

Chapter3

Caring Deeply about the Disaster-Stricken Areas



In May 2011, we established the Outpatient Department for Radiation Health Services at the Fukushima Medical University to launch special examinations for internal exposure using a Whole Body Counter. Moreover, we provided support for temporary return home programs, in which evacuees visited their homes in restricted areas (within 20 km of the nuclear power plant) to retrieve their belongings. The emergency medical room at the Fukushima No. 1 nuclear power plant has also been operating around-the-clock to respond to the health management of site workers at the plant.

Major Responses to the Accident at Fukushima No. 1 Nuclear Power Plant of Tokyo Electric Power Company

Yoshio Hosoi

Former Deputy Director,

Radiation Emergency Medicine Promotion Center;

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While at work in Tokyo on March 12, 2011, I received a call from the Ministry of Education, Culture, Sports, Science and Technology at around 10:00 and went directly to the National Institute of Radiological Sciences (NIRS). In the afternoon of March 13, I arrived at Fukushima City traveling in a helicopter belonging to the Japan Self-Defense Forces (JSDF). I met Professor Choichiro Tase of the Department of Emergency Medicine, Fukushima Medical University, at the Fukushima Prefecture Disaster Response Headquarters to be briefed about the situation within the affected areas. A room on the 4th floor of the Fukushima Prefectural Government Hall was the base for our activities.

In the afternoon of the same day, I was asked by physicians of the Disaster Medical Assistance Team (DMAT) what they should do since they had run out of water for decontamination, prepared by the JSDF for the screening of evacuees in Nihonmatsu City. I suggested that the screening level should be raised from 6,000/10,000/13,000 cpm to 100,000 cpm to evacuate residents more smoothly. Accordingly, Fukushima Prefecture changed the screening level to 100,000 cpm on March 14.

At around 17:00, I visited Fukushima Medical University with the staff of the prefectural government to explain to hospital executives about radioactive contamination, which was expected to be produced by the Fukushima nuclear power plant accident, and how to protect against it. In addition, I suggested that radiation-exposed patients should be transferred from the gymnasium to the Decontamination Ward, and that the JSDF's decontamination facilities should be relocated to the side of the Decontamination Ward. These suggestions were approved.

At around 19:00, I delivered a lecture about anticipated radioactive contamination and how to protect against it to more than 100 professors, associate professors, and head nurses of the Clinical Department. After the lecture, we discussed the effects of radioactive iodine on fetuses and the effects of Isodine gargling on radiation protection. I was deeply impressed by the intelligence of the participants and their academic attitude. Then, I called the Nuclear Safety Research Association to request the calibration of the Whole Body Counters (WBC) at Fukushima Medical University.

At around 0:30 on March 14, I received a phone call from the Ministry of Education, Culture, Sports, Science and Technology. I was given instructions to evacuate and perform screening on residents who were still living within 20 km of the nuclear power plant but unable to evacuate by themselves, such as hospitalized patients. Two physicians and two nurses of Hiroshima University, two staff members of NIRS and I went to the Soso Public Health Center in Minamisoma City to perform the screening. The screening revealed that external contamination levels of evacuees, such as police officers engaged in evacuation guidance and residents who conducted outdoor activities, exceeded 13,000 cpm. This confirmed that my suggestion to change the screening level to 100,000 cpm was right, and gave me a sense of relief.

From the end of May through the middle of September 2011, medical examinations for police officers and firemen were conducted at Fukushima Medical University every week to check their internal radiation exposure, using the Whole Body Counter. I participated in the medical examinations in order to explain their results. In August 2011, I launched WBC examinations at Hiroshima University, targeting evacuees from Fukushima Prefecture. Since July 2012, I have provided outpatient care and given counseling on radiation-related issues at the Minamisoma City General Hospital.



Screening of people evacuated from the Fukushima No. 1 nuclear power plant
(At the Soso Public Health Center in Minamisoma City on March 14)

(1) Special Medical Examination for Internal Exposure at Fukushima Medical University
**Supporting Secondary Radiation Emergency Medicine
at Fukushima Medical University**

Masao Kiguchi

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When I was carrying out health surveys as a member of the 10th group at the Fukushima Prefectural Government Hall on April 19, 2011, I heard that Fukushima Medical University had requested support from radiological technologists of Hiroshima University. This was because a Nagasaki University radiological technologist and a technician of the Nuclear Safety Research Association, who were stationed there, would return to Nagasaki and Tokyo, respectively, and be dispatched only once a month from the following week. I rushed to Fukushima Medical University, where those involved, a physician, nurse and the chief radiological technologist of the Decontamination Ward, and a physician of Nagasaki University, were all discussing how they could conduct operations in the future.

The major medical tasks of secondary radiation emergency medicine institutions include accuracy control of the Whole Body Counter (WBC), which is used to measure radioactive materials taken into the body, examination of internal contamination, and examination of external contamination of patients. In addition, there are a broad range of daily management operations, including managing the cleaning of the WBC room, background measurement of the WBC, measurement of environmental doses, thyroid monitoring for ICU and NICU staff, thyroid surveys at day nurseries, and contamination tests for air ambulances.

The staff members of Fukushima Medical University were concerned that in some cases their radiological technologists could not respond to such operations because they were busy with their usual hospital work, despite their best efforts at balancing these responsibilities. With this in mind they requested additional support from radiological technologists at Hiroshima University. Therefore our responsibilities expanded to include these support activities, in addition to participating in morning and evening survey coordination meetings held at the Government Hall.

Our main activities were simulation drills for transporting and dealing with injured and sick people due to contamination in a time of disaster and calibration of the WBC, which was performed with Professor Yoshio Hosoi. In addition, Professor Hosoi provided outpatient care for radiation exposure three days per week.

The 16th group, dispatched from May 12 to 16, made preparations for the establishment of an Outpatient Ward for Radiation Health Services at the Fukushima Medical University Disaster Response Headquarters. Professor Hosoi and Dr. Akira Otsuru of Nagasaki University undertook medical examinations in the outpatient ward. Workers susceptible to radiation exposure, such as police officers and firemen, were given priority in the medical examinations. These examinations included a behavior survey, medical interview for PTSD, blood tests, urine tests, WBC, and other radiation-related health services. In the case that psychiatric services were necessary, consultations were provided.

For WBC measurement, with time and efficiency in mind, dose evaluation was carried out using NaI (TI) detectors. Furthermore, we discussed with Mr. Yusa, a senior radiological technologist from the University of Tokyo how best to achieve smooth operations regarding WBC measurements.

On May 16, 10 staff members of the Futaba Fire Station and a Self-Defense Force official visited the Outpatient Ward for Radiation Health Services. Their radiation dose was calculated using WBC measurements and found to be 0.015-0.05 mSv (^{134}Cs and ^{137}Cs only), a very small amount. We surmised that this was due to the fact that they wore full-face protection masks while at work.

It is the responsibility of tertiary radiation emergency medical institutions to provide continuous support to secondary radiation emergency medicine institutions. To fulfill this responsibility, procedures need to be developed where radiological technologists can contribute to medical examinations and take appropriate and prompt action.



(left) Staff of Fukushima Medical University, Nagasaki University and the University of Tokyo at the Decontamination Ward



(right) Staff member undergoing a medical checkup using a WBC equipped with NaI (TI) and Ge detectors

(1) Special Medical Examination for Internal Exposure at Fukushima Medical University

Researchers Should Take the Initiative in Providing On-Site Support.

Shinji Suga

Chief, Radiation Control Technology G, Technical Center



I was dispatched to Fukushima Medical University, a secondary radiation emergency medical institution, every other week between May 29 and September 1, 2011, and during December 11 and 17, 2011. My main activities were to evaluate internal radiation dosages in WBC examinations using the Whole Body Counter (WBC), which were conducted at Fukushima Medical University, conduct response training for emergency transport from the Fukushima No. 1 nuclear power plant, and participate in regular meetings held at the Off-Site Center to share information.

