

RADIOLOGY SERVICES MANUAL

Annual Documents adequacy & Change Requirements Review

Sr.No	SOP /Doc No	Documents Name	Issue. No	Rev.No	Review Date	Change	Rev No	Revision Date	Reason for Change	Amendment
1	SDH/RAD/01	Introduction	1	1	20-Nov-22	No Any change review completed	1	20-Nov-23	No Any change review completed	No Any Amendment History
2		Objectives	1	1	20-Nov-22		1	20-Nov-23		
3		Policies on Providing Imaging Services	1	1	20-Nov-22		1	20-Nov-23		
4		Maintenance	1	1	20-Nov-22		1	20-Nov-23		
5		Inventory	1	1	20-Nov-22		1	20-Nov-23		
6		Staff Qualification	1	1	20-Nov-22		1	20-Nov-23		
7		Training	1	1	20-Nov-22		1	20-Nov-23		
8		Staff & Structure	1	1	20-Nov-22		1	20-Nov-23		
9		Organization Structure	1	1	20-Nov-22		1	20-Nov-23		
10		Standard Operating Procedure	1	1	20-Nov-22		1	20-Nov-23		
11		Lead Apron Validation	1	1	20-Nov-22		1	20-Nov-23		
12		Quality control	1	1	20-Nov-22		1	20-Nov-23		
13		confidentiality	1	1	20-Nov-22		1	20-Nov-23		
14		Patient Education & safety	1	1	20-Nov-22		1	20-Nov-23		
15		Duty Scheduling	1	1	20-Nov-22		1	20-Nov-23		
16		Duty Allocation	1	1	20-Nov-22		1	20-Nov-23		
17		Quality Indicators	1	1	20-Nov-22		1	20-Nov-23		
		Original Date	Effective Date		Next date of revision		Issue NO			
		01 November 2021	20 November 2023		20 November 2024		1			

Reviewed & Prepared By		Recommended By	Approved By	
Dr.Kiran Deepak	Mrs.Shraddha suryavanshi	Dr.H.Kalgaonkar	Dr.S.S.Deepak	
RSO	Quality Co-ordinator	Chief Medical Administartor	Chairman & Managing Director	
				

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Radiology Service – Scope, Services, Quality & Safety

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Radiology Service – Scope, Services, Quality & Safety

1.0. Introduction:

The department of radiology is one of the most important diagnostic and therapeutic facilities of the hospital.

2.0. Objectives:

To assist various sections of the clinical departments, for accurate diagnosis by providing X-Rays and USG Services.

3. POLICY ON PROVIDING IMAGING SERVICES

3.1 Scope of Services

The hospital directly provides the following radiology services

- X-Ray
- USG Scan

The following services are provided by an outsourced agency where hospital promoters are a part of the management and is co-located with in the hospital premises. Same is managed as per MoU with the service provider and managed as per out sourced services management policy of hospital

- CT Scan
- MRI

Legal compliance

This function comply all legal requirements as envisaged by different laws and regulations concerned with the imaging services in this country.

The legal compliance and its status is closely scrutinized by the Chief Medical Administrator of Saideep Hospital and to ensures that all the licences/ consents required are updated and maintained.

The functioning of this department is based on

1. Atomic Energy Act, 1962 (4)
2. Radiation Protection Rules, 1971 (5)
3. PC & PNDT Acts

3.2 Scope of Services:

- A. X-ray
- B. USG Scan

3.3 Policies:

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- Radiology services will be made available to all inpatients and outpatients 'round the clock'.
- The Radiographers and Technicians will conduct imaging procedures.
- It is required that there is at least one registered technician on duty at all times.
- Films and Records:

Films are a property of the patient and have to be handed over to them at the time of discharge. In case of medico-legal cases and in case of the patients whose payment is through insurance companies, a receipt to that effect will be taken, a record of which is to be maintained. However both the above situations, the original films and photographs are retained by the hospital records department.

The name of the patient & code is to be written, above which his/ her a signature in the register is to be taken or a receipt to be obtained for the same

- * All films and reports are made available to the referring physician as and when required.
- * A copy of the written report forms part of the medical record of the patient
- * All films are legibly and permanently marked with appropriate methods
- Technicians work with radiation protection aprons at all times.
- All technicians and personnel working in the department, wear TLD badges supplied by **BARC**
- Badges are sent to BARC every three months and checked for level of radiation exposure
- Pre-employment and yearly physical examination of all department personnel with six monthly blood counts, to check radiation exposure is done. This will be made as a part of his/ her personnel medical record file.
- Prominent Warning Sign board/s are put Up: "Warning: Pregnant women and children are strictly prohibited entry"
- Female staff should be in the room while a female patient is being examined.

