

Summary

JRCS Second Nuclear Disaster Response Basic Training Session (FY 2014)

1. Date and time: Friday, February 20, 2015; 11:00 – 17:00
2. Venue: Meeting Room 201 and other rooms at the JRCS Headquarters
3. Number of participants: 85
Detail: 22 physicians, 21 nurses, 21 radiological technologists, and 21 administrative staff members of Japanese Red Cross (JRC) hospitals
4. Content:
 - Lecture 1: JRCS efforts for response to nuclear disasters
 - Lecture 2: Relief team activities and collaboration between the teams and the radiation emergency medical advisors during a nuclear disaster
 - Lecture 3: Basic knowledge about radiation protection during nuclear disaster relief activities
 - Workshop 1: For securing safety while engaging in relief activities during a nuclear disaster
 - How to use a digital personal dosimeter and put on/off protective gear-
 - Workshop 2: How to use/maintain a survey meter and a personal dosimeter
 - Group work: Case studies
5. Instructors
 - (1) Physicians
 - Yoshikazu Maruyama (Japanese Red Cross Medical Center)
 - Hirofumi Ichikawa (Japanese Red Cross Ishinomaki Hospital)
 - Yoichi Watanabe (Fukushima Red Cross Hospital)
 - Takeshi Tanabe (Fukui Red Cross Hospital)
 - Tomoaki Nakamura (Japanese Red Cross Nagahama Hospital)
 - Nobuo Morioka (Matsue Red Cross Hospital)
 - Kenichi Arita (Hiroshima Red Cross Hospital & Atomic-bomb Survivors Hospital)
 - Tomoaki Fujisaki (Matsuyama Red Cross Hospital)
 - Tadashi Sakai (Japanese Red Cross Karatsu Hospital)
 - Tatsurou Jou (Japanese Red Cross Nagasaki Genbaku Hospital)
 - (2) Radiological technologists
 - Takanori Kaitou (Fukushima Red Cross Hospital)
 - Masato Kitazawa (Japanese Red Cross Mito Hospital)

Yoshihiro Nishikoori (Fukui Red Cross Hospital)
Kazuhiro Komai (Japanese Red Cross Nagoya Daini Hospital)
Hisao Matsui (Japanese Red Cross Nagahama Hospital)
Yasunori Isoda (Matsue Red Cross Hospital)
Kenji Yamane (Hiroshima Red Cross Hospital & Atomic-bomb Survivors Hospital)
Kenji Takamoto (Matsuyama Red Cross Hospital)
Seiichiro Sakai (Japanese Red Cross Karatsu Hospital)

(3) Secretariat

JRCS Disaster Preparedness Planning Task Force; Red Cross Nuclear Disaster Resource Center

6. Summary of the training session

Relief activities during a nuclear disaster:

(1) Safety standards while engaging in relief activities during a nuclear disaster

1) During the TEPCO's Fukushima Daiichi Nuclear Power Plant accident (Fukushima Daiichi accident), the JRCS relief teams and DMATs were supposed to be ordered for withdrawal when air dose rate reached 20 $\mu\text{Sv/h}$. As radiation dose changes over time, we think that the air dose rate limit should be 10-20 $\mu\text{Sv/h}$.

2) We recognize that there are various opinions regarding the cumulative exposure dose limit of 1 mSv for JRCS relief team members. However, the value of 1 mSv was decided through the JRCS internal procedures by referring to the ICRP¹ recommendations and advice given by the ICRC². Therefore, we would like to ask JRCS relief teams to start thinking about leaving affected areas when the cumulative exposure dose exceeds 1 mSv.

This value can be reviewed after the effects from the low-dose exposure in Fukushima are verified. However, at this moment, we do not think that this cumulative dose limit of 1 mSv for one week is low, because it is equivalent to an annualized rate of 50 mSv.

(2) Safety standards for JRCS blood service personnel

The crisis management guidelines of the JRCS Blood Service Department requires the blood service personnel on duty to immediately discontinue to provide the service and evacuate to a safe area if their exposure dose could exceed 20 mSv/year.

¹ International Commission on Radiological Protection

² International Committee of the Red Cross

(3) Selection of JRCS relief team members

In the event of a nuclear disaster, the JRCS requires its relief team members not to engage in relief activities in evacuation order areas where public access is not allowed by the government. That means that the members should provide activities within areas without high-dose radiation exposure. According to the data of atomic-bomb survivors in Hiroshima and Nagasaki, it is said that radiation influences on adults do not differ in age or gender. However, due to the period of confusion that is expected to come right after a nuclear accident, it might be possible to give consideration to selecting experienced personnel as relief team members.