WBC examinations were conducted in collaboration with the staff of the Fukushima Medical University Hospital and support staff from Nagasaki University, mainly targeting firemen and those working within 20 km of the Fukushima No. 1 nuclear power plant. Many of them were people involved in local governments who were involved in outdoor activities even after vapor explosions had occurred at the plant.

Emergency transport training was conducted in cooperation with institutions involved in fire-fighting operations, the Japan Self-Defense Forces (JSDF), the staff of Fukushima Medical University and the support staff of Nagasaki University. In the training with the JSDF, the grounds of Fukushima Medical University were used as the landing site for helicopters, where large-scale emergency transport training for radiation-exposed patients was carried out using helicopters. The atmosphere during training was tense since the massive earthquake had just occurred.

In Fukushima City the radiation dosage rates and levels of radioactive materials in the environment were significantly different from that during normal times. Accordingly, it was difficult to evaluate internal radiation doses using the WBC. As the WBC is an open-type device, we have to take into account the influence of high background radiation levels and implement antipollution measures against radioactive materials around the WBC.

There are very few people who can make an accurate measurement of internal radiation exposure using a WBC. In addition, since each WBC device has different features, a great deal of knowledge and experience is required to make a proper evaluation. Accordingly, human resource training for the WBC should be established in order to properly educate radiological technologists at locations equipped with WBCs and other radiation measuring devices.

I felt that it was very significant that I was able provide support as a technical staff member during this time. However, I believe that there were problems concerning the working conditions, where some staff were obliged to do extra work, while carrying out their usual operations. Measures should be taken to recruit the necessary personnel. Moreover, I believe that teaching staff, who engage in research on radiation on a routine basis, should take the initiative in providing on-site support during an emergency situation such as this.



Meeting held at the Off-Site Center

(2) Supporting Residents' Temporary Return Home

Providing Continuous Support for Residents' Temporary Return Home

Akira Sakai

Professor, Department of Radiation Life Sciences,
School of Medicine, Fukushima Medical University

(Then: Lecturer, Department of Hematology, Hiroshima University Hospital)



I belonged to the Department of Hematology and Oncology, Research Institute for Radiation Biology and Medicine. From that department, Assistant Professor Keiichiro Mihara first visited Fukushima as a member of the 2nd group of the Radiation Emergency Medical Assistance Team. Later, he was replaced by Professor Akiro Kimura, who was then followed by me. The duration of each visit was four or five days. I visited Fukushima before Golden Week in May 2011. As Director Kenji Kamiya had an office at Fukushima Medical University, I transferred the baggage of the staff of Hiroshima University stored at the Off-Site Center to this room during Golden Week.

Around that time, a program in which support would be provided for the temporary return home of Fukushima evacuees was announced, and Hiroshima University decided to join the program. From that point onwards a group of four staff members, comprised of a clerical staff member, a radiological technologist, a nurse and a physician, has been continuously engaged in support activities. For the temporary return home, three gymnasiums located just outside the 20-km evacuation perimeter around Fukushima No. 1 power plant were used as staging areas. Two members from each family were allowed to visit their homes for two hours, while wearing protective suits. We interviewed them in the staging area before they left for their homes. Then, after they returned, we performed radiation screening on their clothing and baggage and performed a physical condition examination as well.

Approximately 20 residents rode per bus, with 15 to 20 buses leaving separately for pre-determined areas. Prior to departure, detailed explanations about the procedures were given to the residents and they then put on their protective suits before boarding their pre-assigned buses and returning to their homes. In each case, all residents departed by noon and began returning around 2 o'clock in the afternoon.

Although up to two big bags (provided by Tokyo Electric Power Company) of belongings were permitted to be taken out per family, in principle, many families had prepared extra bags. At individual staging bases, Japan Self-Defense Forces (JSDF) officials wearing protective suits were waiting for residents in decontamination tents. Fortunately, high radiation doses were not detected on any of their baggage or protective suits.

We conducted our support activities during the rainy season. Residents who returned home reported having trouble moving around while wearing their protective suits – this might have been due to the increased levels of humidity during the rainy season. Our clerical staff member, radiological technologist and nurse, who met the residents as they returned from their homes and performed screening at the “hot” zones, reported that they worked in a constant sweat.

Since many of the residents visiting their homes were elderly, with health problems typical of the elderly such as hypertension and diabetes, we were concerned that they might suffer from heatstroke. However, as those involved from Tokyo Electric Power Company undertook every possible measure to ensure safety, only a few people were taken to medical clinics.

Subsequently, it was no longer necessary to wear protective suits when wearing a long-sleeved shirt. Thus, the rules about clothes and screening methods were gradually simplified. The first temporary return home program finished before the Obon holidays in August. Since then, temporary return home programs by car have also been permitted.

I sincerely hope that the evacuees can return to their old lives as soon as possible.



Treatment room at the Radiation Emergency Medical Care Unit in Fukushima Medical University Hospital

(2) Supporting Residents' Temporary Return Home

Our Greatest Concern – Heatstroke

Shinya Matsuura

Professor, Department of Radiation Genome Disease,
Research Institute for Radiation Biology and Medicine



I was dispatched to the Off-Site Center as chief of the 9th group of the Radiation Emergency Medical Assistance Team (REMAT), one month after the Fukushima nuclear power plant accident occurred. Around that time, the national government and prefectural and relevant municipal governments had decided to conduct temporary return home programs in response to the continued requests from affected residents.

At the Off-Site Center, a manual for temporary return home programs was being developed, and I joined in to help. For these temporary return homes, residents were required to wear a protective suit and not to eat or drink while at their homes. In addition, information conforming to the rules for radiation controlled areas were included in the manual. A radiation controlled area refers to an area where radiation dose levels are high and require special management, similar to a radiation research facility. As a Japanese person, I felt very sorry that these areas, where people had lived a normal life without any anxiety previous to the earthquake, were now treated in the same way as a radiation controlled area.

The temporary return home programs were launched at the end of May 2011, and I engaged in the programs in June and August. Hiroshima University REMAT, comprised of a physician, a radiological technologist, a nurse and a clerical staff member, were involved mainly in health management of residents at the staging areas for the temporary return home trips, under the auspices of medical teams from the Ministry of Health, Labour and Welfare.

At the staging area where I was assigned, over 200 residents gathered. After receiving an explanation from the Nuclear and Industrial Safety Agency, they put on the necessary gear and headed for their residential areas using more than a dozen chartered buses. We carefully created a list of residents visiting their homes based on the departure of the buses and checked individual medical interview sheets to monitor their health. After the buses departed, we set up a radiation survey venue to prepare for their return. It was one of our more important tasks to properly guide the residents returning from the restricted areas to the survey venue.

We were most concerned that the residents in their protective suits might suffer heatstroke in the extremely hot weather. Upon their return we checked their physical condition and conducted a radiation survey to test for radiation contamination of the belongings that they brought from their homes. Although some residents felt unwell, there were no patients with severe symptoms. After all the residents had returned to their evacuation destinations, we checked that the survey venue was not contaminated, and completed our task as REMAT.

There was one case where a resident was not allowed to return home due to a health problem we found during the health checkup prior to departure. We felt very sorry for this because he had looked forward to returning home enormously. Considering this I feel more detailed explanations should have been given in advance to the residents.

One year later, I visited the evacuation areas again. From the train window I saw a field of grass spreading to the base of some nearby mountains. Seeing this I realized that these used to be farmlands, filled with rice paddies and crops. I hope that the affected areas will soon recover from the radiation disaster and return to a crop-filled state.



