

2017 International Symposium of Radiation Emergency Management

輻射醫療處置國際研討會

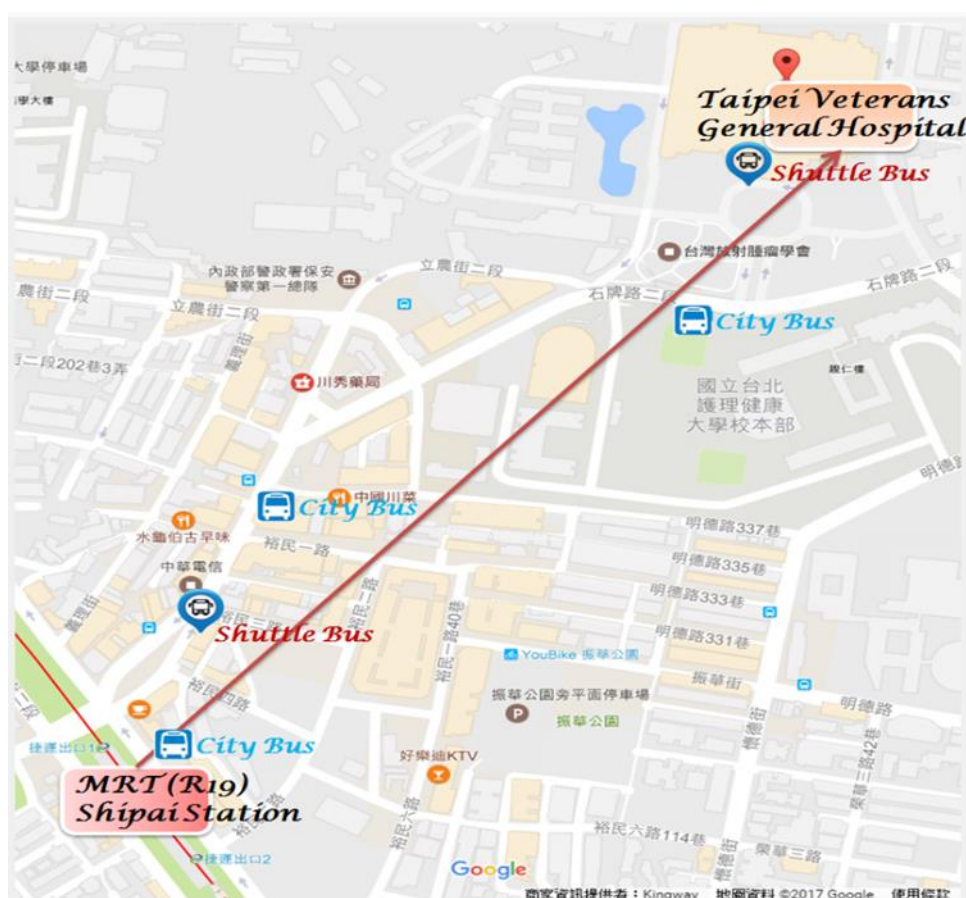
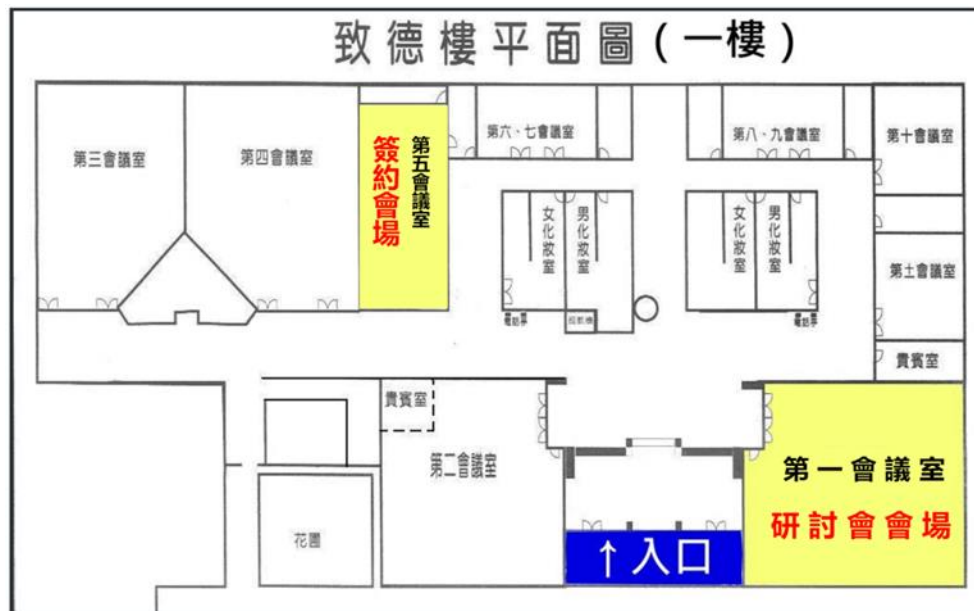
April 15, 2017 (Saturday) 08:00~17:00

