

Nuclear Disaster Guidelines for Preparedness, Response and Recovery

(English Translation)

(November 2018 Edition)



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I. Background

Until the accident at Tokyo Electric Power Company's Fukushima Daiichi Nuclear Power Plant (hereinafter referred to as "Fukushima Daiichi accident") occurred following the Great East Japan Earthquake and Tsunami, the safety of nuclear power plants was overestimated in Japan. The possibility of a large-scale nuclear disaster had been rarely discussed or debated openly. In addition, no information regarding the risks had been shared except among a handful of stakeholders. As a result, response to a complex disaster involving a nuclear power plant and response to the release of radioactive materials from a nuclear power plant site had been beyond the scope of expectations. It is fair to say that there was a lack of comprehensive preparation for a nuclear disaster across sectors in Japan.

Due to the lack of preparedness, the off-site center for the Fukushima Daiichi Nuclear Power Plant and the nuclear emergency medical care arrangements did not work sufficiently. Since extensive evacuations following a large-scale complex disaster had not been assumed, evacuations occurred in an unsystematic way and this led to confusion among people affected by the disaster. In particular, when people requiring special consideration¹ were evacuated, they were frequently forced to be transported many hours, because it was difficult to find or arrange facilities to accept them. The failure to arrange medical and nursing care in a timely manner worsened the physical conditions of those people or even led to death in some cases.

Furthermore, conflicting information soon after the onset of the Fukushima Daiichi accident because of the lack of preparedness led to distrust in the national and local governments among the public and increased fear of damage caused by radiation. Preparedness for nuclear disasters by the Japanese Red Cross Society (hereinafter referred to as "JRCS") was also insufficient. When the Fukushima Daiichi accident occurred, the JRCS relief teams were providing relief activities in Fukushima Prefecture. However, the JRCS was not able to secure the safety of its relief team members who lacked any protective equipment against a nuclear disaster. Therefore, the JRCS relief teams, except for the JRCS Fukushima Chapter relief teams, were forced to temporarily leave Fukushima Prefecture. Even after resuming the relief activities, the JRCS had no option but to provide activities by trial and error during the nuclear disaster, which were the JRCS's first relief activities ever during a nuclear disaster. The circumstances prevented them from providing sufficient activities for the affected people. The response provided to people evacuated from Fukushima Prefecture to other prefectures was conducted by the JRCS chapters of those other prefectures. However, the JRCS response was not enough as a whole.

¹ Elderly persons, persons with disabilities, infants and preschool children, and other persons who require special consideration (Article 8 (2) (xv), Basic Act on Disaster Control Measures)

On the other hand, the international community regards nuclear disasters as a challenge which should be tackled internationally, because damage from radiation release after a nuclear accident will most likely spread beyond the accident country and cause a wide range of effects. With these concerns as a background, the International Federation of Red Cross and Red Crescent Societies (hereinafter referred to as "IFRC") adopted a resolution for enhancing preparedness for nuclear and radiological emergencies at the General Assembly in November 2011.

Japan is the only country in the world with the difficult experience of radiation exposures in different forms: the atomic bombing in Hiroshima and Nagasaki; and the Fukushima Daiichi accident. In addition to the IFRC resolution, the JRCS believes that it has a responsibility to address this challenge and share the experience with the international community. For these reasons, the JRCS created the Nuclear Disaster Guidelines for Preparedness, Response and Recovery (hereinafter referred to as "Guidelines") in collaboration with the IFRC.

II. Purpose and scope

1. Purpose of the Guidelines

Based on JRCS's experience in responding to the Fukushima Daiichi accident following the Great East Japan Earthquake and Tsunami, the Guidelines sets the JRCS's principle of action to prepare for possible future nuclear disasters in order to protect the lives, physical and mental health and safety of people who may be affected by a nuclear disaster. The purpose of the Guidelines is to clarify the roles that the JRCS should play and to establish the internal arrangements for securing the health and safety of JRCS responders.

2. Scope

(1) Scope of activities

The scope of activities for the Guidelines is relief activities which should be provided during a nuclear disaster mainly in Japan. The relief activities in the Guidelines include nuclear disaster preparedness activities and recovery activities to restore livelihoods of people affected by a nuclear disaster, as well as medical relief activities to be provided by JRCS relief teams in the event of a nuclear disaster.

The main target audiences are JRCS staff and Red Cross volunteers, who will be responders in the event of a nuclear disaster.

While many response activities relating to a nuclear disaster are common to natural disasters, the Guidelines mainly describe activities unique to a nuclear disaster. For activities common to natural disasters, refer to other JRCS rules, guidelines, manuals and materials which describe activities during natural disasters. However, some of the response activities common to natural disasters, which are important particularly in the event of a nuclear disaster, are mentioned in the Guidelines as considerations.

(2) Definition of “nuclear disaster”

In the Guidelines, a nuclear disaster is defined as a disaster caused by release of radioactive materials or unusual radiation levels due to an accident which occurs mainly at nuclear facilities. The Guidelines are described based on an assumption of a nuclear disaster, such as the Fukushima Daiichi accident, which causes a large number of evacuees².

(3) Definition of “phases”

In the following chapters, the Guidelines are described according to three activity phases:

² Therefore, the Guidelines do not include nuclear disasters caused by military attacks that are referred to in the “Act concerning the Measures for Protection of the People in Armed Attack Situations, etc.”

Preparedness; Emergency Response; and Recovery. Each phase in the Guidelines is defined as follows:

Preparedness Phase: An activity period to prepare for future nuclear disasters. Preparedness for disaster mitigation is also included to allow the JRCS to engage efficiently in appropriate activities and reduce potential damage to a minimum level in the event of a nuclear disaster.

Emergency Response Phase: An activity phase to prevent the disaster damage from spreading and people's quality of life from reducing.

