KETUA PENGARAH KESIHATAN MALAYSIA
Kementerian Kesihatan Malaysia
Aras 12, Blok E7, Kompleks E
Pusat Pentadbiran Kerajaan Persekutuan
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Tarikh : 31 Mac 2026

Semua Pengarah Kesihatan Negeri
Semua Pengarah Hospital
Semua Pegawai Kesihatan Daerah
Semua Pegawai Pergigian Daerah
Ketua Pengarah Perkhidmatan Kesihatan, Markas Angkatan Tentera Malaysia
Ketua Pengarah Perkhidmatan Veterinar

Semua Pemegang Lesen
Di Bawah Akta Perlesenan Tenaga Atom 1984 (Akta 304)
Bagi Maksud Perubatan

YBhg. Tan Sri/Datuk/Dato'/Datin/YBrs. Dr./Tuan/Puan,

PEKELILING KETUA PENGARAH KESIHATAN MALAYSIA BIL. 10/2026: KEPERLUAN LATIHAN FASA 1 BAGI PELANTIKAN PEGAWAI PERLINDUNGAN SINARAN (PERUBATAN)

Dengan segala hormatnya merujuk kepada perkara di atas.

2. Berdasarkan maklumbalas yang diterima dan dibincangkan dalam Mesyuarat Jawatankuasa Penasihat Radiologi ke-50 yang diadakan pada 9hb Februari 2026, keperluan latihan kepada Pegawai Perlindungan Sinaran (Perubatan) bagi Fasa 1 pada **Perkara 5.1** dalam **Pekeliling Ketua Pengarah Kesihatan Malaysia Bil 23/2025** bertarikh **20 Ogos 2025** telah disemak semula dengan pelaksanaan adalah seperti di bawah:

2.1 Semua PPS(P) sedia ada yang telah berdaftar di premis berlesen hendaklah menghadiri kursus PPS(P) sebelum **1hb Jan 2028** di mana pelaksanaan Fasa 2 akan dikuatkuasakan. Keperluan ini adalah terpakai kepada semua fasiliti perubatan kerajaan dan swasta di bawah Akta 304.

2.2 Semua fasiliti perubatan kerajaan dan swasta baharu hendaklah memastikan PPS(P) yang akan dilantik telah menghadiri kursus ini sebagai syarat keperluan untuk memohon lesen MENGGUNA . Keperluan ini berkuatkuasa bermula tarikh pekeliling ini diedarkan sehingga pelaksanaan Fasa 2 dikuatkuasakan.

...2/-

2.3 Calon PPS(P) perlu menghadiri kursus secara fizikal di pusat-pusat latihan pensijilan PPS(P) yang telah diiktiraf oleh KKM mengikut kategori risiko yang ditetapkan seperti di **Lampiran 1**.

2.4 Kandungan silibus, tempoh latihan dan perincian silibus Fasa 1 adalah seperti di **Lampiran 2**.

2.5 PPS(P) sediada dan calon PPS(P) hendaklah menghadiri kursus Fasa 1 sebelum tarikh akhir yang ditetapkan pada perkara 2.1 di atas. Kegagalan berbuat demikian, mereka hendaklah menjalani kursus sepenuhnya dan menduduki peperiksaan sebagaimana keperluan latihan **Fasa 2** dalam Pekeliling Ketua Pengarah Kesihatan Malaysia Bil 23/2025 berkenaan.

2.6 Setiap fasiliti perubatan kerajaan dan swasta hanya dibenarkan menghantar seorang calon sahaja untuk menghadiri latihan sepanjang Fasa 1 dilaksanakan.

3. Sekiranya terdapat sebarang pertanyaan lanjut, pihak YBhg. Tan Sri/Datuk/ Dato'/Datin/YBrs. Dr./Tuan/Puan boleh menghubungi Bahagian Kawalselia Radiasi Perubatan KKM di talian: 03-8892 4727 atau emel latihan.bkrp@moh.gov.my.

Sekian, terima kasih.

