

NATIONAL DOSE REGISTRY OF OCCUPATIONAL DOSES IN OMAN.



Munira Al-Kalbani,

**Dept. of Medical Physics and Radiation Protection Service,
DGPEA, Ministry of Health, PO Box 393,
Muscat-100, Sultanate of Oman.**

Legal Basis- Regulatory provisions

The current RP legislations of Oman does not mandate to create National dose registry.

This legislation is under revision & have the provision of mandatory NDR.

Ministry of Health is the main source of radiation usage in Oman.

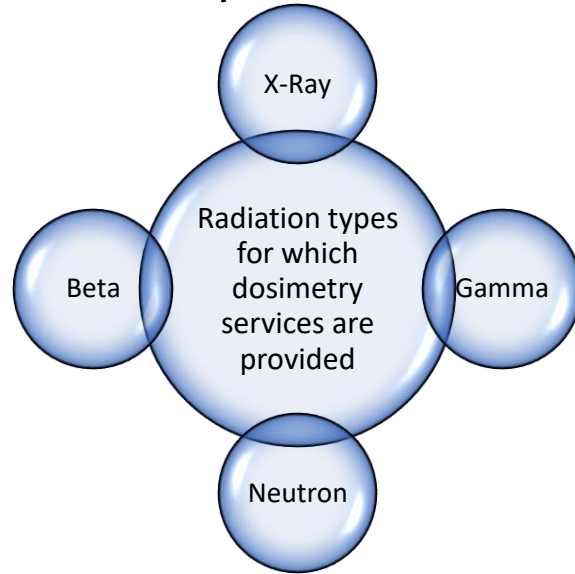
The Data of dose registry in Oman is mainly Limited to Ministry of Health with a minor contribution from SQU also.

Dose registry covers the majority of the occupationally exposed workers (around 70%).

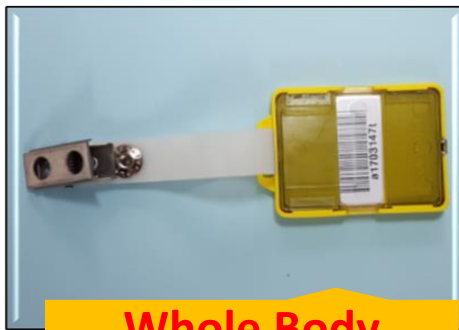
Dose Registry for Ministry of Health started since 2000.

Legal Basis- Regulatory provisions

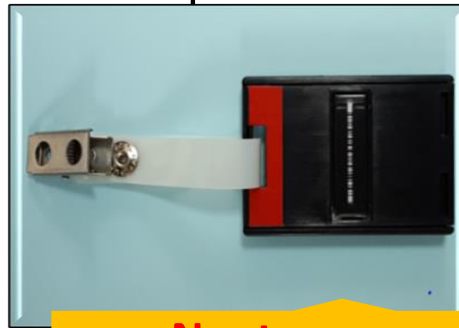
Types of dosimetry services available: **TLD**



Types of personal dosimeters provided:



Whole Body Dosimeter



Neutron Dosimeter



Ring Dosimeter



Eye Dosimeter

Legal Basis- Regulatory provisions

- Type of Dose Record in the NDR:

**Deep Dose Equivalent
DDE (Hp(10))**

- The External whole body exposure dose equivalent at a tissue depth of 10 mm (1000 mg/cm²).

**Shallow Dose Equivalent
SDE (Hp(0.07))**

- The External exposure dose equivalent to the skin at a tissue depth of 0.07 mm (7 mg/cm²).

**Lens Dose Equivalent
LDE (Hp(3))**

- The External exposure dose equivalent to the lens of the eye at a tissue depth of 3 mm (300 mg/cm²).

Neutron

- The External whole body exposure dose equivalent at a tissue depth of 10 mm (1000 mg/cm²).

Operational Technical Service Providers (TSPs) in the country

Technical Service Provider in Oman:

Ministry of Health (It covers the entire Ministry of Health)

Sultan Qaboos University Hospital (It cover SQU, some Private establishments and some industry sectors)

Scope:

Maintain NDR but it Limited to Ministry of Health

Dosimetry service characteristics

Ministry of Health (MOH) is monitoring currently only external dosimetry.

Calibration Procedure for external dosimetry done in TLD lab of Ministry of Health. Annual SSDL calibration is done in PTB, Germany.