Hall 1, Chi-Der Building, Taipei Veterans General Hospital(TVGH), Taipei

Program Book



會場位置圖 Venue and Map



2017 年輻射醫療處置國際研討會 歡迎詞



敬致 各位嘉賓及醫界先進

2017 年輻射醫療處置國際研討會於 106 年 4 月 15 日在臺北榮民總醫院致德樓舉行，謹代表臺北榮民總醫院誠摯歡迎各位嘉賓蒞臨及指導。

在日本 311 事件之後，核能的安全成為民眾相當關心的一件事，輻射防護也相對成為一項重要課題，目前包括本院在內的國內各級輻射防治中心在規模設備、醫療處置流程、臨床作業及實務經驗等方面皆逐年提升；然而，有關輻射防治相關工作人員對輻射傷害、醫療照護經驗、相關知識及教育訓練仍應不斷精進。因此，本院為增進國內輻射醫療工作人員之輻射意外醫療及防護知識，並加強輻射醫療處理流程，確保工作人員、患者及民眾安全，增進全民之健康與福祉，特別舉辦本次研討會。日本過去有許多輻傷醫療的臨床處置及基礎研究，這次研討會我們邀請了長崎大學輻射醫療處理的專業團隊及國內各相關知名學者專家，就輻射防護及處理等醫療相關議題作專題演講，相信必能促進國內輻防教育，學術與臨床交流，並提升國內輻傷醫療團隊專業素養與系統規劃，以面對日後可能遭遇輻射意外事件時，緊急醫療的應變能力。

臺北榮民總醫院設有輻射傷害防治中心，專責輻射醫療防治之相關工作，為行政院衛福部指定核災醫療三級救護責任醫院之一。本次議程邀請國內輻射防護及醫療專家就國內目前現況作專題演講外，也邀請日本長崎大學專家學者就其在日本包括福島事件的經驗作分享，讓與會者有機會觸及與自身專業相關的基礎及臨床知識，並進行跨領域的整合性交流與討論，希望能夠藉此提升我國輻傷處置能力及相關基礎研究。

最後再次歡迎各位嘉賓的蒞臨，預祝大會順利成功。

臺北榮民總醫院 院長

西元 2017 年 4 月 15 日



2017 International Symposium of Radiation Emergency Management

Opening Speech

Greetings to all the guests, ladies, and gentlemen!

The 2017 International Symposium of Radiation Emergency Management will be held on April 15, 2017 at Taipei Veterans General Hospital. I, as the superintendent of TVGH, sincerely welcome you all to attend.

Radiation safety is an important issue both in Japan and in Taiwan. We invited not only domestic scholars, but also distinguished scholars from Nagasaki University, Japan, as our guest speakers. They will share with us and discuss the latest trend in radiation protection and medical management. This might serve as a reference to our medical management, policy, and guidelines development.

Safety is the most important thing when we talk about radiation. Hopefully, through this meeting, everyone would be able to gain more knowledge about it. With our joined effort, radiation safety in Taiwan shall surely improved.

Once again, I appreciate you all for coming, and wish everything goes well on the meeting day.