Recovery Phase: An activity phase to restore what was damaged by a disaster to the pre-disaster state, and to provide activities that take into consideration resolution of problems which existed in a community before the disaster.

3. Legal framework of JRCS activities

The JRCS prepares for nuclear disasters to accomplish its humanitarian mission, which is the Red Cross mission.

In Japan, JRCS activities are stipulated by the Japanese Red Cross Society Act to provide relief for affected people in emergencies and disasters. The Basic Act on Disaster Control Measures gives the JRCS a position of "designated public corporation". Furthermore, the Disaster Relief Act states that the JRCS is mandated to cooperate with rescue at the request of the national and prefectural governments. The Act on Special Measures concerning Nuclear Emergency Preparedness states that the JRCS should provide relief activities as a designated public corporation in collaboration with related organizations.

4. Characteristics of a nuclear disaster

Release of radioactive materials or radiation, which is a unique event to a nuclear disaster, occurs during the disaster. Therefore, it is necessary to understand the following unique characteristics of a nuclear disaster when conducting relief activities relating to nuclear disasters. The following descriptions mainly include the characteristics of a nuclear disaster which the JRCS should take into consideration when thinking about relief activities to the general public, the target population for the JRCS.

(1) Unique characteristics of a nuclear disaster

When responding to a nuclear disaster, a basic knowledge and an understanding of radiation are needed. Cooperation with organizations and experts specialized in radiation is required throughout all phases of the disaster. Furthermore, the JRCS needs to provide nuclear disaster training and create opportunities for information exchange throughout the JRCS, mainly

through Hiroshima Red Cross Hospital & Atomic-bomb Survivors Hospital and Japanese Red Cross (hereinafter referred to as “JRC”) medical facilities designated as Nuclear Emergency Core Hospitals³, etc.

(2) Continuous information gathering and situational decision-making

Radiation is unable to be detected by the senses. Thus, radiation measurement equipment and materials⁴ need to be prepared in advance.

The radiation release changes according to the status of a nuclear accident, and the area and extent of the effects are expected to change from moment to moment. In order to secure the safety of JRCS responders, it is important to gather information on radiation release continuously and understand it quickly and correctly. For example, decisions will need to be made based on: the ambient dose rate measured with radiation measurement equipment; the status of the accident site; the disaster-related information such as the forecast of spreading radioactive materials by taking the weather and topography into consideration; and experts' advice.

(3) Rare incidence of acute radiation syndrome

Incidence of life-threatening acute radiation syndrome is quite rare during a nuclear disaster. Therefore, emergency medical care involving radiation exposure will be less likely needed.

(4) Possibility of mid- and long-term health problems

On the other hand, health effects from low-dose radiation exposure have not been clarified yet. Possibilities of developing health problems over a long period of time are also pointed out. Physical consequences may emerge long after exposure to radiation. For these reasons, it is important to estimate radiation exposure dose of JRCS responders as well as evacuees and start providing them with health management, etc. according to their exposed radiation doses immediately after a nuclear accident, if possible.

(5) Stress caused by living under evacuation and its possible health effects

After a nuclear disaster occurs, the government, etc. designate areas where the public are

³ Nuclear Emergency Core Hospitals: Medical institutions that function as the center of the nuclear emergency medical care operations in the affected area in times of disaster. See the Nuclear Regulation Authority website for information on the medical care system laid down by the Japanese government in case a disaster occurs. (<https://www.nsr.go.jp/activity/bousai/measure/medicalsyst.html>)

⁴ Radiation measurement equipment and materials: Personal dosimeter, ionization chamber, survey meter and protective gear for relief team members, etc.

restricted to enter (hereinafter referred to as “restricted areas⁵”) in a wide area for a long period of time. As a result, a large number of people flee their homes and they may be forced to evacuate to places far away. Factors such as living in an unfamiliar environment and new locations, relationship with people there and harmful rumors will place more stress on the affected populations than any other disasters.

In addition, stress due to anxiety of radiation effects may cause mid- and long-term health problems. Particularly, children’s outdoor activities may be limited to reduce radiation exposure, which could lead to less exercise and prevent healthy development of their bodies and minds. For the elderly, protracted evacuation, living separately from their family members, stress, lack of exercise and difficulty in access to medical care, etc. may undermine their health.

(6) Weakening of local community functions and isolation of evacuees

Evacuation to a wide area disperses affected populations and weakens local community functions. This will lead to less mutual aid and observation of vulnerable people that the affected populations had in the community. Concerns about radiation effects on children and the necessity of securing family income while being evacuated make many families live separately. This will cause isolation of evacuees, especially elderly people.

(7) Prolonged environmental contamination from radioactive materials

Contamination from radioactive materials spreads to the natural environment and ecosystem such as the soil, rivers and ocean, etc. over time. If the radioactive materials spread into the environment, they could lead to internal exposure through ingestion of foods, drinks and inhalation of particles, etc. Since the effects from the environmental contamination will last for a long time, measures to cope with radiation exposure may be needed not only for the Emergency Response Phase but also for the Recovery Phase.

(8) Underestimation of preparedness for nuclear disasters

A nuclear accident may cause a huge damage when it occurs. However, the occurrence frequency of nuclear disasters is often expected to be much less than other disasters. Therefore, the preparedness for nuclear disasters tends to be less focused on and thus be inadequate compared to other disasters.

⁵ Restricted areas: Areas that are defined as “Restricted Area” by the *Act on Special Measures Concerning Nuclear Emergency Preparedness*, and zones under evacuation recommendation or evacuation order.

III. Considerations during activities

1. Importance of information during the initial phase of a nuclear disaster

(1) Possible situations

If a nuclear disaster occurs, the general public will need more information due to anxiety of the disaster but confusion in society may prevent the necessary information and knowledge from being correctly communicated. This could prevent the general public from taking the appropriate action to protect themselves from radiation that should be taken.

