

Chapter |

Fukushima Medical University Girds for Battle

The present compilation depicts victims' situations immediately after the earthquake, the treatment of evacuee patients, and the state of relief operations. This chapter also allows for the sharing of thoughts and feelings experienced at the time, including materials such as documentation of national and international aid, urgent guidance messages posted on Fukushima Medical University's special website, and the response within the university.

March 11, 2011 (Friday), 2:46 pm

Earthquake Occurrence

(Fukushima City, Seismic Intensity 5.5–5.9)

An earthquake struck at a level nobody had ever experienced before. FMU was in a tumult. Physicians and nurses worked together to lead patients to safety and stayed with those undergoing operations. They say the roof of the terrace swayed like a snake.

The Great East Japan Earthquake
March 11, 2011, 2:46 pm
Epicenter: Off the coast of Sanriku, seismic intensity up to 7
Largest seismic intensity felt in Fukushima: 6.0–6.4
Magnitude: 9.0
Complete loss of power at the TEPCO Fukushima Daiichi Nuclear Power Plant because of the massive tsunami.

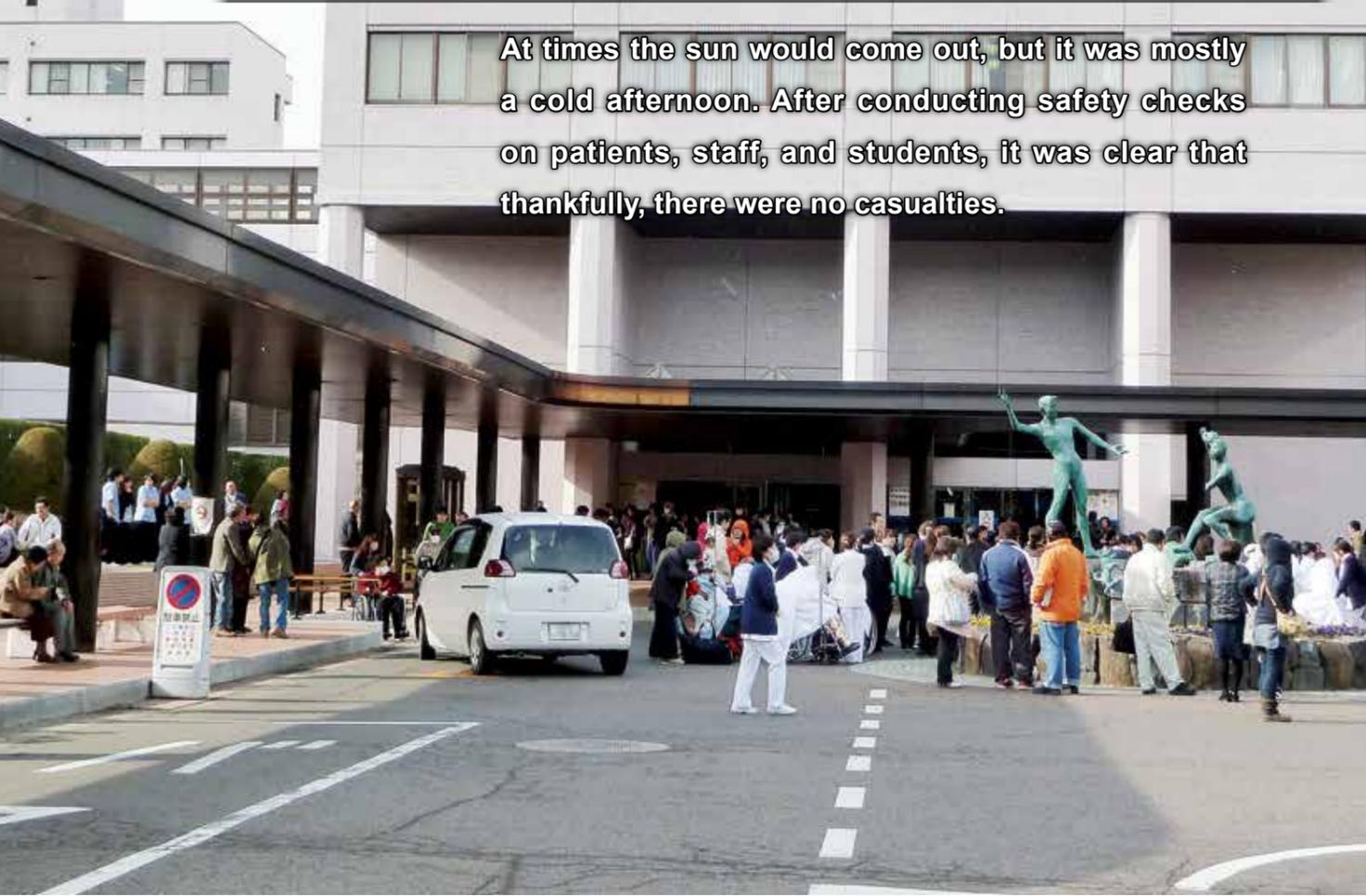


People dashed out into the driveway of the university hospital's outpatient facility.

Patients in the hospital wards: No Casualties

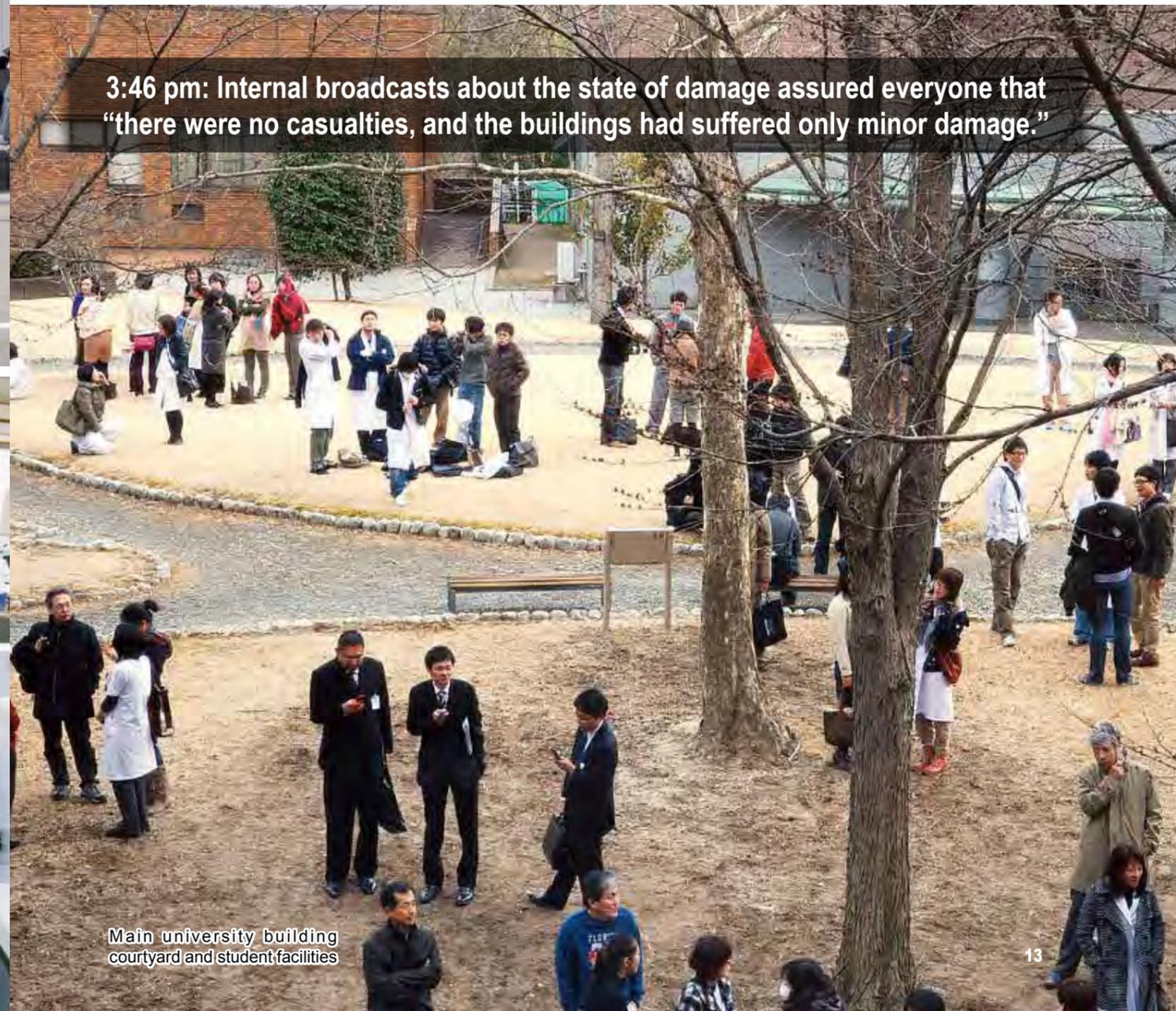
Gathering outpatients in the main entrance: No Casualties

At times the sun would come out, but it was mostly a cold afternoon. After conducting safety checks on patients, staff, and students, it was clear that thankfully, there were no casualties.



3:30 pm: Final decision to discontinue surgeries in progress. All patients shifted from their rooms and the ICU by 4:42 pm.

3:46 pm: Internal broadcasts about the state of damage assured everyone that "there were no casualties, and the buildings had suffered only minor damage."



Staff evacuating with only the barest necessities. Document files falling down in disarray after the shelf doors opened.



Planning and Financial Affairs Division on the third floor of Building 1 (Administrative Ward), right after the earthquake.

Main university building courtyard and student facilities



3:00 pm: Establishment of the Fukushima Medical University Disaster Response Headquarters in the Hospital Director's Office.



Dispatching coordinating physicians to the Fukushima Prefecture Disaster Response Headquarters.



First plenary staff meeting held amid the urgency at 9:30 pm on the 11th. The second meeting was held at midnight as the day turned to the 12th.



Photo taken on March 15

The Whole University Coming Together

Sharing information and addressing issues on a case-by-case basis.



Addressing the Nuclear Accident: Cooperation of the Prefecture and FMU.

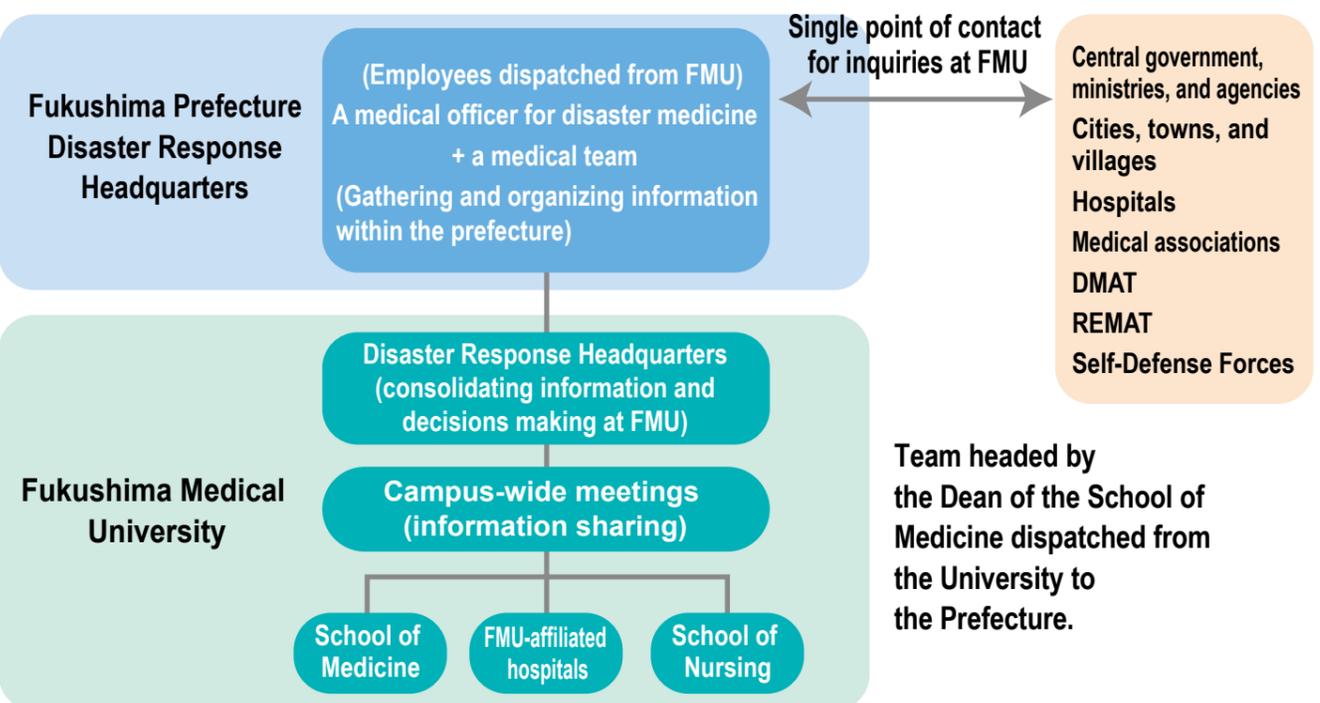
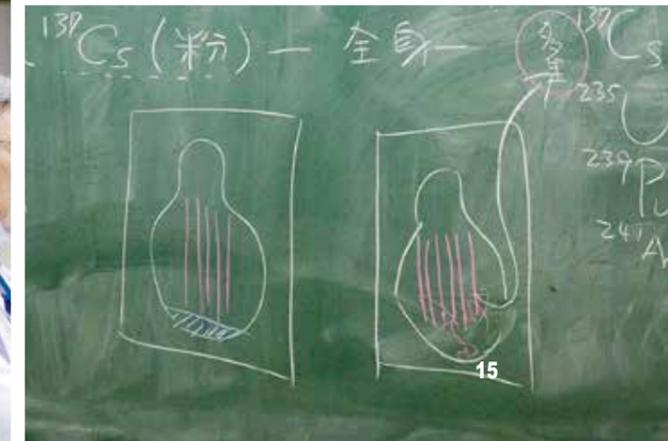


Photo taken on March 15

Plenary meetings held at 9 am, 3 pm, and 9 pm on March 12th and 13th. After this, the meetings continued to be held twice a day, and after some days, once a day. By April, they were held once a week, and by June, once a month.



