



## **Occupational Radiation Exposure in Hong Kong (2024)**

Radiation Monitoring Service  
Radiation Health Division  
Department of Health, HKSAR

## Occupational Radiation Exposure in Hong Kong (2024)

This is a report on the occupational external radiation dose data of persons who were employed in work involving radioactive substances or irradiating apparatus in Hong Kong in the year 2024. The data were obtained from individual occupational monitoring using thermoluminescent dosimeters (TLD) provided by the Radiation Monitoring Service (RMS) of the Radiation Health Division, Department of Health, the Government of the Hong Kong Special Administrative Region.

### **Whole body radiation monitoring**

In 2024, the RMS provided whole body type individual monitoring dosimeters to 13,556 named persons and 1,080 unnamed users at 950 sites. The named persons could be grouped into 57 different job types in one of the following four job categories: *dental* (8.18%), *industrial* (6.85%), *medical* (66.90%) and *others* (18.07%). A summary of the annual dose distribution tabulated separately by job category and by job type is at Table 1 and 3 respectively.

The average annual dose of all the monitored persons was 0.12 mSv, which was slightly higher than the value in 2023. One worker's dosimeter recorded a dose of 24.26 mSv, higher than the statutory annual dose limit of 20 mSv for the whole body dose. 82.9% of the monitored persons had annual doses 0.17 mSv or below, which was the level equivalent to one-tenth the pro rata monthly fraction derived from the annual statutory dose limit. Except the abovementioned record exceeding the statutory annual dose, two persons' dosimeter recorded doses exceeding 6 mSv, which was 7.47 mSv.

For individual job categories, the average annual doses for dental, industrial, medical and others were respectively 0.06, 0.16, 0.12 and 0.11 mSv.

Among the monitored users, about 46.4% worked in the public sector (including staff in hospitals of Hospital Authority), the rest of about 53.6% worked in the private sector. By gender, 6,581 (48.5%) were male and 6,975 (51.5%) were female (Figure 5). The dose distribution by gender is at Table 5.

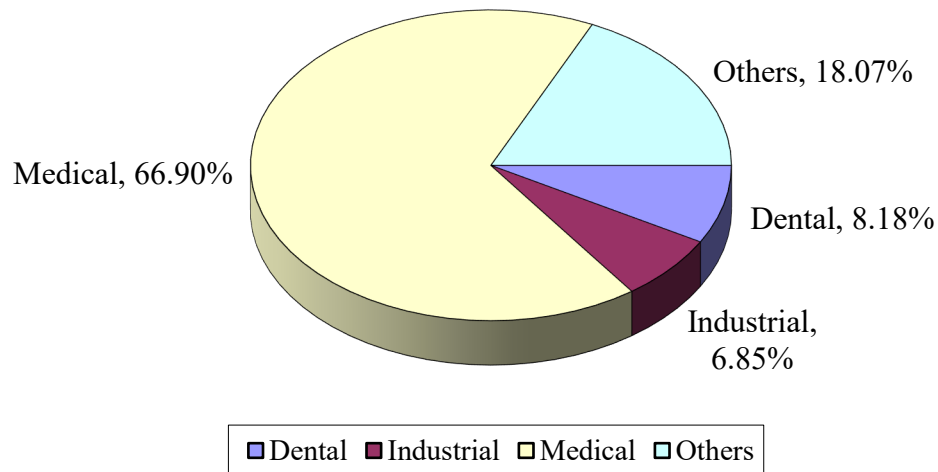
### **Extremity radiation monitoring**

In 2024, the RMS also provided extremity (finger) dose monitoring service to 426 workers at 66 sites in Hong Kong. The average annual finger dose was about 4.33 mSv. Five workers received annual finger doses exceeding 100 mSv and the highest dose recorded was 218.76 mSv against the annual limit of 500 mSv prescribed by the Radiation Ordinance. A summary of the dose distribution tabulated separately by job category and by job type is at Table 2 and 4 respectively.