Chairman of the meeting, Superintendent, TVGH



April 15th, 2017



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Organizing committee

2017 International Symposium of Radiation Emergency Management


Time	Program	Speakers	Moderators
08:00~08:30	Registration		
08:30~09:00	Domestic speech 1 (Continuous education): Radiation health effects	Associate Professor Jay Wu	Chorng-Kuang How Shiou-Chi Cherng
09:00~09:30	Opening: Welcome and Greetings		
09:30~10:00	Group Photo / Tea Break		
10:00~10:50	Guest speech 1 : Radiation Protection in Japan	Professor Naoki Matsuda	Cheng-Yi Cheng Lee-Shing Chu
10:50~11:00	Q&A		
11:00~11:50	Guest speech 2 : Lessons from Chernobyl and Fukushima	Professor Noboru Takamura	Ying-Fong Huang Yu-Ming Liu
11:50~12:00	Q&A		
12:00~13:00	Lunch meeting		
13:00~13:30	Domestic speech 2: Current Status of Human Biological Dosimetry	Deputy Engineer Kang-Wei Chang	Ching-Chung Huang Hsien-Hao Huang
13:30~13:40	Q&A		
13:40~14:30	Guest speech 3 : Risk Communication in Fukushima	Assistant Professor Makiko Orita	Yu-Ming Fan Yen-Chia Chen
14:30~14:40	Q&A		
14:40~15:30	Guest speech 4 : Biological Mechanisms of Low-Dose Radiation Effects	Associate Professor Keiji Suzuki	Bang-Hung Yang Chih-Yung Chang
15:30~15:40	Q&A		
15:40~16:00	Tea Break		
16:00~16:30	Domestic speech 3: Emergency Medical Preparedness for Radiation Incidents in Taiwan	Director Fuh-Yuan Shih	Hung-Tsang Yen Wen-Sheng Huang
16:30~17:00	Panel Discussion (All speakers, Dr. Tieh-Chi Chu, Dr. Mu-Chang Shieh)		

2017 International Symposium of Radiation Emergency Management

時間	講題	主講人	主持人
08:00~08:30	報到		
08:30~09:00	國內演講一（繼續教育）：輻射健康效應	吳杰 副教授	侯重光 主任 程紹智 主任
09:00~09:30	致歡迎詞		
09:30~10:00	團體照相/茶歇		
10:00~10:50	外賓演講一：日本輻射醫療規劃與現況 日本における放射線防護	松田尚樹 教授	鄭澄意 理事長 朱力行 主任
10:50~11:00	Q&A		
11:00~11:50	外賓演講二：車諾比及福島核事故醫療處置與檢討 チェルノブイリと福島の教訓	高村昇 教授	黃英峰 主任 劉裕明 主任
11:50~12:00	Q&A		
12:00~13:00	午餐會議：輻射屏蔽新材料、新工法於福島核事故中之應用		武藤昭男
13:00~13:30	國內演講二：人員生物劑量實驗室現況	張剛璋 副工程師	黃景鍾 處長 黃獻皞 醫師
13:30~13:40	Q&A		
13:40~14:30	外賓演講三：福島風險溝通的研究與實踐 福島におけるリスクコミュニケーションの実践	折田真紀子 助教授	樊裕明 主任 陳燕嘉 醫師
14:30~14:40	Q&A		
14:40~15:30	外賓演講四：低輻射劑量生物效應之回顧與前瞻 低劑量被ばくの生物学的メカニズム	鈴木啓司 准教授	楊邦宏 副理事長 張智勇 醫師
15:30~15:40	Q&A		
15:40~16:00	茶歇		
16:00~16:30	國內演講三：我國輻射醫療規劃與現況	石富元 主任	顏鴻章 主任 黃文盛 主任
16:30~17:00	討論：全體演講貴賓、朱鐵吉博士、謝牧謙博士等		

Domestic speech 1 (Continuous education):

Jay Wu

Name:	Jay Wu	(Middle Name)		
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Country:	ROC			
Date of Birth				
Title:	<input type="checkbox"/> Mrs. <input type="checkbox"/> Ms. <input type="checkbox"/> Mr. <input checked="" type="checkbox"/> Assoc. Prof. <input type="checkbox"/> Dr. <input type="checkbox"/> M.D. <input type="checkbox"/> Other _____			
Institution:	National Yang-Ming University			
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E-mail:	jaywu@ymu.edu.tw			