It will also be more important for the JRCS to be aware of the conditions in the affected areas. However, the JRCS may continue to face difficulties in obtaining the information.

(2) Information gathering during the initial phase of a nuclear disaster

In order to smoothly provide effective relief activities during the above-mentioned initial phase of a nuclear disaster, it will be important for the JRCS to collaborate with other external organizations, gather information and communicate with them. To facilitate this, the JRCS needs to build a cooperative relationship with public authorities and organizations specialized in radiation during the Preparedness Phase. During the initial phase of a nuclear disaster, the JRCS will need to gather information about the overall needs and how those external organizations respond to the disaster in order to manage the JRCS relief activities appropriately.

As for communication with the affected populations in the affected areas, JRCS responders should be careful about their words and behaviors to avoid making the affected populations excessively anxious. At the same time, the JRCS responders need to provide proper information for the affected populations to try to reduce their anxiety. It might be possible for the JRCS to provide correct knowledge to the affected populations to encourage them to choose action which could avert the radiation effects as much as possible.

2. Response to people requiring special consideration

(1) Possible problems

During a nuclear disaster, people requiring special consideration will have the same problems as during other disasters. However, the unique characteristics of a nuclear disaster may increase the degree of the problems especially in information awareness, travel (evacuation), capabilities for maintaining their livelihoods, and adaptation to a new environment.

(2) Response to people requiring special consideration

The JRCS needs to pay attention to the response to people requiring special consideration in providing relief activities at evacuation centers and temporary housing, etc. during the phases of Preparedness, Emergency Response and Recovery. Particularly in responding to elderly

and physically-challenged people, etc., the JRCS shall cooperate with other specialized organizations.

3. Affected populations' stress

(1) Possible stress

A large-scale and long-term evacuation due to a nuclear disaster increases affected populations' stress because a large number of people live together at evacuation centers and temporary housing, etc. Their stress may be intensified by living in new unfamiliar areas and environments and interacting with new unfamiliar human relationships. In addition, if the damage turns out to be more serious, they could feel frustrated or helpless. Divided communities may isolate the affected populations more and this could prevent them from alleviating the stress or recovering from the stress.

(2) Response to affected populations' stress

Affected populations are expected to experience mid- to long-term evacuation. They may live in fear of radiation of where they live after the nuclear accident. Therefore, attention should be paid to the necessity of continued mid- to long-term response to the affected populations.

In addition, their stress needs a comprehensive response not only by JRCS's psychosocial support via its psychological care activities but also in cooperation with local public health nurses and clinical psychologists.

4. JRCS responders' stress

(1) Possible stress

It is unlikely to develop acute health problems due to radiation effects. However, JRCS responders could be exposed to radiation while providing relief activities during a nuclear disaster. Therefore, concerns about their possible long-term health effects may arise. This is one of the characteristics of a nuclear disaster. Their basic stress and cumulative stress are considered to increase more than during natural disasters.

(2) Response to JRCS responders' stress

For JRCS responders to cope with their stress involving performing their duties, they need to correctly understand the stress symptoms and prepare for the stress. Since they are expected to provide activities under unusual circumstances, they also need to be educated in advance to understand and recognize the psychological conditions which they may experience under such circumstances.

To reduce JRCS responders' anxiety, it is necessary to provide them with full arrangements in securing their safety and sufficient information during their activities. After their activities are

completed, they should be, if needed, provided with medical and psychological care.

5. Safety management for responders who live in an affected area

(1) Possible situations

In an area affected by a nuclear disaster, responders who live there are expected to be exposed to higher radiation doses in their daily lives than before the disaster due to release of radioactive materials, etc.

(2) Considerations and health management, etc.

Given that JRCS responders living in the affected area could be exposed to higher radiation doses in their daily lives, they need to be given a different response in terms of safety standards from that for JRCS responders deployed to the affected area from non-affected areas to provide relief activities.

With respect to education about radiation, all JRCS responders as well as JRCS relief team members shall be informed and educated about radiation during the Preparedness Phase to ensure the safety of the JRCS responders in the event of a nuclear disaster.

In order to maintain the physical and mental health of JRCS responders who live in the affected area, the following considerations will be needed during the Emergency Response Phase: information provision and briefing about radiation before starting their relief activities; and psychological care such as listening and counseling. In addition, mid- and long-term care during the Recovery Phase for the responders will need to be enhanced.

IV. Preparedness

1. Definition and positioning of Preparedness

Preparedness Phase is defined as a period to prepare for future nuclear disasters. Preparedness for disaster prevention and disaster mitigation is also included to allow appropriate relief activities to be provided smoothly and damage to be reduced to a minimum level in the event of a nuclear disaster. To be more specific, the following activities are included: establishment of a structure and chain of command on the assumption that a nuclear disaster may occur; creation of manuals, etc. and training according to the manuals; collaboration with related organizations; securing necessary equipment and materials; gathering and sharing information and knowledge about past nuclear disasters, etc.

2. JRCS activities

(1) Guiding principle

In order to respond to a nuclear disaster during the Emergency Response Phase and thereafter, the JRCS Headquarters (hereinafter referred to as "JRCS HQ"), JRCS chapters and JRCS facilities shall initiate the following steps during the Preparedness Phase: sharing of necessary information; preparation of necessary equipment and materials; creation of activity standards, etc. and provision of training; development of human resources; and build-up of human/organizational networks.

(2) Activities

1) Activities

Activities in the Preparedness Phase include preparedness for nuclear disasters within the JRCS, and raising public awareness aimed at minimizing health problems in the event of a nuclear disaster.