Staff of Hiroshima University waiting for residents to return from visiting their homes

(2) Supporting Residents' Temporary Return Home

Working Hard to Grasp the Situation of People Who Would Visit Their Homes

Hiroataka Matsui

Associate Professor, Department of Cancer Molecular Pathology, Research Institute for Radiation Biology and Medicine



Over the two days from June 25 to 26, 2011, I was dispatched to the Hirono Town Gymnasium in Fukushima Prefecture to support the residents' temporary return home visits to the restricted areas. Adjacent to the south of J-Village, the gymnasium is located more than 20 km from the Fukushima No. 1 nuclear power plant.

After arriving at Hirono Town, I found that the shoulders of roads that had collapsed were still left untouched even though two months had passed since the earthquake. Although electricity was available, water supplies continued to be disrupted. Accordingly, residents had difficulty living there, though the town was not designated as an evacuation area.

Under these circumstances, the roles of our team dispatched from Hiroshima University were to check the health condition of residents who would visit their homes temporarily and to perform screening for external exposure and recheck their health condition upon their return. Charged with supervising the screening, we assumed the responsibility for making detailed arrangements with a range of staff members in order to unify our policies and not cause confusion.

In supervising the screening we were responsible for various tasks. We were to confirm the number and check the health condition of the people who would temporarily visit their homes. Furthermore, since the group included not only residents but also police officers, rescue members, drivers of the chartered buses, and staff from animal welfare groups, the number of people who would enter the evacuation areas was not fixed until the actual day of departure. With this in mind we worked hard to adjust accordingly to the concerns of the returning residents, while at the same time collaborating with the staff members from the various other agencies involved. One of our other important tasks was to conduct a survey of surface contamination of the residents on their return from their homes, while attempting to not impose any further strain on the elderly residents, who had been wearing non-porous protective suits throughout the day.

During my two days there, I was able to conduct support activities for the temporary return home in a favorable manner without any serious problems. To perform the necessary activities efficiently and effectively, mutual cooperation was indispensable among staff members of the government agencies, the local governments, firemen, police officers, employees of the power companies, Self-Defense Force officials, and the many others involved who were usually engaged in other jobs and had no direct connection to each other. To this end, I believe that it is necessary to respect each person's and the overall group's unique skills and their abilities to properly undertake their own duties.



Support team for temporary return home

(2) Supporting Residents' Temporary Return Home

Struggling to Make Adjustments Due to the Difference in Responses of Individual Institutions

Eiji Nishimaru

Radiological Technologist, Department of Medical Support, Hiroshima University Hospital



I was first dispatched as a member of the 4th group of the Hiroshima University Radiation Emergency Medical Assistance Team from March 22 to 26, 2011, and subsequently joined the 11th, 17th, 24th and 32nd groups.

At first, I engaged mainly in activities at the Prefectural Government Hall and the Off-Site Center to manage residents who served as volunteer surveyors and to create transportation flow charts for trauma patients suffering contamination from the nuclear power plant accident. After the situation at the power plant began to calm down, I joined the medical teams providing support to residents temporarily visiting their homes in the restricted areas to retrieve their belongings.

Requests for participation in support activities for the evacuated residents' temporary return home trips were made when I worked as a member of the 17th group. I joined the venue preparation work, a rehearsal of the temporary return home program, and the first temporary return home program (at the Furumichi Gymnasium in Tamura City on May 21). Many, many institutions, organizations and individuals were involved in this temporary return home program: the Ministry of Economy, Trade and Industry (overall control of temporary return home programs and activities related to venues and vehicles); Tokyo Electric Power Company (guide for residents and radiation exposure control); Ministry of Health, Labour and Welfare; Ministry of Education, Culture, Sports, Science and Technology; Hiroshima University; National Institute of Radiological Sciences; National Disaster Medical Center; Hirosaki University (medical teams); DMAT (relief teams); Federation of Electric Power Companies of Japan; hospitals and research institutions throughout the country; educational institutions (survey of residents and baggage); staff of the local governments; local police officers and firemen; and volunteers concerned with pet protection.

I was involved in all the support activities for the evacuated residents' temporary return home trips, which were conducted at four sites: Furumichi Gymnasium in Tamura City, Baji Park in Minamisoma City, Kawauchi Village Gymnastic Center in Kawauchi Village, Futaba County and Hirono Central Gymnasium in Hirono Town, Futaba County. While supervising mainly "hot" zones and screening floors, I observed many problems.

The most serious concerned the activities in the so-called "hot" zones. There were issues to be resolved involving guiding the residents from the buses, disposal of protective shoe covers, transportation of baggage from buses and within "hot" zones, survey methods and standards for the residents and their baggage, and finally guiding the residents with their baggage after undergoing the survey.

After the first temporary return home program finished, medical teams addresses the various issues that occurred at each site. However, detailed countermeasures were taken independently at each site, because the responses of individual institutions varied, individual adjustments were required. When efficient operation of the temporary return home trip program was difficult, medical teams from Hiroshima University stepped in to fill the need. I am extremely grateful for the medical team members of Hiroshima University for their generous cooperation.

I was very happy to participate in support activities for the evacuated residents' temporary return home program as a member of the medical staff. I always took care to conduct activities with respect for the residents and tried to view things from their perspective. At first, the local residents made many complaints. However, over time these complaints gradually decreased because individual institutions made a concerted effort to hold discussions before the actual home visits, which strengthened their sense of unity. This made me fully realize the importance of communication.



Adjustments being made with the Federation of Electric Power Companies of Japan at a “hot” zone

(2) Supporting Residents' Temporary Return Home

Residents Complain of the Prohibition of Taking Out Foodstuffs.

Chikako Fujioka

Radiological Technologist,

Department of Medical Support, Hiroshima University Hospital



On June 11, 2011, I first joined the medical teams of the Radiation Emergency Medical Assistance Team (REMAT) in Fukushima Prefecture as a member of the 24th group. When the 22nd group was dispatched to Fukushima on June 4, a temporary return home program started, in which evacuated residents visited their homes temporarily. When the 24th group was dispatched, the program was still not running smoothly. I remember how challenging things were at that time, compared to when I was dispatched on July 29th as a member of the 34th group.

The most significant role of the medical teams of Hiroshima University REMAT was to provide health care for residents, which included checking whether their physical condition was adequate for a temporary return home trip, and carrying out a subsequent check-up upon their return. Temporary return home programs were conducted for a variety of purposes, such as retrieving goods and pets, confirming the state of homes, and to pay respects to the souls of the victims.

The temporary return home program provided the opportunity for residents who had not yet returned home after the earthquake to visit their homes for the first time in three months. Although only a maximum of two representatives of each family were allowed to return home, participants had great expectations for the program. Since residents were at first required to wear protective suits, dehydration was of great concern because it was the steamy rainy season. Later, simpler protective suits were adopted.

On June 11, I engaged in support activities at the Furumichi Gymnasium. The reception of residents was carried out twice, according to the destinations of residents, Futaba Town and Okuma Town. A total of 302 residents participated in the program: 132 people consisting of 99 residents, 33 staff members and five buses for Futaba Town; 170 people consisting of 122 residents, 48 staff members and eight buses for Okuma Town.

After distributing medical interview sheets and providing an explanation to all the participants, we checked their health condition in collaboration with a relief team. We created the final list of residents who would visit their homes and picked up residents for whom medical attention was required in the hour and a half before they got on the buses. After residents returned, we sequentially performed screening on them. Our role was not only to check their condition but also to promptly transfer residents in poor condition from “hot” zones to “cold” zones, where a relief team stood by.

Although there were concerns about the elderly, nobody became severely ill, and only one person felt slightly ill due to the heat. Individual monitoring of residents showed that their contamination level was no more than 28 μSv . Decontamination was therefore not necessary for either the residents or their belongings, with the maximum allowable GM count being 7,000 cpm.