Present Appointment:

Associate Professor, Department of Biomedical Imaging and Radiological Sciences,
National Yang-Ming University

Career Highlight:

Associate Professor, Institute of Nuclear Engineering and Science, National Tsing-Hua University

Associate Professor, Department of Biomedical Imaging and Radiological Science,
China Medical University

Assistant Professor, Department of Medical Imaging and Radiological Science,
Central Taiwan University of Science and Technology



Radiation health effects

Jay Wu, Ph.D.


The use of radiation in the field of radiological sciences is necessary. However, with the wide spread use of radiological equipment, the health risk is also increasing.

How to quantify potential risks and ensure radiation safety is a crucial task. In this course, we will talk about the ICRP recommendations for health physics and radiation protection, including the deterministic effect, stochastic effect, equivalent dose, and effective dose.



Guest speech 1:

Naoki Matsuda

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Country:	Japan			
Date of Birth	14 January 1957			
Title:	<input type="checkbox"/> Mrs. <input type="checkbox"/> Ms. <input type="checkbox"/> Mr. <input checked="" type="checkbox"/> Prof. <input type="checkbox"/> Dr. <input type="checkbox"/> M.D. <input type="checkbox"/> Other _____			
Institution:	Atomic Bomb Disease Institute, Nagasaki University			
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Present Appointment:

Professor, Department of Radiation Biology and Protection, Atomic Bomb Disease Institute,
Nagasaki University

Academic Background:

Radiation Biology, Radiation Safety Management

Honor and Awards:

Distinguished Service Award (2016), The Japan Radioisotope Association.

Professional Affiliation/ Membership:

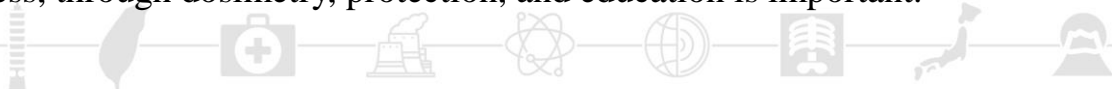
President (2015-2018), Japanese Society of Radiation Safety Management



Radiation safety management in Japan

Naoki Matsuda, Ph.D.

The radiation safety management in Japan stands on its global framework. The concerted activities of international organizations including ICRP (International Commission on Radiological Protection), UNSCEAR (United Nations Scientific Committee on the Effects of Atomic Radiation), IAEA (International Atomic Energy Agency) and WHO (World Health Organization), form the baseline of radiation safety in Japan by incorporation of their recommendations and guidelines into laws and regulations such as the Law concerning Prevention of Radiation Hazards due to radioisotopes, etc. and the Law for Regulations of Nuclear Source Material, Nuclear Fuel Material and Reactors. After the radiological accident in Fukushima in 2011, the Nuclear Regulation Authority (NRA) was established to rebuilt on a solid basis, placing the highest priority on public safety and a genuine safety culture. Regulatory standards of nuclear power plants and nuclear disaster prevention guidelines were then reviewed and re-formulated. Amendment of the Law concerning Prevention of Radiation Hazards due to radioisotopes, etc. is now under investigation to meet the IAEA requirements. To support radiation safety management, the Japan Health Physics Society (JHPS), the Japan Radioisotope Association (JRIA), and the Japanese Society of Radiation Safety Management (JRSRM) play their role by providing seminars, meetings, and publications for updated information on radiation regulations and for technical transfer. In each radiation facility, ‘radiation protection supervisor’ entitled by the national examination is required to not only supervise but also promote radiation safety management including radiation monitoring inside/outside control areas and the estimation of external/internal exposure, education and training of radiation workers. The goal of radiation safety management is of course to reduce radiation health risk of radiation of the public as well as radiation workers. The expansion of radiation safety-risk control from the legal demand to daily life of the public including medical exposure and emergency preparedness, through dosimetry, protection, and education is important.