2) Content of activities

For preparedness activities within the JRCS, the JRCS HQ shall take the lead in: reviewing how to respond to a nuclear disaster; preparing equipment and materials such as radiation measurement devices; securing the quality of human resources such as JRCS radiation experts and JRCS relief team members; and addressing disaster mitigation in prefectures with a nuclear power plant and the neighboring prefectures.

For activities to the general public, public awareness activities are assumed in order to minimize health problems in the event of a nuclear disaster.

a. JRCS HQ-led reviewing and strengthening of response to a nuclear disaster

Preparedness for nuclear disasters tends to be less focused on than other disasters, which may lead to less preparedness. The JRCS HQ shall review its relief activities and arrangements on a continued basis to pass on the lessons learned from the Fukushima Daiichi accident to the next generations.

Activity examples:

- Reviewing of relief activities during a nuclear disaster and defining of activities in detail;
- Training to allow JRCS responders to provide activities during a nuclear disaster;
- Provision of equipment and materials such as radiation measurement devices to JRCS relief teams and facilities;
- Build-up of collaborative relationships with organizations and experts specialized in radiation.

b. Securing of the quality of human resources

In addition to establishing the internal arrangements, the JRCS shall provide training to the JRCS radiation experts and relief team members to ensure that they have knowledge of radiation and can provide appropriate assistance in the affected area. The training shall be designed so that the JRCS relief team members, etc. will acquire capability of protecting themselves appropriately against radiation to secure their own safety during activities. A JRCS internal forum for information exchange shall be set up in order to utilize internal knowledge that is stored and to enhance the collaboration within the JRCS in case of a nuclear disaster.

Activity examples:

- Training relevant to radiation for JRCS relief team members across Japan;
- Designing of a training program for JRCS relief team members by the radiation experts;
- Information exchange meetings among Nuclear Emergency Core Hospitals, etc. on a regular basis.

c. Efforts for disaster mitigation by JRCS chapters and facilities located in prefectures with a nuclear power plant and in the neighboring prefectures

Based on concerns of a possible nuclear disaster, response to a nuclear disaster shall be prepared for by JRCS chapters and facilities located in prefectures with a nuclear power plant and the neighboring prefectures. JRC hospitals and social welfare facilities shall prepare for evacuation from their facilities and also try to build external relationships in order to be able to accept evacuees from other facilities.

Activity examples:

- Exercises at JRC facilities to prepare for a nuclear disaster or accepting evacuees from other facilities;
- Ensuring of facilities which accept patients or persons staying at JRC facilities on the assumption of evacuation from the JRC facilities in the event of a nuclear disaster.

d. Public awareness activities

In the case of a nuclear disaster, basic knowledge and understanding of radiation will be needed to cope with the disaster appropriately. The JRCS shall disseminate reliable information, raise awareness, and provide educational activities to the general public by utilizing JRCS's internal and external networks to help and encourage them to understand a nuclear disaster accurately and to evacuate properly. These activities will be necessary particularly in areas where the chances of evacuation will be higher in the event of a nuclear disaster.

Activity examples:

- Sharing of information on nuclear disasters and radiation through the Red Cross Nuclear Disaster Resource Center's Digital Archives;
- Gathering, compiling and dissemination of information on health effects from a nuclear disaster and the prevention measures;
- Organizing and holding of seminars on nuclear disasters.

V. Emergency Response

1. Definition and positioning of Emergency Response

The Emergency Response Phase is defined as an activity phase to urgently respond to imminent humanitarian needs and prevent damage from spreading, when a nuclear disaster has occurred or is likely to occur.

When a nuclear disaster has occurred or is likely to occur, the JRCS shall go into a relief activity mode.

2. JRCS activities

(1) Guiding principle

As is the case with domestic relief activities during natural disasters, etc., the JRCS shall conduct necessary disaster relief activities including medical relief, stockpiling and distribution of relief supplies, supplying of blood products, receiving and distribution of donations.

The JRCS shall provide activities mentioned in the section below to respond to events specific to a nuclear disaster by taking advantage of the characteristics of the JRCS services, knowhow and human resources, etc.

(2) Target populations and content of activities

1) Target populations

The main target populations are affected populations living under evacuation conditions in an affected area.

However, the JRCS shall try to provide the same activities for affected populations evacuated to outside of the affected area, because a nuclear disaster may cause a mass evacuation in a wide area.

2) Content of activities

a. Medical relief activities in an affected area

In an affected area where a large number of people evacuate over a wide area, a medical environment will be needed for affected populations to be able to receive medical relief and be provided with medical care as they were before the nuclear disaster. To this end, the JRCS shall continue to provide medical relief activities until normal medical services are re-established for the affected populations.

Activity examples:

- Provision of medical relief activities at first aid stations (during acute and chronic phases) *;
- Stable provision of blood products*;
- Deployment of radiation experts to JRC hospitals and JRC social welfare facilities if they are temporarily left in evacuation recommendation area.

b. Provision of nuclear emergency medical care

Medical response to health problems from radiation will be needed. The JRCS shall provide special medical care through JRC hospitals within the nuclear emergency medical care arrangements established by the Japanese government.

Activity examples:

- Provision of nuclear emergency medical care at JRC hospitals;
- Assistance in providing body contamination screening at screening points*.

c. Assistance in reducing affected populations' livelihood burden during evacuation

During a nuclear disaster, there will be a mass evacuation in a wide area. Furthermore, the evacuation will be prolonged and affected populations' lives will be significantly affected. Therefore, it will be needed in a wide area on a continued basis to assist affected populations to get their lives back to normal and respond to their increased stress due to the nuclear disaster. The JRCS shall utilize its organizational capabilities and capacities to help affected populations to try to reduce their livelihood and psychological burden by distributing relief supplies quickly across a wide area, and continuing to communicate with the affected populations and listen to them.

