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**INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

WS/T 583-2017

**Medical management standard for internal contamination of
radionuclides
(English Translation)**

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Foreword

This standard is formulated in accordance with the "Emergency Response Law of the People's Republic of China".

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This standard is transformed from GB/T 18197-2000 "Specifications for Medical Treatment of Personnel Contaminated by Radionuclides" and is in line with GB/T 18197-2000 in comparison, with the exception of editorial changes, the main technical changes are as follows.

--In the "Normative Reference Documents", GB 18871 Ionizing Radiation Protection and Radiation Source Safety Basic Standards are added; in GBZ 96 Diagnostic criteria for radiation sickness; GBZ 129 Occupational internal radiation personal test specifications; GBZ/T 269 total alpha and total beta radiation in urine Sexual testing specifications; WS/T 467 nuclear and radiation accident medical response procedures (see Chapter 2);

- Added the definitions of intake, special monitoring, radionuclide absorption and internal pollution medical treatment (see 3.2, 3.4, 3.5 and 3.7), revised the definition of the annual intake limit (see 3.3, 3.2 in the 2000 edition);

- 5.1 of the original standard was revised to internal contamination detection (see 5.1, 5.1 of the 2000 edition);

--- 5.2 of the original standard is revised to estimate the exposure dose of internal pollution (see 5.2 in the 2000 edition);

--The contents of Chapter 8 of the original standard have been moved to 4.6 (see Chapter 4.6, Chapter 8 of the 2000 edition);

--- Table A.1 in the original standard informative appendix A has been modified to block absorption and excretion of radionuclide drugs (see Table A.1 in Appendix A,

Table A.1 in Appendix A of the 2000 edition);

--- Added table A.2 drug administration method and dosage (see Table A.2 in Appendix A).

Drafting organizations of this standard. Institute of Radiation Medicine, Chinese Academy of Medical Sciences, Institute of Medical Laboratory Animals, Chinese Academy of Medical Sciences, Center for Disease Control and Prevention, Institute of Radiation Protection and Nuclear Safety Medicine, Sichuan Provincial Center for Disease Control and Prevention.

1 Scope

This standard specifies the principles and methods for medical treatment of internal contamination of radionuclides.

This standard applies to the medical treatment of personnel contaminated by radionuclides.

2 Normative references

The following documents are indispensable for the application of this document. For dated reference documents, only the dated version applies to this document.

For undated references, the latest version (including all amendments) applies to this document.

GB 18871 Basic standard for ionizing radiation protection and radiation source safety GB/T 16148 Radionuclide intake and internal exposure dose estimation specification GBZ 96 Diagnostic criteria for internal exposure radiation sickness GBZ 129 Specification for Personal Inspection of Occupational Internal Exposure GBZ/T 269 Specification for the detection of total alpha and total beta radioactivity in urine WS/T 467 Medical response procedures for nuclear and radiation accidents

3 Terms and definitions

The following terms and definitions apply to this document.

Radionuclide internal contamination Body pollution caused by inhalation, ingestion or skin (including wounds) ingestion of radionuclides in excess of their natural amount dye.

Generally, it can be measured and evaluated by air, biological sample detection or in vitro direct measurement.

Intake

The amount of radionuclide that enters the body through inhalation, ingestion, wounds, or through intact skin.

Annual limits of intake in one year, if the intake of specific radionuclides in the body is controlled below the limit, the internal radiation produced by it will be accumulated effective dose not higher than the effective dose limit for radiation workers.

Special monitoring

In order to illustrate a specific problem, individual monitoring conducted within a limited period of time. For example, when dealing with a radiation source accident, Personal monitoring of accident emergency response personnel. Wound monitoring and medical emergency monitoring are special monitoring.

Radionuclide blocking absorption Measures to prevent radionuclides from being absorbed into the blood from the entry site. Non-specific measures include vomiting, gastric lavage and laxatives. Specific measures refer to Medical measures that prevent absorption of specific radionuclides.

Accelerated excretion of radionuclides Medical measures taken on radionuclides that enter the human body. Including the use of drugs and other measures to accelerate the discharge of radionuclides from the body or Prevent the deposition of radionuclides in the body.

Internal pollution medical treatment Dosage monitoring, medical observation, treatment, medical intervention and follow-up of people who have been accidentally contaminated in the body. The principle is. reduce Absorption of radionuclides at the entry site and accelerated excretion from the body, reducing internal radiation doses, preventing or reducing possible short-term and long-term health risks harm.

4 General rules for medical treatment of internal contamination of radionuclides

4.1

If there is suspected internal contamination of radionuclides, samples and data should be collected, analyzed and measured to determine the types and types of contaminated radionuclides.

Quantity.

4.2

The internal contamination of radionuclides should be promptly medically treated. the source of contamination that caused internal contamination should be identified and removed;

Absorption of radionuclides; accelerate the excretion of radionuclides from the body and reduce their deposition in tissues and organs.

4.3

For personnel whose intake of radionuclides may exceed twice the annual intake limit, the intake and expected effective dose should be estimated.

Take the accelerated discharge treatment measures and register them for follow-up observation.

4.4

When performing accelerated discharge of radionuclides, the pros and cons should be weighed. It is necessary to reduce the absorption and deposition of radionuclides, and to prevent Accelerated excretion may bring toxic side effects to the body. Pay special attention to the possibility of aggravating kidney damage.

4.5

According to the nature of different nuclides and the deposition of different organs, different drugs and treatment measures are used.

4.6

When radionuclide internal contamination is accompanied by other injuries or symptoms, take corresponding medical treatment.

5.1 Internal contamination detection

5.1.1

When internal contamination is suspected, an internal and external contamination test should be carried out immediately, relevant samples should be collected, and an initial assessment of the intake of radionuclides should be made.

Step estimation, the intake estimation shall be carried out according to the provisions of GB/T 16148.

5.1.2

Test for pollutants (for example, clothing, masks, skin, food, air, etc.), do a nasal swab test, and Perform this type of test before bathing. Special monitoring should be carried out when abnormality is found in the test results.

5.1.3

Collect and process urine samples, measure total alpha and total beta, and analyze contaminated radionuclides. Specific reference GBZ/T 269 carried out.

5.1.4

When the internal pollution exceeds the annual intake limit, radionuclides that can be directly measured in vitro (systemic or local) should be Direct measurement in vitro. The annual intake limit refers to the relevant clauses in GB 18871.