"MALAYSIA MADANI"

"BERKHIDMAT UNTUK NEGARA"

Saya yang menjalankan amanah,

(**DATUK DR. MAHATHAR BIN ABD. WAHAB**)

s.k.:
1. Timbalan Ketua Pengarah Kesihatan (Penyelidikan & Sokongan Teknikal)
2. Timbalan Ketua Pengarah Kesihatan (Perubatan)
3. Timbalan Ketua Pengarah Kesihatan (Kesihatan Awam)
4. Timbalan Ketua Pengarah Kesihatan (Kesihatan Pergigian)
5. Pengarah Bahagian Perkembangan Perubatan
6. Pengarah Bahagian Perkembangan Kesihatan Awam
7. Pengarah Bahagian Pembangunan Kesihatan Keluarga

Lampiran 1

Kategori Latihan Pegawai Perlindungan Sinaran (Perubatan)

Kategori	Penjelasan
1 (Risiko tinggi)	Premis yang memiliki sama ada bahan radioaktif, penjana sinaran terapi dan/atau penjana sinaran menggunakan bahan radioaktif (*Positron Emission Tomography-Computed Tomography* (PET-CT) dan/atau *Single Photon Emission-Computed Tomography* (SPECT-CT)).
2 (Risiko sederhana)	Premis yang memiliki penjana sinaran jenis fluoroskopi dan/atau unit tomografi berkomputer untuk tujuan diagnostik.
3 (Risiko rendah)	Premis yang memiliki penjana sinaran diagnostik selain daripada Kategori 1 dan Kategori 2 termasuk radas untuk tujuan pergigian dan veterinar. Contoh penjana sinaran dalam Kategori 3 adalah radiografi am, *intra oral*, *cone beam computed tomography* (CBCT) dan mamografi.

Lampiran 2

Kandungan Silibus dan Tempoh Latihan
Pegawai Perlindungan Sinaran (Perubatan) Fasa 1

Bil.	Skop Latihan	Tempoh Latihan (Jam)		
		Kategori 1	**Kategori 2**	**Kategori 3**
1	*Introduction to the Requirements of the Act 304 and its Subsidiary Regulations*	2	2	2
2	*Radiation Safety in Medical*	1	1	1
3	*Radiation Safety of Radioactive Sources*	3	TB	TB
4	*Radiation Safety - Radiation Source/Modality for Category* 1	4	TB	TB
5	*Radiation Safety – Radiation Source/Modality for Category* 2	TB	2	TB
6	*Radiation Safety – Radiation Source/Modality for Category* 3	TB	TB	2
7	*Planning and Emergency Procedures for Category 1 and* 2	3	3	TB
8	*Planning and Emergency Procedures for Category* 3	TB	TB	1
Jumlah Jam		**13**	**8**	**6**

Perincian Silibus Latihan Pegawai Perlindungan Sinaran (Perubatan) Fasa 1

SILIBUS PROGRAM PPS(P) FASA 1
1. INTRODUCTION TO THE REQUIREMENTS OF THE ACT 304 AND ITS SUBSIDIARY REGULATIONS (2 hours)
1.1 Radiation Protection Regulation (Licencing) 1986 1.2 Atomic Energy Licensing Regulation (Basic Safety Radiation Protection) 2010 1.3 Radioactive Waste Management 1.4 Radiation Protection Program 1.4.1 Radiation Protection Officer (RPO) 1.4.2 Radiation Protection Committee (RPC) 1.4.3 Radiation Protection Manual 1.4.4 Radiation Protection and Safety Audit 1.4.4.1 Occupational Exposure Monitoring 1.4.4.2 Medical Surveillance of Workers
2. RADIATION SAFETY IN MEDICAL (1 hour)
2.1 Radiation Units and Quantities 2.1.1 Exposures 2.1.2 Absorbed Dose 2.1.3 Equivalent Dose 2.1.4 Effective Dose 2.2 Biological Effects of Ionizing Radiation 2.3 Radiation Protection System 2.3.1 Justification of Practice 2.3.2 Optimization of Radiation Protection 2.3.2.1 Shielding 2.3.2.2 Time 2.3.2.3 Distance 2.3.3 Dose Limits 2.4 Acceptance Testing and Commissioning (T&C) 2.5 Decommissioning of Radiation Generator and Disposal of Radioactive Material
3. RADIATION SAFETY OF RADIOACTIVE SOURCES FOR CATEGORY 1 (3 hours)
3.1 Radioactive Source 3.2 Equipment and Radioactive Sources 3.2.1 Sealed Source 3.2.2 Unsealed Source 3.3 Production of Radioactive Materials for Medicine 3.3.1 Reactor 3.3.2 Particle Accelerator or Cyclotron 3.3.3 Radionuclide Generator 3.4 Working Procedures with Sealed Source 3.4.1 Time, Shielding and Distance

