

**RADIATION PROTECTION POLICY**  
**HOSPITAL SUNGAI SIPUT**

# RADIATION PROTECTION POLICY

Hospital Sungai Siput is committed to an effective radiation protection programme to eliminate unnecessary exposures to X-ray radiation and to reduce all exposures to levels that are **as low as reasonably achievable (ALARA)**, taking into account all social and economic considerations.

Hospital Sungai Siput is committed:

- To protect all members of Hospital Sungai Siput against ionizing radiation hazard by preventing any uncontrolled radiation exposure or emergency exposure;
- To comply with the Atomic Energy Licensing Act and regulations, and other radiation safety requirements;
- To ensure and encourage employee to participate actively in consultation and implementation of Radiation Protection Programme elements;
- To improve continually the performance of the Radiation Protection Programme

Persons carrying out their duty must protect themselves and the patients from the radiation hazard during all exposures.

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## 1.0 INTRODUCTION

### 1.1 Scope

The Radiation Protection Policy relates in details most of the requirements for radiation safety programme for Hospital Sungai Siput under the Atomic Energy Licensing Act (Act 304). These requirements provide a safe system of work development for activities related to the use of ionizing radiation in Hospital Sungai Siput. The programme covers all activities pertaining to the use of ionizing radiation in medical and also activities in emergency situations.

### 1.2 Purpose

The programme will provide for the protection of radiation workers and public from hazards pertaining to the medical usage of ionizing radiation. The programme will:-

- i. Comply with Act 304 and its regulations, relevant standards and guidelines provided by the Ministry of Health Malaysia, and other voluntary codes of practices in radiation safety;
- ii. Be integrated with the organization's occupational safety and health programme; and
- iii. Create awareness among staff of Hospital Sungai Siput, especially radiation workers in the use of radiation safety and protection.

### 1.3 Terms and Definitions

i. Radiation worker	A technically competent person appointed by the Ministry of Health Malaysia to handle, use or will come in contact with irradiating apparatus
ii. Ionizing radiation	Electromagnetic or corpuscular radiation capable of producing ionizing in its passage through matter.

## **2.0 Responsibilities of Radiation Worker**

- 2.1 Follow all instructions, rules and procedures and refrain from careless or reckless practices that could result in unnecessary exposures.
- 2.2 Use as instructed all facilities, devices and protective equipment.
- 2.3 Use the approved personnel monitoring devices.
- 2.4 Not interfere with, remove place/ displace or alter any safety equipment; to take all reasonable precautions to prevent damage to such equipment, and immediately report any damage or malfunction of any safety equipment to his supervisor.
- 2.5 Immediately report all accidental exposures or any suspected exposures to his supervisor.
- 2.6 Report pregnancy status, for female workers.
- 2.7 Report unsafe working conditions.

### **3.0 PROCEDURES AND WORK PROTECTION OF PATIENT DURING PROCEDURES**

#### **3.1 General X-ray**

##### **Patient safety**

1. When the patient arrives at the examination room, the radiographer shall check the patient's identity, identify possibility of pregnancy
2. The radiologist shall limit, cancel or defer the X-ray examination if he considers the expected information to be irrelevant or already available.
3. Experienced radiographer shall draw the attention of the clinician involved to cases where the necessity for the X-ray examination is unclear in hospitals where no radiologist available.
4. For any specific clinical procedure at kV value shall be selected that provides appropriate balance of image contrast and penetration (patient exposure).
5. The appropriate technique factors (kV, image size) shall be specified for each type of clinical examination in the procedure manual and technique charts for the facility.
6. Use of lead gowns, lead aprons and gonad shields are advised where necessary and when not interfering with region of interest.

##### **Staff Safety**

When a patient or film must be held by an individual:

1. No person shall hold a patient, X-ray or film cassette during exposure unless it is absolutely necessary.
2. The holder shall be in order preference:
  - Next of kin
  - Relative or friend attending to the patient
  - Medical staff accompanying the patient
  - Shall not be a radiation worker at the facility, unless in an emergency where no other persons/ persons are available
3. No pregnant women or young persons under the age of 18 shall do any holding.
4. Any person holding the patient of film cassette in position during an X-ray examination shall wear a lead apron (minimum 0.25mm Pb equivalent). No part of the holder's body shall be in the primary beam, even if covered with protective clothing.
5. Film badge shall be worn for personnel monitoring.