The JRCS may be able to cooperate with public authorities and other aid organizations in terms of reducing the affected populations' livelihood burden. To help them to alleviate their psychological stress, the JRCS may be able to collaborate with public health nurses, physicians and clinical psychologists to assist the affected populations.

Activity examples:

- Distribution of relief supplies to evacuation centers, etc. (sleeping kits, emergency relief sets and blankets)*;
- Volunteer activities such as providing hot meals by Red Cross Volunteer Corps*;

* Activities provided by the JRCS in response to the Fukushima Daiichi accident. The same shall apply hereinafter.

- Provision of psychosocial care by psychosocial care teams*;
- Assistance in living in temporary housing, etc. (e.g. provision of electric household appliances sets, etc., provision of equipment for meeting rooms located within temporary housing premises)*.

d. Assistance for affected populations to decide correctly on radiation effects

Lack of basic knowledge about radiation may increase affected populations' anxiety or stress. Particularly, they will need reliable information and knowledge about health effects from radiation. The JRCS may be able to help the affected populations to decide on the effects by referring them to institutions, etc. who provide necessary information about radiation.

Activity examples:

- Provision of information and knowledge about radiation protection at first aid stations, etc. in affected areas;
- Provision of health lectures for affected populations by radiation experts*.

3. Chain of command and information gathering/assessment

In order to provide quick and appropriate relief assistance for an affected area, the chain of command is described in the Guidelines as below. Assessment of needs in the affected area and examples of information which should be gathered during a nuclear disaster are also indicated in the Guidelines.

(1) Chain of command

1) Establishment of disaster alert headquarters or headquarters of disaster control

When a nuclear disaster has occurred and the president of the JRCS or a JRCS chapter president in an affected area determines the need, headquarters of disaster control (hereinafter referred to as "HDC") shall be established at the JRCS HQ or the JRCS chapter. When a nuclear disaster is likely to occur, disaster alert headquarters shall be established at the JRCS HQ or the JRCS chapter.

2) Request for relief assistance

If a JRCS chapter in charge of providing disaster relief activities in an affected area recognizes a lack of relief resources, the chapter shall, as a general rule, request for relief assistance to the JRCS HQ through the chapter representing the geographical bloc of chapters the affected chapter belong to. However, the chapter may request for relief assistance directly to the JRCS HQ.

3) Assistance to the chapter in the affected area

Following the request for relief assistance, the JRCS HQ shall immediately deploy Nuclear Emergency Medical Care Advisors⁶ to the affected area to identify necessary relief activities to be provided and be aware of what is necessary for safety management of JRCS responders to be deployed in the affected area.

The Nuclear Emergency Medical Care Advisors are appointed by the JRCS HQ in advance. Their possible deployment to an affected area shall be accepted by their JRCS chapters beforehand during the Preparedness Phase to make sure that the JRCS HQ is able to request the deployment directly to the Directors General of JRC Hospitals which the Nuclear Emergency Medical Care Advisors belong to, if a nuclear disaster occurs.

4) Orders to JRCS chapters to assist the JRCS chapter in the affected area

Following the request from the JRCS chapter in the affected area and advice from the Nuclear Emergency Medical Care Advisors, the JRCS HQ shall give necessary orders to the JRCS bloc representative chapters and related JRCS chapters for assisting the JRCS chapter in the affected area.

5) Deployment of JRCS relief teams, etc. to the affected area

The JRCS chapters and JRC facilities which receive orders for assistance from the JRCS HQ or the JRCS bloc representative chapters, etc., shall deploy their relief teams, etc. to the affected area after giving safety guidance and providing radiation protective equipment and materials to them.

6) Command to the deployed JRCS relief teams, etc.

The deployed JRCS relief teams, etc. shall be commanded by the president of the JRCS chapter in the affected area regarding their relief activities, as they are in the event of natural disasters.

(2) Information gathering/assessment

1) Identification and assessment of needs for assistance in an affected area

A nuclear disaster affects a large number of people in a wide area. Necessary assistance should be provided to areas with great needs. To that end, the JRCS chapter in the affected area shall identify the needs for assistance and assess the conditions of the area where JRCS relief teams are to be deployed, in collaboration with the local governments in the

⁶ For Nuclear Emergency Medical Care Advisors, refer to V. 4. (2) 1) Deployment of Nuclear Emergency Medical Care Advisors.

affected area and JRCS chapters in the neighboring prefectures.

2) Awareness and assessment of the environment in the activity area

There are some specific types of information which need to be collected in the event of a nuclear disaster. The types of information that need to be collected when radioactive materials are likely to be released are: the status of the nuclear power plant accident site; meteorological conditions (wind direction, wind speed and weather); topography; and the distance from the nuclear power plant to the planned JRCS activity area. Based on these items, it will be decided whether providing activities in the area is safe or not. The additional types of information that need to be collected after radioactive materials are released are: amount and types of the released radioactive materials; and ambient radiation dose rates in the planned activity area. These types of information will be important to secure the safety of JRCS relief teams. The JRCS HQ and the JRCS chapter in the affected area shall gather the above information to be aware of the environment of the JRCS activity area.

For types of information common to general relief activities, JRCS relief teams shall gather and communicate information as they do during natural disasters. In particular, extra attention shall be paid to “information to ensure the safety of JRCS relief team members.”⁷

The information gathered by the JRCS relief teams regarding the nuclear disaster shall be consolidated to the JRCS HQ HDC and the JRCS chapter HDC in the affected area via the Nuclear Emergency Medical Care Advisors. The HDCs shall use the information to ensure the safety of JRCS responders. The gained information shall be shared not only within the JRCS but also with public authorities, etc. as much as possible.