The majority of the things that the residents brought back from their homes were health foods, tobacco, and medicines. However, foodstuffs and other products to be taken orally were not permitted to be brought out from the point of view of safety and were confiscated. This was because of concern over foodstuffs spoilage or contamination after

having been left abandoned following the accident. However, the residents complained strongly about this, and ultimately they were allowed to take out foodstuffs during their temporary return trips.

Staff members formed teams and took turns joining support activities. In some cases when all of the team members were being rotated concurrently, new members had trouble carrying out operations because none of them were completely familiar with the proper flow of operations. In addition, in the beginning it took a long time to coordinate activities with other teams (Ministry of Economy, Trade and Industry, Federation of Electric Power Companies of Japan, etc.). I believe that in a situation like this, the most important points are cooperation and communication among individual organizations beyond the boundaries of job categories.



Staff making preparations for reception of residents at the venue for temporary return home

(2) Supporting Residents' Temporary Return Home

Joining DMAT Based on Valuable Experience

Hidehisa Yamaoka

Radiological Technologist, Department of Medical Support, Hiroshima University Hospital



I was first dispatched to Fukushima as a member of the 7th group of medical teams from the Hiroshima University Radiation Emergency Medical Assistance Team (REMAT) on April 4, 2011. At that time, it was a transition period between the acute phase and the chronic phase of the disaster, where medical needs were changing on a daily basis. I remember checking the information provided by various institutions and doing my utmost to grasp the situation and deliver accurate information to the headquarters at the Fukushima Prefectural Government Hall and the Off-Site Center. Subsequently, I also joined the 13th, 22nd, 27th, 34th, and 37th groups.

On June 4, I first participated in a temporary return home program as a member of the 22nd group (at the Furumichi Gymnasium in Tamura City). It was approximately two weeks since the program had been launched, and the situation was still confusing. Flexible responses were thus required on site. The most important purpose of support activities for a temporary return home program was to provide security and safety for the residents, and to perform radioactive contamination assessments. Some staff members from other institutions did not understand this, which sometimes caused confusion and misunderstandings. However, ultimately due to cooperation and communication between individual institutions comprised of many, many volunteers, the program ran successfully with nobody becoming sick or getting injured.

On August 26, a temporary return home program was conducted for residents who had lived within 3 km of the Fukushima No. 1 nuclear power plant for the first time. Although I had participated in temporary return home programs several times, the program conducted this time created a different atmosphere. Since many members of the media were accompanying the residents, the Central Gymnasium in Hirono Town, which served as a staging area, was filled with a stronger tension than normal. In the heat of late summer, residents wearing non-porous Tyvek protective suits came back from their homes without any real problems, although they were all drenched in sweat. One woman felt a little ill, but she received medical treatment at an aid station and returned home safely. The faces of the staff members showed their relief that they had not encountered any serious problems.

Thanks to these valuable experiences, I took a special interest in disaster medical care. Several months after I was dispatched, I participated in a training course for members of the Japan Disaster Medical Assistant Team (DMAT) and became a member. My team members and I are making concerted efforts to develop our skills in order to respond to any disasters that may occur in the future.

When disasters occur, it is not only the medical care provided by teams that is of great importance, but also collaboration with other organizations, regardless of whether they are from the public or private sector. Such collaboration is not formed without mutual respect and trust.



Arrival site for buses for the temporary return home (Baji Park in Minamisoma City)

(2) Supporting Residents' Temporary Return Home

Saying “Welcome Back” to Residents Who Returned with Much Baggage

Kafumi Nishinaka

Chief Nurse,

Department of Nursing, Hiroshima University Hospital



Immediately after the Great East Japan Earthquake, the first thing that I saw, before viewing the images of the earthquake and tsunami, was another chief nurse, my co-worker, in a great flurry of activity, making arrangements for the dispatch of DMAT. I realized that something very serious had occurred. Soon afterwards the Radiation Emergency Medical Assistance Team was dispatched to provide support services. Four months after the earthquake, I participated in a temporary return home program from July 22 to 26, 2011.

In this program, residents were permitted a temporary visit to their homes located in the restricted areas within 20 km of Tokyo Electric Power Company's Fukushima No. 1 nuclear power plant, where evacuation orders were issued after the accident. The main condition of the program was that residents could only return for up to two hours. We provided them with support services, including a physical check-up prior to departure and then performing radiation screening as well as a follow-up physical upon their return.

Our medical team consisted of three staff members, a clerical staff member, a radiological technologist, and a nurse. We engaged in support activities at a staging venue over five days. Getting up at 4 o'clock every morning, we got dressed, prepared our bags and left for the Fukushima Prefectural Government. Every morning, we mutually observed each other's behavior, while monitoring each other's physical condition, and hoped that residents whom we would see could visit their homes without any difficulties.

On the day of departure for the temporary return home trip, evacuees gathered at a staging area between their individual evacuation centers and their evacuation destinations, and headed out to the restricted areas by bus after being equipped with protective suits and dosimeters. Every day we sent off approximately 400 residents, who wore protective suits, that were more like sauna suits with an ambient temperature of approximately 30°C making it difficult for the residents to move freely. They stayed at their homes for approximately two hours and came back carrying the belongings that were allowed to be taken out. As they returned, we said to everyone, "Welcome back." When we heard them say, smiling, "We are all right. Thank you," even though they were sweaty and muddy all over, we felt their great underlying strength. After their radiation dose levels were measured to confirm their safety, residents headed back to their evacuation destinations without further problems.

One of the events that most strongly impressed us was a memorial service held in Okuma Town on July 24. Residents carrying bunches of flowers went to where their homes had been located prior to the tsunami, and following the memorial service came back with empty hands. For the first time in Fukushima, I could find no words to say.

I believed that it was "cooperation" that sustained our support activities, which required safety and prompt actions. Such cooperation included lectures delivered by nurses at the ICU/Advanced Emergency and Critical Care Center before we were dispatched to the affected areas, instructions from our predecessors, interaction with other staff members at the staging areas and, in particular, support from other members of medical teams, whom I met on the day

when I left for affected areas.

We were told by the staff of the Ministry of Health, Labour and Welfare, and the Ministry of Economy, Trade and Industry, who supervised the medical teams, that every medical team from Hiroshima University was to maintain active cooperation and to demonstrate our cooperation to members of other universities. I believe that disaster training drills and courses based on these experiences in Fukushima should be provided. Furthermore, Hiroshima University Hospital should initiate these measures and work to strengthen both its internal cooperation within the institution as well as cooperation with other universities and national agencies, particularly assuming that other disasters are likely to occur.

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Preparation meeting for a temporary return home program (at a staging venue)

(2) Supporting Residents' Temporary Return Home

Caring Deeply about the Hearts of Residents

Tomohiro Sasa

Nurse, Department of Nursing,

Advanced Emergency and Critical Care Center



From June 6 to 11, 2011, I provided medical support to residents at the Furumichi Gymnasium in Tamura City and at the Kawauchi Village Gymnastic Center. These sites served as staging points for temporary return home visits to restricted areas within a 20-km radius of the Fukushima No. 1 nuclear power plant.

In the health checks carried out at staging points before residents left for their homes, I checked approximately 150 to 330 medical interview sheets per day. I asked the residents directly about their condition and when needed I selected those among them who I thought should be examined by a physician. In addition, while checking residents' medical history, current medicines, and confirming whether their physical condition could tolerate the temporary return home, which would take around four to five hours, I identified residents to whom we needed to pay particular attention.

The medical information on the residents who would visit their homes temporarily was organized into documents to be shared among groups as varied as medical teams from the Ministry of Health, Labour and Welfare, physicians in charge, medical teams of the Japan Red Cross Society, the Disaster Medical Assistance Team (DMAT), rescue crews, safety officers. These documents were distributed to these groups before the residents left for their homes. Arranging the documents to be shared with other medical teams was very busy work because there wasn't much time before the residents left for their homes by bus. However, this was indispensable for an effective support system.