15

3:30 pm: Dividing work among the physicians and nurses.

Verifying triage conditions and setting up the location



Preparing for intake by placing 33 beds in the main entry hall on the first floor.

Placing the stretchers, hot water bottles, and crash carts from every floor into the emergency outpatient area.



Change in Medical Care

Outpatient care specialized in seriously injured patients.

Running water outage four and a half hours after the earthquake.

Hospital functionality is already impaired.



Student volunteers compensate for the lack of manpower right after the disaster, helping with the transfer of inpatients and other tasks.





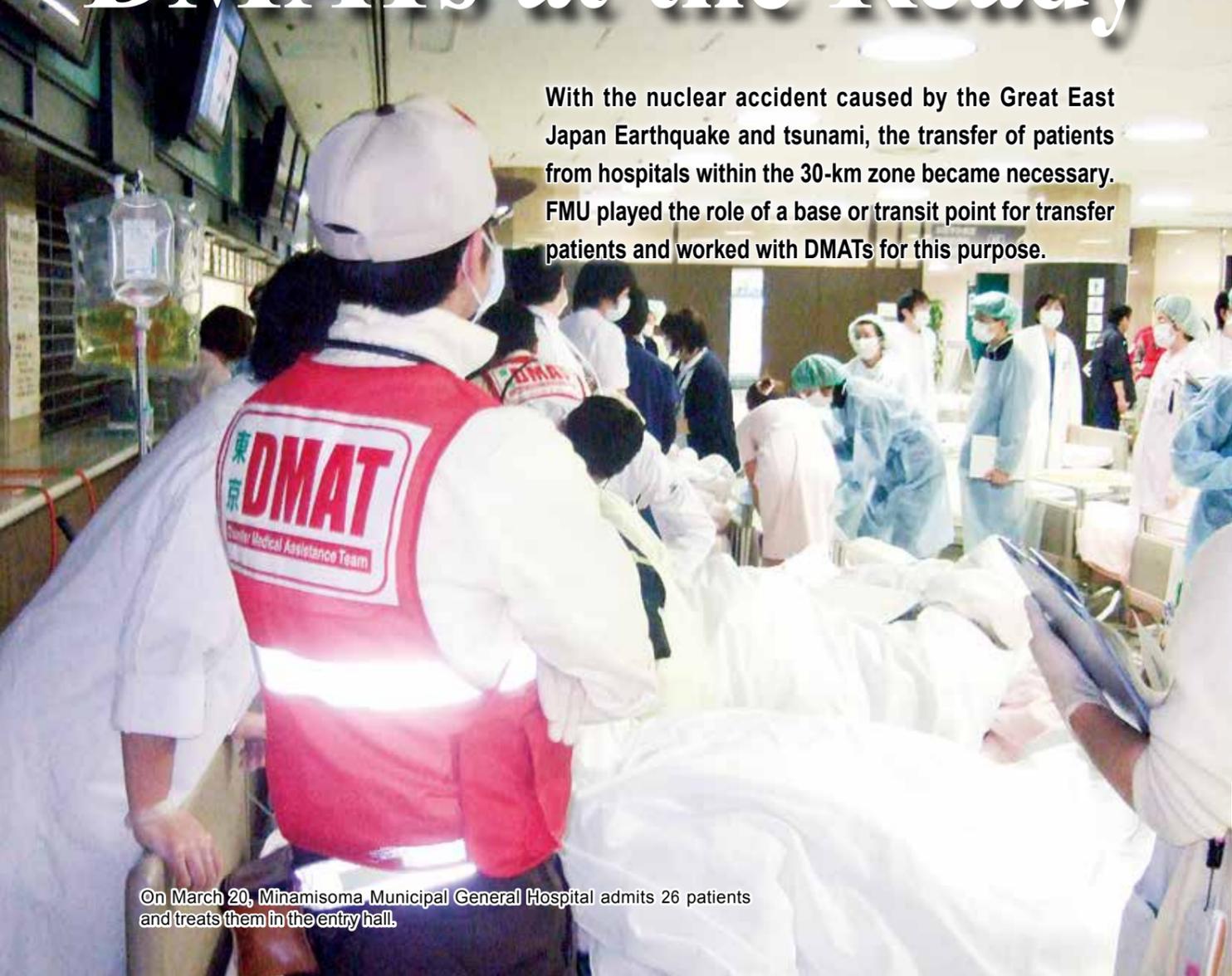
35 Disaster Medical Assistance Teams (DMATs) with 180 members gathering from across the country



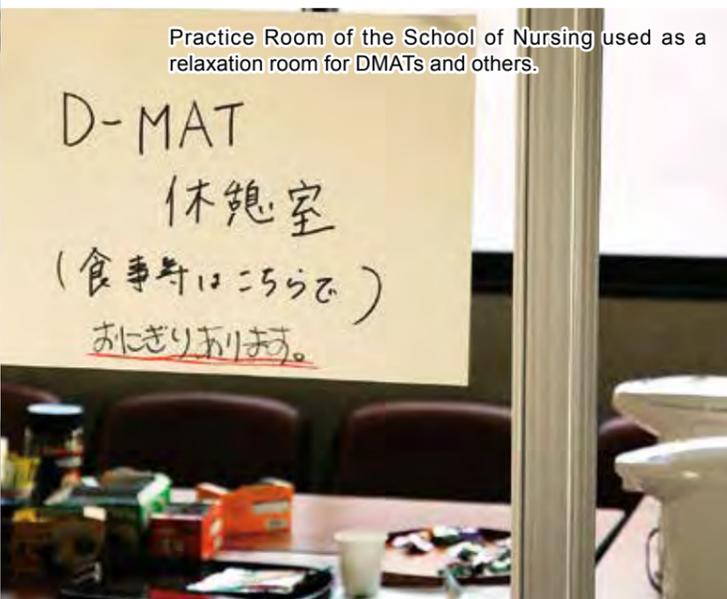
Field Command Headquarters of the Disaster and Fire Relief Team set up inside the hospital grounds.

Fukushima Prefecture's Management DMATs at the Ready

With the nuclear accident caused by the Great East Japan Earthquake and tsunami, the transfer of patients from hospitals within the 30-km zone became necessary. FMU played the role of a base or transit point for transfer patients and worked with DMATs for this purpose.

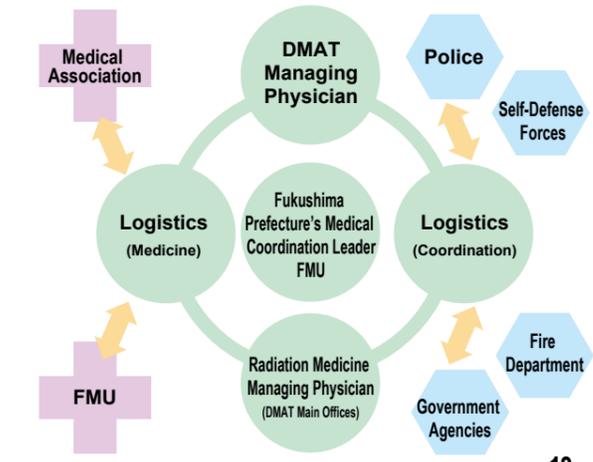


In the first three days, 168 emergency patients were treated (triage breakdown: 93 green, 44 yellow, 30 red, 1 black)



Practice Room of the School of Nursing used as a relaxation room for DMATs and others.

Survey Headquarters at the Prefectural Offices Managing DMATs Organization Chart



On March 20, Minamisoma Municipal General Hospital admits 26 patients and treats them in the entry hall.

March 12

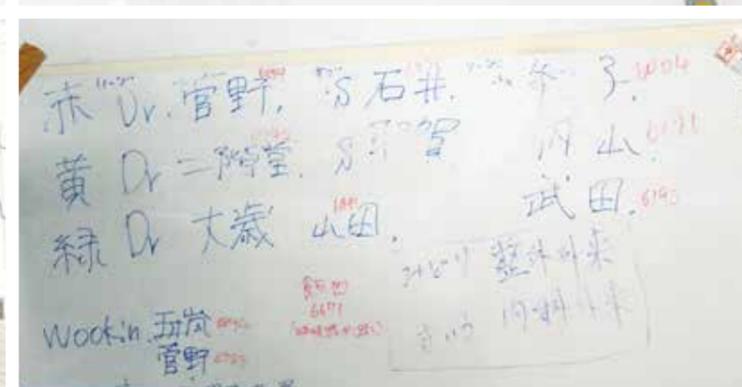
Requesting media stations to broadcast text reading
 “We are now only treating patients with serious injuries and have closed general outpatient care.”



The night of March 11, the hospital prepared for the arrival of an expected large number of trauma patients, but contrary to expectations, it was a quiet night with the normal amount of nighttime examinations.



After the earthquake at 3:46 pm on March 11, broadcasts informed everyone in the hospital that there were no casualties or major damage to the building and about the location of patient triage.

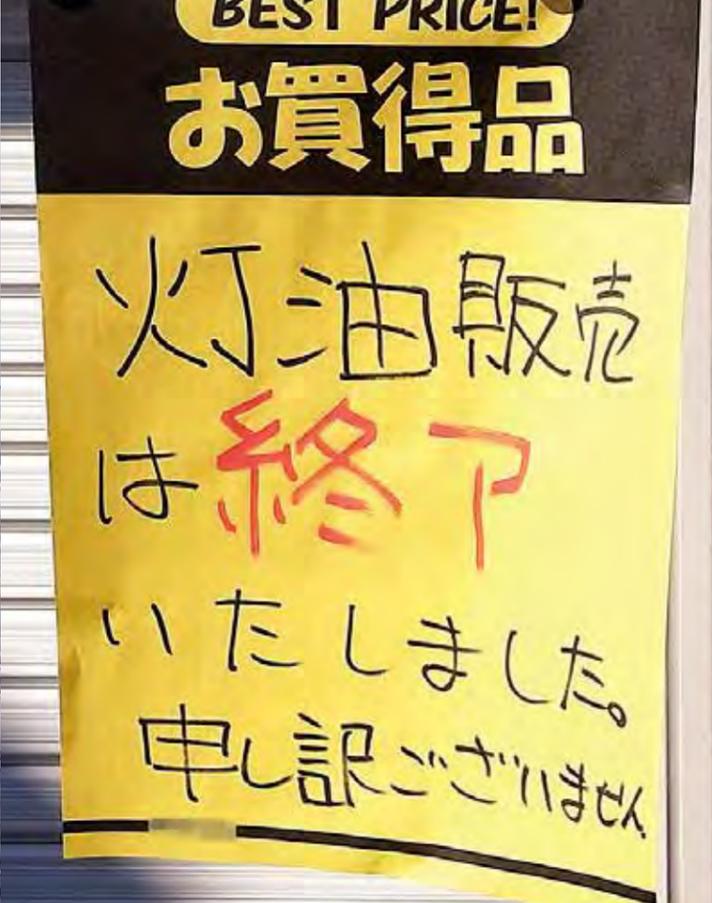


Temporary heliport, a field without nighttime lighting. We utilized the light from the headlights of DMAT and fire department vehicles and multiple projectors (March 13).