4. Ensuring of JRCS responders' safety

It is essential to ensure the safety of JRCS responders during a nuclear disaster. The purpose is to remove unnecessary anxieties from them by providing a safe activity environment where they are able to dedicate themselves to conducting their activities and provide relief activities continuously for the affected populations.

(1) Safety standards

For activities during a nuclear disaster, the JRCS shall conduct safety management for JRCS responders by measuring and managing their radiation doses and assigning their activity areas. JRCS responders such as JRCS relief team members, etc. shall receive an extra health

⁷ The information is on essential utilities, roads (road closures, traffic controls, road surface conditions, etc.), damage expectations (possible secondary damage and risk factors), temperature, weather and the status of affected populations, etc.

examination, and then the heads of their facilities shall decide on whether they should be deployed to an affected area or not, based on the health examination results.

1) Activity area management

In order to secure the safety of JRCS responders, they shall not enter any restricted areas, etc.

During the activities, JRCS relief teams need to pay a full attention to changes in the ambient radiation dose rate. If the dose rate sharply increases in their activity area, the team shall contact the Nuclear Emergency Medical Care Advisors deployed at the JRCS chapter HDC in the affected area to ask for a decision⁸ on leaving the area or sheltering indoors etc. to avoid risk of radiation exposure.

The JRCS blood service may be provided in order to continue medical care for patients who temporarily stay in areas such as evacuation recommendation area⁹ where ambient radiation dose rate is high. Therefore, the above standard for activity area shall not be applied to the JRCS blood service personnel. In addition, if JRCS staff engage in nuclear emergency medical care or temporarily stay in an area of a high ambient radiation dose until transportation arrangements for patients are in place at hospitals, etc. in order to evacuate the patients safely, the above activity area shall not be applied to those staff.

More consideration must be given to Red Cross volunteers. Activity of the volunteers must be conducted outside of restricted areas or in areas where the ambient radiation dose rate is low and stable and their radiation exposure risks can be easily managed.

2) Radiation dose management for JRCS responders

a. Necessity of radiation dose management

Health risks from radiation are quantifiable by radiation exposure dose. The daily measurement allows JRCS responders' physical effects during their activity period to be visualized. This enables the JRCS to manage the radiation dose of each JRCS responder so that his/her dose can fall within the safety standards.

A comprehensive radiation dose management with the safety standards makes it

⁸ The Nuclear Emergency Response Guidelines of the Japanese government show that the default value for OIL2 (taking early protective actions) shall be ambient radiation dose rate of 20 $\mu\text{Sv/h}$.

⁹ The JRCS Blood Service Headquarters uses the term "evacuation recommendation area" in its guidelines for blood service.

possible to control the JRCS responders' health effects from radiation to be within the acceptable range and to limit their activity areas. This allows their anxiety to be removed. The setting of the safety standards reassures not only JRCS responders but also JRC hospitals and chapters who deploy their relief team members accounting for most of the JRCS responders, to an affected area, by guaranteeing the safety of the responders with the safety standards. It is expected that this will enable the JRCS to mobilize its responders from across the country and the relief activities to be coordinated smoothly in the event of a nuclear disaster.

b. Safety standards for JRCS responders

Cumulative radiation dose for each JRCS responder during an activity period¹⁰ shall not exceed 1 mSv. However, this safety standard is not applied to JRCS nuclear emergency medical care personnel.

Even in that case, each of the radiation emergency medical care personnel shall provide activities as long as the cumulative radiation dose does not exceed 50 mSv per year, which is the legal dose limit per year for radiation workers.

The safety standard is not applied to JRCS blood service personnel, either. Even in that case, each of them shall provide activities as long as the cumulative radiation dose does not exceed 20 mSv per year.

c. Radiation dose management

Each JRCS responder's radiation dose exposed during his/her activity period shall be managed.

The JRCS shall manage each responder's activity through the radiation dose management to allow his/her radiation dose to fall within the acceptable risk range per year, if he/she provides activities in a relatively high ambient radiation dose area in a short period of time. If the radiation dose of a JRCS responder could exceed the JRCS safety standards, the JRCS relief team shall discontinue relief activities. In that case, the JRCS shall arrange a replacement team in order to maintain the JRCS relief activities in the affected area.

¹⁰ The activity period of a JRCS relief team is basically within one week. Therefore, the JRCS relief team shall engage in relief activities as long as each team member's cumulative radiation dose does not exceed 1 mSv per week. (This means that it is effectively possible for the JRCS to conduct activities in an area equivalent of 50 mSv per year.)

For JRCS responders who continue to provide activities in the area, their radiation dose management will be needed on a continued basis, in consideration of their radiation doses exposed in their daily lives as well.

(2) Arrangements for securing the safety of JRCS responders

1) Deployment of Nuclear Emergency Medical Care Advisors

For safe and appropriate relief activities in radiological environments, Nuclear Emergency Medical Care Advisors, consisting of radiological experts (physicians) and radiological support members (radiological technologists), shall be deployed at the JRCS HQ HDC and the JRCS chapter HDC in the affected area. Based on the advice from the Nuclear Emergency Medical Care Advisors, the JRCS chapter HDC in the affected area shall decide on how they should provide their activities, and manage the JRCS responders' radiation exposure status, taking into account their radiation exposure possibilities.

2) Preliminary training for JRCS responders

JRCS responders shall be educated about health risks from radiation and methods to protect themselves from radiation during the Preparedness Phase. In addition, the responders shall be well briefed about such risks and methods again before starting relief activities during the Emergency Response Phase.

3) Awareness of ambient radiation dose in activity areas and radiation protection for JRCS responders

Radiation protection equipment and materials distributed in place at the JRCS chapter and facilities in the affected area shall be used by JRCS relief teams, etc. of the affected area. JRCS relief teams, etc. to be deployed from non-affected areas shall bring necessary radiation protection equipment and materials with them from their own chapters or facilities. The equipment and materials such as personal dosimeters need to be checked if they work properly.

