

International Survey on Status of Medical Examinations for Radiation Workers _ Assisting Comprehensive Discussion on

T. Imoto^a, K. Sakai^b

^a The University of Tokyo, ^b Tokyo Healthcare University



Background and Purpose

- Japanese employers of radiation-related facilities are obliged to perform medical examinations for **all radiation workers once or twice a year** mainly based on two laws from the viewpoints of radiation regulations and occupational safety and health.
- Recommendation by Radiation Council of Japan: "based on the latest progress of radiation protection and management systems, the recognition of abnormal exposure facts or deficiencies in the radiation work environment should not depend on the results of health examination for them."
- With this background, this study aims to **scientifically discuss the significance and effectiveness of medical examination** for radiation workers in planned and emergency exposure situations.

Our Thought and Hope in ICRP 2019

- We believe it is important to consider the issues from a comprehensive and multifaceted perspective through **questionnaires and interviews** in Japan (to radiation workers, occupational physicians, operators, regulators, etc.) and **overseas (to regulators, experts of radiation protection and management, etc.)**.
- We have continuously collected information since 2018 such as **legal descriptions, implementation status** in each country, and **stakeholder needs** concerning medical examination. The data was shown in the Table below.
- From this study, we are expecting to **promote and accelerate the discussion to optimize** Japanese medical examination for radiation workers from medical and scientific viewpoints.

Thank you for your kind and strong cooperation on this questionnaire from Japan!

- Please answer the following question **from the viewpoint of radiation protection as an expert** in the radiation protection field.
 - ✓ **Is surveillance for all radiation workers (HSRW) conducted in your facility (or country)? If yes, what is it based on?**
 - ✓ **Do you think that "HSRW (blood, skin, eye lens, etc.)" is necessary and why?**
 - ✓ **Do you think that employers need to confirm that all radiation workers are in good health from the viewpoint of radiation exposure effects and why?**
- Please answer the following question from a **viewpoint other than radiation protection**.
 - ✓ **Can you indicate some meanings and purposes for conducting HSRW other than radiation protection?**

【Points to Be Discussed】

- Needed for radiation workers receiving annual dose, for example, less than 1 mSv?
- Any reasons other than health control? Such as
 - Employer's special services for workers
 - Employee's natural rights
 - Appropriate check for dangerous labor work (mental management, etc.)

Table. Conditions of Medical Examination by Laws and Regulations in Each Country

Country name			IAEA	Japan		Sri Lanka	Malaysia	Mongolia		canada		United Kingdom	Malawi
Contents(Name of Rule)			GSG-7, DS453	the Radiation Hazards Prevention Law	Ordinance on the Prevention of Ionizing Radiation Hazards	Atomic Energy Safety Regulations No. 1 of 1999	Radiation Safety &Health , Malaysian Nuclear Agency	Nuclear energy law	Radiation safety regulation	Radiation Protection Regulations	Regulatory Guide G-147: Radiobioassay Protocols for Responding to Abnormal Intakes of Radionuclides	The Ionizing Radiations Regulations 2017	Atomic Energy Regulations of 2012
At any time	Implementation conditions	Before work engagement	a	a	a	a	a	a	a	d	d	a	a
		Inhalation ingestion - Oral inhalation by mistake	d	a	a	c	b (regulator body)	d	b	d	c	c	d
		When the exposure dose of the skin exceeds the surface density limit	d	a	a	c	a	d	a	d	d	a	d
		When the wound surface of the skin is contaminated	d	a	a	c	b (regulator body)	d	a	d	c	d	d
		When radiation exposure exceeds the effective dose limit - equivalent dose limit	d	a	a	c	a	a	a	d	c	a	a
		When an accident occurs, if you are in that area	d	d	a	d	a	b	a	d	c	c	a
	Inspection item	Interview(See Table 2)	a	a	a	a	a	a	a	d	d	a	a
		Blood (number of red blood cells, hematocrit value, amount of hemoglobin, percentage of white blood cells / white blood cells)	d	a	a	a	a	a	a	d	d	c	d
		Skin	b	a	a	a	b (doctor)	d	a	d	d	c	d
		Eye (cataract etc.)	b	c	b	a	a	d	a	d	d	c	d
	Other parts and items determined by the Nuclear Regulatory Commission	b	c	d	a	X-ray for lung every 5 years	d	c	d	d	c	a	
Periodic	Health examination interval		1year or 2years	1 year	6 months	1 year	3years	depends on type of organisation	depends on type of organisation	d	d	1 year	as necessary
	Interview(See Table 2)		a	a	a	a	a	a	a	d	d	a	a
	Inspection item	Blood (number of red blood cells, hematocrit value, amount of hemoglobin, percentage of white blood cells / white blood cells)	d	c	b	a	a	a	a	d	d	c	d
		Skin	b	c	b	a	b	d	a	d	d	c	d
		Eye (cataract etc.)	b	c	b	a	a	d	a	d	d	c	d
		Other parts and items determined by the Nuclear Regulatory Commission	b	c	b	a	X-ray for lung	d	c	d	d	c	a

*The study and activity are under **Radiation Safety Research Program sponsored by Nuclear Regulatory Agency (2018-2019)**
"Discussion on Optimized Medical Surveillance for Radiation Workers"

Meanings of (a)-(d) in the above table

- (a) must (b) could be exempted under unnecessary
(c) must be done under necessary (d) not stated in regulations