define, as ses s and manage r isks of occupational exposure to ionising radiation and record for the same is maintained.				
	d	Medical Imaging Services ensure that risks of acoustic output and exposure times are defined, assessed, managed and minimized.				
	e	Medical Imaging Services ensured that risks associated with MRI imaging are defined, assessed, managed and minimized.				
	f	Medical Imaging Services ensure that risk associated with use of ablative, therapeutic devices during diagnostic & interventional procedures are defined, assessed, managed & minimized.				
	g	Medical Imaging Services ensure that the incidents & errors pertaining to risks as sociated with all the procedures are reported, investigated, recorded, acted upon, analysed, and used to guide and plan the future action.				
RCS.2: Medical Imaging Services ensure that the risk of infection to staff, patient and others is identified, assessed, managed and minimised.						
	a	Roles and responsibilities regarding infection control are defined.				
	b	Medical Imaging Services ensure that policies and procedures to identify, assess, manage and minimise the risk of infection to staff, patient and others are defined, documented, implemented and monitored.				
	c	Medical Imaging Services ensure that policies and procedures for decontamination of equipment and environment are defined, documented, implemented and monitored.				
	d	Medical Imaging Services ensure that protocols and procedures for needle stick injuries and subsequent post exposure prophylaxis are defined, documented, implemented and monitored.				
RCS.3: Medical Imaging Services ensure that the risk associated with hazardous/ Radioactive and Bio-Medical Waste (BMW) substances and materials to staff, patient and others are identified, assessed, managed and minimised.						
	a	Roles and responsibilities for control of hazardous/radioactive and Bio- Medical Waste (BMW) substances and materials are defined.				
	b	Medical Imaging Services ensure that policies and procedures to identify, assess, manage and minimise the risk a s soci a t edwith ha z a rdous / radioactive and Bio-medical waste (BMW) substances and materials to staff, patient and others are defined, documented, implemented and monitored.				

	c	Medical Imaging Services ensure that appropriate protective equipment required to decontaminate and manage exposure to hazardous/ radioactive substances are available and maintained.						
	d	Medical Imaging Services ensure that the incidents & errors pertaining to risks associated with hazardous/ radioactive substances and materials are reported, investigated, recorded, analysed, acted upon and used to and plan the future action.						
RCS.4: Medical Imaging Services ensure that the risk of violence and aggression to staff, patient and others are identified, assessed, managed and minimised.								
	a	Roles and responsibilities regarding risk of violence and aggression are defined.						
	b	Medical Imaging Services ensure that policies and procedures to identify, assess, manage and minimise the risk of violence and aggression to staff, patient and others are defined, documented, implemented and monitored.						
	c	Medical Imaging Services ensure that incidents & errors pertaining to risks of violence and aggression are reported, investigated, recorded, analysed, acted upon and used to guide and plan the future action.						
RCS.5: Medical Imaging Services ensure that the risk associated with fire, and non fire emergencies to staff, patient and others and to facility and environment are identified, assessed, managed and minimised.								
	a	Roles and responsibilities regarding risk associated with fire, and non-fire emergencies are defined.						
	b	Medical Imaging Services ensure that policies and procedures to identify, assess, manage and minimise the risk associated with fire, electrocution and other disaster to staff, patient and others are defined, documented, implemented and monitored.						
	c	Medical Imaging Services ensure that there is adequate safety equipment available, and that all the staff is aware and trained in handling them in an emergency or disaster.						