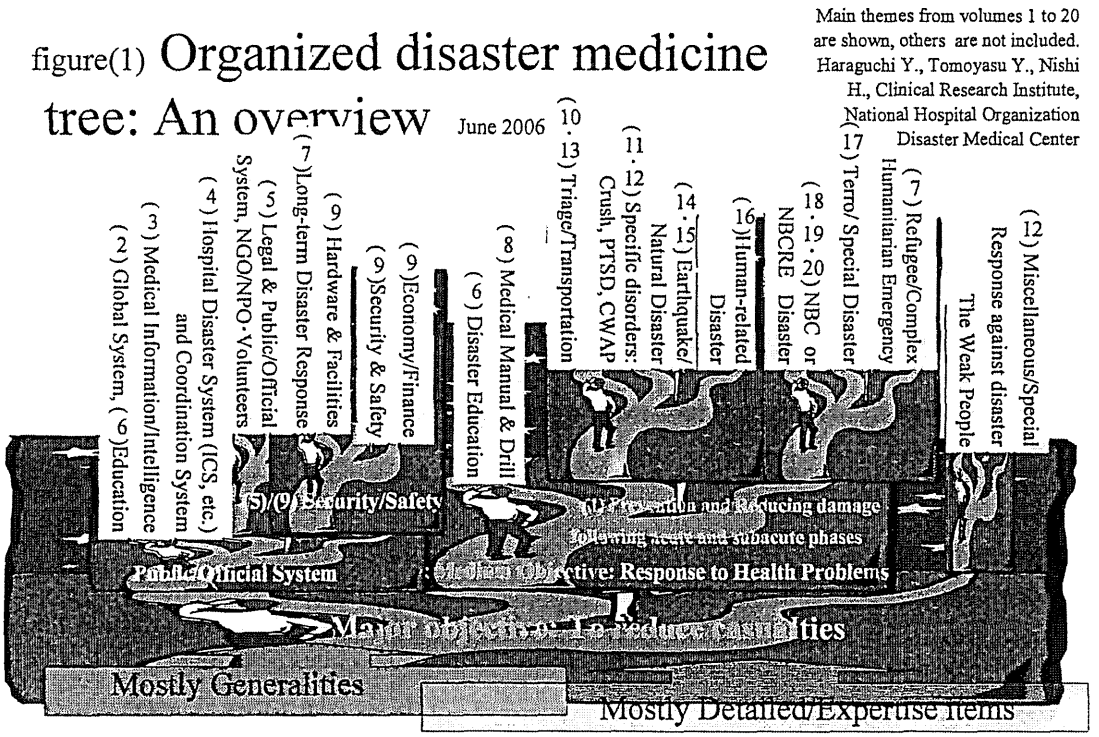
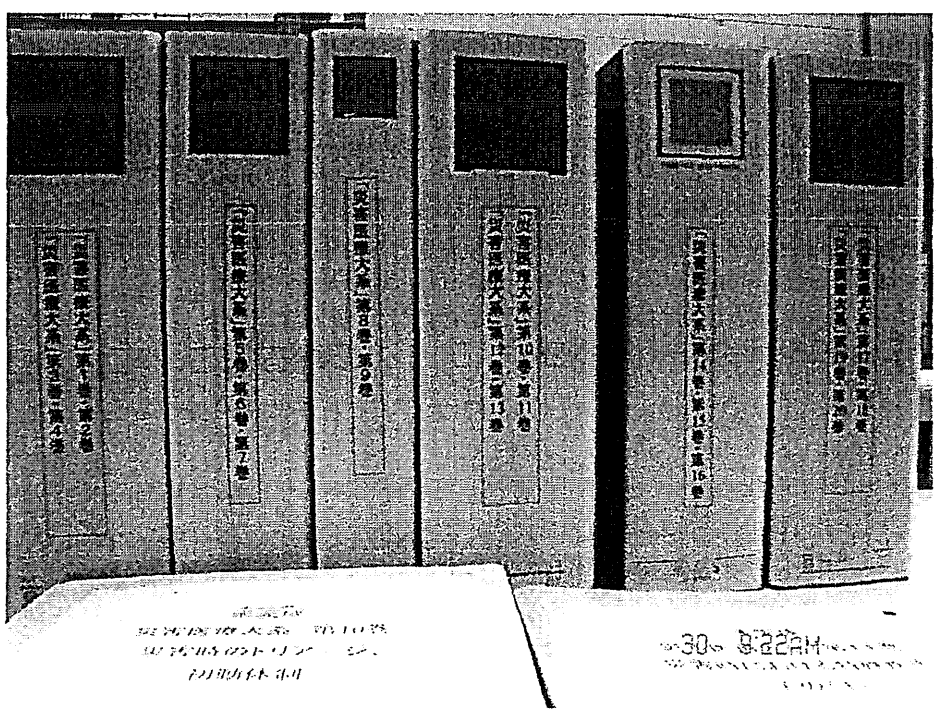