3.4.2 Leak Test
3.4.2.1 Definition and Types of Leak Test
3.4.2.2 Methods of Leak Test
3.4.2.3 Counting Instruments Used
3.5 Working Procedures with Unsealed Source
3.5.1 Handling Techniques
3.5.1.1 High Energy Radioactive Source
3.5.1.2 Low Energy Radioactive Source
3.5.1.3 Volatile Radioactive Source
3.5.2 Activity Segregation and Solution Concentration
3.6 Facility Planning and Radioactive Material Storage
3.6.1 Choice of Location and Layout of the Laboratory, Waste Storage and Office.
3.6.2 Construction Considerations
3.6.3 Workplace Design
3.7 Introduction of Environmental Monitoring
3.8 Safety Equipment
3.8.1 Storage Equipment
3.8.2 Transport Equipment
3.8.3 Containers, Consumables, Clothing, Armor
3.9 Facility Design: Hot Laboratory Requirements (Radioactive Preparation)

4. RADIATION SAFETY OF RADIATION SOURCE/MODALITY FOR CATEGORY 1 (4 hours)

4.1 Types and Operational of Radiation Facilities
4.1.1 Nuclear Medicine
4.1.1.1. Introduction and Purposes of Nuclear Medicine
4.1.1.2. Nuclear Medicine Diagnostic Methods
4.1.1.3. Nuclear Medicine Therapeutic Methods
4.1.1.4. Nuclear Medicine Equipment
4.1.1.5. Radiation Safety Precaution in Diagnostic Nuclear Medicine
4.1.1.6. Radiation Safety Precaution in Therapeutic Nuclear Medicine
4.1.1.7. Advice to Nurses Caring for Therapy Patients in the Ward
4.1.2 Radiotherapy
4.1.2.1. Introduction of Radiotherapy
4.1.2.2. Types of Radiotherapy
4.1.2.3. Radiotherapy Equipment Using Radioactive Source
4.1.3 Blood Irradiator
4.1.3.1. Introduction of Blood Irradiator
4.1.3.2. Basic Components of Gamma Irradiator
4.2. Design and Radiation Safety of Facility
4.2.1 Design of Nuclear Medicine Facility
4.2.1.1. Low Energy Level Radioisotope Laboratories
4.2.1.2. High Energy Level Radioisotope Laboratories
4.2.1.3. Dose Administration Room
4.2.1.4. Imaging Room
4.2.1.5. Gamma Counting Room
4.2.1.6. Treatment Room in the Ward
4.2.1.7. Radioactive Decay Tank
4.2.1.8. Radioactive Waste Storage Room

4.2.2 Design of Radiotherapy Facility
4.2.2.1. Typical Layout of Radiotherapy Facility
4.2.2.2. Teletherapy Cobalt-60 Facility
4.2.2.3. Low Dose Rate (LDR) Brachytherapy Facility
4.2.2.4. High Dose Rate (HDR) Brachytherapy Facility
4.2.2.5. Safety System Features of Treatment Room
4.2.3 Design of Blood Irradiator Facility
4.2.3.1. Irradiation Room or Chamber
4.2.3.2. Radiation Safety System
4.3. Safe Working Procedures
4.3.1 Nuclear Medicine
4.3.1.1 Handling Radioactive Materials
4.3.1.2 Control of Radiation Hazard
4.3.1.3 Management of Patient with Radioactive Implants
4.3.2 Radiotherapy
4.3.2.1 Radiation Safety in Teletherapy
4.3.3 Blood Irradiators
4.3.3.1 Product or Material Handling System
4.3.3.2 Operating Procedures
4.4. Quality Assurance Program (QAP)
4.4.1 QAP in Radiotherapy
4.4.2 QAP in Nuclear Medicine