Guest speech 2:

Noboru Takamura

Name:	Noboru Takamura	(Middle Name)	
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Title:	<input type="checkbox"/> Mrs. <input type="checkbox"/> Ms. <input type="checkbox"/> Mr. <input checked="" type="checkbox"/> Prof. <input type="checkbox"/> Dr. <input type="checkbox"/> M.D. <input type="checkbox"/> Other _____		
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Present Appointment:

Professor, Department of Global Health, Medicine and Welfare, Atomic Bomb Disease Institute, Nagasaki University

Academic Background:

Radiation Health Sciences, Hygiene, Public Health, Internal Medicine

Honor and Awards:

Honorary Professor, Gomel State Medical University (Gomel, Belarus)
 Honorary Doctor, Belarussian State Medical University (Minsk, Belarus)



Lessons from Chernobyl and Fukushima

Noboru Takamura, M.D., Ph.D.


Through the promotion of comprehensive medical support and academic joint research on those exposed to low-dose radiation after the Chernobyl Nuclear Power Plant (CNPP) accident, we have conducted epidemiological studies around CNPP, such as molecular epidemiological studies on radiation-induced thyroid cancer, clinical epidemiological studies aimed at thyroid disorders, evaluation of mental health status and evaluation of internal body burden of population by whole body counter (WBC). It should be noted that our experiences accumulated around CNPP were available for our activities after the accident at Fukushima Dai-ichi Nuclear Power Station (FDNPS). After the accident at FDNPS, we have participated in the medical team for the preparedness of acute radiation syndrome organized at Fukushima Medical University, and played a role in crisis and risk communications to the public after the accident in Fukushima Prefecture.

Furthermore, Nagasaki University has been assisting reconstruction efforts of Kawauchi Village, where is located within 30 km from FDNPS through the comprehensive cooperation toward reconstruction of the village. In April 2013, we established in the village a satellite facility of the university: the Nagasaki University - Kawauchi Village Reconstruction Promotion Base. In utilizing such a base, the cooperation between Nagasaki University and Kawauchi is attracting attention as a model for reconstruction after the accident at FDNPS. Nagasaki University plan to continue our activities as we offer Fukushima support from Nagasaki University, based on our experiences in Nagasaki and Chernobyl.



Domestic speech 2:

Kang-Wei Chang

Name:	Kang-Wei Chang	(Middle Name)		
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Date of Birth				
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Present Appointment:

Deputy Engineer, Institute of Nuclear Energy Research, Atomic Energy Council

Career Highlight:

Associate Researcher, Institute of Nuclear Energy Research, Atomic Energy Council

Academic Background:

Ph.D., Department of Biomedical Imaging and Radiological Sciences, National Yang-Ming University



Current Status of Human Biological Dosimetry

Kang-Wei Chang, Ph.D.

There are about 44,000 radiation workers in Taiwan, including in nuclear power plants, industrial and hospital areas. In order to cope with the accidental exposure of radiation, it is necessary to build a biological dosimetry laboratory. When the exposed with radiation accident, the biological chromosome analysis could as exposure dose assessment, and as a follow-up medical care reference.

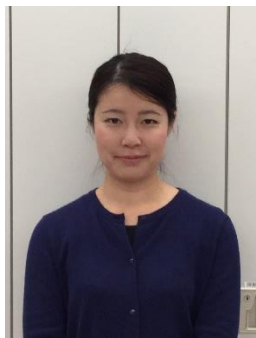
International studies on the current bio-dose-related effects of individuals; biological dosimetry by chromosome analysis is a quick, simple and effective gold standard method. In our laboratory, blood samples of normal subjects were irradiated with 0, 0.5, 1, 2, 3, 4 and 5Gy of Cobalt-60 gamma rays, and further cultured the blood lymphocytes. The cultured lymphocyte chromosomes were photographed by a microscope and then calculated the chromosome variation.

In our laboratory from 2012 to 2016, we were completed four dose-effect curve, and combined into a standard curve for the standard curve. We also participated in the International Competency Test with Canadian Ministry of Health, as well as received ISO17025 Laboratory certification. Expect to become a credible and internationalized national laboratory in biological dosimetry.