For individual job categories, the average annual extremity doses for dental, industrial, medical and others were respectively 0.00, 4.97, 4.33 and 4.24 mSv. By gender, 339 (79.6%) were male and 87 (20.4%) were female (Figure 6). The dose distribution by gender is at Table 6.

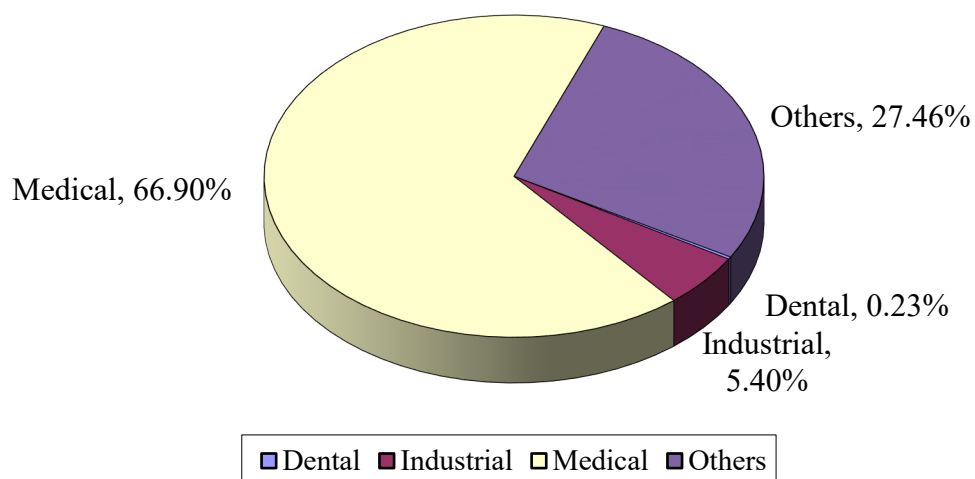
**Figure 1**

**The Distribution of Whole Body Dosimeter Users by Job Categories, 2024**



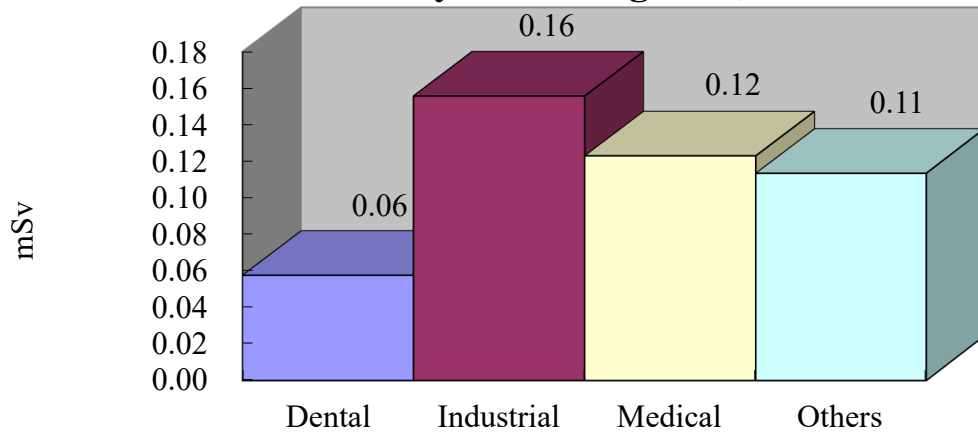
**Figure 2**

**The Distribution of Finger Dosimeter Users by Job Categories, 2024**



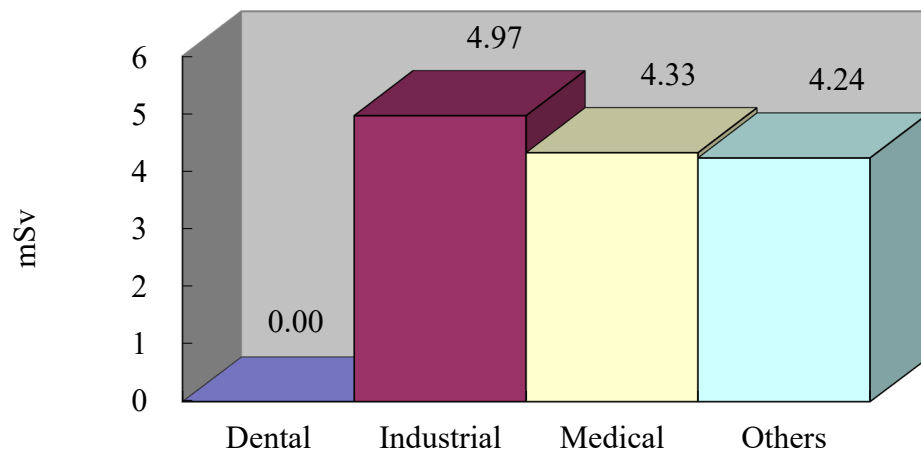
**Figure 3**

**The Average Annual Occupational Whole Body Dose by Job Categories, 2024**



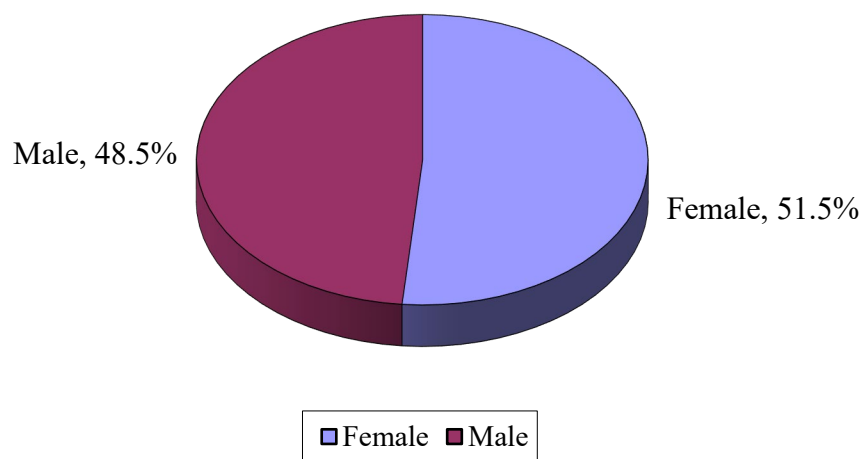