Figure(2)

Picture of whole view of a set of the compendium

These are divided into six books or book number 1 to 6.

From left, book no. 1 consists from volume 1 to 4, book 2 from 5 to 7, book 3 from 8 to 9, book no. 4 from 10 to 13, book no. 5 from 15 to 16, and the book no.6 on the right side consists from 17 to 20. Volume 27 and 28 are separately printed.



Systemization of Disaster Medicine, Compilation and Systemization of Disaster Medicine (cont.)

Part 1: Overview of General Remarks on Disaster Medicine and Related Themes

1. General Remarks on Disaster Medicine: Maintaining a broad perspective to increase knowledge about disasters and disaster medicine

2. The international disaster medical systems of developed and undeveloped countries, including Japan and ODA/JICA

3. Collection of information and system of information/intelligence distribution during disaster: focus on medical response

4. Disaster medical systems in medical facilities and medical institutions, disaster medical systems by field of specialization

5. Systems of medical response to disaster of public institutions and offices, autonomies, public organizations; disaster medicine of volunteer organizations or NGO/NPO

6. Education on disasters and disaster medicine: for medical staff as well as the general public/citizen

7. Disaster medicine from the viewpoint of subacute and chronic phases

8. Disaster medical manuals and disaster training drills for medical staff: experiences in

9. Safety during and after disaster, in correlation with financial aspects: Safety issues of hardware (facilities, equipment, items, etc.) and software; financial aspects, amenity

Table(1)

Systemization of Disaster Medicine, Compilation and Systemization of Disaster Medicine (cont.)

Part II: Various Theories and Activity of Disaster Medicine

10. Overview of initial action in the event of disaster: triage and initial actions of medical facilities, including first-aid station

11. Special diseases and physiological changes to watch for/treat in disasters, including medical response (1) Crush syndrome, mental/ psychological care, etc.

12. Special diseases and physiological changes to watch for/treat in disasters, including medical response (2) other special diseases: resuscitation, general trauma care, including care for the weak (the CWAP), travel medicine, postmortem examination

13. Emergency transporting system during disaster; systems of disaster response of each field in medical facilities, including those for the disabled group:

14. Medical response to natural disaster (I) Earthquakes (including tsunamis)

15. Medical response to natural disaster (II) other natural disasters, volcanic eruption, fresh flood, etc.

16. Medical response to man-made disaster (I): overview and response (excluding NBC disasters and terrorism)

17. Medical response to man-made disaster (II) : response to NBC disasters and terrorism

18. Medical response to man-made disaster (III) : medical response to nuclear disasters

19. Medical response to man-made disaster (IV) : biotoxin disasters/outbreaks

20. Medical response to man-made disaster (V) : toxic and chemical disasters

Volumes 21 to 26 and volume 29 are not completed.

Table(2)

Systemization of Disaster Medicine, Compilation and Systemization of Disaster Medicine (cont.)

Volumes 21 to 26 and volume 29 are not completed.

21. Safe approach for focusing on treatment for contaminated victims and hazardous conditions/areas not included

22. Collection of reports on visits to disaster medical facilities: domestic and international, medical and non-medical facilities

23. Analysis and presentation of the types of major disasters that have occurred in the past - from a medical viewpoint

24. Reports on individuals' experiences in disaster medicine: a compilation of summaries (see listing by type of disaster)

25. Introduction and evaluation of medical facilities' manuals for response to major disasters, with a focus on earthquakes (see Vol. 8)

26. Presentation of records of disaster medicine training, including general disaster training (see Vol. 8)

27. Textbook and reference material for use by medical staff during disaster medical training courses

28. Simplified disaster medical dictionary; glossary and explanation of terms

29. History of disasters and disaster medicine; report on disaster with a focus on regional characteristics; introduction of the record of regional responses to disaster, including mental, psychological, cultural and international aspects (Disaster topography or ethnography in Japan and foreign countries)

30. Total inventory/index of the compendium

Explanation of the pioneers in the field of disaster medicine in Japan, comprehensive index:Japanese and English, and list of disaster medicine textbook supplements - explanation of disaster medicine video library.