4 Maintenance:

- The Radiographers are responsible for basic troubleshooting, and incase still the problem persist then the respective staff should inform to the Bio-medical Engineers/ the Supplier for necessary action at the earliest.
- Irrespective of the working condition of the equipment maintenance is carried out as per pre-designed schedules (Preventive Maintenance)
- The Senior Radiographer follows-up with the Maintenance and Finance Departments for up-dating and renewing of the Annual maintenance Contracts (AMC)

5 Inventory:

- The radiographer is responsible for maintaining regular inventory depending on the workload in the respective department and also advice the Materials Department on the consumption pattern of the department, so that there is a continuous and regular availability of consumables X-Ray films.

6 Staff Qualifications

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- The qualified Radiologist supervises the function and interprets the findings in radiology.
- The staff members shall possess minimum the diploma in their field of practice.
- The trainees if any will be guided by the senior and qualified radiographers.
- The staff shall follow the AERB guidelines in staffing principles and qualifications.

7 Training:

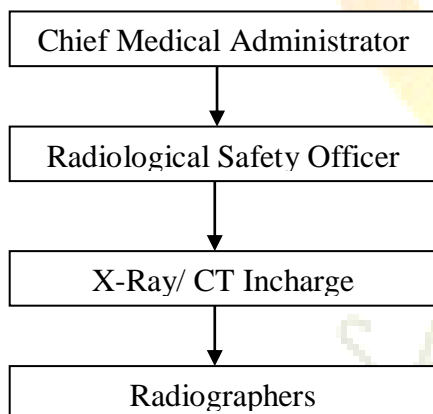
- The Senior Radiographers are responsible for training new appointees, technicians and Junior Staff
- Annual Radiation Safety training is provided by RSO of the hospital

8 Staff and Structure

The staffing pattern recommended is as follows:

- Radiographers
- Technician
- Typist/ Computer Operator
- Attendants
- House Keepers

9 Organizational Structure:



Working Hours:

- Radiology Department functions round the clock in two shifts and 365 days a year.

10 Standard Operating Procedures:

- The procedures for inpatients and outpatients differ only in their process of registration and scheduling after which the technicalities remain the same.

1. Patient identification

All patients for imaging services shall have a request form or referral letter indicating the personal details of the patient.

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Request form includes:-

- 1 Full Name
- 2 Age
- 3 Unique hospital ID number
- 4 Name of the procedure being performed
- 5 Brief description of the clinical features
- 6 Allergy History

The staff member undertaking the procedure must identify personally before each procedure

The patient shall be educated regarding the procedure that he/she is undergoing

The concerned doctor/ team member explains the procedure to the patient.

Informed consent is obtained for procedure where ever warranted.

a. Reception and Registration:

For OPD patients:

General Instructions:

- The concerned staff should ask the patients / patient attendants to fill the demographic details of the patient, and enter test details in the registration form.
- Allergies if any must be informed / mentioned in the form.
- Logging of the requests, entering their registration/ inpatient numbers.
- The patient is informed the cost for the services and provide the patient with the receipt.
- The patient is guided to the respective area / transport is provided for immovable patients or patients having difficulty to walk.
- Patients can pay for the services on the day they take their appointment or the day they come for the test.
- The patients are requested to intimate the reception about their Cancellations of appointments at least 12 hours in advance to facilitate rescheduling of another patient. No show for specialized investigation would be mean forfeiture of advance.
- An instruction sheet printed on both in English and Malayalam are provided to the patient for interventional procedures and others requiring these after giving his/ her appointment

For Inpatients:

- Doctors enter the investigations in the patients file
- The ward nurse communicates to the radio-diagnosis department by telephone and sends in the requisition

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- In case of Ambulatory patients the concerned nurse arranges for transportations and the patient is escorted to the radio-diagnosis department by an hospital attendant along with the patients file
- For bed-ridden patients request will be made by the nurse for a portable X-ray.

b. Patient escort or transportation:

Wheel chairs or stretcher trolleys for patient transport are provided from wards, OPD or emergency services and after the respective diagnostic/ therapeutic procedure is complete, the patient is transported back to the respective ward/ department.