I engaged in one temporary return home program at a gymnasium under a clear sky in June. Since I wore a sealed protective suit, I felt hot compared to the outdoor air temperature. In these circumstances, when the buses returned from the home visit, I got on first in order to examine the residents. If I found anyone who felt ill, I carried out an early observation and made arrangements for them to be given priority in getting off the bus.

Since the interior of the buses used for temporary return home visits were fully covered with curing sheets, the aisles of were very slippery. While carrying heavy luggage and unable to watch their step in the narrow aisles, residents had difficulty getting off buses. I helped them carry their baggage to prevent them from slipping or falling from the bus. Then, I checked their physical condition at the survey venue.

All the evacuees looked forward to returning to their homes and were filled with delight. On the other hand, they still worried about invisible radiation, the intermittent aftershocks, and their lives ahead considering the prospects of a prolonged evacuation and continued unemployment. When returning home, they saw the miserable state of their houses and to make matters worse, in some cases a few houses had been broken into by thieves and household goods had been stolen. Upon returning from their homes, many residents were deeply saddened. Unfortunately, I was not given enough time to carefully listen to them and therefore was unable to provide adequate psychological or emotional support.

From these experiences, I believe that the establishment of a relationship of trust with members of other organizations through careful and open communication, as well as collaboration in performing operations are essential to the establishment of an effective initial response system for medical care following a radiation disaster.



Staging venue for a temporary return home program before departure

(2) Supporting Residents' Temporary Return Home

Relieved by Residents' Smiles

Yasuhiro Ochi

Nurse, ICU,

Department of Nursing, Hiroshima University Hospital



I engaged in support activities as a member of the 24th group of the Hiroshima University Radiation Emergency Medical Assistance Team from June 10 to 13, 2011. The roles of the 24th group were to provide support services for temporary return home visits to restricted areas around the Fukushima No. 1 nuclear power plant. We performed screening on the residents and the belongings they had retrieved from their homes to check whether or not they were contaminated by radioactive materials, and made a prompt response when injured or sick persons were found before, during, and after the temporary return home visits.

The Furumichi Gymnasium in Tamura City and Baji Park in Minamisoma City, which are located approximately 20 km away from the Fukushima No. 1 nuclear power plant, were used as staging areas for the temporary return home visits to the restricted areas. The residents travelling to their homes were determined in advance, with most arriving at the staging areas individually.

Residents who finished the reception procedure were interviewed in order by medical staff about their physical condition. However, when the residents arrived and met friends and acquaintances, they often left their seats to confirm each other's safety. Sometimes due to this movement within the group, I had trouble remembering who had been interviewed and who had not.

The wearing of protective suits was necessary for residents when visiting their homes. Since it was the middle of June and gradually getting hotter, those wearing protective suits felt as if they had taken a sauna. As a matter of course, their homes were not air-conditioned. We also had to wear protective suits when responding to residents who had returned to the staging areas.

All the residents were fatigued due to their prolonged evacuation. They returned from their homes carrying heavy luggage and drenched in sweat. Although they were only allowed to take out one bag of belongings, because they did not know when they would return home next some brought more. I often wondered how much stress they were enduring. Despite these circumstances, when residents replied to us with a smile, I felt deeply relieved.

At the staging areas, there were various officials, such as medical staff members like us, staff of Tokyo Electric Power Company and the Federation of Electric Power Companies of Japan, firemen, police officers, and accompanying personnel. The medical staff members in charge of screening, such as ourselves, were prepared in advance and well aware of the flow of activities and operations and simply oversaw the flow of activities during the day.

Since the manpower was insufficient, the roles of staff members and the practical operation methods were often unclear. Accordingly, those involved in different types of activities had to cooperate with each other and respond to the specific circumstances. We often had trouble performing our duties smoothly because working conditions and methods differed among staging areas and staff members. Fortunately, the 24th group completed its two-day posting without too much difficulty.

Through these activities, I gained a new appreciation of the importance of understanding individual roles and their respective purpose. Furthermore, it is important to clarify what needs to be done given such a confusing situation. With this in mind, I believe that we should conduct training on a routine basis, simulating what roles we should play and what is likely to be lacking during these types of emergency situations.



Staging venue (residents putting on protection suits)

(2) Supporting Residents' Temporary Return Home

Trying to Provide the Best Support from the Perspective of the Disaster Victims

Teruo Nishioka

General Chief, Managing Support Group,
Graduate School of Education (Then: Chief, Audit Office)



From June through July 2011, as a medical team staff member, I assisted in the health management of residents and staff members who would enter the restricted areas (mainly distribution and collection of medical interview sheets) and reception operations for them when they returned to the staging areas.

Regarding the temporary return home programs, an increasing number of residents were being allowed to visit their homes around the time when I was dispatched. One program in which I engaged was conducted on a very large scale, where approximately 400 residents from two towns visited their homes in 20 separate buses.

Accordingly, a small number of medical staff members had to deal with a large number of residents. We conducted medical interviews with all the residents, organized their information for each bus and provided directions (transfer of information on residents, such as names, who needed special attention due to health problems) to the staff members and rescue crews who would accompany the residents. While working on the front line of the program, we had to complete all of our tasks within a limited amount of time before the buses left..

Moreover, since there was a shortage of goods at the gymnasium being used as the staging base for the temporary return home, we had to take action according to the circumstances. When the residents returned to the staging area after visiting their homes, staff members also had to wear protective suits, because the residents' protective suits and luggage had the potential of being contaminated by radioactive dust.

Since I was dispatched from June through July, during the height of summer, I felt as if I were in a sauna when I worked with a protective suit over my clothes. Once the residents began to return from their homes, we had to do physical check-ups of nearly 400 people virtually at once without any chance to drink any fluids. Thus, we were forced to work in very physically demanding conditions.

Many people had been forced to evacuate their homes due to the nuclear power plant accident caused by the earthquake and tsunami and had been unable to return home until now. Importantly, they had to wear protective suits when entering their homes which made for a very uncomfortable physical experience. Taking into everything into the consideration, I tried to provide the best possible support I could from the perspective of the disaster victims.

However, when the buses returned from the restricted areas in such quick succession, we were fully occupied with the task at hand. Due to the sheer volume of people and work to be done in such a limited amount of time, I found myself often responding to residents in a businesslike manner. Reflecting on the day's events as well as my behavior, I would do my best to modify my manner and address any other concerns the following day.

We reviewed all of our job responsibilities daily (in particular, guiding buses that came back from restricted areas, guiding the returning residents and their belongings, etc.), with a focus on those aspects of the day that disrupted our activities, and in turn attempted to modify these issues for the next day, thereby responding to residents

needs in a more effective way. This is an approach that can be applied to improve all types of daily operations.

In addition, it was a good experience for my future career to work with both DMAT and REMAT. They arrived on scene suddenly, undertook their actions and responses in a very systematic manner, and then moved on like the wind after finishing their day's work.



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(left) The author wearing a protective suit

(right) Checklist to confirm the number of residents and staff members

(2) Supporting Residents' Temporary Return Home

Appreciating the Value of Simply Talking

Kengo Toda

Senior Specialist, Medical Affairs G,

Management Support Office, Hiroshima University Hospital

(Then: Chief, Hospital Information System G)



I engaged in support activities as a member of the Radiation Emergency Medical Assistance Team (REMAT) at a staging area for the temporary return visits for residents who returned to their homes in restricted areas (within 20 km of the Fukushima No. 1 nuclear power plant). The Furumichi Gymnasium in Tamura City, which was located approximately 20 km away from the Fukushima No. 1 nuclear power plant, was used as a staging venue. I conducted support activities for three days from June 4 to 6, 2011.