Guest speech 3:

Makiko Orita

Name:	Makiko Orita	(Middle Name)		
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Present Appointment:

Assistant Professor, Department of Global Health, Medicine and Welfare, Atomic Bomb Disease Institute, Nagasaki University

Academic Background:

Nursing, Radiation Health Sciences



Risk communication in Fukushima

Makiko Orita, Ph.D.


Kawauchi village is located within 30 km of Fukushima Daiichi Nuclear Power Plant (FDNPP). Owing to the accident at FDNPP on March 2011, almost all residents evacuated. In January 2012, the village office issued a “Return to the Village Statement,” which was the first of its kind in Fukushima Prefecture, and the village has been striving to reconstruct itself ahead of other municipalities.

Nagasaki University has been assisting reconstruction efforts of the village since December 2011. Nagasaki University and Kawauchi village concluded an agreement on April 2013, concerning comprehensive cooperation toward reconstruction of the village, and we established in the village a satellite facility of the university. We have been providing scientific support for the residents’ return to the village and for reconstruction, through measurement of environmental and individual radiation doses, as well as providing health consultation services based on the obtained data¹. Even recently, residents asked us the questions concerning about the radiation exposure of children such as “we are worried about the health effects of radiation in our children.” and “is it safe to children to play outside?” Based on these questions, we think it is important to implement risk communications with residents, based on the data of actually measured in order to address the residents’ anxieties about radiation exposure. We hope to provide a model for multidisciplinary approach to collaborate with stakeholders, including residents, local authorities, and scientists in the recovery phase of the nuclear accident through our experience.



Guest speech 4:

Keiji Suzuki

Name:	Keiji Suzuki	(Middle Name)		
Gender:	<input type="checkbox"/> Female	<input checked="" type="checkbox"/> Male		
Country:	Japan			
Date of Birth	20 August 1960			
Title:	<input type="checkbox"/> Mrs. <input type="checkbox"/> Ms. <input type="checkbox"/> Mr. <input checked="" type="checkbox"/> Prof. <input type="checkbox"/> Dr. <input type="checkbox"/> M.D. <input type="checkbox"/> Other _____			
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Present Appointment:

Associate Professor, Department of Radiation Medical Sciences, Atomic Bomb Disease Institute, Nagasaki University

Career Highlight:

July 1987: Yokohama City University School of Medicine, Research associate

Dec 1993: Columbia University Center for Radiological Research, Research Scientist

April 2004: Nagasaki University Graduate school of Biomedical Sciences, Associate Professor

July 2007: Nagasaki University Atomic Bomb Disease Institute, Associate Professor

Academic Background:

Radiation Biology, Molecular and Cellular Biology,

Professional Affiliation/ Membership:

Japan Radiation Research Society, Radiation Research Society (USA)

Japan Cancer Association, Japan Molecular Biology Society

Biological mechanism of low-dose radiation effects

Keiji Suzuki, Ph.D.

Absorption of radiation energy to the living cells gives rise to DNA damage, among which DNA double strand breaks (DSBs) are the most detrimental ones. DSB induction has been well examined after high-dose and high-dose-rate exposure, however, the information is still limited on the effects of low-dose and low-dose-rate exposure. Therefore, we aim to investigate the kinetics of DNA damage after low-dose/low-dose-rate radiation exposure in cultured normal human cells and in in vivo animal model.


Since the number of DSBs induced by low-dose/low-dose-rate radiation is very limited, it needs an extraordinary sensitive assay system to detect rare induction of DSBs. Recently, it has been described that DSB-induced changes in higher-order chromatin structures cause recruitment of DNA damage response factors, such as 53BP1 protein, which results in the formation of discrete foci detectable under a fluorescence microscope. Thus, using 53BP1 foci as surrogate DSB markers, we have developed a method, enabling the detection of even a single DSB per cell.