**Figure 4**

**The Average Annual Occupational Finger Dose by Job Categories, 2024**



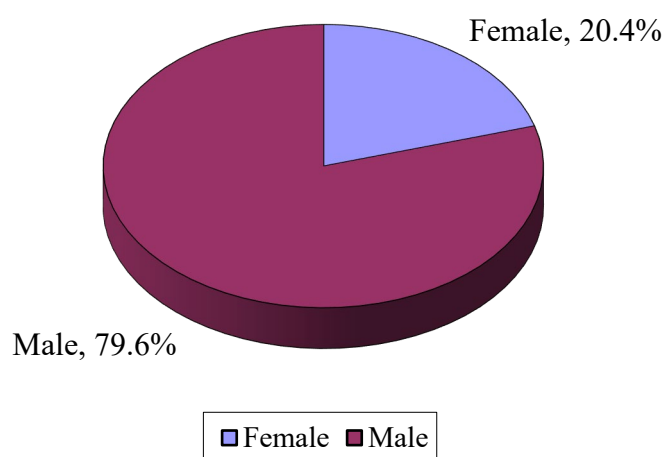
**Figure 5**

**The Distribution of Whole Body Dosimeter  
Users by Gender, 2024**



**Figure 6**

**The Distribution of Finger Dosimeter  
Users by Gender, 2024**



**Table 1**

**The Distribution of Whole Body Dose  
by Job Categories, 2024**

	$x \leq 0.17$	$0.17 < x \leq 0.75$	$0.75 < x \leq 1.5$	$1.5 < x \leq 3.0$	$3.0 < x \leq 6.0$	$6.0 < x \leq 10$	$x > 10$
Dental	1002	103	4	0	0	0	0
Industrial	752	146	23	3	2	2	1
Medical	7420	1370	184	81	14	0	0
Others	2067	325	28	21	8	0	0
Total	11241	1944	239	105	24	2	1