On the evening of June 3, I participated in a briefing session held at the Fukushima Prefectural Government Hall in Fukushima City. In the briefing session, the purpose and procedures of the temporary return home program that would begin on the following day, as well as the roles of individual members were explained and clarified.

Our activities included the supervision of the staging venue, providing assistance to returning residents, offering support for REMAT (physicians, nurses, radiological technologists, etc.), and coordinating communications. To ensure the safety and security of residents who would visit their homes, I mainly engaged in coordinating communications as a clerical staff member. We aimed to share information between not only members of the medical dispatch teams but also the staff members of the Ministry of Health, Labour and Welfare, police officers, firemen, Self-Defense Force officials, staff members of the Japanese Federation of Electric Power Companies, and many others, all of whom were conducting support activities at the staging venue. In addition, I distributed and collected medical interview sheets to the residents before they returned home, compiled the number of people who would actually enter the restricted areas, explained the procedure of the home visits, and guided residents after they came back from their homes.

Of particular note, the area where I had problems was with compiling and confirming the number of people who would be entering the restricted areas. Since bus drivers, radiation administrators, safety managers, police officers, firemen, people sent in to collect pets, and journalists all accompanied the residents to their homes, it was a wide range of people to check in a very short amount of time. On June 4, when I participated in the temporary return home program for the first time, I struggled to organize even some simple jobs, and feel that I wasted time in just trying to get things done.

Furthermore, I am afraid that I failed to take prompt action and coordinate communications appropriately on more than one occasion. These are the personal lessons that I need to reflect on and learn from. This time, I had preliminary discussions about our activities, unlike my previous dispatch in March, in which I visited affected areas with no background knowledge. However, despite these discussions, I still found myself confused by the atmosphere of the staging venue, how to communicate with the various persons involved and, in particular, how to talk to residents.

On the first day of the temporary return home program, Dr. Koichi Tanigawa, who was responsible for supervising the staging venue, clearly stated that our mission was to ensure the safety and security of the residents before, during, and after the temporary return home visit. Dr. Hirofumi Maruyama and the members of the 22nd dispatch group

held a preliminary meeting for the temporary return home visit and another meeting to review our activities after the program had ended. In part due to the appreciation expressed by the residents, I was able to complete my support activities without any major miscalculations, though I feel I could have done better in my tasks.

Through these experiences, I realized once again the importance of sharing awareness and information, as well as the value of simply being talked to and cared for by others.



(upper left) Holding a briefing session for residents

(upper right) Checking important points in preparation for the home visits

(lower left) After finishing our support activities

(3) Emergency Medical Room in the Fukushima No. 1 Nuclear Power Plant

Using Our Knowledge of Radiation and Emergency Medicine

Yasumasa Iwasaki

Lecturer, Department of Emergency and Critical Care Medicine,
Hiroshima University Hospital



The Great East Japan Earthquake became a combined disaster that included a very large magnitude earthquake, the damage caused by the ensuing tsunami, and the Fukushima No. 1 nuclear power plant accident. As a tertiary radiation emergency institution, Hiroshima University was engaged in DMAT activities and radiation emergency medical activities. In particular, we focused on responding to the nuclear power plant accident. As a staff member of Hiroshima University, I conducted support activities at the Fukushima Prefectural Government Hall, the Off-Site Center, the J-Village and the emergency medical room, while assisting DMAT activities and temporary return home programs.

1) DMAT activities

On the day that the earthquake occurred, DMATs across the country received a call for support from the Ministry of Health, Labour and Welfare. Soon thereafter we headed out to the Fukushima Gender Equality Center in Nihonmatsu City. The center housed approximately 120 evacuated patients, transferred from hospitals, who were likely to have been exposed to radiation. I undertook the screening of seriously-injured patients and made arrangements for their transfer to other hospitals. In addition, I performed contamination screening on residents who arrived of their own accord or were transported by helicopter.

I was most deeply impressed by the fact that a young female nurse, who was evacuated from a hospital with patients potentially exposed to radiation and was housed in the center, worked hard for patients while fighting the fear of her own radiation exposure. She even asked me whether or not she could have a baby in the future. Immediately after the earthquake, all residents, including health professionals, were frightened by the unknown surrounding invisible radiation including insufficient information and a lack of knowledge.

2) Activities at the Off-Site Center in Fukushima Prefecture

An Off-Site Center (OFC) refers to a facility serving as a center for emergency response measures, established at the time of a nuclear disaster based on Article 12 of the Act on Special Measures Concerning Nuclear Emergency Preparedness. When a disaster occurs, relevant institutions gather at OFCs to take emergency measures in cooperation, and to coordinate countermeasures against nuclear disasters, and work for their smooth implementation.

At OFC, as a member of the medical teams, I monitored the safety of residents and workers at the nuclear power plant and made adjustments to ensure their safety, while communicating with the various institutions. What is most important in disaster medical care is said to be the chain-of-command structure, or command and control. In a time of disaster, it is important to make a prompt assessment of the situation at hand. In order to do so, I believe that it is most effective when representatives of individual institutions with decision-making authority, assemble in one place.

3) Activities at the emergency medical room in Fukushima No. 1 nuclear power plant

Over 2,000 workers were still working in the nuclear power plant each day attempting to resolve the situation after the accident. Meanwhile, the areas within 20 km of the nuclear power plant were designated as evacuation areas, where even ambulances could not travel – even though they are called when an accident occurs in the power plant.

To handle this situation, an emergency medical room to provide medical care and treatment was established in July 2011, utilizing an existing building in the nuclear power plant. A physician, a nurse and a radiological technologist are stationed there on a round-the-clock basis in order to respond immediately to accidents and manage the health care of workers. Their tasks require knowledge of radiation and emergency medicine. Accordingly, I believe that the Department of Emergency and Critical Care Medicine of Hiroshima University is the most appropriate to take charge of such tasks.

It has been nearly two years since the earthquake, and memories of the earthquake are now fading away from people's consciousness. However, whenever I pass through evacuation areas to visit the Fukushima No. 1 nuclear power plant, I realize that there are still so many people in Fukushima who cannot return to their normal lives. Hiroshima University will continue to provide support until all residents regain their old lives as they were prior to the earthquake. As a staff member of Hiroshima University, I will continue to keep visiting Fukushima in order to continue contributing to the post-quake recovery no matter how small the contribution may be.



Emergency medical room in the Fukushima No. 1 nuclear power plant, equipped with devices available for emergency response operations

(3) Emergency Medical Room in the Fukushima No. 1 Nuclear Power Plant

Creating a Manual for Nursing Care Activities in the Emergency Medical Room

Ryota Iiboshi

Vice Chief Nurse,

ICU, Department of Nursing, Hiroshima University Hospital



In July 2011, four months after the Great East Japan Earthquake, the emergency medical room was established on the 1st floor of the service building in front of Units 5 and 6 of the Fukushima No. 1 nuclear power plant of Tokyo Electric Power Company (5/6 ER). At first, nurses were not continuously stationed at 5/6 ER. Therefore, it was difficult for physicians alone to provide the best medical care.

Accordingly, male nurses were dispatched from medical facilities across the country to ensure that nurses were continuously stationed in the 5/6 ER. I was dispatched to 5/6 ER in November 2011 and February in 2012. The roles of nurses in the 5/6 ER were: (1) to care for injured and sick people and help doctors provide medical care; and (2) to develop and control the medical care environment in the emergency medical room.

During the entire period working in the 5/6 ER, we were visited by three workers. I helped a doctor stitch up the finger wound of a worker who suffered a finger contusion when he caught it on loose cables. I also assisted in the medical examination of a worker with cold symptoms and helped a doctor stop the nosebleed of a worker by applying pressure to his nose with his own hand while the doctor inserted bosmin gauze into his nose.