Currently we are handling the Occupational Doses of workers in medical specialties.

Internal dosimetry set up is in progress.

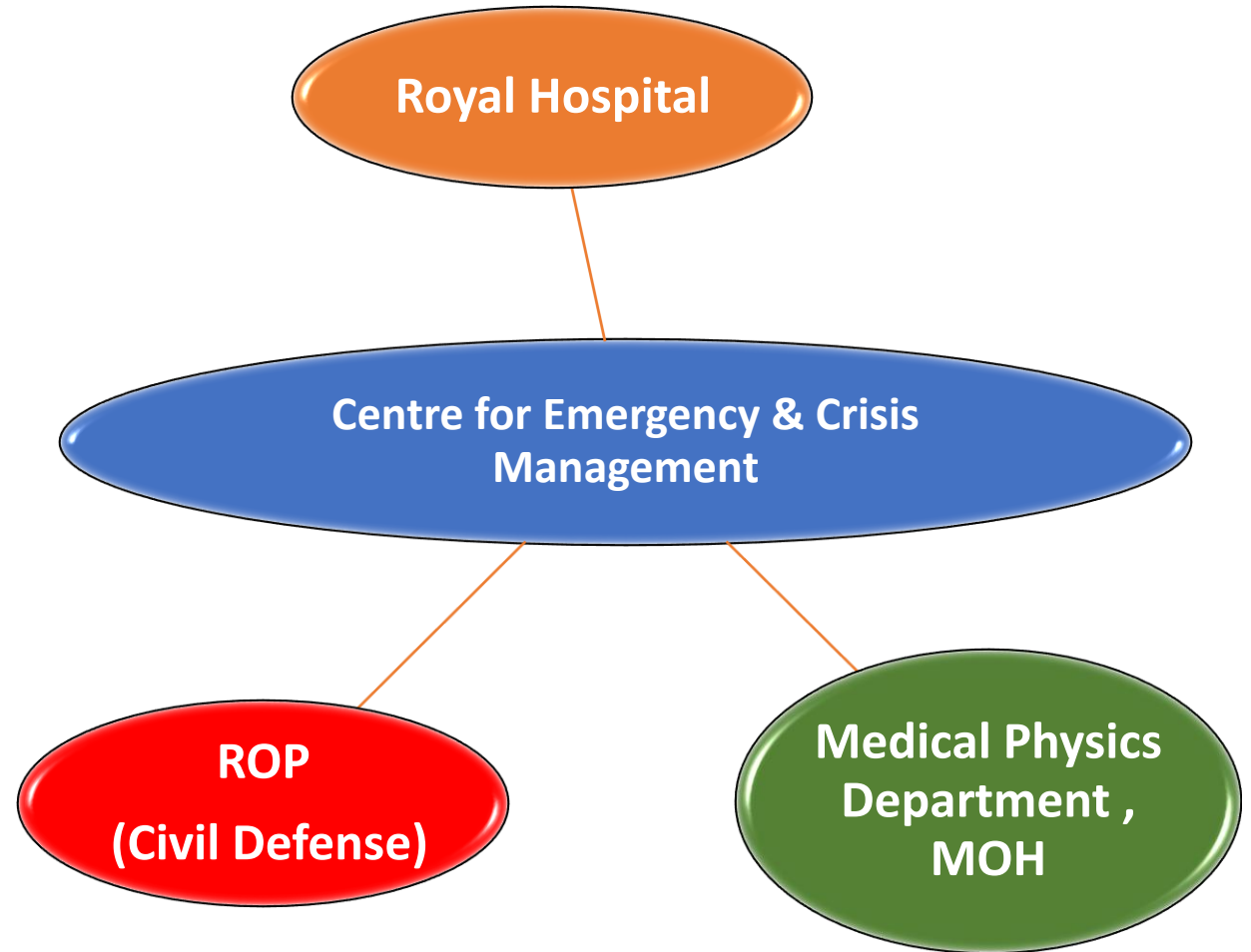
Dosimetry service characteristics

Monitoring requirements for emergency exposure situations and recording arrangements:

In Oman, We have Centre for Emergency & Crisis Management located in MOH dealing with all emergency situations in the country including the emergency radiation exposure situations.

Medical Physics Department is part of this centre, MOH.

Environment Authority installed radiation detectors at different locations of the country.