## 3.2 Mobile Radiography

### Patient Safety

1. During ward radiography, the minimum distance of the operator from the tube and patient shall be 2 (two) meters.
2. On arrival at the location, the team shall request the ward staff to identify the patient. The ward staff may be required to assist in patient positioning if needed.
3. Radiographer shall ensure adequate radiation safety precaution is implemented before performing the examination. This may vary from case to case and environment.
  - Inform ward staff, ambulatory patient and visitors in the near vicinity before exposure.
  - Patient immobilizer and cassette holder to be used when necessary.Only those persons who are required to assist shall be present during the performance of an X-ray examination.

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## **4.0 ADMINISTRATIVE REQUIREMENTS**

### **4.1 Administrative Requirements**

- a) **Only registered medical practitioners** shall request for any radiological examinations
- b) All persons operating or assisting in the operation of X-ray systems shall be provided with monitoring devices. A film badge shall be used.
- c) A personnel record shall be kept for all workers involved in the operation of the X-ray systems. This record shall include personal details, results of medical examinations and results of personal monitoring.

### **4.2 Medical Surveillance**

- a) Medical surveillance is mandatory for all radiation workers.
- b) The medical surveillance shall include the following:
  - i. Pre-employment medical examination,
  - ii. General health surveillance,
  - iii. Periodic reviews of health, and
  - iv. Medical examination at termination of employment and retirement.
- c) Radiation worker's health status should be reviewed at least once in every two (2) years if working at controlled area and more frequent depends on exposure factor and worker health status if necessary.
- d) Special medical examination shall be provided for workers who have received doses exceeding the annual dose limits.

### **4.3 Record Keeping**

All records relevant to radiation protection shall be kept and maintained in an appropriate manner to facilitate their retrievability and utilization. Among the records to be kept and maintained are as follows:

- a) Medical examination records of workers.
- b) Records on radiation dose for workers should be kept by the licensee for a period of 30 years. After the termination of his employment or retirement, the radiation dose records of workers shall be transferred to the appropriate authority.

## 5.0 Radiological Emergency Protocol ( maximum permissible dose )

Allowed dose for radiation workers is 20 mSv per year. In case of over exposed:

- a) Inform Hospital Pengarah
- b) Inform State Radiologist
- c) Inform Pegawai Sains (Fizik), JKN Perak
- d) Workers are not allowed to work with radiation
- e) Special medical examination shall be provided for workers who have received doses exceeding the annual dose limits. Referred to Klinik Kesihatan Pekerja at Polyclinic Greentown.
- f) To carry investigation by Pegawai Sains (Fizik) from Jabatan Kesihatan Negeri Perak, **cause** of over exposed incident
- g) License holder forward investigation report to 'Unit keselamatan Sinaran, BPK' through RADIA online system .

The screenshot shows the 'Sistem Pengurusan RADIA Online' web application. The header includes a 'Welcome' message, a radiation symbol, the Malaysian coat of arms, and the title 'Sistem Pengurusan RADIA Online' with the date 'Thursday, 03 November 2011'. The main heading is 'MELAPORKAN KEJADIAN/KEMALANGAN RADIASI' with a sub-heading '"Takrifan Kejadian/Kemalangan Radiasi"'. Below this, there are definitions for 'Incident' and 'Accident'. The main form is titled 'Kejadian/Kemalangan Melibatkan Penggunaan Radiasi' and contains the following fields:

1. Nama premis
2. Nama Jabatan
3. Bilangan kejadian/kemalangan untuk dilaporkan
4. Tarikh kejadian
5. Perincian untuk kejadian/kemalangan berlaku
6. Tindakan susulan
7. Nama pelapor insiden radiasi
8. Jawalan pelapor insiden radiasi
9. Attachment Files (jika ada)

At the bottom of the form are buttons for 'Submit Insiden' and 'Main Menu'. The browser status bar at the bottom shows 'Done', 'Internet | Protected Mode: On', and '100%' zoom level.