Table(3)

Table(4): An example of alphabetical index. A and B

Alphabetical Index: total,

Disaster Medicine Compendium, Japanese Version, 2006

By Haraguchi Y, Tomoyasu Y, Nishi H, et al

Clinical Research Insitute, National Hospital Organization Disaster Medical Center, etc

災害医療体系:

国立病院機構災害医療センター 臨床研究部 編

A	Item	Vol.No.	Page
A	ABC	VI	43.
A	*ABC 災害・disaster*	⑰	*1*
A	ACEP	VI	29.
A	actor network	VI	44.
A	AED	⑫	51. 54,
A	*aero(air)-medical transportaiton (system)*	⑬	*79, 91. 110*
A	AFRRI	⑰	9・115・165
A	*agents of bioterrorism*	⑲	*130*
A	*Air Ambulance Service of New South Wales*	⑬	*101*
A	airway	VI	43.
A	*Alfred Hospital, Melbourne*	⑬	*93*
A	*Alibeck K*	⑲	*255・256・269・414*
A	ALS, ACLS	⑫	51.
A	*ALS:Advanced Life Support*	⑰	*5*
A	*ALSG(Advance Life Support Group)*	X	*120*
A	AMC:Army Medical Center	II	195
A	AMDA	IV	332
A	AMDA	V	381
A	AMDA	VI	190.
A	Amifostine	⑰	172
A	Anthrax	⑰	95・193・199
A	*anthrax*	⑲	*119・296*
A	*apoptosis*	⑰	*13*
A	Arizona Enhanced Surveillance Project	⑰	206
A	*ASD*	⑰	*65*
A	Asian Disaster Reduction Center	II	253.277
A	*assessment of industrial chemicals*	⑳	*177*
A	ATCJ	⑫	115
A	Atlanta	IX	259. 262.
A	*atropin sulfate*	⑳	*96. 113.*
A	*Aum Shinrikyo(religious group)*	⑳	*141*
A	awareness	VI	170.

Alphabetical Index: t

Disaster Medicine Compendium, Japanese V

By Haraguchi Y, Tomoyasu Y, Nishi

Clinical Research Insitute, National I

Organization Disaster Medical Cente

災害医療体系:

国立病院機構災害医療センター 臨床研

B	Item	Vol.No.
B	BBC	III
B	B-Biological	VIII
B	BC:business continuity	IX
B	BCM:business continuity management	IX
B	BC テロ災害/BC terrorism	VIII
B	Becker SM	IX
B	*big science*	⑳
B	Biloxi hospital	⑮
B	*biological agent*	⑳
B	bioterrorism	
B	*Bioterrorism*	⑲
B	Bird flu	⑰
B	blast injury	⑫
B	*blood examination*	⑲
B	Bosner, L	II
B	*Botulinum Toxin*	⑲
B	Botulism	⑰
B	*Botulism*	⑲
B	Breathing	VI
B	Bronze	VI
B	bronze レベル	VI
B	Burkle, Jr	II
B	bush fire	⑮
B	BWC	II
B	*BWC*	⑲

Acknowledgements

We would like to thank the Health, Labor and Welfare Ministry of Japan, the many doctors and medical personnel of our hospital who offered their assistance and guidance. We would also like to thank the following hospitals for serving as a reference point : various hospitals in Atlanta and Washington, D.C. in the United States, and Linkopin University Hospital in Sweden.

We would also like to thank the following for their guidance and support: Professor. H. Siegelson, Professor. S. Lennquist, Dr. R. Eng, Dr. J. Haack, Dr. T. Mather, Dr. T. Takeda, Dr. Tetsu Ishihara, Professor S. Becker, Dr. T.Satoh, Professor Y. Yamamoto, Dr. N. Ohhashi, Dr. T. Okumura, I. Nagata.

We would also like to thank the following for assistance in this research project.