Transfer of unstable patients to imaging services

All unstable patients who require imaging services for diagnostic and therapeutic purposes will be shifted to radiology after the consent from the treating physician and with information to the radiologist.

All necessary arrangements will be made such as machines to be free, technicians and doctors availability, support services on standby etc. before patient shifted for imaging.

During shifting appropriate life support facilities would be made available and a Nursing Personnel will accompany the patient.

During transit, all vital parameters will be monitored by the trained personnel.

During and after the procedure all vital parameters will be monitored and adequate care will be taken.

The recordings are made in the respective case sheets.

c. Radiographic Examination:

11 Equipment Operation

- 12 It is essential that the x-ray / USG equipment and image processing equipment function properly before a quality assurance program is implemented.
- 13 Manufacturers and vendors should provide proper operating characteristics for their equipment. For film- based systems, films and processing must meet manufactures speed and contrast values.

14 7.4.2 Baseline Performance



- 15 Baseline performance values of X-ray / USG equipment and image processing system must be established after verifying that the equipment functions properly.

16 Periodic Calibration of the equipment

- 17 All the equipment in the facility will have to be calibrated and maintained by the Biomedical Department of the Hospital.
- 18 The maintenance record will be available in the department.
- 19 Any complaints arising during the function will be immediately notified to the Bio Medical Department who will take adequate steps to resolve the problem.

11. LEAD APRON VALIDATION – X-Ray

INSTRUCTIONS

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- 1 Place the apron on a steady surface and carefully, visually inspect it for any holes or other damage. Damage to lead aprons is commonly caused by pens and marker's, producing hole's known as "vampire Marks"
- 2 Use tactile evaluation inspect and face the apron for any holes that cannot be seen normally.
- 3 Use key imaging: the best way to detect defects in a lead apron is to test it under an X- ray or fluoroscopic scanner. Defects like lead rot and smaller holes cannot be seen with the naked eye or with tactile evaluation.
- 4 All staff in radiographic room during X-ray exposures must stand behind a protective barrier or use protective aprons or wear the protective barriers or not less than 0.25 mm of lead equivalent.
- 5 Gonad shielding should be used for all patients, of not less than 0.25mm of lead equivalent. Exceptions occur only when gonadal shielding will interface with the diagnostic procedure.
- 6 Human holders can be used and must be provided with adequate protection, 0.5mm lead when standing in the primary beam and 0.25 for scatter (secondary radiation).
- 7 The minimum requirement is 0.25mm of lead equivalent shielding for an occupational worker, not standing in primary beam.
- 8 Aprons and gloves must have radiation attenuation of number less than 0.5mm lead equivalence at 150 KV peak full aprons, should cover the front of the body from the throat to within 10cm of the knees as well as the sides of the body.
- 9 All staff working in fluoroscopy must wear a lead apron. If the operator's eyes or thyroid are likely to receive dose from radiation, it is advisable to wear additional protection for these organs.
- 10 When wearing a lead apron, the badge should be placed on the collar outside the apron. For individuals monitored using two film badges, one should be worn on the collar (outside the apron) and the other should be worn at the waist level under apron.

Except for the patient, only the staff and ancillary personnel required for the medical procedure or training shall be in the room during the radiation exposure.

- 1 The manufacture's recommendations regarding the handling and storage of protective clothing must be strictly observed.
- 2 Lead aprons should be stored on hangers to prevent cracks in the protective lead.

Note: lead aprons should never be folded. Cracks in the lead lining can develop at the fold, reducing the useful life of apron.

CARE AND USE OF LEAD APRONS AND GLOVES

Inspection:

If possible, use fluoroscopy (using Cath Lab) inspect your aprons at least annually.

Storage:

Aprons should be hung up by the shoulders (5) or on an appraised apron hanger. Aprons should never be folded or creased. If possible, do not lay or store aprons on a flat surface.

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Cleaning:

Clean clarity and deodorize by scrubbing with a soft bristle brush.

Never use products containing bleach. Rinse thoroughly with water to remove residue. Hang to dry, do not machine launder or dry- clean.

Lead Apron Integrity Check

Objective:

To assure that lead aprons, gloves, gonadal shields and thyroid collars provide an ideal level of protection.

Performance Measurement:

Not breaks in lead lining of protective garments

Frequency:

At least annually or manufactures recommendation.