5/6 ER was stocked with hygiene materials, internal and external medicines, injection medicines and ME equipment. My role was to confirm whether or not the hygiene materials and medicines were maintained at the correct stock level, keep them in order and properly organized, and check the ME equipment. Moreover, I also confirmed the number of hygiene materials and checked medical equipment in the ambulance, which we kept on standby in order to transport sick and injured persons suffering from radiation exposure.

Since nurses worked in two-day shifts at the 5/6 ER, I had to develop a working environment so that any newly assigned nurses could continue nursing care activities seamlessly.

With this in mind I worked to create a nursing care activities manual during free moments at work. I believed that an effective transfer of our job responsibilities when new nurses took over was a key element to conducting unified nursing care activities. Although we had guidelines for nursing care activities in the 5/6 ER, it was not clear enough that we could understand what needed to be done without consultation with the previous shift of nurses. Therefore, I initially created some guidelines for what nurses should do during the two days that they were on the job. Then, after a few changes and revisions, we had a manual for nursing care activities in 5/6 ER, that focused on the key points of what was required when taking over from the previous nursing shift.

However, since nurses were dispatched from medical facilities across the country and worked in short-term shifts, I was unable to confirm whether they were able to take over the jobs effectively. I am still curious about this. What is important, is to continue providing the best medical care and to develop a system where jobs are taken over effectively regardless of which nurses are dispatched to the 5/6 ER. Furthermore, as the jobs responsibilities are passed from shift to shift in a short time frame between nurses who are meeting for the first time, it is crucial to cultivate an effective system

of communication.



Checking medicines in 5/6 ER

(4) Supporting in the Background

Taking Charge of Transporting Goods and People on Site

Takao Fujioka

Chief Manager, Graduate School of Biosphere Science

(Then: Chief Manager, Risk Management Group, Financial and General Affairs Office)



March 14, 2011

I was assigned to provide logistical support to DMAT and the Radiation Emergency Medical Assistance Team.

March 15

I left Hiroshima University Hospital at 16:30 in a car fully loaded with disaster supplies, such as equipment, water, and food. The weight of these supplies was enough to bulge the car's tires. I was instructed to reach the National Institute of Radiological Sciences (NIRS) in Chiba Prefecture by the following morning. Mr. Kengo Toda of Hiroshima University Hospital accompanied me. While passing through Otsu City, a large-scale aftershock occurred with the seismic center in Shizuoka Prefecture. Initially, both the Tomei Expressway and the Chuo Expressway had been closed to traffic, however, while driving through Suwa City, we received information that the Chuo Expressway was now reopened to traffic and thus headed for Tokyo via the Chuo Expressway.

March 16

We arrived at NIRS at 5:30 in the morning. At 11:30, we left NIRS for Fukushima with relief supplies and two physicians from Fukui University. We took the Tohoku Expressway, where travel was restricted to vehicles for disaster recovery assistance. Although the expressway had just been reopened it had not yet been repaired and thus we could occasionally feel our car jump a little from bumps in the road. We arrived at the disaster prevention center next to the Fukushima Prefectural Government Hall at 16:30. We delivered the supplies to the medical teams of Hiroshima University and went to our accommodation (Sugitsuma Hall). I felt a little uneasy to see the scenes on the television in the hotel lobby, watching the explosions at the Fukushima No. 1 nuclear power plant.

March 17

I got up at 7:00 in order to drive a physician to the Nasushiobara Station on the Tohoku Shinkansen line, which had been reopened. Unsettlingly, just as I wiped the snow from my car with my bare hand, I heard a warning on the radio saying that people should be careful not to touch the snow. We left at 7:20 and arrived at the Nasushiobara Station at 9:10. After seeing the physician off, I travelled back to Fukushima and arrived at 12:30. At my accommodation, I negotiated a discount on the hotel charges and secured a room at a guest house for that evening. At 14:30, I left the Fukushima Prefectural Government to drive two NIRS physicians back to their headquarters. After arriving at NIRS at 19:00, I had a physical check-up to determine if I had been exposed to radiation and thus underwent decontamination. I went to the guest house at 21:00. An aftershock occurred late that night.

March 18

After medical supplies arrived at NIRS from Hiroshima University, I left there at 14:00 and headed back to Fukushima Medical University. I obtained instant cup noodles in Chiba City, which were unable to be procured in Fukushima. I reached Fukushima Medical University at 20:00. After handing over the medical supplies to the President, I arrived at my

accommodation at 20:30.

March 19

At 11:30, I headed for the Nasushiobara Station to pick-up workers of the next shift, together with a reporter from the Chugoku Shimbun newspaper. A physician and a staff member arrived at 13:50 and we left the station and headed for their accommodation. We arrived at 16:20. At 21:00, the departing physician and I went to Utsunomiya City in separate cars (accompanied by two drivers who would take the cars back to Fukushima). At 23:55, I reached my hotel in front of Utsunomiya Station.

March 20

I set off from Utsunomiya, taking the 9:32 shinkansen train and arrived at Hiroshima University Hospital at 15:30. After measurements for radiation exposure and a debrief meeting were over, I was released from my duty.

This is the record of my activities.

When I was requested to provide logistical support, I felt a little uneasy because I was not sure what was going on in Fukushima nor where I would stay. In addition, I heard about the nuclear power plant accident. However, I was accustomed to long-distance driving, am someone who is able to sleep anywhere, and did not have much knowledge about the risk of radiation. Therefore, I believed that I was suitable for this job. Although I was not sure that I could get the job done efficiently, I readily agreed to the request without asking anything further questions, because I believed that this would provide a good opportunity for a simple person like me to be helpful during an emergency situation. Additionally, since I am involved in disaster-prevention measures through an association at my workplace which deals with risk management, this was a great experience. I sincerely hope all the affected areas will recover as soon as possible.



A public vehicle leaving Hiroshima University Hospital with a full load of relief supplies (March 15, 2011)

(4) Supporting in the Background

Connecting Individual Institutions through Web Conferences

Takuma Sadamori

Assistant Professor, Department of Emergency and Critical Care Medicine,
Hiroshima University Hospital



From the day after the earthquake, in the Radiation Emergency Medicine Committee established at Hiroshima University Hospital, I was engaged mainly in coordinating relevant institutions to prepare for the reception of patients, to be transported over a wide range of areas. While at work, I was often asked by each institution how many patients would be transported and the extent of their injuries. However, to be honest I was unable provide adequate details because I could not get the necessary on-site information. At the meetings held immediately following the earthquake, all the reports we received were like this: “When I made contact with Mr. So-and-so, I found that he was busy with such-and-such today.” Moreover, information from the National Institute of Radiological Sciences (NIRS) was also far too often fragmented and confusing. Although this was partly to blame on an unprecedented disaster, the main problem was that we had not been trained to make regular contact with each other on a routine basis.

I was dispatched to Fukushima on March 19, 2011. I conducted support activities as a member of the medical teams mainly at the Off-Site Center (OFC) established in the Fukushima Prefectural Government Hall. While becoming tired of dealing with the mountain of documents that were distributed one after another, I converted them to PDF files to send them to Hiroshima University. Although I knew that these files would create an excess of information, I had no alternative but to do so because I believed that I should not select information at my discretion. Of all the institutions, only Tokyo Electric Power Company introduced a video-conferencing system as a means to share information. On the evening of March 22, members of the medical teams discussed the introduction of video conferences because they wanted to see what was going on at meetings held at NIRS. Although the introduction of a video-conferencing system was not an easy job, I promised to make efforts to this end. I left Fukushima the following day.

On March 23, when I visited several companies in Tokyo to return communications equipment, which we had borrowed, with a word of thanks, I heard at Nippon Television Network Corporation that Cisco Systems G. K. had offered their services and a video-conferencing system called “WebEx” was available free of charge. After confirming the operation of the system, I decided to implement it. Users of the system could participate in conferences wherever they were, using either video or voice-only devices, as long as their PCs, smart phones, tablets or other devices could be connected to the Internet. Moreover, the system would require only a brief explanation about how to use it for the new users visiting one after another and also provide a secure communication environment. This new system cleared away many of the communication challenges that we faced at that time.