Provision for Quality Management System for TSPs

system

- ISO 9001: 2015

Accreditation and scope:

- Develop, Establish, Regulate, Manage, Monitor & Enforce the Healthcare related regulations, standards for monitoring the Health statues of the community in Sultanate of Oman.

Qualified staff:

- A Senior consultant Medical Physicist, PhD level (35 Years Experience)
- 4 Junior Medical Physicists (10 years Experience)

Training requirements: In Service Training

Training Obtained (Short Term):

- 1-TL Dosimetry Training in Germany.
- 2-Training on running dosimetry service in Serbia.



General characteristics of the NDR

Establishment date	Responsible body/organization	Role of the NDR	Occupational categories included in the NDR
• 2000	• Ministry of Health Represented By Medical Physics Department, MOH.	• Dose recording • Dose assessment and analysis • Corrective measures	• Diagnostic Radiology • Radiotherapy • Nuclear Medicine • Students (Post or under graduate) • Resident (Medical Doctors) • Cyclotron

General characteristics of the NDR

- Information is required by the NDR:

Employment Type *

Employee Code *

Full Name *

Status *

Active

Gender

Birth Date

Parent Organization *

MINISTRY OF HEALTH, SULTANATE OF OMAN

Region *

Health Facility *

Location *

Start Date at Current Location *

Employment Status

Join Date

Designation

Specialization

Type of Radiation work

Work Email

Work Phone

Work Mobile

General characteristics of the NDR

Responsible organisation
for submitting the required
information to the NDR

- Internally Arranged within Ministry of Health with help of Radiation Protection Supervisors (RPS) and Radiation Protection Officers (RPO).

Time period for submitting
data to the NDR

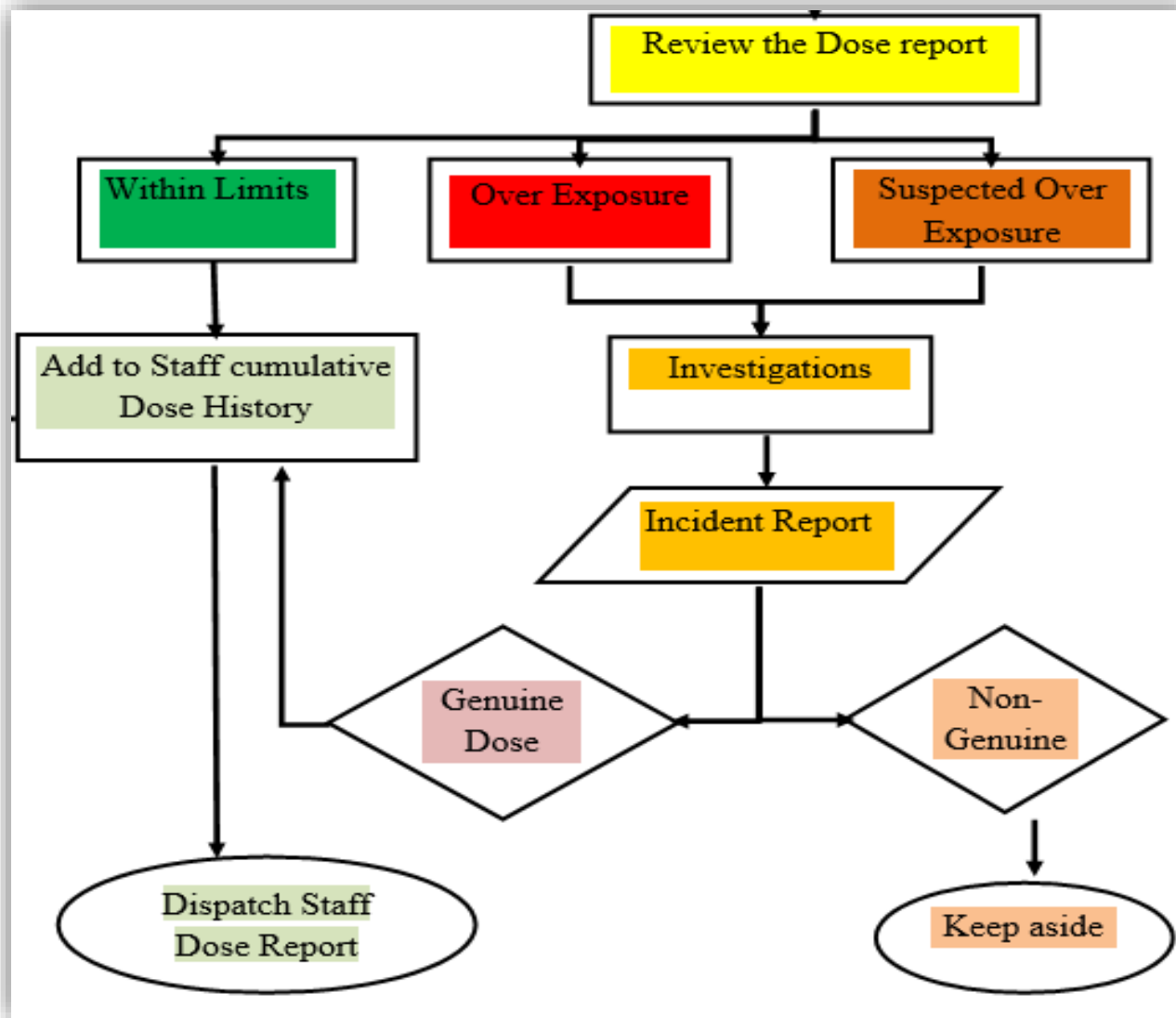
- Automatically done, Monthly.