Equipment:

Lead aprons, Gloves, Gonadal and Thyroid Shields, Fluroscopic or radiographic unit.

CLEANING UP THE WORK PLACE



1. All radiology staffs are responsible for cleaning the work place.
2. Work area shall be cleaned before leaving the place.
3. All the equipment/materials shall be kept in its place.
4. All the materials shall be arranged in such a way that is easily accessible.
5. In case any patient vomitted / spillage of stains or any while doing the procedure shall be informed to the housekeeping staff for cleaning.

a. Development of films:

- The exposed film is fed to the automatic film processor and drier. During this period the patient is requested to wait a while in case a repeat x-ray is required.
- In case of emergencies these films will be given to the respective physician through the nursing aide / X-Ray technicians.
- After this preliminary procedure the films go through the normal processing techniques reporting by radiologist.

b. Report distribution:

- All reports – both In-patient as well as the out-patient reports have two copies, one to be preserved with the hospital for the medical, and the original to be handed over to the patient
- After the procedure, Radiology department will issue the report to OP patients directly.

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- Indoor patient reports: The original copy shall sent to the patient's file in the wards. The physician refers to this copy when he/she comes on his next round. This original copy will be handed over to the patient on discharge.

12 Quality Control:

- The main objective of quality control is to enhance the quality of results by checking the precision, accuracy and consistency of tests done.
- Validation of examination procedure technically and clinically will be done by qualified and well trained radiologist.
- Quality Assurance is done with the monitoring Turn Around Time(TAT) and waiting times

12 Quality Assurance Survey

- The QA survey is done as per AERB guidelines once in two years.
- The survey is done using the AERB approved vendor.
- RSO verifies the reports and ensure CA / PA as required

13 Confidentiality of Reports

Confidentiality of patients and their test reports are ensured through the following:

- In the course of Performing work responsibilities all information with regard to patient, their family, their physician and / or the hospital is kept confidential.
- As per Saideep Hospital policy, staff's should be aware of not to discuss any confidential patient related matters to others.
- Personnel are expected and ensured to conduct themselves with professional dignity at all times.
- Radiologists are the only persons authorized to inform reports to the doctors.

14 Patient Education and Safety:

- All patients are welcomed and explained about the process of the diagnostic investigation in detail before starting the process.
- All patients are explained when and how their reports can be collected.
- While undergoing the investigation, all necessary precautions related to patient safety is explained & followed.
- Special care is taken while undergoing Investigations of infants/neonatal and Geriatric patients. The parent/ next to the kin of such patients are kept informed of the process before investigations are started.

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e. Attention of the patient/ customers will be drawn to the hygiene and safety aspects before undergoing the Investigation.

f. Consent will be taken whenever required in the appropriate forms.

All necessary steps will be taken to reduce/ minimize/ eliminate discomfort /pain while conducting the Inves

15 DUTY SCHEDULING



1. The Radiology in-charge shall assess the work load
2. He shall post the competent and qualified staff members for designated work
3. Radiology in charge shall do the duty scheduling of employees for a week.
4. Every month duty scheduling shall be done.
5. Duty scheduling shall be done through computer as directed from HRD.
6. In case any amendments in the scheduling shall be reported to the HRD.

16 DUTY ALLOCATION

1. Radiology in charge shall do the duty allocation every day morning.
2. Attendance of the total employees shall be taken.
3. Based on the attendance employees shall be allotted their work area.
4. Every work shall be supervised by Radiology incharge.
5. Tests shall be performed by the qualified radiographer.
6. Only accessory works shall be allotted to the nursing assistants.
7. All employees shall be posted in all areas based on the qualification and experience through the job rotation.

17 QUALITY INDICATORS

SL.	QUALITY INDICATOR	FORMULA			SOURCE	METHODOLOGY
		NUMERATOR	DENOMINATOR			
1	No. of reporting errors/1000 investigation	No. of reporting errors	No. of tests performed	*100	Departmental Register	Monthly
2	% of adherence to safety	No. of employees adhering to	No. of employees sampled	*100	Audit tool	Monthly once

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	precautions by employees working in diagnostics	safety precautions				
2	Waiting time for diagnostics	Sum (patient- in time for consultation/ procedure- patient reporting time in Diagnostics)	No. of patients reported	*100	Radiology Register	Data is collected from OPD register

18 REFERENCE

Nil

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