In addition, it is better for each JRCS relief team to accompany a radiological technologist who measures and calculates radiation dose and then gives advice to the team members from the calculations.

(4) Role of JRCS relief teams

The basic role of JRCS relief teams is to provide relief activities to nuclear disaster survivors, who undergo body contamination screening at a screening point and are found to be not contaminated and then are allowed to enter an evacuation center building. Body surface decontamination of survivors is not assumed as the teams' role. Therefore, the teams should urge the survivors who have not undergone the screening to be screened at a screening point, and then should respond to the survivors after they are allowed to enter the evacuation center building.

After the Fukushima Daiichi accident occurred, 40,000 cpm (120 Bq/cm²) was generally regarded as a minimum appropriate level to begin a body surface decontamination.

(5) Wearing of protective gear

For JRCS relief activities during a nuclear disaster, JRCS relief team members are not expected to wear protective gear. The members bring protective gear with them to affected areas, but the purpose is to protect themselves in case of radioactive materials unexpectedly being released.

Shortly after the Fukushima Daiichi accident, some relief team members provided relief activities with protective gear on, which made the survivors very uneasy.

Radiation protection equipment and materials:

(1) Handling of a personal dosimeter

If JRCS relief team members need to use a personal dosimeter during relief activities, we would like to urge them to be careful about where to use it, because accurate radiation dose values cannot be obtained in an environment where any

mobile phone or high-energy radio telephone system is used.

In addition, it depends on individual relief teams whether they set the dosimeter to go off at 1 mSv which is the cumulative dose limit or at 0.8 or 0.9 mSv which is short of 1 mSv.

The cumulative dose value will be lost if the dosimeter runs out of battery life during a relief activity period, and therefore we would like to urge the relief team members to make sure that they have a fully-charged battery before starting relief activities.

(2) Handling of protective gear

While unused protective gear against infectious diseases is supposed to be put in a red plastic bag for disposal, used radiation protective gear should be put in a plastic bag with a radiation caution label for disposal.

(3) Deployment of GM survey meters and air dosimeters

In March 2014, the JRCS Headquarters provided a GM survey meter to each JRCS block and an air dosimeter to each JRCS chapter on the assumption that a first relief team from each JRCS block or chapter takes each of the equipment with them. After the first relief team completes their activities, the team should hand over the equipment to a replacement team at the JRCS local disaster response headquarters in an affected area.

It is preferable that the GM survey meter and air dosimeter are kept at JRCS hospitals rather than JRCS chapters, because the equipment is expected to be carried by the first relief team.

(4) Caution in handling of GM survey meters

The JRCS does not recommend carrying a GM survey meter on board a plane, because the meter contains gas and air pressure may break the device. It is recommended to carry it on land transportation. It is possible to carry an air dosimeter into an airplane cabin as hand luggage.

(5) Maintenance/calibration of personal dosimeters and other measuring equipment

The JRCS has already signed a contract for maintenance/calibration of personal dosimeters twice during seven years. The expense will be charged to the JRCS Headquarters.

For maintenance and calibration of GM survey meters and air dosimeters, the JRCS would like each chapter and hospital to pay the expenses. Each maintenance/calibration costs about 55,000 yen.

(6) Stable iodine tablets

If JRC hospitals already have a stockpile of stable iodine tablets, the JRCS assumes that the hospitals will let their relief team members carry the tablets with them. For administration of the stable iodine tablets, rules and instructions from the national and local governments should be followed. The JRCS Headquarters does not have any plan to give instructions for administration presently.

Others:

(1) Acceptance of nuclear disaster survivors by radiation emergency hospitals

After a nuclear disaster occurs, if body surface contamination is detected on a survivor by screening, he/she will be transported to a radiation emergency hospital. The basic decontamination method is to wash out the contamination.

Acceptance of such survivors by JRCS radiation emergency hospitals will be considered at training sessions for radiation emergency medical advisors.

(2) Nuclear Disaster Response Basic Training Session

The training session is for JRCS relief team members that will provide disaster relief activities in the event of a nuclear accident or the possibility of one. The training is not about radiation exposure medical care but what they need to pay attention to during relief activities.

We decided that the training content should be based on the actual response cases during the Fukushima Daiichi accident. The reason is that it would be difficult to simulate possible impacts of other assumed nuclear accidents, because the impact would greatly differ according to the wind direction or heat output.