5. RADIATION SAFETY - RADIATION SOURCE/MODALITY FOR CATEGORY 2 (2 hours)

5.1. Types and Operational of Radiation Facilities
5.1.1 Fluoroscopy
5.1.2 Computed Tomography
5.2. Design and Radiation Safety of Facility
5.2.1 General Criteria
5.2.2 Preparation of Facility Plan
5.2.3 Considerations for Room Design and Layout
5.2.4 Shielding Calculations
5.2.5 Acceptance Testing
5.3. Safe Working Procedures
5.3.1 Classification and Monitoring of Work Area
5.3.2 Maintenance of Radiation Monitoring Equipment
5.3.3 Radiation Generator Handling Procedures
5.3.3.1 Radiation Safety in Fluoroscopy
5.3.3.2 Radiation Safety in Computed Tomography
5.3.4 Transportation and Transfer to New Location
5.4. Quality Assurance Programme (QAP)
5.4.1 QAP in Fluoroscopy
5.4.2 QAP in Computed Tomography
5.5. Maintenance of Radiation Generator and Processes
5.5.1 Fluoroscopy
5.5.2 Computed Tomography
5.6. Radiation Protection Survey
5.6.1 Leakage Radiation from X-ray Generator
5.6.2 Scatter Radiation from X-ray Room
5.7. Decommissioning of Radiation Generator

SILIBUS PROGRAM PPS(P) FASA 1

6. RADIATION SAFETY - RADIATION SOURCE/MODALITY FOR CATEGORY 3 (2 hours)

- 6.1 Types and Operational of Radiation Facilities
  - 6.1.1 Dental
  - 6.1.2 Veterinary
  - 6.1.3 General Radiography
  - 6.1.4 Mammography
- 6.2 Design and Radiation Safety of Facility
  - 6.2.1 General Criteria
  - 6.2.2 Preparation of Facility Plan
  - 6.2.3 Considerations for Room Design and Layout
  - 6.2.4 Shielding Calculations
  - 6.2.5 Acceptance Testing
- 6.3 Safe Working Procedures
  - 6.3.1 Classification and Monitoring of Work Area
  - 6.3.2 Maintenance of Radiation Sources Inventory and Monitoring Equipment
  - 6.3.3 Radiation Source Handling Procedures:
    - 6.3.3.1 Dental
    - 6.3.3.2 Veterinary
    - 6.3.3.3 General X-Ray
    - 6.3.3.4 Mobile X-Ray for Ward Radiography
    - 6.3.3.5 Mammography
  - 6.3.4 X-Ray Equipment Maintenance
  - 6.3.5 Transportation and Transfer to New Location
- 6.4 Quality Assurance Program (QAP) in Radiology
- 6.5 Radiation Protection Survey
  - 6.5.1 Leakage Radiation from Radiation Generator
  - 6.5.2 Scatter Radiation from X-Ray Room
- 6.6 Decommissioning of X-Ray Machine

7. PLANNING AND EMERGENCY PREPAREDNESS FOR CATEGORY 1 AND 2 (3 hours)

- 7.1 Type of Emergencies
  - 7.1.1 On-Site Emergency
  - 7.1.2 Off-Site Emergency
- 7.2 Causes of Emergency
  - 7.2.1 Loss of Control Over Personnel
  - 7.2.2 Loss of Control Over the Radiation Generator
  - 7.2.3 Loss of Control Over the Sealed Sources
  - 7.2.4 Loss of Control Over Unsealed Sources
  - 7.2.5 Loss of Control Over the Patient
- 7.3 Risk Assessment and Preparedness
- 7.4 Training
- 7.5 Communication and Collaboration
- 7.6 Equipment and Apparatus
- 7.7 Emergency Response Flow
  - 7.7.1 Notification and Assessment
  - 7.7.2 Investigation and Response
  - 7.7.3 Coordination of Response Team
  - 7.7.4 Coordination with Clinical Services

SILIBUS PROGRAM PPS(P) FASA 1
7.7.5 Coordination with External Expert 7.7.6 Management of Patients, Emergency Workers and Members of the Public 7.7.7 Management of Waste 7.7.8 Recovery 7.7.9 Reporting and Corrective Actions 7.8 Decontamination 7.9 Document Maintenance 7.10 Radiological Plan and Emergency Procedure 7.10.1 Sources of Emergency 7.10.2 Emergency Plan 7.10.3 Reporting Emergency Situation (Hierarchy Procedures) 7.10.4 Emergency Procedures (Response Action) 7.10.5 Physical Damage 7.10.6 Leakage of a Radiation Source 7.10.7 Transport Accident 7.10.8 Emergency Equipment 7.10.9 Emergency Preparedness 7.10.10 Accident, Investigation and Reporting
8. PLANNING AND EMERGENCY PROCEDURES FOR CATEGORY 3 (1 hour)
8.1 Emergency Organization 8.2 Emergency Sources 8.3 Emergency Plans 8.4 Investigation of Emergency Incident 8.5 Notification and Report of All Accidental Exposure or Emergency Exposure 8.6 Record Keeping