Personal radiation dose shall be measured by using a personal dosimeter. Measurement of ambient radiation dose rate in the activity areas or body contamination screening after providing relief activities each day shall be considered, if necessary.

4) Deployment of JRCS relief teams, etc. from JRCS chapters and facilities across the country

In order to minimize health effects from radiation, it is necessary for each JRCS responder to avoid exposure to radiation as much as possible. The JRCS shall mobilize JRCS relief teams across the country and provide relief activities in rotation to ensure the safety of each JRCS relief team member. By taking this measure, the JRCS shall minimize radiation dose

exposed to each member.

5) Each JRCS relief team to be accompanied by a radiological technologist

A radiological technologist shall accompany each JRCS relief team. The radiological technologist shall make use of his/her knowledge about radiation to give radiation protection advice to the relief team leader and remove the relief team members' anxieties while providing activities.

5. Considerations in evacuating to a safe place

(1) Guiding principle

If it is expected or decided while providing relief activities that the continuation of JRCS relief activities according to the safety standards mentioned in the previous section will be difficult due to orders issued by the Japanese government, etc. or a sudden increase in ambient radiation dose rate in the activity areas, the JRCS relief team leader shall discontinue the team's activities and evacuate the relief team members to a safe place to secure their safety.

(2) Considerations for each activity place

1) First aid stations

If first aid stations where medical relief is provided by JRCS relief teams are included in a restricted areas, etc., the teams shall leave the first aid station as a general rule.

Public authorities are in charge of evacuating residents. However, the JRCS shall cooperate with the public authorities in evacuating residents as much as possible.

2) JRC facilities

If JRCS chapters or JRC facilities find it difficult to continue their operations, they shall respond to the situation according to their business continuity plans and evacuation plans, etc.

The facilities concerned shall collaborate closely with public authorities in terms of assistance in transportation, etc. At the same time, cooperation shall be facilitated within the JRCS in regards to the deployment of necessary responders to the affected facilities.

VI. Recovery

1. Definition and positioning of Recovery

The Recovery Phase is defined as an activity phase where things destroyed by a nuclear disaster should be recovered to their pre-disaster state by taking into consideration resolution of problems which existed in a community before the disaster.

2. JRCS activities

(1) Guiding principle

The public authorities will lead recovery activities in the affected areas. During this phase, the JRCS shall provide complementary assistance particularly in terms of rebuilding lives, education, social welfare services and medical care infrastructure.

(2) Target populations and content of activities

The conditions to respond to recovery greatly depend on the scale, characteristics, areas and phases, etc. of a nuclear disaster. For this reason, it is necessary to be flexible in providing assistance by looking into the needs in the affected areas.

1) Target populations

The target populations are affected populations whose health and lives, etc. have been impacted by a nuclear disaster and in need of assistance in the process of recovery. Special attention shall be paid to vulnerable affected populations, etc. such as people requiring special consideration.

The JRCS shall provide the same assistance to affected populations evacuated outside of the affected prefecture as much as possible.

2) Content of activities

The JRCS shall provide assistance activities mainly by using JRCS manpower, etc. according to affected populations' needs for assistance as the JRCS does in the event of natural disasters.

a. Health maintenance assistance for evacuees

As evacuation is prolonged, family members may have to live separately. This could increase affected populations' isolation, stress from anxieties and risks of developing disuse syndrome and life-style related diseases. These risks could be seen more in elderly evacuees. In order to prevent diseases including disuse syndrome from developing, the JRCS may be able to provide assistance.

In addition, the JRCS may be able to provide effective activities for affected populations

who suffer from stress by making use of the knowhow that the JRCS has gained through experience from Red Cross Healthy Life Course, etc.

Activity examples:

- Red Cross Health Class in a meeting room located within temporary housing premises*;
- Visiting evacuees living in temporary housing*;
- Deploying caregivers, etc. to social welfare facilities for elderly people;
- Health assistance (interviewing evacuees to identify their health conditions and assistance needs, and health consultation at a JRCS public health room) by JRCS nurses to evacuees living in rental houses rented by local governments*;
- Prevention of internal exposure by food intake, and alleviation of people's anxiety. (e.g. provision of food radiation measurement equipment, etc.)*

b. Cooperation in health surveys conducted on a regular/continued basis

Late health effects from low-level radiation may occur. Therefore, regular and continuous medical examinations and long-term tracking surveys will be needed. For health management and identification of health effects from low-level radiation exposure, health surveys and hearing surveys including behavioral records will be required. The JRCS may be able to provide physical and material support in the implementation of these regular and continuous health surveys.

Activity examples:

- Cooperation by JRC hospitals with local governments in health surveys for affected populations*;
- Cooperation in preparing equipment needed for continuous health surveys. (e.g. provision of medical equipment such as whole-body counters and thyroid detectors)*

c. Assistance in maintaining pre-evacuation communities

As evacuation is prolonged and affected populations are evacuated in a wider area, their pre-disaster communities may be divided and the affected populations may feel a sense of loss. In addition, since the affected populations may leave their communities for other locations, there will be a need to maintain the communities. The JRCS may be able to provide assistance in order to maintain their communities which are divided by the evacuations.

Activity examples:

- Assistance in organizing reunion parties for affected populations who had to evacuate their communities that were designated as a restricted areas, etc. and live in other places*;

- Providing hot meals by Red Cross Volunteers Corps. (e.g. cooking local foods of evacuees)*

d. Provision of assistance to areas which accepted affected populations evacuated from other areas

A nuclear disaster causes a large number of evacuees. Local governments accepting evacuees from other areas may face difficulties in responding to them with the existing infrastructure, because there may be lack of capacities. The JRCS may be able to provide assistance to local governments and public organizations so that both the evacuees and local citizens can live comfortably.