** 2001/2002 Nuclear Examination Research Project (Research on Systematic Emergency Medical Treatment for victims of radiation exposure and contamination including severe concomitant injury– a focus on swift, safe transport that prevents the expansion of contamination - Yoshikura Haraguchi, Chief Researcher) • *2001/2002 Health Science Research Project (Comprehensive Research Project on Evaluation of Medical Technology: Research on Comprehensive Medical Response to Nuclear, Biotoxin and Chemical (NBC) and Related Disasters– for the establishment of a multifaceted system of response - Yoshikura Haraguchi, Chief Researcher)*

*· * 2005/2006 Ministry of Education, Culture, Sports, Science and Technology, Basic Research (Shigekawa Kishii, Chief Researcher)*

Part of this paper is presented and distributed in the 8th APCDM, Tokyo, November 2006.

Sunday, August 12, 2007 3:13 PM

p.s. I thank to Frank Arhcer and Marbin Birnbaum for their support..

disaster medicine compendium, Haraguchi Y. 検索

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【ログイン】

約33件

ウェブ検索結果

55th Meeting第55回総会(Adobe PDF) - htmlで見る

Professor Y. Fukuchi, Tokyo University, Dr. H. Taguchi ..... **Y. Haraguchi**, National Hospital Tok yo **Disaster Medical** Center ..... H20Sep ICMS2008 Chosi. 2010/1/12 flue 2nd meetingH20Sep 8. The world first **compendium** of disaster medicine ...
www7b.biglobe.ne.jp/~akisatohito/ics_j55/H21ICSJ_hyaddress_final_1.pdf

臨床研究部(Microsoft Word) - htmlで見る

2 **Haraguchi**, Y.,Tomoyasu Y., Nishi H.,Yamamoto Y., Ohta M., Aono M., Ohashi N ., Ishihara T., Ninomiya N and Hoshino M. Intensive Care and **Disaster Medicine**: the Significance of the **Compendium** and Direct of Make-up the Disaster ...
medical.nho-dmc.jp/nenpou/2007/h19_rinshokenkyu.doc

(P1-47) **Disaster Medicine** and the Philosophy - このページを和訳

25 May 2011 ... **Y. Haraguchia1**. a1 Surgery, Tokyo, Japan. Abstract. There are many problem s, to be solved in the actual fields of **disaster medicine**. That is the reason why we completed t he **disaster medicine compendium**, 2005. As the next ...
journals.cambridge.org/abstract_S1049023X11003797

(P1-48) Rethinking the "**Disaster** Club" as a Student Interest Group ...(Adobe PDF)

(P1-47) **Disaster Medicine** and the Philosophy. **Y. Haraguchi**. Surgery, Tokyo, Japan. There a re many problems, to be solved in the actual fields of **disaster medicine**. That is the reason wh y we completed the **disaster medicine compendium** ...
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(P1-74) Introduction of the Portable Decontamination Unit of ...(Adobe PDF)

the Viewpoint of "**Disaster Medicine Compendium**". **Y. Haraguchi**. Surgery, Tokyo , Japan. T he world must be resilient against major disasters, whether they are caused by natural hazards or human-related mechanisms. Nowadays, outbreaks ...
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Ishihara T., Ninomiya N and Hoshino M. Intensive Care and **Disaster Medicine**: the Significanc e of the **Compendium** and Direct of Make-up the **Disaster Medical**. Guidelines April 28- 29,20 07. 3. **Haraguchi Y**, Tomoyasu Y, Nishi H,. **Haraguchi** ...
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Abstracts of Scientific and Invited Papers 15th World Congress for ...(Adobe PDF)

of the **Compendium**. **Y. Haraguchi**; Y. Tomoyasu; Y. H. Nishi; Y. Yamamoto;. M. Ohta; N. Oha shi; T. Ishihara. The Japanese **Compendium** Team for Disaster, Tokyo, Japan. During the pas t several years, **disaster medicine** has been increasing ...
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バックナンバー:日本渡航医学会誌 - 医学文献検索サービス -メディカル ...

Y. Chigusa1, T. Inoue2, M. Kirinoki1, N. Hayashi1, N.L. Arevalo3, L.S. Sunico4, N.P. Boldero5, E.A. Villacorte6, J.A.A. Solon6, ... Yoshikura **Haraguchi**, Yozo Tomoyasu, Hosei Nishi, **Disaste r Medicine Compendium** Editing Team, Japan ...
mol.medicalonline.jp/archive/search?jo=dt7trahe&vo=&nu=suppl - キャッシュ

バックナンバー:日本渡航医学会誌 - 医学文献検索サービス -メディカル ...