Retention period of the
NDR data

- 50 years is planned, Currently 23 years is passed.

General characteristics of the NDR

- Procedure applicable for overexposure:



Incident Notification Reporting Form



DEPARTMENT OF MEDICAL PHYSICS & RPS,
DETA, DGPEA, Ministry of Health (HQ)
FORM (J)

INCIDENT NOTIFICATION REPORTING FORM

Incident Type:

- | | | |
|---|--|---|
| ☐ Operating errors | ☐ Medical over exposure | ☐ Loss of source |
| ☐ Fire/Explosion | ☐ Transportation Accident | ☐ Nuclear Source Containment Spill |
| ☐ Equipment failures | ☐ Others | |

Date & Time Reported:

Date:
Time:
☐ AM / ☐ PM

Date & Time of accident/incident:

Date:
Time:
☐ AM / ☐ PM

Individual Reporting: (Your Name):
Position (title):

Phone Number:

Name of the Facility:

Location of Incident:

Address:

Radiation source/Material Involved:

Location:

Source & Cause of Incident:

Involving Contamination:

☐ Yes

☐ No

Brief description of the incident or Event:

Any other Information

Signature:

Date:

Mail or fax this form to Head, Department of Medical Physics & RPS, DETA, DGPEA, Ministry of Health (HQ), Oman.