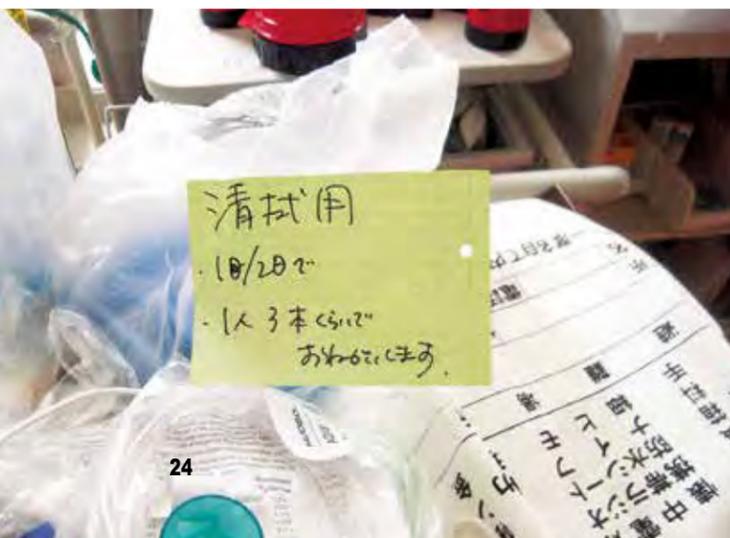
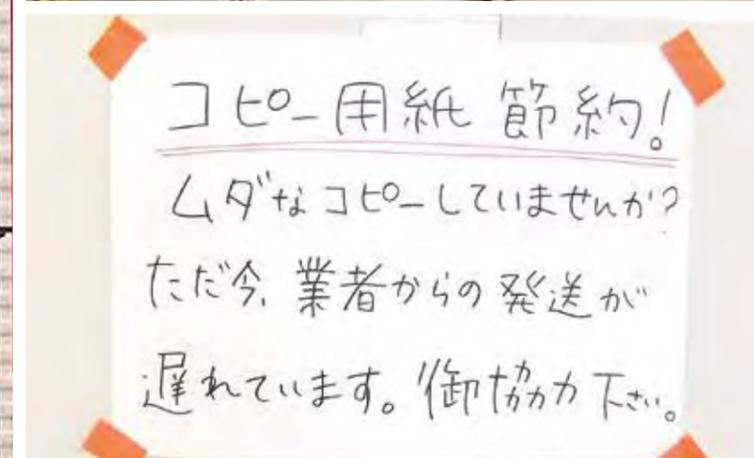
No Running Water or Fuel Supply



At the time of the water outage, the university had only a day's worth of water (about 700 tons) stored in its tanks. So, to avoid a long-term water outage, we stopped the water supply to the school and worked to thoroughly conserve water (aside from drinking water and medical lavage, use of water such as washing faces, showers, or cleaning toilets was restricted). This greatly disrupted the functions of the hospital, particularly dialysis, biochemical testing, sterilization and cleaning, and the preparation of food for patients. Running water was restored one week later, on March 18.



Empty shelves of the hospital's convenience store (March 13).



The university hospital's cafeteria could not provide meals after the disaster because of the water shortage. Rice balls and similar foods were sold; however, because of further water shortage, rice cookers and silverware could not be washed. Thus, the hospital cafeteria sold only ingredients to many people.

Nuclear Disaster Limitations of Science

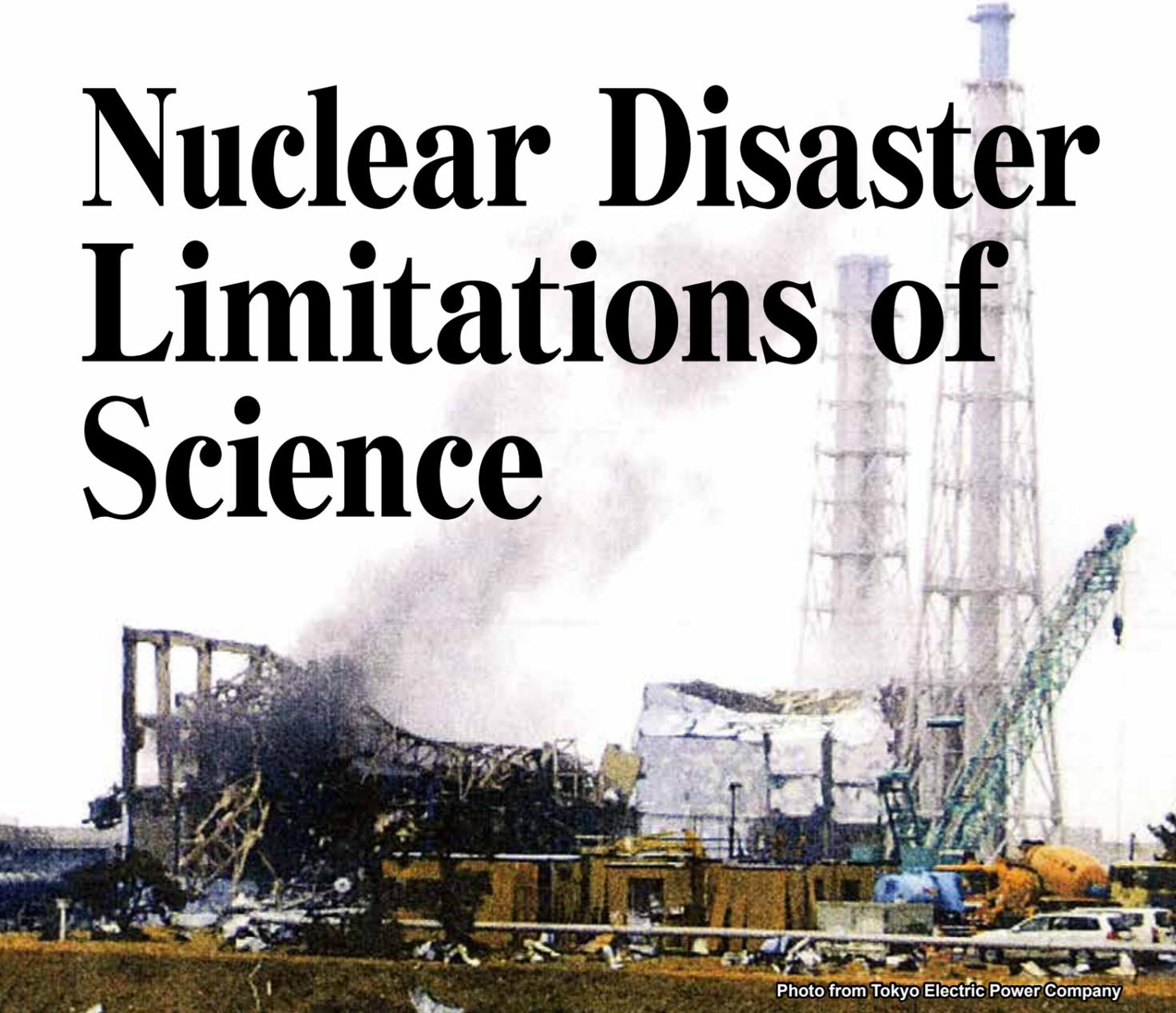
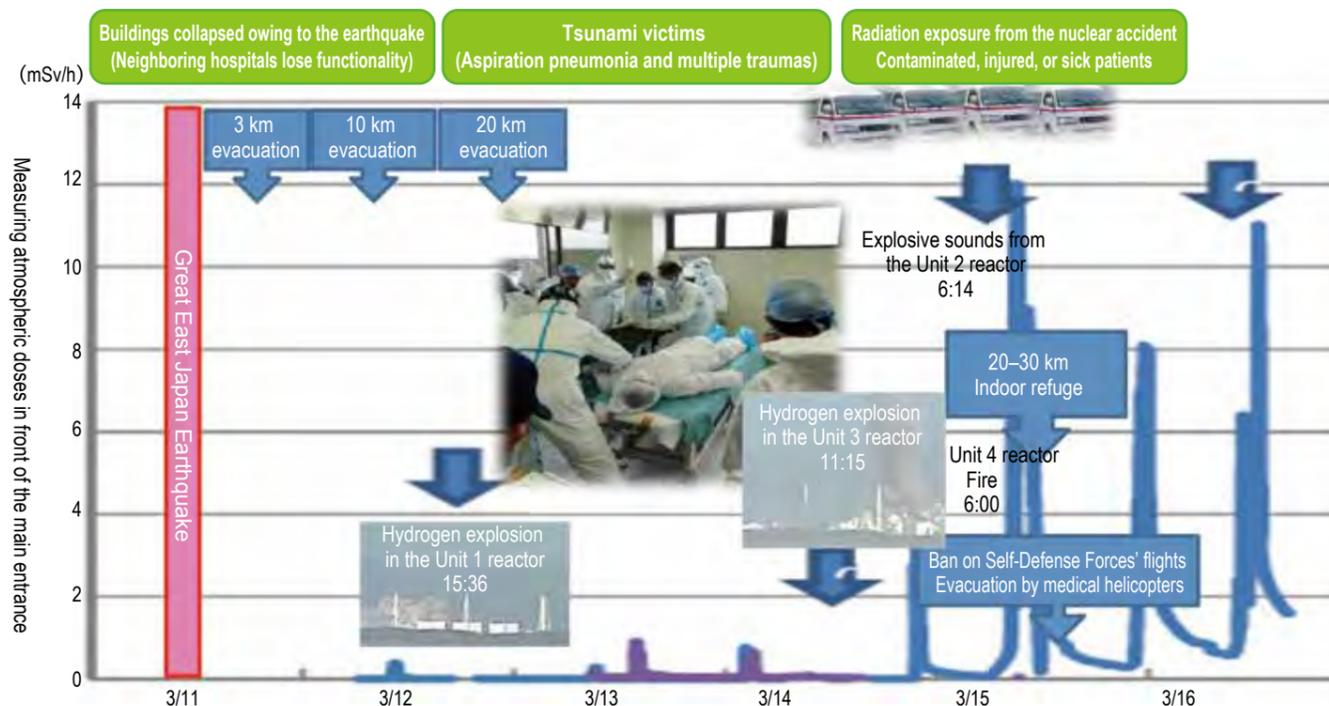
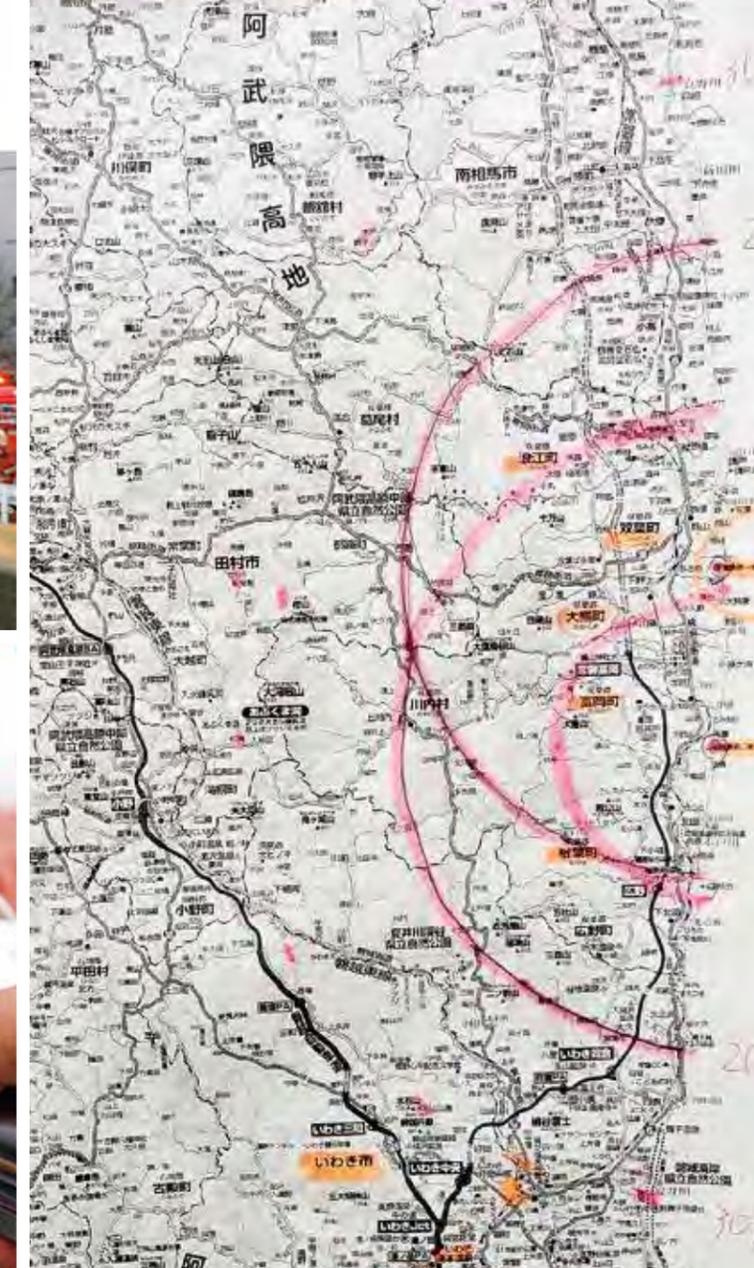


Photo from Tokyo Electric Power Company



Changes in the Hospital's Radiation Medical Care

- September 1999 JCO criticality accident
- March 2001 Opening of the Decontamination Ward at Fukushima Medical University Hospital
- March 2002 Fukushima Prefecture Emergency Radiation Medicine Liaison Conference
- May 2002 Formulation of Radiation Medicine and Care Manual
- May 2003 Fukushima Emergency Radiation Medicine Manual
- March 11, 2011**
Great East Japan Earthquake and tsunami
- March 14 Start of emergency radiation medical care in the decontamination ward
 - 1) Possible avulsion injury to left brachial plexus (Male, 42)
 - 2) Right foot contusion (Male, 23)
 - 3) Lower left leg contusion (Male, 34)
 - 4) Lower left leg contusion (Male, 47)
- March 15 5) Right thoraco-abdominal contusion (Male, 30)
- March 16 6) Possible radiodermatitis of the lower legs and internal radiation exposure (Male, 27)
- March 16 7) Possible radiodermatitis of the lower legs (Male, 34)
- March 16 8) Possible radiodermatitis of the lower legs and internal radiation exposure (Male, 32)
- March 16 9) Shingles (Male, 67)
- March 23 Decontamination Ward is renamed Radiation Emergency Medicine Ward
Publishing of Hospital Guide to Care for Patients Exposed to Radiation
- March 24 10) Possible internal radiation exposure (Male, 24)
- March 24 11) Possible internal radiation exposure (Male, 29)
- March 25 12) Possible internal radiation exposure and accidental ingestion of water from paddy field (Male, 31)
- April 15

Work toward the establishment of "communication" and "education"/Radiation Emergency Medical Teams (Universities of Nagasaki and Hiroshima)/Restructuring of hospital's radiation emergency medical system

Radiation Medical Care Began Abruptly

Hydrogen explosion in the nuclear reactor building Unit 3 reactor
Person injured by a piece of concrete from the reactor building
within the premises. Details unspecified. Emergency transfer to
Fukushima Medical University Hospital.
Radiation exposure and emergency departments collaborate to
treat him, consulting the hospital manual.