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(P1-50) Pilot Study: The Challenges of Full Scale Radiation ...(Adobe PDF)

(P1-47) **Disaster Medicine** and the Philosophy. **Y. Haraguchi**. Surgery, Tokyo, Japan. There a re many problems, to be solved in the actual fields of **disaster medicine**. That is the reason wh y we completed the **disaster medicine compendium** ...
journals.cambridge.org/article_S1049023X11003827

(P1-46) A Model of Mass Casualty Management Education: The ...(Adobe PDF)

(P1-47) **Disaster Medicine** and the Philosophy. **Y. Haraguchi**. Surgery, Tokyo, Japan. There a re many problems, to be solved in the actual fields of **disaster medicine**. That is the reason wh y we completed the **disaster medicine compendium** ...
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www.pref.ibaraki.jp/bukyoku/seikan/gental/nuclear/bosai/pdf/200207haraguchiiinteikyousiryo...

Volume 21, Supplement 1 14th World Congress for **Disaster** and ...(Adobe PDF) - htmlで見る

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pdm.medicine.wisc.edu/Volume_22/Issue_2/supplement_index.pdf

Chemical warfare agents - このページを和訳

However, mass casualties were prevented not as a consequence of the **medical** response but because of the inefficiency of the delivery method.[5] Subsequent ..... Preparing the nation to a ddress the dangers from the chemical **disaster** is a major challenge. .... **Compendium** of chemi cal warfare agents. New York, USA: ..... Levitin HW, Siegelson HJ, Dickinson S, Halpern P, **Har aguchi Y**, Nocera A, et al. ...
www.ncbi.nlm.nih.gov/pmc/articles/PMC3148621/

Chemical warfare agents Vijayaraghavan R, Ganesan K, Raza SK ... - このページを和訳

20 Feb 2010 ... The characteristics of various CW agents, general information relevant to curren t physical as well as **medical** protection methods, detection ..... Levitin HW, Siegelson HJ, Dicki nson S, Halpern P, **Haraguchi Y**, Nocera A, et al. ...
www.jpbsonline.org/article.asp?issn=0975-7406;year=2010;volume=2;issue=3;spage=166;ep...

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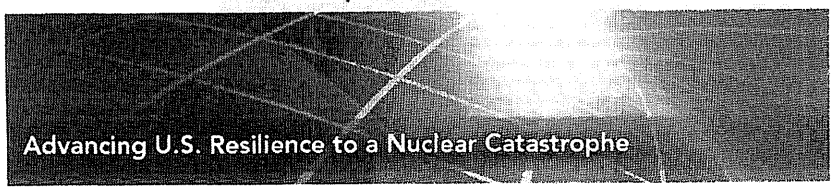
ウェブ全体 日本語のページのみ

3 - (3) Responding to Mass Radiation Exposure: Lessons Learned from Japan's Nuclear Crisis (a Panel Discussion)

This paper was presented at a meeting held in May 2011 in Washington DC.

I appreciate the maximal support from Mr. Iyasu Nagata and S.M. Becker.

Center for Biosecurity UPMC



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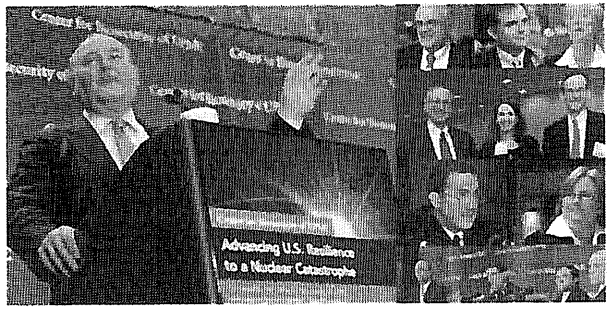


Conference Report

Prepared by Eric Toner, Mary Beth Hansen, Tara Kirk Sell, Sam Wollner, Matthew Watson, Kunal Rambhia, Nidhi Bouri, Yuliya Seldina

Contents

Introduction

The Center for Biosecurity's meeting *Advancing U.S. Resilience to a Nuclear Catastrophe* (May 19, 2011, Washington, DC) focused on policies and new proposals to strengthen the capacity of major U.S. cities, and the nation as a whole, to withstand a nuclear catastrophe. With particular emphasis on response to a terrorist detonation of a nuclear weapon and early lessons emerging from the recent Fukushima Daiichi nuclear disaster, distinguished speakers and panelists addressed a number of key issues, including governance challenges, measures to protect people from nuclear fallout, and new proposals for building medical response capacity.