Remark: x represents the dose values in mSv

**Table 2**

**The Distribution of Finger Dose  
by Job Categories, 2024**

	$x \leq 1$	$1 < x \leq 10$	$10 < x \leq 100$	$100 < x \leq 200$	$200 < x \leq 500$	$x > 500$
Dental	1	0	0	0	0	0
Industrial	19	2	2	0	0	0
Medical	246	18	17	3	1	0
Others	100	8	8	1	0	0
Total	366	28	27	4	1	0

Remark: x represents the dose values in mSv

**Table 3**

**The Distribution of Whole Body Dose  
by Job Types, 2024**

	$x \leq 0.17$	$0.17 < x \leq 0.75$	$0.75 < x \leq 1.5$	$1.5 < x \leq 3.0$	$3.0 < x \leq 6.0$	$6.0 < x \leq 10$	$x > 10$
Administrator	3	2	0	0	0	0	0
Artisan	29	2	0	0	0	0	0
Chemist	6	5	0	0	0	0	0
Clerk	23	1	0	0	0	0	0
Consultant (Medical)	10	4	2	0	0	0	0
Delivery	0	2	0	0	0	0	0
Dental Assistant	422	29	3	0	0	0	0
Dental Hygienist	20	3	0	0	0	0	0
Dental Therapist	178	25	0	0	0	0	0
Dentist	382	46	1	0	0	0	0
Department Manager	0	1	0	0	0	0	0
Driver	14	12	2	0	0	0	0
Engineer	208	45	11	1	2	0	0
Experimental Officer	2	1	0	0	0	0	0
Fire Safety Worker	2	1	0	0	0	0	0
Laboratory Attendant	18	6	0	1	0	1	0
Lecturer	5	1	0	0	0	0	0

**The Distribution of Whole Body Dose  
by Job Types, 2024 (Continued)**

	$x \leq 0.17$	$0.17 < x \leq 0.75$	$0.75 < x \leq 1.5$	$1.5 < x \leq 3.0$	$3.0 < x \leq 6.0$	$6.0 < x \leq 10$	$x > 10$
Luminous Watch Assembly Worker	4	1	0	0	0	0	0
Mechanic	19	4	1	0	0	0	0
Medical Officer	1492	370	30	6	3	0	0
Medical Officer (Therapeutic)	31	6	1	0	0	0	0
Medical Technologist	59	36	6	1	1	0	0
Nurse	2304	333	21	12	3	0	0
Nurse (Veterinary)	129	11	3	0	0	0	0
Operator	199	32	2	0	0	0	1
Pharmacist	14	6	4	1	0	0	0
Physicist (Health)	7	12	0	0	0	0	0
Physicist (Medical)	92	26	10	0	0	0	0
Physiotherapist	3	1	0	0	0	0	0
Police	3	8	0	0	0	0	0
Quality Assurance	13	3	0	0	0	0	0
Radiochemist	8	5	3	9	1	0	0
Radiographer (Diagnostic)	1588	296	64	41	4	0	0



**The Distribution of Whole Body Dose  
by Job Types, 2024 (Continued)**

	$x \leq 0.17$	$0.17 < x \leq 0.75$	$0.75 < x \leq 1.5$	$1.5 < x \leq 3.0$	$3.0 < x \leq 6.0$	$6.0 < x \leq 10$	$x > 10$
Radiographer (Industrial)	31	18	1	0	0	1	0
Radiographer (Therapeutic)	239	42	5	1	0	0	0
Radiologist	129	34	3	1	0	0	0
Research Assistant	119	18	0	0	0	0	0
Safety Officer	8	3	1	0	0	0	0
Scientific Assistant	4	0	0	0	0	0	0
Scientific Officer	11	0	0	0	0	0	0
Security Officer	1	0	0	0	0	0	0
Speech Therapist	68	10	0	0	0	0	0
Store Keeper	2	0	0	0	0	0	0
Student	150	13	1	0	0	0	0
Teaching Assistant	2	0	0	0	0	0	0
Technical Officer	80	7	1	1	0	0	0
Technician (Electrical)	149	27	7	0	0	0	0
Technician (Laboratory)	164	34	1	1	2	0	0
Technician (X-rays)	29	4	0	0	0	0	0
Trainee	8	2	0	0	0	0	0
Vet	239	14	6	2	0	0	0