JAEA surface contamination testing bus and JAEA shower bus

Secondary medical facility for nuclear disasters

Decontamination tent



March 12 onwards

Request from the prefectural disaster response headquarters to admit inpatients from hospitals within the mandatory evacuation zone

Intake of patients transferred from evacuation zones began from the evening of March 14 to the early morning of the 15th



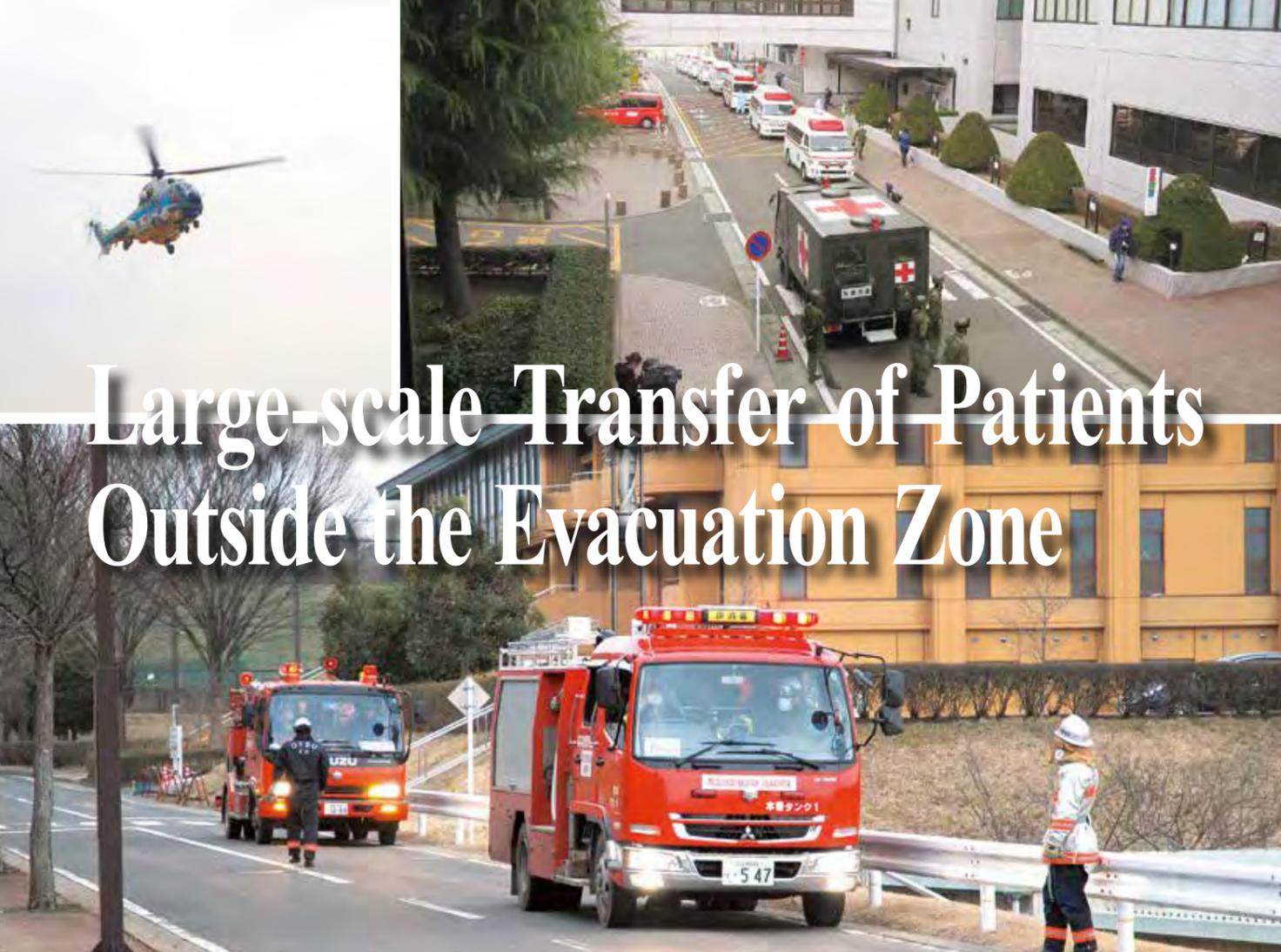
Self-Defense Forces' vehicles completed the transfer of patients from hospitals in the evacuation zone

Waiting for patients being transferred by Self-Defense Forces' helicopters. The university hospital shift systems from the intake of trauma patients to that of patients from the nuclear evacuation zone.



Line of ambulances transferring patients from different places

Large-scale Transfer of Patients Outside the Evacuation Zone



FMU became the center and transfer point for patients transferred to other areas within and outside Fukushima Prefecture. Patients were temporarily taken in. Patients who could not be easily transferred were hospitalized.



Transfer of patients and long-term care of patients during the disaster

— importance of a university hospital's functions as a hub —
Prefectural Disaster Response Headquarters and the Medical Group of the University Hospital



The first-floor lobby filled with temporary beds. Verifying the condition of patients taken in, performing necessary operations, and determining whether transfer or hospitalization is required.



Triage at the Main Entrance

From March 14 to 24, nurses and administrative staff stood at the hospital entrance, stopping cars to explain that we were limiting outpatient consultations and visitors and performing on-the-spot triage to determine the necessity of medical care.



The number of hospitalized patients who had temporarily evacuated from the disaster area increased and outpatient nurses entered the wards for support, shifting patients' body positions, and assisting in meals.



Radiation check at the main entrance



Care for outpatient internal medicine

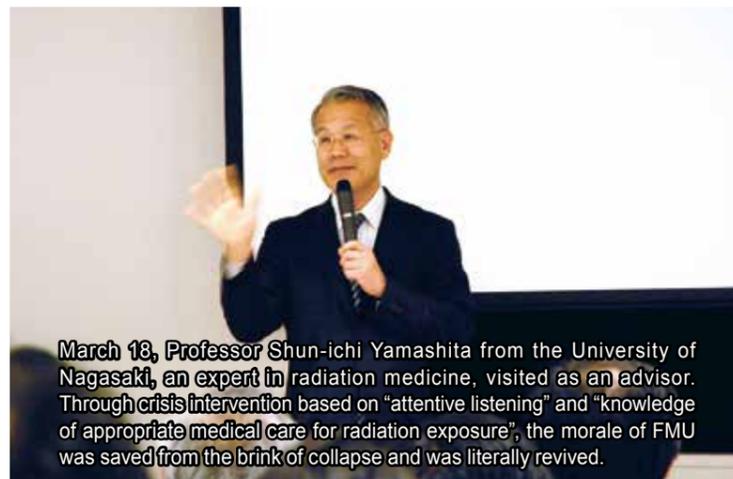
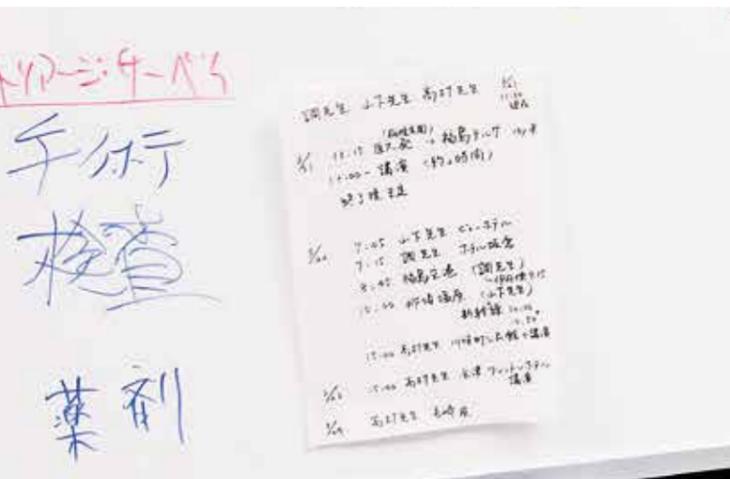


Support from the Sites of the Atomic Bomb Attacks

REMATs Arrive at the Hospital



March 15: Hiroshima University and Nagasaki University from a joint REMAT team.



March 18, Professor Shun-ichi Yamashita from the University of Nagasaki, an expert in radiation medicine, visited as an advisor. Through crisis intervention based on "attentive listening" and "knowledge of appropriate medical care for radiation exposure", the morale of FMU was saved from the brink of collapse and was literally revived.



Table1. Radioactivity in Beach sands (Bq/g)

	Tamil Nadu				Nagasaki		
	M0	M1	M2	M3	BSS	YBS	
Thorium series							
1	Ac-228	7.54	35.40	26.90	40.80	0.00584	0.00368
2	Th-228	14.00	38.60	33.70	43.70	N.D.	N.D.
3	Ra-224	7.91	33.90	22.70	37.40	N.D.	N.D.
4	Pb-212	8.43	35.10	23.70	38.70	0.00619	0.00408
5	Bi-212	8.69	40.30	25.90	40.20	0.0133	N.D.
6	Tl-208	2.38	11.00	7.17	11.50	0.00139	0.00106
Uranium series							
7	Pa-234m	2.91	12.20	12.50	15.90	N.D.	N.D.
8	Ra-226	1.65	5.69	3.92	9.34	0.0787	0.0461
9	Pb-214	1.20	4.81	2.85	4.66	0.00467	0.00372
10	Bi-214	1.08	4.34	2.90	4.53	0.00525	0.00358
Actinium series							
11	U-235	N.D.	0.19	0.15	N.D.	N.D.	N.D.
12	Th-231	2.60	7.19	6.28	8.12	N.D.	N.D.

吉田ら、日本放射線影響学会(2009,広島)

Early-Stage Support Actions for Emergency Radiation Exposure Care in the Areas Affected by Atomic Bombing

On March 15, in the early stages of conflicting reports about the nuclear accident, Radiation Emergency Medical Assistance Teams (REMATs) from Hiroshima University and Nagasaki University arrived at Fukushima Medical University (FMU) by Self-Defense Force helicopters. That day, those within a 20-kilometer radius of the nuclear power plant were ordered to evacuate as the air radiation dose rate in Fukushima City suddenly increased. Even after orders were issued to stay indoors for those in the 20–30 kilometer area, there was still a dearth of information about the nuclear power plant crisis. Moreover, with limited outside aid, the evacuation zone was at the mercy of contradictory information on disaster management; for example, the conflicting advice about taking iodine tablets. There was no water, and amid the vortex of anxiety and chaos, FMU was gradually left to hold its own. Around this time, people exposed to radiation from the nuclear power plant were transported to FMU. With the help of REMAT, the Self-Defense Force, and Japan Atomic Energy Agency (JAEA), we arranged for radiation measurement vehicles and decontamination tents in the cold, and began the process of creating a manual for treating multiple patients exposed to radiation. But, even at this time, there was absolutely no communication about the decisions medical facilities and public agencies were making during the nuclear crisis. I was contacted by a Nagasaki University professor who had come in support, stating if the government is in a mess and cannot get anything done, we should do what we can as a university with experience in radiation exposure medicine.