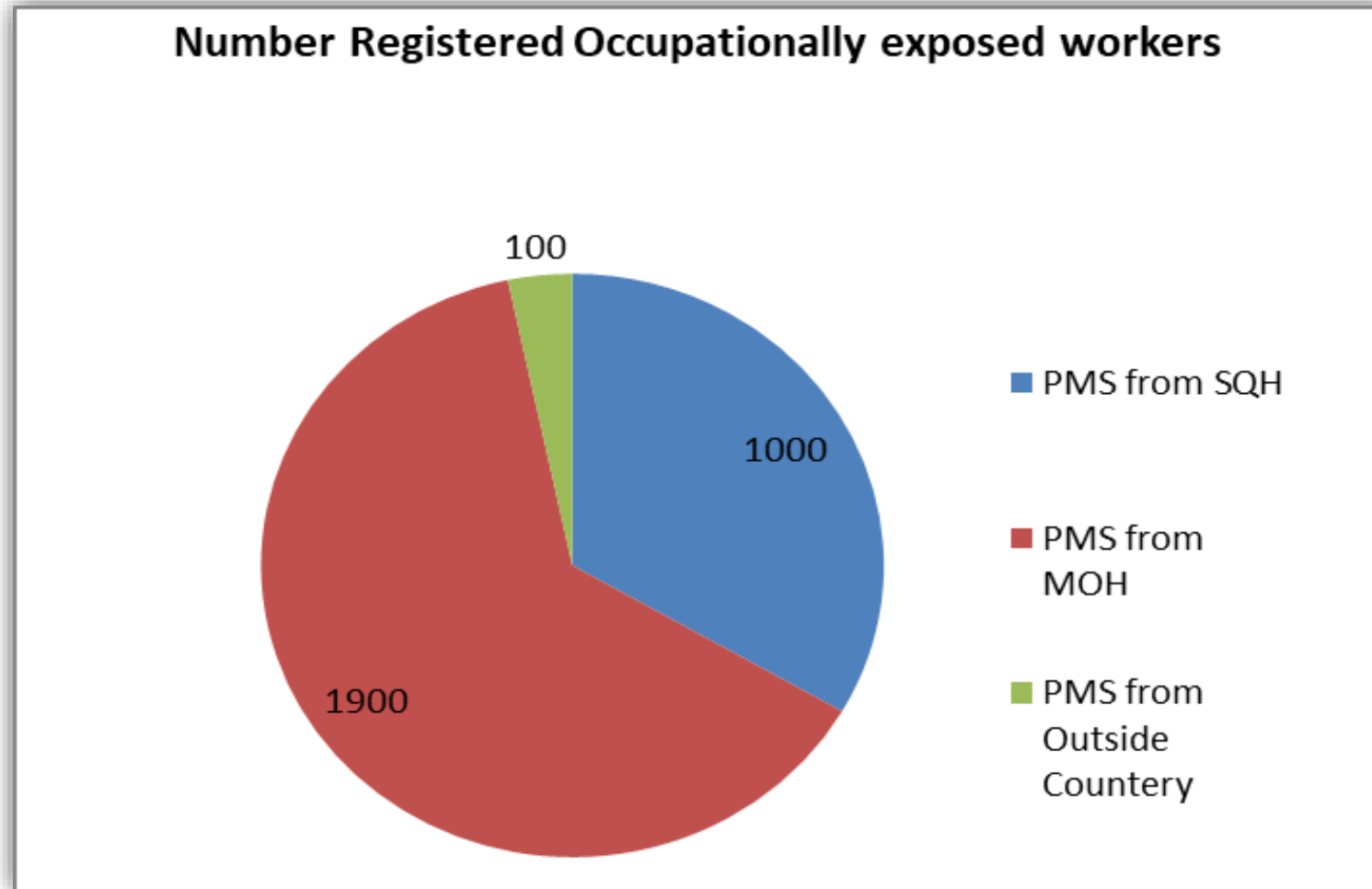
Tel. No.: 22358133/22358131, Secretary: 22358132

Fax No.: 22358129

E-mail: medphv@moh.gov.om

MoH/DGPEA/015/P/010/Vers.01

General characteristics of the NDR



General characteristics of the NDR

Type of database to establish a NDR and maintenance arrangements:

- In-house developed by Dept. of Medical Physics, MOH, with the support from a local company.

Reporting mechanism to occupationally exposed workers or organisations:

- Periodically reporting is done and yearly there is a meeting with RPS from all Regions of the country to discuss all the details regarding this reports.

Management system of the NDR (collection of exposure data):

- In-house developed DRS by Dept. of Medical Physics, MOH, with the support from a local company.

Difficulties when establishing the NDR:

Till now we do Not have a comprehensive NDR.

Currently we do not have a comprehensive legislation mandating the NDR in Oman.

Lack of infrastructure and Technical competence in other concerned Ministries.

Focusing only in the medical arena of Oman. The current NDR is devoid of data from industrial applications, though it forms a small portion.

Dose Data is missing in NDR because some services are sourced from outside especially for industrial & some private health institutions.

Introduction of 2022 Annual Report / Newsletter

- Brief information on the content of the report:



DEPT OF MEDICAL PHYSICS, DGPEA
MINISTRY OF HEALTH
SULTANATE OF OMAN

CUMULATIVE STAFF DOSE REPORT
ROYAL HOSPITAL

RegionROYAL

EstablishmentROYAL HOSPITAL

Whole Body Dosage BetweenNot Specified

Wear Period Between01 Jan 2022

TLD TypesCHEST

And

Not Specified

31 Dec 2022

Selection range applied

LocationLithotripsy

Skin Dosage BetweenNot Specified

And

Not Specified

Number of dose records: 6



DEPT OF MEDICAL PHYSICS, DGPEA
MINISTRY OF HEALTH
SULTANATE OF OMAN

CUMULATIVE NEUTRON STAFF DOSE REPORT
MINISTRY OF HEALTH, SULTANATE OF OMAN
ROYAL HOSPITAL

Selection range applied

Parent Organization MINISTRY OF HEALTH, SULTANATE OF OMAN

Region ROYAL

Health Facility ROYAL HOSPITAL

Neutron Dosage Between Not Specified And Not Specified

Whole Body Dosage Between Not Specified And Not Specified

Wear Period Between 01 Jan 2022 And 31 Dec 2022

TLD Types CHEST & NEUTRON

Location Nuclear Medicine

Skin Dosage Between Not Specified And Not Specified

Emp Code	Name	Neutron Deep Dose	Whole Body Hp(10)	Skin Hp(0.07)	Total Body Dose Neutron + Hp(10)
		mSv	mSv	mSv	mSv
Nuclear Medicine		0.000	0.368	0.466	0.368
		0.000	0.411	0.502	0.411
		0.000	0.467	0.690	0.467
		0.000	0.434	0.599	0.434
		0.000	0.150	0.100	0.150
Number of dose records: 5					

Neutron
dose
Report



DEPT OF MEDICAL PHYSICS, DGPEA
MINISTRY OF HEALTH
SULTANATE OF OMAN

CUMULATIVE STAFF DOSE REPORT
ROYAL HOSPITAL

Ring-Right
Report

Selection range applied

Region ROYAL
Establishment ROYAL HOSPITAL
Whole Body Dosage Between Not Specified And Not Specified
Wear Period Between 01 Jan 2022 And 31 Dec 2022
TLD Types RING-RIGHT
Location Nuclear Medicine
Skin Dosage Between Not Specified And Not Specified

Emp Code	Name	TLD Type	Whole Body Hp(10)	Skin Hp(0.07)	Eye Dose Hp(3)
			mSv	mSv	mSv
		RING-RIGHT		0.000	
		RING-RIGHT		1.455	
		RING-RIGHT		2.224	
		RING-RIGHT		2.100	
		RING-RIGHT		1.263	
		RING-RIGHT		30.667	
Number of dose records: 34					



DEPT OF MEDICAL PHYSICS, DGPEA
MINISTRY OF HEALTH
SULTANATE OF OMAN

CUMULATIVE STAFF DOSE REPORT
ROYAL HOSPITAL

Selection range applied

Region: ROYAL
Establishment: ROYAL HOSPITAL
Whole Body Dosage Between: Not Specified And Not Specified
Wear Period Between: 01 Jan 2022 And 31 Dec 2022
Location: Cardiology
Skin Dosage Between: Not Specified And Not Specified
TLD Types: EYE

Emp Code	Name	TLD Type	Whole Body Hp(10)	Skin Hp(0.07)	Eye Dose Hp(3)
			mSv	mSv	mSv
Cardiology					
		EYE			0.268
		EYE			0.680
		EYE			0.267
		EYE			0.911
		EYE			2.849
		EYE			0.373
		EYE			1.049
		EYE			6.538
		EYE			0.457
		EYE			1.881

Number of dose records: 10

Eye
Report



DEPT OF MEDICAL PHYSICS, DGPEA
MINISTRY OF HEALTH
SULTANATE OF OMAN

CUMULATIVE STAFF DOSE REPORT
ROYAL HOSPITAL

Selection range applied

Region ROYAL
Establishment ROYAL HOSPITAL
Whole Body Dosage Between Not Specified And Not Specified
Wear Period Between 01 Jan 2022 And 31 Dec 2022
TLD Types FOREHEAD
Location Interventional Radiology
Skin Dosage Between Not Specified And Not Specified

Emp Code	Name	TLD Type	Whole Body Hp(10)	Skin Hp(0.07)	Eye Dose Hp(3)
			mSv	mSv	mSv
Interventional Radiology					
		FOREHEAD	0.062	0.060	
		FOREHEAD	0.984	0.987	
		FOREHEAD	1.227	1.354	
		FOREHEAD	0.640	0.636	
		FOREHEAD	0.052	0.055	
		FOREHEAD	0.109	0.110	
		FOREHEAD	5.332	5.309	
		FOREHEAD	0.113	0.100	
		FOREHEAD	0.000	0.000	
		FOREHEAD	0.050	0.000	
		FOREHEAD			

Forehead
Report

Introduction of 2022 Annual Report

- Samples of the analysis on exposure data:

Monthly Dose Assessment 2022						
	Chest		Eye		Ring	
Month	0.05-1.5	1.501-6	0.05-1.5	1.501-6	0.05-10	>10
January	582		6		35	
February	269		11		38	
March	329		10		28	
April	379		19		37	
May	183		13		27	1
June	217	1	14		32	
July	235		15		22	
August	129	2	20		33	
September	249	1	14		54	

Thank you,,,