**The Distribution of Whole Body Dose  
by Job Types, 2024 (Continued)**

	$x \leq 0.17$	$0.17 < x \leq 0.75$	$0.75 < x \leq 1.5$	$1.5 < x \leq 3.0$	$3.0 < x \leq 6.0$	$6.0 < x \leq 10$	$x > 10$
Vet Assistant	163	19	0	0	0	0	0
Ward Attendant	802	151	26	7	2	0	0
Workman	27	3	1	0	0	0	0
X-ray Assistant	21	1	0	0	0	0	0
X-ray Crystallographer	1	0	0	0	0	0	0
No Job Code	1507	208	22	20	6	0	0
Total	11241	1944	239	105	24	2	1

Remark: x represents the dose values in mSv

**Table 4**

**The Distribution of Finger Dose  
by Job Types, 2024**

	$x \leq 1$	$1 < x \leq 10$	$10 < x \leq 100$	$100 < x \leq 200$	$200 < x \leq 500$	$x > 500$
Dentist	1	0	0	0	0	0
Engineer	14	2	0	0	0	0
Experimental officer	0	0	2	0	0	0
Laboratory Attendant	2	0	1	0	0	0
Medical Officer	82	2	0	0	0	0
Medical Officer (Therapeutic)	11	0	0	0	0	0
Medical Technologist	1	0	0	0	0	0
Operator	2	0	0	0	0	0
Pharmacist	5	1	4	0	0	0
Physicist (Health)	1	0	0	0	0	0
Physicist (Medical)	24	1	0	0	0	0
Radiochemist	7	5	10	2	1	0
Radiographer (Diagnostic)	100	9	3	0	0	0
Radiographer (Therapeutic)	1	0	0	0	0	0
Radiologist	9	0	0	1	0	0
Research Assistant	2	1	0	0	0	0

### The Distribution of Finger Dose by Job Types, 2024 (Continued)

	$x \leq 1$	$1 < x \leq 10$	$10 < x \leq 100$	$100 < x \leq 200$	$200 < x \leq 500$	$x > 500$
Safety Officer	3	0	0	0	0	0
Scientific Officer	0	2	1	0	0	0
Speech Therapist	1	0	0	0	0	0
Store Keeper	4	0	0	0	0	0
Student	2	0	0	0	0	0
Technical Officer	0	0	1	0	0	0
Technician (Electrical)	1	0	0	0	0	0
Technician (Laboratory)	3	3	1	0	0	0
Vet	1	0	0	0	0	0
Ward Attendant	4	0	0	0	0	0
No Job Code	85	2	4	1	0	0
Total	366	28	27	4	1	0

Remark: x represents the dose values in mSv

**Table 5**

**The Distribution of Whole Body Dose  
by Gender, 2024**

	$x \leq 0.17$	$0.17 < x \leq 0.75$	$0.75 < x \leq 1.5$	$1.5 < x \leq 3.0$	$3.0 < x \leq 6.0$	$6.0 < x \leq 10$	$x > 10$
Male	5333	1026	148	57	14	2	1
Female	5908	918	91	48	10	0	0
Total	11241	1944	239	105	24	2	1

Remark: x represents the dose values in mSv

**Table 6**

**The Distribution of Finger Dose  
by Gender, 2024**

	$x \leq 1$	$1 < x \leq 10$	$10 < x \leq 100$	$100 < x \leq 200$	$200 < x \leq 500$	$x > 500$
Male	288	21	25	4	1	0
Female	78	7	2	0	0	0
Total	366	28	27	4	1	0

Remark: x represents the dose values in mSv