Activity examples:

- Support for preparing learning environment; (e.g. provision of dishes and meal delivery trucks, etc. to resume school meals; and support for school bus operations)*
- Support for complementary transportation means; (e.g. support for community bus operations)*
- Support for social welfare facilities to recover their functions. (e.g. providing nursing beds and social welfare vehicles)*

e. Community forming in evacuation locations

Affected populations are expected to evacuate to areas with a relatively low radiation level or outside of affected areas. The evacuees will feel physical and psychological stress caused by living in new communities, because they are away from their home communities. The JRCS may be able to provide opportunities for them to become familiar with lives and people in their evacuation locations.

Activity examples:

- Providing opportunities for evacuees to form a community in temporary housing*;
- Providing opportunities by Red Cross Volunteer Corps for evacuees and local citizens to communicate with each other*;
- Providing opportunities through Junior Red Cross activities for exchange between children who live under evacuation conditions and local children*.

f. Reducing affected populations' stress

Affected populations have anxiety and stress from possible health effects caused by prolonged evacuation and exposure to radiation. Reducing their stress will be required. It is said that children may have greater risks from radiation exposure, and the anxieties and stress could increase among families with children.

The JRCS may be able to provide assistance in reducing the affected populations' psychological stress by communicating with them and listening to them, etc. Depending on the symptoms, the JRCS shall respond to the affected populations' anxieties and stress in cooperation with public health nurses, clinical psychologists and physicians.

Activity examples:

- Providing mother-and-child health classes*;
- Organizing and holding events for affected populations*;
- Providing mobile psychosocial care at community centers, etc.

g. Organizing events, etc. for children

Due to prolonged evacuation and effects from a nuclear accident, children could feel anxiety and stress, and could be also psychologically impacted by other family members and adults who suffer stress from changes in their living environment. Therefore, children will need opportunities to release their stress and act positively for their futures. The JRCS may be able to provide assistance by utilizing the knowhow of Junior Red Cross activities and the JRCS human network.

Activity examples:

- Providing indoor playgrounds*;
- Organizing after-school classes and summer camps*;
- Support for events at nursery schools, kindergartens, elementary schools, junior high schools and high schools, etc.*

h. Assistance in a temporary entry program to restricted areas, etc.

During prolonged evacuation, public authorities implement a temporary entry program for affected populations who have evacuated from restricted areas. The program allows them to enter these areas temporarily. The program is an opportunity for the affected populations to return to their homes, and it will be required to prepare an environment where many of the affected populations including the elderly are able to participate in the program. The JRCS may be able to provide assistance for this program.

Activity examples:

- Providing medical relief activities at first aid stations set up at temporary entry points*.

i. Assistance in rebuilding infrastructure after return to pre-disaster areas

After designation of restricted areas is lifted, it will be required that affected populations are able to lead their lives as they did before a nuclear disaster. The JRCS may be able to provide assistance for the affected populations to rebuild their lives.

Activity examples:

- Support for building and improving preschool and school environments; (e.g. support for provision of indoor playgrounds; provision of new computers, audio-visual equipment and school meal equipment)*
- Support for recovery of local industries;
- Providing mobile clinics until community medical services are restored.

VII. Activities outside Japan

If the JRCS provides assistance in the event of a nuclear disaster outside Japan, the JRCS shall follow the IFRC's framework for disaster relief.

As a Red Cross National Society which experienced response to a nuclear disaster, the JRCS is expected to share its experiences and lessons learned from the Fukushima Daiichi accident with its sister Red Cross and Red Crescent Societies to contribute to nuclear disaster preparedness of the Red Cross and Red Crescent Movement.

The specific support activities shall be considered within the framework of the Red Cross activities by the IFRC.

Activity examples:

- Information gathering/provision mainly about how the JRCS responded to the Fukushima Daiichi accident;
- Assistance to sister Red Cross and Red Crescent Societies in developing guidelines and manuals, and development of human resources;
- Providing equipment and materials or deploying experts to affected countries in the event of a nuclear disaster.

VIII. Way forward

The primary purpose for creating the Guidelines is to prepare the JRCS's principle of action for possible future nuclear disasters based on the lessons learned from the experience of the Fukushima Daiichi accident that followed the Great East Japan Earthquake and Tsunami. It is assumed that each JRCS HQ department, JRC hospital and facility think about its specific activities based on the Guidelines and establish the activities as internal rules. In that case, it is expected that these departments, JRC hospitals and facilities will do so in accordance with the purpose and content of the Guidelines and their particular circumstances and conditions.

Based on the JRCS activities conducted in Fukushima Prefecture and the local conditions, etc., the Guidelines describe JRCS activities to the extent that the JRCS can set at present. The JRCS activities in Fukushima are still ongoing and the local conditions have been changing over time. In addition, challenges which should be considered are believed to be related not only to the Red Cross but also many other organizations. Thus, some challenges were unable to be included in the Guidelines and were compiled as Challenges for Consideration, which will be discussed within and outside of the JRCS. Solutions will then be considered based on knowledge and opinions of related sections and responders within and outside of the JRCS. The outcomes of these considerations will be included in the Guidelines.

The Japanese government and local governments are also considering how to respond to nuclear disasters. As the social conditions and environment change over time, the government's framework and the roles expected of the JRCS are assumed to change. The Guidelines shall be reviewed on a continued basis and revised accordingly.

Members of the Study Committee on Guidelines for JRCS Relief Activities during a Nuclear Disaster

(As of March 30, 2015)

Committee members:

| | |
|-------------------|--|
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| Makoto Akashi | Executive Director, National Institute of Radiological Sciences |
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Amendments

March 31, 2016

November 1, 2018