On March 24, I explained the on-site needs for a web conference system and in turn the gained approval from the Radiation Emergency Medicine Committee for the introduction of the “WebEx” system. We held a video conference between Hiroshima University and NIRS on March 25 and the first web conference between Hiroshima University, NIRS, and OFC at 18:30 on March 26. At the web conference, it was determined that physicians at OFC should report their daily activities and that we should hold web conferences regularly to exchange information. It was approximately 90

hours since we first discussed the introduction of video conferences at OFC. Then, the J-Village and the Japan Association for Acute Medicine joined our web conferences. I believe that we should devise various means to share information in the future so that we have a flexible approach depending on the degree of damage to the infrastructure.



Holding a web conference (Hiroshima University Hospital)

(4) Supporting in the Background

Securing Personnel Ready for Emergencies

Masahiko Nishida

Clerical Staff, Hospital Information System G, Management Support Office, Hiroshima University Hospital

(Then: Clerical Staff, Information Promotion G, Office of Community Relations, Public Relations and Academic Information)



I was dispatched to Fukushima from March 29 to April 4, 2011. My major tasks were to coordinate communications between the Radiation Emergency Medical Response Headquarters (REMRH) and on-site physicians, nurses, and technical experts, as well as to transport physicians, nurses, and technical experts in case of emergency. However, since a signing ceremony for a partnership agreement between Fukushima Medical University, Hiroshima University, and Nagasaki University was held during my dispatch, I spent most of my dispatch time transporting and accompanying presidents, directors of hospitals, and chairpersons to and from the ceremony venue.

Making use of my standby time, I created briefing papers of my activities to submit to REMRH as well as job-handover documents to convey information surrounding transportation to the incoming groups, based on my experience of having lived in Fukushima City and the information obtained during my dispatch period.

After I was requested to visit Fukushima, it took many days before I was actually dispatched. However, I had not been given any concrete information concerning what to take with me and where to stay until a meeting was held on the eve of my departure. As a result, after this meeting I had to rush around to find and buy missing items. In addition, because the length of my dispatch was increased, I was forced to change the schedule of visitors and other work.

After I arrived at Fukushima, I sometimes worried whether or not my activities were really of any help to the disaster victims, because all I did was transport persons involved and stand by at the Off-Site Center (OFC) and was not given the opportunity to make direct contact with either the disaster victims or the affected areas.

Half a month had passed since the earthquake, and collapsed buildings had been to a large extent cleared away. However, I was deeply shocked when I saw a landslide at the Fushiogami Intersection on Route 4 in Fukushima City. I still have a vivid recollection of the twisted ground and the houses leaning at terrible angles. When I was dispatched again in July 2011 and visited there privately in January 2012, the intersection had still not been repaired. However, I heard that the restoration work had finally been completed in June 2012.

Despite the circumstances, some recreational facilities, including a games arcade where my friend worked, were still doing a vigorous business. I was very impressed by this determination. Later, I heard from a friend that many students visited these recreational facilities because lectures were canceled at Fukushima University, Fukushima Medical University, and other local universities.

Midway through my dispatch period, the two physicians assigned to OFC were transferred to J-Village and the two clerical staff members departed OFC with the last of the provided vehicles used for transporting people to and from various destinations. Consequently, there were only nurses left at OFC, and we were placed in this situation for a long time, where there was no means of transportation available for the free use of Hiroshima University staff. If another

emergency such as workers being involved in a radiation accident, had occurred during these circumstances, we could not have carried out our role to transport the necessary personnel to the required areas.

These circumstances were brought about due several unexpected events happened concurrently. Fortunately, since adverse emergency events did not occur, this situation did not lead to any problems. However anticipating future contingencies, I believe that personnel for guiding operations and public relations should have been secured separately so that someone and some vehicles were always available on stand-by in the event of possible emergencies.



Around the Fushigami Intersection in Fukushima City on March 13, 2011 (photographed by a friend of the author)

(4) Supporting in the Background

Engaging in Support Activities as a Disaster Victim

Tomoaki Watanabe

Then: Contract Expert Staff, Medical Policy G, Medical Policy Office

(Hired on site as personnel for logistics support to the dispatch teams)



On March 11, I was working at my previous workplace in Fukushima Prefecture. Although the earthquake lasted slightly longer than usual, it was not strong enough to cause my office bookshelves to tip over, possibly because my workplace was located over 80 km away from the coast. There was no problem with our electricity, and gas supplies were restored in a day. However, since there was no water supply, we had to receive water from a water tank truck for approximately one week, which was the first such experience of my life.

At that time, the number of goods available in stores gradually decreased, and the convenience stores closed. In addition, we had considerable difficulty finding gas stations with available supplies. Despite this, we lived a normal life for a while, though securing water to flush the toilets was an ongoing challenge.

Since we could not obtain reliable information other than the news on the television and radio, we never imagined that the radioactive contamination was spreading. Experts repeatedly reported on television with absolute certainty that the containment vessels, which were made of 20 cm thick steel, as well as concrete that was over 1 m thick, would neither explode nor be subject to a meltdown, and that the Fukushima nuclear power plant was completely different from that in Chernobyl. How could they say that? Weren't they excellent think-tank members, of whom Japan boasted to the world?

During my lifetime I can no longer enjoy my kitchen garden, sea fishing in Soma, edible wild plants, mushroom picking, or river fishing. Activities which I had looked forward to during my retirement. We still cannot truly grasp the extent of the situation inside the nuclear reactors.

Even in an area over 80 km away from the nuclear power plant where my home is located, the ambient radiation dosage will remain much higher than usual for several decades to come. I do not want to accept such an unreasonable situation, but this is the real world. If there are no technologies available to control the radioactivity escaping from the nuclear power plant, this accident can be said to be a man-made disaster. One which I am unable to forgive regardless of the reasons or excuses.

From April 18, approximately one month after the earthquake, through to September 30, 2011, as a member of Hiroshima University I engaged in support activities at the Off-Site Center (OFC) in the Fukushima Prefectural Government Hall and the office of Dr. Kamiya at Fukushima Medical University.

At OFC, I was mainly involved in reporting the situation surrounding Fukushima No. 1 nuclear power plant of the Tokyo Electric Power Company and sending a variety of data and information from individual organizations to the headquarters at the Medical Policy Office in a timely manner.

After transferring to Fukushima Medical University, I mainly engaged in taking physicians, medical technologists, nurses, clerical staff members as well as Dr. Kenji Kamiya of Hiroshima University to and from various destinations. In addition, I confirmed the daily schedule of activities, reported on activities, and dispatched simple

messages via e-mail. Every morning, I participated in meetings held at the disaster countermeasure office at Fukushima Medical University (participants: persons involved at Fukushima Medical University, physicians and nurses from Nagasaki University, as well as Self-Defense Force officials up to the midway point of the dispatch period) together with the staff of Hiroshima University, to share information. Moreover, I sat in on teleconferences held between the relevant locations at around 15:00 every day.

When the accommodation for physicians changed from a prefectural facility to a private hotel, they experienced a slight inconvenience concerning the parking lot, though it wasn't an insurmountable problem. At OFC, I caused staff members some trouble because at first I was not very good at the scanner operations.

I joined the activities for a temporary return home visit that was conducted in Kawauchi Village (dose measurement, provision of detailed explanations and advice, etc.), which was a very useful, personal experience. I would like to express my heartfelt thanks to all those involved at Hiroshima University, who since the outset of this disaster, have been unrelentingly committed to support activities from the perspective of the disaster victims, in spite of the unprecedented personal risks.



Meeting held at Fukushima Medical University each morning