On the night of March 17, I was directly requested over the cell phone by President Shin-ichi Kikuchi to provide help. On the 18th, I landed at Fukushima Airport, which was in chaos not because people wanted to enter the city, rather they were trying to rush out. The roads and towns were deserted, but a long line of cars stretched out from the only operational gasoline station. Everybody in the director's office at the Disaster Response Headquarters looked fatigued due to the strenuous week. Grasping accurate information on the overall state of damage was difficult. In this situation, I talked with the executives about the necessity of fulfilling our greatest responsibility of providing medical care to the community and our domestic and foreign experiences with nuclear accidents. At night, I interacted with hospital employees and an expert from Nagasaki University about treatment for radiation contamination. Because all of Japan's support was indispensable, we contacted University President Shigeru Katamine, who with incredible speed facilitated an academic exchange agreement. The agreement was signed on April 2 between FMU, Nagasaki University, and Hiroshima University. The same day, representatives from national research committees gathered at FMU to deliberate the effects of radiation and promised their full support. At first, the myth of nuclear safety delayed government responses, mostly because of lack of information and understanding. However afterwards, a plethora of information and ideologies caused confusion among the people. We must now reconstruct a relationship of trust between medical professionals and society. Colleagues who provided support in the early-stage treatment of radiation exposure at FMU, helped create the Radiation Disaster Medicine Center and continue to feverishly work on health consultations.

(Shun-ichi Yamashita, Vice President, Fukushima Medical University)



Smiles Bringing Us Together

助け合おう、日本。
がんばろう、東北。
がんばるぞ、福島!

福島医大病院・心身医療科
福島医大・神経精神医学講座
東北関東大震災・福島医大・こころのケア・チーム

心のケアボランティア
Center

The Day of the Earthquake

March 11, 2011 (Friday) 2:46 pm: I was in my room on the fifth floor of the department of otolaryngology in the clinical research ward when I felt a tremor I had never felt before. Immediately after, books began to fall off the bookshelves and one of the bookshelves looked like it was going to topple over, so I had to hold it back. I opened the door and rushed into the hallway, trying to find an escape route, when I heard what sounded like water gushing from a broken water pipe in the classroom next-door. From another direction, I heard the whistling sound of escaping gas. But the otolaryngology laboratory did not seem to have a water or gas leak. The tremor continued for five or six minutes and it felt like the building would break in half and fall over; so I decided to exit the building along with the other people around me. When descending to the first floor and looking up from the courtyard, the building shook with every aftershock.

I headed straight to the hospital president's office. Although the president was not there, a vice president was. The hospital immediately set up an Emergency Medical Response Headquarters in the hospital president's office without notifying him. The room did not have a TV, which we desperately needed because it is the fastest means of acquiring information. So we had one brought in and connected it from another room. The director of hospital management, director of nursing, university facilities director, and others first sought to gather information about the safety of inpatients, outpatients, and staff, and the damage to the hospital facilities. They listed all visible damages on a large sheet of paper. They found cracks in the outer walls, water leaks, broken ceilings, cracks in the floor, and fallen air conditioning vents, but thankfully there were no casualties. The elevators stopped but fortunately nobody was trapped inside them. As the aftershocks continued, we led inpatients to the hospital rooms and outpatients outside. With the help of many staff members, we carried inpatients into the hospital on wheelchairs and stretchers. Because of the frequent aftershocks, we instructed all surgeries to stop as soon as possible; all surgery patients had safely left the hospital that evening. At 3:46 pm, the hospital reported no casualty or major damage to the buildings, the state of the hospital's lifelines, and locations to conduct triage for emergency patients.

At 6:30 pm, three assistant hospital directors, an emergency department physician, and the hospital's director of operations held a meeting in the Disaster Response Headquarters to discuss future actions. We verified that we still had our electricity and gas supply, but had lost our drinking water supply. At 9:30 pm, we had a plenary meeting with the hospital department heads. We reported on the state of damage to the hospital and its utilities, made collective decisions about immediate steps to be taken, and discussed each department's backup systems. At midnight, we had our second plenary meeting. Here we decided on our primary, secondary, and tertiary emergency medicine systems, locations to conduct triage, and persons to be assigned in charge. We also decided to close outpatient care for the next week, suspend scheduled surgeries, and cancel hospitalizations scheduled for the Sunday. By this time, we had heard that the water levels at the Fukushima Daiichi and Daini plants had stabilized and there was no danger of radiation leakage. Being a core emergency response hospital, 35 Disaster Medical Assistance Teams (DMATs), with about 180 members, gathered at our hospital and then moved to Iwate and Miyagi Prefectures over the next few days.

"Disaster Medicine during the Earthquake, Tsunami, and Nuclear Accident: A University Hospital on the Front Line"
Koichi Omori, Vice President, Fukushima Medical University Hospital
From: Japan Society for Head and Neck Cancer, "Briefing Session on the Great East Japan Earthquake and Tsunami," June 9, 2011.

Fukushima Medical University: Disaster Webpage (http://fmu.ac.jp/index_shinsai.php)

Faced with the Great East Japan Earthquake, Fukushima Medical University (FMU) is working head-on toward the relief of the people of Fukushima and will continue to fight for them. From the day of the earthquake, we have posted information about the safety of hospitalized patients on our website and have shared precise information about their changing conditions.

2011.3.11

• Condition of Patients Hospitalized in the University Hospital

We have verified the safety of patients hospitalized at the university hospital in response to today's earthquake.

• Postponement of Second Semester Examinations

The FMU School of Medicine and School of Nursing have postponed second semester examinations because of the earthquake. No exams will be administered on Sunday, March 13.

The date of administration has not been decided yet, but will be posted on the homepage as soon as it is decided. For more information, please contact the Student Affairs Office, Entrance Examination Division, at 024-547-1093.

2011.3.12

• Consultation at the FMU Hospital

The Fukushima Medical University Hospital is currently working at capacity to treat patients with serious conditions. We kindly request all those with mild conditions to refrain from coming for consultation at this time.



2011.3.13

• Academic Year 2010 Fukushima Medical University School of Nursing "Clinical Education Conference"

Because of the earthquake off the Pacific coast of Tohoku on Friday, March 11, the "Clinical Education Conference" scheduled at the school for Wednesday, March 16 at 1:30 pm has been canceled.

We are not planning to reschedule the conference.

We will be contacting clinical faculty separately and on a later date for meeting about 2011 clinical programs.

2011.3.14

• Notice of Change in Date of the Conditional General Competitive Bid (Affecting Six Contracts)



● To Patients Visiting the FMU Hospital

The hospital is currently only seeing patients with serious conditions.

As a rule, we are not seeing general patients, including patients with appointments.

Patients from the disaster area can purchase necessary medication at pharmacies without the need for a physician's prescription.

Thank you for your cooperation with our disaster medicine procedures.

● Cancellation of FMU's Second-Stage Scheduled Examinations

To All Prospective Students

Because of the earthquake and tsunami, we have decided not to hold the scheduled FMU-specific second-stage general entrance examinations for the School of Medicine and School of Nursing. Instead, we will be selecting admitted students on the basis of results from the National Center Test for University Admissions and letters of recommendation.

The examination numbers of successful applicants will be displayed on the school campus and on our homepage, and successful applicants will be notified by mail.

We will also be taking phone calls only from applicants affected by the earthquake or their guardians.

- Notice of Results Time: Approx. 10:00 am, Sunday, March 20

Location of Posting: School of Medicine: Bulletin Board in front of the School of Medicine Lecture Building

School of Nursing: Bulletin Board in front of the School of Nursing Building, and by Telephone

Thursday, March 24 to Friday, March 25, 9:00 am to 5:00 pm (Review of contents of application materials)

Enrollment procedures, etc. will be carried out as initially scheduled. Students who cannot complete them by the scheduled deadline should notify us as soon as possible.

- Enrollment Procedures: Tuesday, March 22 to Friday, March 25
- Admission after Withdrawal: Monday, March 28 to Thursday, March 31

Please contact: Entrance Examination Division, Student Affairs Office, Fukushima Medical University, 1 Hikarigaoka, Fukushima City 960-1295

● Cancellation of Diploma Ceremony

We have canceled the diploma ceremony because of the earthquake.

We apologize for any inconvenience this may cause those planning to attend the ceremony, but we kindly ask for your understanding and cooperation.

● Notice of Postponement of Orientation for New Employees of Fukushima Medical University

● Notice of Cancellation of Kick-Off Seminar for the "Fukushima Medicine and Industry Liaison Support Center"

2011.3.16

- The date of the Conditional General Competitive Bid (Affecting Six Contracts) has been postponed indefinitely.

2011.3.17

● To All Those Planning to be Admitted as 2011 Clinical Residents

Fukushima Medical University Hospital is working hard together with related hospitals to prepare for the start of clinical residencies on April 1!

*We will individually send notifications by e-mail.

● Fukushima Medical University's Response to the March 11 Earthquake and Subsequent Disasters

2011.3.18

- We have created a disaster emergency mobile website for those who cannot use PCs. Now you can view information posted since the date of the earthquake on your cell phone. (<http://www.fmu.ac.jp/univ/m/>)

● Notice of School Closure and Schedule for 2011 Entrance Ceremony

We are addressing the nuclear power plant accident and earthquake off the Tohoku coast with the following changes in schedule.

1. School closure through the end of April 2011
2. Entrance Ceremony
Date and Time: 10:00 am, Friday, May 6, 2011
Place: University Lecture Hall
3. Start of New Semester: Monday, May 9, 2011

*The above information will be posted on the school homepage (<http://www.fmu.ac.jp>) on March 18.

● Further Postponement of the Orientation for New Employees of Fukushima Medical University

2011.3.20

● Notice of Posting of Examination Numbers of Successful Examinees of the School of Nursing First-Stage Scheduled Examination and School of Medicine Second-Stage Scheduled Examination

The examination numbers of successful examinees are listed on the bulletin board in front of Building 8 on the campus, and successful examinees will be notified by mail.

Please also see the announcement on the homepage for your reference.

2011.3.21

● To Those Seeking Consultation from the FMU Hospital

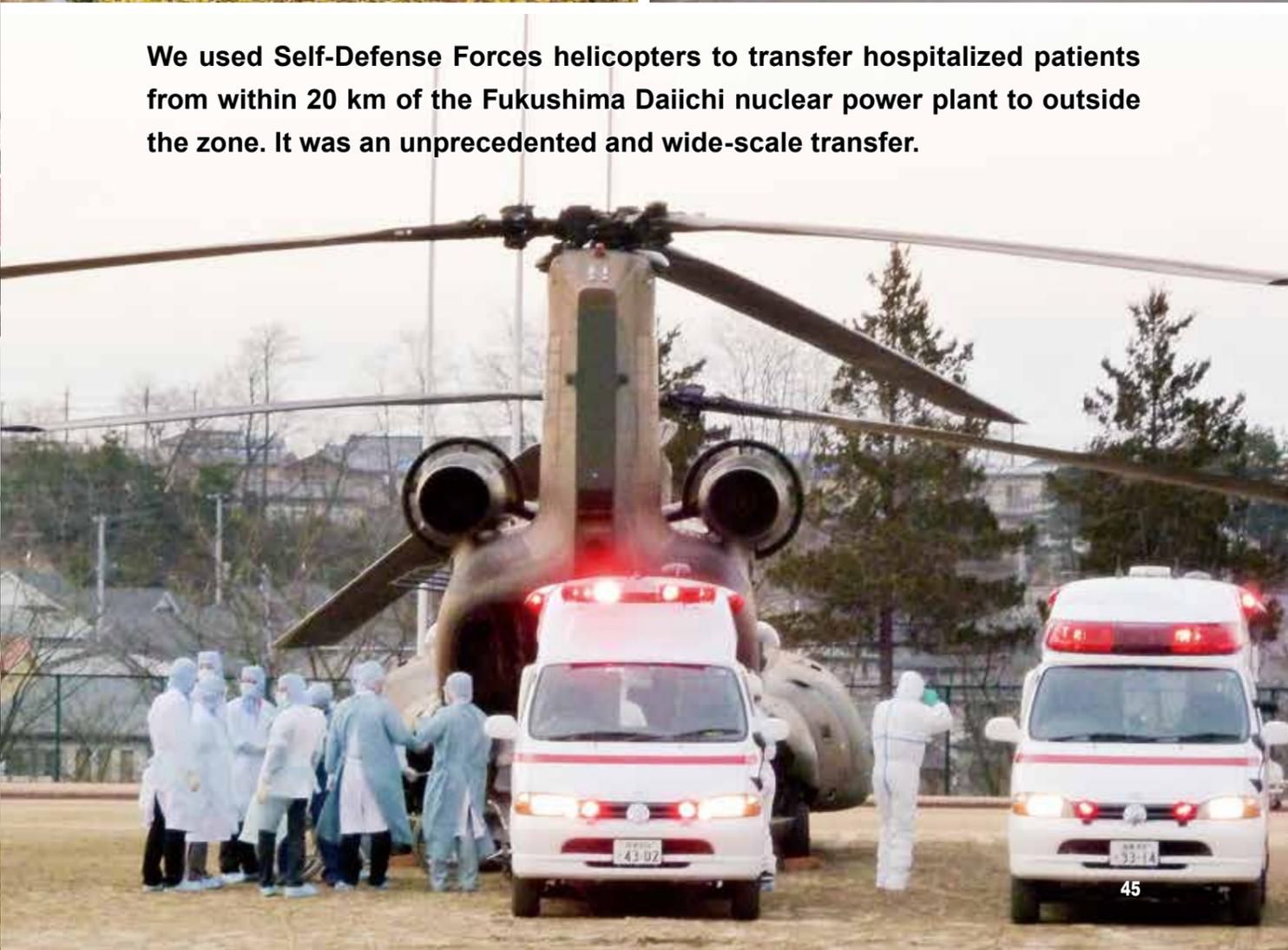
From March 22, the Fukushima Medical University Hospital will be seeing outpatients only in the following internal medicine departments.