We have found that DSBs induced by low-dose radiation are efficiently repaired in normal human cells. For example, the number of DSBs induced by 100 mGy of γ -rays is approximately 4 per cell, which returns to the control levels within 24 hours after irradiation. The effects of low-dose/low-dose-rate radiation was examined in experimental animal models maintained in the unique low-dose-rate irradiation facility in the Institute for Environmental Sciences, Rokkasho, Aomori. B6C3F1 mice were kept in the SPF facilities with ^{137}Cs source, and they were continuously exposed to low-dose-rate γ -rays. The dose rates are 0.05 mGy, 1 mGy, and 20 mGy per day for low-dose-rates, while 400 mGy/day and 850 mGy/min were used for middle- and high-dose rates. Various tissues and organs obtained from mice when the total dose reached to 1 mGy, 20 mGy and 100 mGy. Spontaneous DSBs were detectable in every tissue/organs, among which the lung tissue showed the highest frequency. The level of DSBs was apparently increased with 100 mGy at middle-dose rate, whereas 100 mGy given at low-dose-rate resulted in any excess DSBs, indicating that low-dose-rate exposure did not accumulate DSBs even if the total dose was the same. Our results clearly demonstrate that dose- and dose-rate-dependent effects should be taken into account for the better understandings of the cancer risks from the chronic low-dose radiation exposure.



Domestic speech 3:

Fuh-Yuan-Shih

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Country:	ROC			
Date of Birth				
Title:	<input type="checkbox"/> Mrs. <input type="checkbox"/> Ms. <input type="checkbox"/> Mr. <input type="checkbox"/> Prof. <input type="checkbox"/> Dr. <input checked="" type="checkbox"/> M.D. <input type="checkbox"/> Other _____			
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Present Appointment:

Director, Occupational Safety and Health Office, National Taiwan University Hospital

Attending physician, Department of Emergency Medicine, National Taiwan University Hospital

Assistant Professor, School of Medicine, National Taiwan University

Academic Background:

Ph.D., Institute of Epidemiology and Preventive Medicine, College of Public Health, National Taiwan University

M.D., School of Medicine, College of Medicine, National Taiwan University



Emergency Medical Preparedness for radiation Incidents in Taiwan

Fuh-Yuan Shih, M.D., Ph.D.

Emergency medical response plan was initiated in 1980 accompanied with the commercial operation of the nuclear power plants in Taipei and Ping-Tung area. There was a national response plan leading by the Atomic Energy Council for potential incidents in nuclear power plants. The three-tiered medical response system according to the distance system was designed: tier 1 for life saving in inner cordon within the factory; tier 2 for screen and decontamination in peripheral communities; and tier 3 for long term and advanced medical care in remote areas.

Besides radiation injury, in radiation incidents the casualties usually suffered from trauma which may threaten their lives no less than radiation. Furthermore, the incidents in nuclear reactors were not the only source for radiation incidents: transportation accidents of radiation material, radiation dispersion device and even terrorists attack also result in disasters. We also learned from the 311 Japan Earthquake that nuclear incidents may follow a huge natural disaster. In the past 30 years, the emergency medical system was established and played the primary role in all kinds of emergencies, and had good connection to ER. Therefore, the system should be fine-tuned accordingly.

In recent several years, we implemented the radiation medical emergency response system to all regions. And there are two kinds of emergency capability: the initial part for patients screen, detection, decontamination and emergency medical care; the advanced part for further patient admission, treatment and long term care. All designated radiation hospitals can provide either functions or just the initial part. Hospitals and resources are coordinated and mobilized by the Emergency Medical Operation Centers of MOH.

Emergency operation protocols and procedures for emergency rooms and staffs have been established in recent years, and training programs for doctors and nurses responsible to radiation incidents have also developed. Now the major focus to be improved were the chelating agents storage and dispatch, bioassay of radiation effects of casualties, and the maintenance of equipment and expertise ready to an incident with short notice.

Memo:



大會組織（依姓氏筆劃順序，尊稱省略）

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2017 International Symposium of Radiation Emergency Management

輻射醫療處置國際研討會

April 15, 2017 (Saturday) 08:00~17:00

Hall 1, Chi-Der Building, Taipei Veterans General Hospital(TVGH), Taipei

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