At the moment, we will only be seeing patients with appointments in the following internal medicine departments:

Cardiology, Hematology, Gastroenterology, Rheumatology, Nephrology & Hypertension, Diabetology, Endocrinology & Metabolism, Neurology, Pulmonary Medicine, Pediatrics, Neuropsychiatry, Radiology, and Obstetrics.



We used Self-Defense Forces helicopters to transfer hospitalized patients from within 20 km of the Fukushima Daiichi nuclear power plant to outside the zone. It was an unprecedented and wide-scale transfer.

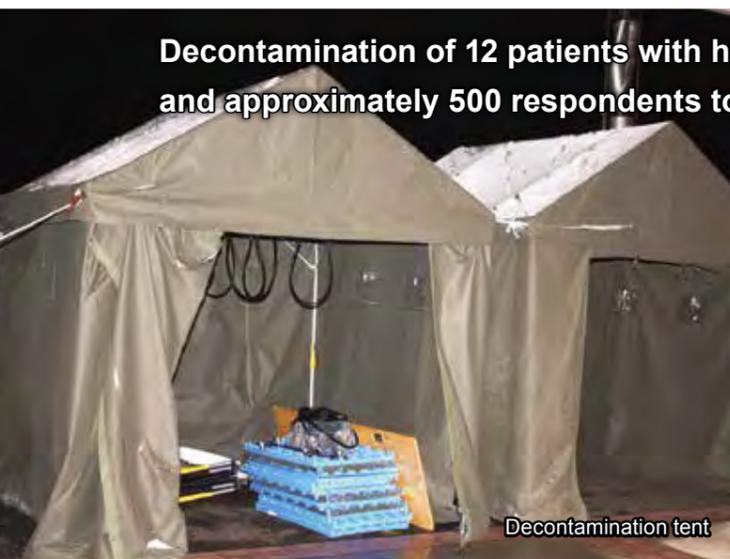




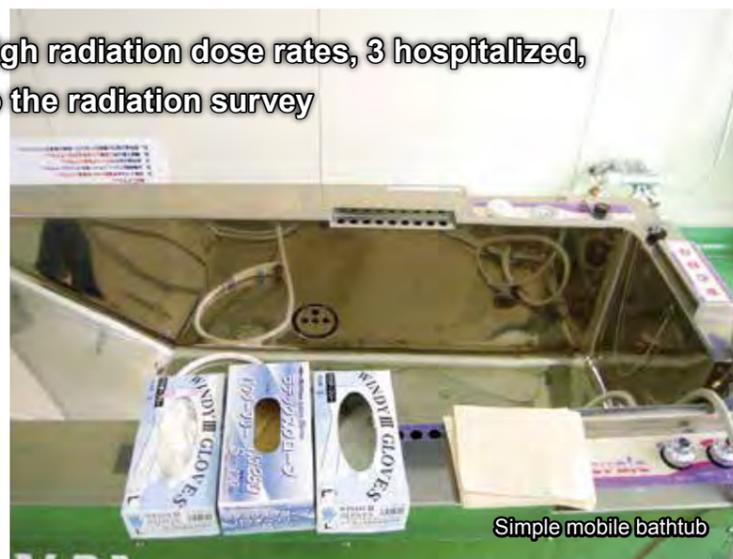
Securing Decontamination Functionality, Implementing Radiation Protection and Contamination Containment Measures

Addressing the Nuclear Accident

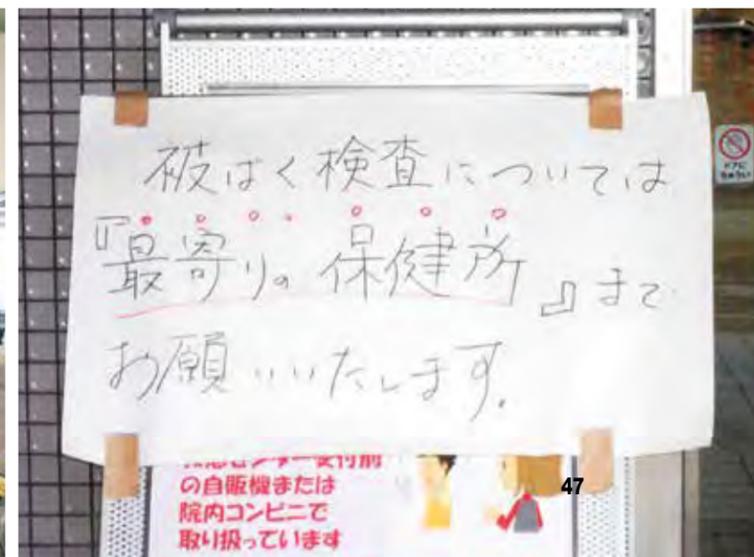
Decontamination of 12 patients with high radiation dose rates, 3 hospitalized, and approximately 500 respondents to the radiation survey



Decontamination tent



Simple mobile bathtub



Medical Teams Performing Consultation Visits

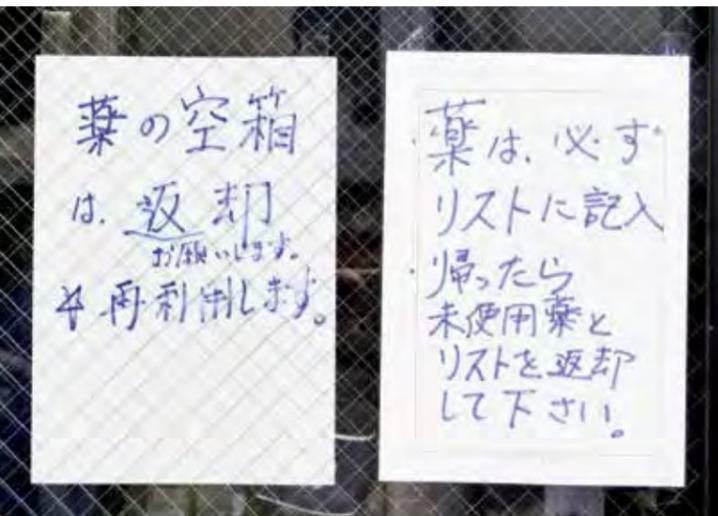


As it was difficult for the mental health team to take up mental health issues from the beginning, they also fully cared for patients complaining of physical symptoms.

On March 28, we dispatched a medical team composed of physicians from departments such as Internal Medicine and Pediatrics to support the medical facilities in Iwaki, whose medical infrastructure was greatly weakened by the disrupted delivery of pharmaceuticals caused by harmful rumors related to the accident at the Tokyo Electric Power Company's Fukushima Daiichi nuclear power plant. The team cared for the medical needs of the elderly and children, and treated contagious diseases.



Experiencing the Extent of the Disaster Once Again



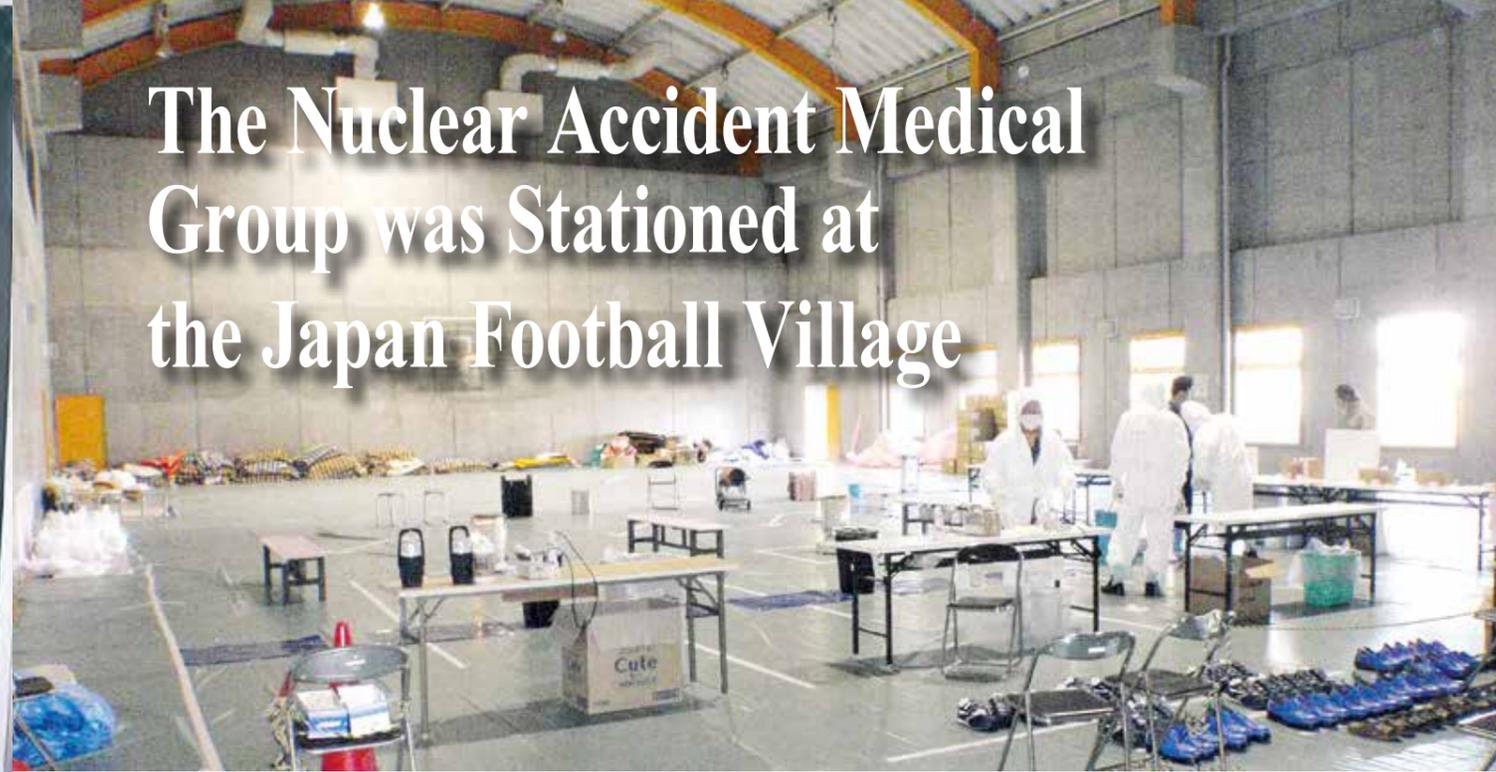
Inside a bus headed toward the Iwaki area



Even people who seemed not to have any problems at first, revealed after polite questioning that they were burdened with many problems.



The Nuclear Accident Medical Group was Stationed at the Japan Football Village



心のケア
チラシ
自由におとり
下さい
↓
こころの健康相談
ダイヤル
0570-064-556
心の相談緊急電話

医療チームの
巡回サービス
日時: 4/13(水)
13:30~15:00
場所: 各部屋を回ります。
医療チーム: 福島県立
医科大学
小児科・眼科・耳鼻科
感染症関係 (計6名)
担当: 上田氏 (TEL 024-547-1013)

High-level Medical Emergency Support Team

Target	Evacuation centers, etc. (the range of activity was expanded to include all of Fukushima Prefecture)
Structure	<ul style="list-style-type: none"> Four support teams examined for high-risk cases of deep vein thrombosis, cardiovascular disease, mental health, and pediatrics and contagious disease. The evacuation center's health support team supported the work of community nurses in the evacuation centers. The consultation team provided telephone consultations with specialists capable of responding to difficult cases of conditions such as brain disease, heart disease, respiratory disease, diabetes, and kidney disorders. The expert advice team provided expert guidance from FMU about preventing contagious disease in the evacuation center, and about other topics.
Activities	<ul style="list-style-type: none"> Local medical associations and the Japan Medical Association Team (JMAT) used health center information to provide care for high-risk conditions that could appear in long-term evacuation settings, refer patients to specialist hospitals, and assist in patient transfer. By the time the deep vein thrombosis medical team completed its activities on May 11, they had tested approximately 2,200 people, about 10% of whom showed blood clots. A medical team from the Kingdom of Jordan (two vascular surgeons and two nurse ultrasonographers) also joined from April 25. Until they completed their activities on June 2, the pediatrics and contagious disease team had visited 31 evacuation centers across the prefecture, giving advice about managing infant health and other topics. Medical teams from the Kingdom of Thailand (two physicians and two nurses) also joined from May 9. The cardiovascular disease team completed its activities on April 7. The mental health team continued to operate through March 2012.



Following the accident at the Tokyo Electric Power Company's Fukushima Daiichi nuclear power plant, the Japan Football Village was completely shut down as a sports facility on March 15, 2011 and was turned into a base for the national government's efforts to address the nuclear accident as well as an important medical base. Located 18 km south of the Fukushima Daiichi nuclear power plant, it is a radiation decontamination spot for Self-Defense Forces helicopters and troops as well as an entryway for all workers to pass through to reach the disaster area.



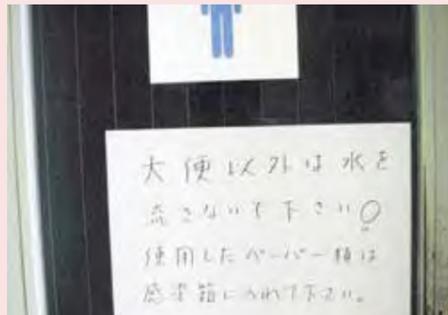
Support Team for the At-home Patients in the 20-30 km Zone

Target	At-home residents
Structure	Fukushima Medical University's Department of Community and Family Medicine, Nagasaki University, the Nagasaki Medical Association, the Group of the Self-Defense Forces, nurses from Minami Soma Municipal Hospital, and others
Activities	Until the completion of activities at the end of June, approximately 150 patients in the refuge zone were visited and provided with medical care.



Two Weeks after the Earthquake

Over three days we had a total of 168 emergency patients, of whom 93 were tagged green, 44 yellow, 30 red, and one black. Most of the patients were from the Hamadori area. The disrupted water supply affected the hospital's functionality. We could not conduct dialysis, biochemical testing, sterilization, and irrigation. Moreover, we could not cook for patients, use the toilets, or wash our hands. Dialysis patients with serious problems were transferred by ambulances and buses to hospitals in other prefectures, such as the University of Tokyo Hospital. We realized the need for emergency medical supplies that could be used without water, such as replacement fluids for hemofiltration. On March 25, we received intake information about patients with head and neck cancer under the names of the directors of the Japan Society for Head and Neck Cancer and Japan Society for Head and Neck Surgery. Ohta Nishinouchi Hospital in Koriyama City used this system to send over head and neck cancer patients. We thank them for their timely and appropriate support.



The hydrogen explosion in the nuclear power plants caused the evacuation of many Hamadori residents. One after another, ambulances and helicopters from the Self-Defense Force, support ambulances from municipalities across the country, and buses came for the patients hospitalized in Hamadori hospitals. Since the telephone lines were down, we lacked precise information about whether patients would come or if they were already in the hospital and their time of arrival; however, satellite phones worked flawlessly. Our hospital set up beds in the waiting area by the main outpatient entrance and the nursing department so that several patients could easily be taken in when they arrived; patients came in the middle of the night and in the early hours of the morning. Fourteen hospitals in the Iwaki and Soso areas had about 1,300 patients to transfer, of whom 175 patients were for triage and 125 for hospitalization. A radiation survey was also conducted on about 500 people due to the dispersal of radioactive material from the nuclear power plant. Our hospital is a secondary emergency medical response facility for radiation exposure; thus, it has equipment for decontamination and measuring internal radiation exposure. However, because we only have one piece of equipment that cannot accommodate many people at once, we also had Self-Defense Force tanks and decontamination vehicles parked outside. In addition, we had many radiation experts and REMATs come from Hiroshima University and Nagasaki University.

For one week, employees could not use the baths and had to sustain themselves with rice balls, instant noodles, and bottled tea. The convenience stores and supermarkets in town were sold out of goods. Moreover, because we did not have gasoline, we could not go too far to buy goods and commuting otherwise was difficult. We had just enough stock to suffice the patients' food intake. The food prepared for the patients tasted delicious, and food testers were the only employees lucky enough to consume it. On Friday, March 18, our supply of drinking water was restored. Upon hearing this, everybody cheered in the middle of a lecture. We were able to endure the situation without stepping back from the front line. Had the water supply taken another three days to be restored, the hospital functionality would have been in a desperate state.

"Disaster Medicine during the Earthquake, Tsunami, and Nuclear Accident: A University Hospital on the Front Line"
Koichi Omori, Vice President, Fukushima Medical University Hospital
From: Japan Society for Head and Neck Cancer, "Briefing Session on the Great East Japan Earthquake and Tsunami," June 9, 2011.

Fukushima Medical University: Disaster Webpage (http://fmu.ac.jp/index_shinsai.php) From March 22 to March 30, 2011

2011.3.22

• Notice of Temporary Health Consultation for Women

1. Goal: We are now providing health consultation over the telephone to women who are worried about their health owing to the Great East Japan Earthquake.
2. Consultation Days:

Tuesday, March 22	9:00 am to 5:00 pm
Wednesday, March 23	9:00 am to 5:00 pm
Thursday, March 24	9:00 am to 5:00 pm
Friday, March 25	9:00 am to 5:00 pm
Monday, March 28	1:00 pm to 5:00 pm
Tuesday, March 29	9:00 am to 5:00 pm
Thursday, March 31	9:00 am to 5:00 pm
Friday, April 1	9:00 am to 5:00 pm
3. Consultation Phone Number: 024-547-1407
4. Contact Physician: Hiromi Komiya, Director, Gender-Specific Medicine Center
5. Charge: Free of charge

• A video lecture by the Fukushima Prefecture Radiation Health Risk Advisor (held at Fukushima Terrsa on March 21) is now available. ([links to the Fukushima Prefecture homepage](#)).

• The conditional general competitive bid (affecting six contracts) that was postponed indefinitely will now be held on Friday, March 25.

2011.3.23

To the Residents of Fukushima:

We mourn the loss of those taken from us by the massive earthquake and the ensuing powerful tsunami that struck Fukushima on March 11, and we express our condolences to those affected by the disaster or forced to live as evacuees.

Our university set up a disaster response headquarters soon after the earthquake, prepared the university hospital for the admission of disaster victims, and particularly provided care for the seriously injured. During this time, we inconvenienced many with restrictions on outpatient care and visitation of hospitalized patients, but we still fulfilled our role as the sole medical university hospital in Fukushima. We are deeply grateful for the understanding and cooperation of the people of Fukushima.

Yesterday, we were finally able to partially resume outpatient care, but the Fukushima Daiichi nuclear accident has still not come to a conclusion, and the direction that our medical systems will take in the future is not entirely clear. We thank you again for your understanding about any further inconvenience this may cause.

The accident at the Fukushima Daiichi nuclear power plant is a serious event that nobody in our country had experienced before, and for which there is no fixed answer. But as the media is reporting daily, the Self-Defense Forces and Tokyo Fire Department have rushed to the scene, and many others are working hard to ensure the speedy resolution of this unfortunate situation.

We request all the residents of Fukushima, including medical professionals, to avoid being unnecessarily worried or misguided by inaccurate information and to make level-headed decisions based on accurate information.

This is the moment of truth for the people of Fukushima. But the people of Fukushima already have a

spirit of knowledge, courage, and fortitude to overcome any sort of difficulty. Even the longest night turns to day. Our university is investing all possible efforts in supporting the medical care of the people of Fukushima. Let us gather our strength and move forward together toward the speedy reconstruction of a society even more resilient than before.

March 23, 2011

Shin-ichi Kikuchi, President, Fukushima Medical University

Masahiro Murakawa, President, Fukushima Medical University Hospital

- **“Inside Fukushima Medical University: What is happening in the midst of disaster?”**
- **The date of the conditional general competitive bid (milled rice, first half of fiscal year 2012) has been postponed indefinitely.**
- **Notice of Cancellation of the Fukushima Medical University New Employee Orientation**

2011.3.24

- **To Those Planning to Visit the FMU Hospital**

The Fukushima Medical University Hospital is resuming outpatient care in all departments as of Thursday, March 24. For the moment, we will only be seeing patients with appointments on that day.

<http://www.fmu.ac.jp/byoin/index.php>

- **We have posted a message from the University President to all those participating in the 2010 Academic Year Diploma Ceremony.**
- **We have posted a message entitled “Letter from the University President” to all medical professionals and others associated with the university.**

2011.3.25

- **We have created a “Disaster Response Webpage” on the pediatrics curriculum homepage, where we will post information helpful for the care of children.**
- **Notice of Release of Real-Time Outdoor Air Radiation Measurements from within the University Campus (Radiation levels in the open air at Fukushima Medical University)**
- **We will change the submission period for the School of Medicine Research Department’s thesis defense applications.**
- **We have posted a message for the university alumni.**

We express our deep condolences to those affected by the massive earthquake and powerful tsunami that struck Fukushima on March 11, as well as those affected by the ensuing serious accident at the Fukushima Daiichi nuclear power plant. Alumni both inside and outside of Fukushima must be scrambling to deal with this unprecedented disaster. We convey our deepest respect for your efforts and struggles.

Our university set up a disaster response headquarters soon after the earthquake, prepared the university hospital for the admission of disaster victims, and particularly provided care for those with serious injuries. This may have caused inconvenience to many, with restrictions on outpatient care and the visitation of hospitalized patients. But board members, university executives, and hospital executives united to fulfill our role as the sole medical university hospital in Fukushima.

The situation in Fukushima is still unpredictable, especially with regard to the Fukushima Daiichi

nuclear power plant. But thanks to the support in the form of pharmaceuticals and everyday goods from the alumni, national government agencies, and many others, we are pleased to report that we were able to resume outpatient care this week.

The Fukushima Daiichi nuclear accident has still not come to a conclusion, and the direction that the university and hospital management will take in the future is not entirely clear. Our university has already decided to cancel this academic year’s diploma ceremony and postpone the next academic year’s entrance ceremony until May 6. The warm encouragement of fellow pupils and the alumni is an irreplaceable form of emotional support in the midst of this unprecedented situation.

Considering the current medical systems of Fukushima, there still are numerous issues to be addressed, from the lack of supplies at medical facilities to the provision of medical care for evacuees. Throughout this situation, we have truly relied on the efforts of the alumni, who are our cordial colleagues. Our university is investing all possible efforts in supporting the medical care of the people of Fukushima. And with that as a benchmark, we aim even higher. We thank you again for your support and cooperation.

Shin-ichi Kikuchi, President, Fukushima Medical University

Masahiro Murakawa, President, Fukushima Medical University Hospital

- **Notice about the Letter of Appointment Ceremony for New employees of Fukushima Medical University**

2011.3.28

- **To Those Planning to Visit the FMU Hospital**

The Fukushima Medical University Hospital is conducting normal outpatient medical care as of today, Monday, March 28.

2011.3.30

- **Acceptance of Donations for Fukushima Medical University Disaster Relief Efforts**

Our university offers our warmest thanks to all those who provided encouraging words and support after the earthquake off the Pacific coast of Tohoku on March 11, 2011.

To more rapidly process your kind offers, we have established a donation acceptance window.

Your generous donations will be carefully used to restore the functionality of our university’s educational and research environments as well as that of the university hospital.

We again express our deepest gratitude to all those concerned about the present and future state of our university after this unprecedented disaster.

Main Roads to FMU Were Cut off, with Much Destruction Left Behind Like Claw Marks



The National Route 4 Bypass through Fushigami in Fukushima City was completely blocked by a mudslide, hindering the commutation of many employees (from Fukushima Minpo News, March 11)



It took nearly a week to reshell the more than 80,000 books (approximately 40% of the books) that had fallen off the shelves of the university's Academic Information Center, which was shut down because of the nuclear accident and did not reopen until May 2.



The solid feed stored in the university's Laboratory Animal Research Institute collapsed and scattered on the floor (above). Mouse cages fell in some of the animal rooms (left)

Weeks Two–Four

We conducted advanced medical aid for evacuees on a wide scale. We divided medical support staff into teams of deep-vein thrombosis, pediatrics, contagion prevention, otolaryngology, ophthalmology, psychiatric health, and evacuation center wellness guidance, among others. Chartering small buses and vans, we circled the prefecture visiting evacuation centers. People in evacuation centers without physicians who came from other prefectures were happy to receive our consultations. At the centers, we collaborated with Japan Medical Association Teams (JMATS) from across the country to listen to patients and provide consultations. In May, we welcomed foreign medical support teams from Jordan and Thailand. We also formed a team mostly comprising members of the Department of Community and Family Medicine and Nagasaki University gave at-home consultations to patients staying indoors within the 30-kilometer zone. The otolaryngology team treated conditions such as pharyngolaryngitis, allergic rhinitis, hemorrhage of the nose, and earwax. Those in facilities with dry air were relieved to see humidifiers.

After three weeks, the gasoline supply resumed and we were able to return to our normal lives. On Monday, March 28, outpatient care returned to normal. We were gradually able to perform scheduled surgeries and, after four weeks, we were almost back to providing our usual medical services. To address radiation exposure, we conducted decontamination and emergency medical simulations to prepare for the intake of those working and living in and around the nuclear power plant and exposed to radiation. Our entire university is working to scientifically analyze this unprecedented disaster from a medical standpoint, create a university resilient to disasters, and once again make Fukushima a place where you can peacefully live.

Fukushima City is located 60 kilometers from the nuclear power plant and life has returned to normal. I am grateful for all support provided so far. I am eager to continue receiving the greatest form of support: people visiting us in northeastern Japan.

"Disaster Medicine during the Earthquake, Tsunami, and Nuclear Accident: A University Hospital on the Front Line"
Koichi Omori, Vice President, Fukushima Medical University Hospital
From: Japan Society for Head and Neck Cancer, "Briefing Session on the Great East Japan Earthquake and Tsunami," June 9, 2011.

Fukushima Medical University: Disaster Webpage As of April 1, 2011 (http://fmu.ac.jp/index_shinsai.php)

2011

- 4/1** • Start of Academic Year 2011, Clinical Residency Program
- 4/11** • Acceptance of donations
- 4/11** • Compilation of the "Contagious Disease Prevention Guidebook" to help prevent the spread of contagious diseases in evacuation centers and schools
- 4/12** • Change in the university website's homepage to the current page (Addressing the disaster)
- 4/19** • Posting messages from young university faculty entitled "Working Hard on Disaster Medicine on the Ground"
 - Young faculty from the School of Medicine and School of Nursing, student volunteers (Schools of Medicine and Nursing), residents, and nursing department (university hospital webpage)
- 4/28** • Results of radiation measurement of the university's indoor environments and outdoor monitoring as of 4/28
- 5/6** • Added French translation of "Real-Time Outdoor Air Radiation Measurements within the University Campus," as "Niveaux de Radiation a l'air libre a Fukushima Medical University"
 - Medical team from the Hashemite Kingdom of Jordan joins our medical team as international medical support
- 5/9** • Speech delivered by the University President at the 2011 Fukushima Medical University Entrance Ceremony held on May 6
- 5/10** • Posting videos of lectures about radiation held at the university (Professor Shun-ichi Yamashita [Friday, May 6] and Professor Naoki Matsuda [Friday, April 22])
 - Posting "Radiation Q&A" with Professor Shun-ichi Yamashita as supervising editor
- 5/13** • Results of Indoor Radiation Measurements as of 5/13
- 5/17** • Updates on the Fukushima nuclear accident (Reference) [to the Department of Public Health]
- 5/23** • Receipt of donations and dosimeters from Kyoto Prefectural University of Medicine
- 5/24** • Reduction of course and matriculation fees for student victims of the Great East Japan Earthquake
- 6/16** • Posting the university's disaster-related articles in the June 13 edition of Igaku-Shoin's New Medical World Weekly
- 6/21** • A lecture held on Sunday, July 10 at Fukushima City Live Screen open to the public (160 first-come first-served tickets) about correctly understanding radiation
- 6/27** • Results of indoor radiation measurements as of 6/27
- 6/30** • A briefing session held on Saturday, July 3 about Fukushima Medical University students' disaster volunteer activities



Entrance ceremony for 19 new residents starting in 2011



Kyoto Prefectural University of Medicine presented us with donations and dosimeters



- (Support after May 2011) Kyoto Prefectural University of Medicine (5/2011) and University of Shizuoka (7/2011)

- 7/6** • Joint report by the Jordanian-FMU medical team
- 7/8** • Medical teams of the Kingdom of Thailand and FMU cooperate to visit evacuation centers
- 7/11** • Screening of thyroid glands in Fukushima Prefecture after the nuclear accident
- Contribution of large amounts of aid supplies from the University of Shizuoka President Naohide Kinai
- 7/12** • Notice of appointment of a new vice president
- 7/19** • Contribution of “Letters from the University President” to a special report on the Great East Japan Earthquake by Japanese Orthopedic Association Public Relations Office News
- 7/22** • *The URL of this disaster webpage has now changed to http://www.fmu.ac.jp/index_shinsai.php. We have reverted to the pre-disaster university homepage
- 7/25** • Monetary contribution from Saga Prefectural Hospital Koseikan
- 7/26** • Posting of poem by a French medical scientist, lauding the Japanese after the Great East Japan Earthquake in “Letters from the University President,” as a special-edition of “Letter to the University President”
- Katsuya Okada, secretary general of the Democratic Party of Japan, visits the hospital
- 7/28** • A lecture open to the public and young people entitled “What You Should Know about Cancer,” held on Saturday, September 17
- 7/29** • Since Sunday, July 31, Radio Fukushima has been broadcasting seven episodes of the Fukushima Society of Medical Science’s Emergency Symposium every week at 10 am
- 8/8** • Publication of interviews with FMU residents and students in the Nikkei Medical Cadetto special report “The Disaster from Our Eyes” [Residents, Vol. 6, July 20] [Students, Vol. 7, July 21]
- 8/31** • FMU president visits Universities of Hiroshima and Nagasaki
- Signing of the partnership agreement with the National Institute of Radiological Sciences and the Radiation Effects Research Foundation
- 9/1** • Notice of sale of original FMU t-shirts as a support relief effort
- 9/5** • Receipt of letter of appreciation from the Fukushima Chief of Police about the examination of fatal victims of the Great East Japan Earthquake
- 9/6** • University Vice President Shun-ichi Yamashita receives Asahi Cancer Award
- 9/16** • International Experts Conference on “Radiation and Health Risks” is held at FMU.
- 10/13** • Notice of reduction in course and matriculation fees for student victims of the Great East Japan Earthquake and tsunami
- 11/1** • Vice President Yamashita gives lecture on the Fukushima nuclear accident at the World Health Summit
- Opening ceremony of the Radiation Medical Science Center
- Launch of the Fukushima Health Management Survey webpage (temporary version)



Secretary General Okada of the Democratic Party of Japan visits FMU



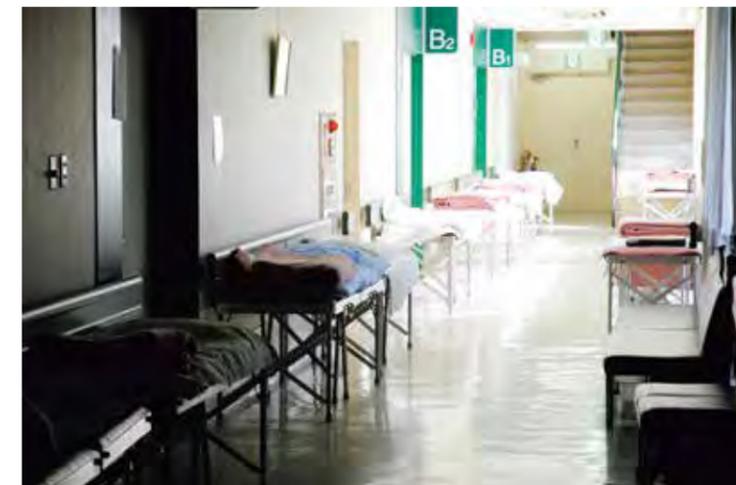
- 12/28** • Notice of reduction in matriculation fees for student victims of the Great East Japan Earthquake

Fukushima Medical University holds an international conference of experts in radiology and radiation protection from 14 countries and two international organizations



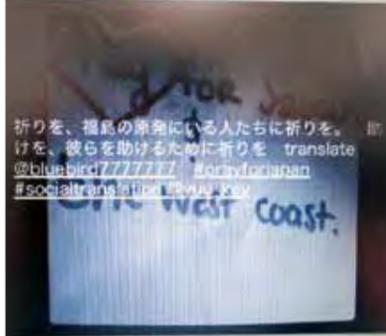
2012

- 1/20** • Publication of the December 13 Symposium jointly held with the Nikkei Company, in Nikkei Company’s January 16 newspaper
- 2/17** • Posting of detailed results of the Fukushima Health Management Survey (mental health and expectant and nursing mothers)
- 2/24** • Notice from the Fukushima Health Management Survey office
- 3/9** • Posting of message from the university president one year after the disaster
- 3/13** • Posting of an overview video (English) of the Fukushima Health Management Survey
- 3/26** • You can now resubmit the basic survey questionnaire online
- 3/27** • Monetary contribution from the Fukushima Minpo News and the Fukushima Minpo Public Welfare Organization toward the funding of the Disaster Medicine Support Curriculum
- 3/29** • Monetary contribution from the Toho Bank toward the funding of the Disaster Medicine Support Curriculum
- 4/10** • Monetary contribution from Kowa Pharmaceuticals for the funding of the Disaster Medicine Support Curriculum
- 4/16** • Minister of Environment Goshi Hosono visits FMU
- 5/21** • Opening Ceremony for the Disaster Medicine General Education Center
- 6/11** • Monetary contribution from Toshiba Corp. for the funding of the Disaster Medicine Support Curriculum





We Are One





— What were your thoughts in regard to family and friends back in the United States?

Dr. Nollet: My first email to family was rather naïve: “Big enough earthquake in Fukushima to probably make international news. I’m OK.” This was sent right after confirming the safety of our staff and the operational status of our transfusion laboratory. I had no idea on Friday afternoon that

upwards of 20,000 people on the Tohoku coast were abruptly taken from this world. As soon as my friends and family overseas understood the scope of our disaster, they cried for the people of Japan, and wanted to help. They were eager for accurate information, something the media didn’t always give them. So that became my job.

— When did you come to Fukushima, and why?

Dr. Nollet: I joined Fukushima Medical University in January 2008. Since 2004, I had been the National Medical Education Program Manager for the Australian Red Cross Blood Service, and a transfusion medicine specialist in Queensland. But as a non-citizen, I had to give up my medical job as soon as a qualified Australian doctor could be found to replace me. At the time, Professor Ohto and I were working together on a manuscript. Right when the journal was ready to publish, I had to say that we could no longer list “Australian Red Cross” as my affiliation. After I explained why to Professor Ohto, he asked, “How about coming to Fukushima?” Before I gave my final answer, he went ahead and listed my affiliation on the manuscript as Fukushima Medical University.

— That must have been a big change. How about Japanese food?

Dr. Nollet: People like to ask if I can eat sushi and sashimi. Yes, and one of Fukushima’s best sushi chefs works at the FMU Hospital cafeteria. I am also fond of *natto* (fermented soybeans) and *genmai* (brown rice). I continue to buy, and eat, locally grown *genmai* from the same supplier that serves a small café in my neighborhood. Some café friends urged me to switch from brown rice to white rice after the nuclear accident, because they heard that polishing rice removes cesium. Well, the 2011 crop was not harvested until months after the nuclear accident, and by then testing was in place. Contaminated rice was kept from the market.

— Are there American foods that you miss?

Dr. Nollet: In today’s world, American food is everywhere, both good and bad. What I miss in Japan is the food of my Scandinavian ancestors, especially *lutefisk*. A lot of traditional foods in Tohoku are preserved with salt, but *lutefisk* is preserved with lye (traditionally, birch ash). High blood pressure from salt consumption is a problem in modern times, and I wonder if we Caucasians might be more vulnerable than Japanese. American specialists recommend less than 1.5 grams of sodium per day, whereas Japanese specialists allow 6 grams, and the average Japanese diet might include more than 10 grams per day. In late 2010, I consulted an FMU cardiologist about high blood pressure. He encouraged me to be more careful about salt intake, and I’m back to normal. For me, sodium is a bigger risk than cesium.

— You had to leave Australia when a qualified citizen asked for your job. What about your job at FMU?

Dr. Nollet: I’ve had to renew my Japanese “Professor Visa” twice, once before and once after 3.11. Both times, FMU President Kikuchi signed a document to the effect that Nollet was employed at FMU without restriction or time limit.

— Going forward, what are your plans? Do you have a message for the people of Japan?

Dr. Nollet: Yes. Holding a visa that needs to be renewed periodically, I regard it as privilege, not a right, to live in Japan. I hope citizens, too, can appreciate what a privilege it is to live on these islands. Late in 2011, I was invited to consider a professor and chair position in Tokyo. Well, of all the mega-cities of the world, Tokyo is the one I would rank as my first choice. It’s nice being just an hour and a half away by bullet train. I like visiting Tokyo. But even more, I like coming back to Fukushima. This is my home.





March 11, laboratory seminar room



Orderly queuing outside a supermarket in Hourai, Fukushima City



Damage from the earthquake (Hourai neighborhood)



Plenary meeting



Chemical toilets in front of the hospital



Ambulances and emergency personnel transferring patients



Decontamination ward and tents



Radiation monitoring station within the university



Medical helicopter with Mt. Azuma in the background

To record the university's activities and share them with the world, Dr. Nollet photographed various aspects of disaster response, such as earthquake damage, hospital plenary meetings, the decontamination ward, and the work of air and ground ambulances.