The summary that follows provides a brief synopsis of panel discussions and individual presentations. We invite you to explore the conference website, where you will find videos of the day's discussions as well as the conference agenda and other relevant materials.

This meeting was made possible by the generous support of the Alfred P. Sloan Foundation.

Responding to New Nuclear Challenges

Thomas Inglesby

New approaches to longstanding issues. Dr. Inglesby opened the conference with a quote from President John F. Kennedy, who, in speaking of civil defense against nuclear attack 50 years ago, said, "It is insurance we trust will never be needed, but insurance which we could never forgive ourselves for foregoing in the event of catastrophe." While the nuclear threat has evolved over 50 years, preparation for nuclear crises is still insurance which we could never forgive ourselves for foregoing in the event of catastrophe.

Dr. Inglesby described the aim of the conference—to examine ways to improve the nation's ability to respond to a nuclear detonation in a major city or to an accident at a nuclear power plant. Nuclear terrorism and nuclear accidents are longstanding challenges, but what is new is a better understanding of what we can do to reduce the consequences of these crises and a greater willingness to discuss this publicly.

Dr. Inglesby made four major points.

The possibility of a nuclear detonation is serious enough that we need to plan our response ahead of time. There is enough fissile material in the world to make more than 120,000 nuclear weapons, with more than 1,100 facilities under IAEA safeguard. Terrorist groups have expressed interest in acquiring and using nuclear weapons, and, should they get fissile material, there is information publicly available on how to make a weapon.

Advance planning could save tens of thousands of lives. The greatest single preventive measure would be to reduce radiation fallout exposure. Another major area of lifesaving would be a plan to provide medical care for the exposed. Public engagement must take place in advance of a nuclear detonation so that people will know to seek lifesaving protective shelter before instructions can be given by the government.

U.S. reliance on nuclear energy will persist for the foreseeable future. Therefore, we need to be prepared for swift and effective response in the event of an accident.

A critical part of nuclear plant safety is managing the consequences of an accident outside the bounds of the plant. Events in Japan attest to the need to ensure that the U.S. has adequate planning that addresses evacuation, public communication, countermeasures, hospital response, and recovery.

Bounding the Problem: Updated Models of the Effects of a Nuclear Detonation in a Major City

Reggie Ruddemeier

Mr. Buddemeier reviewed the anticipated consequences of a nuclear detonation in a contemporary urban setting. He presented the results of computer modeling of a 10-kiloton ground burst in several U.S. cities to highlight recent advances in our understanding of these effects.

Plume modeling has gotten more sophisticated and accurate. The incorporation of weather data has produced more complex plume models that better reflect the high variability of wind conditions than the traditional "cigar shaped" plumes used before. New advances in modeling increase our ability to predict the physical movement of plumes in order to better prepare to take lifesaving measures.

It is now possible to model blast and fallout effects block by block. Data on actual housing stock in various cities have been combined with data on overpressure, heat, prompt radiation, and fallout to predict the effects of a detonation down to the level of an individual city block.

Blast effects below ground will be less extensive than previously thought. Computer modeling based on historical data suggests that the collapse of major underground tunnels (eg, subway tunnels) would probably extend to a distance of just 250 meters from the site of the blast.

Fallout protection is more important and better than previously thought. Fallout protection provided by buildings appears to be greater than originally thought. New work by Oak Ridge National Laboratory suggests that Civil Defense guidance on shelter protective factors underestimated their effectiveness in protecting against fallout radiation.

Almost all fallout radiation injuries are preventable if people take the right protective actions. More than 50% of radiation exposures will occur during the first 60 minutes and 80% during the first 24

hours after a nuclear detonation, while at the same time, fallout radiation levels will be decaying rapidly. Therefore, sheltering for 4 to 12 hours will reduce radiation exposure significantly.

Mr. Buddemeier illustrated the value of sheltering with results of computer modeling. Following a 10-kiloton detonation in the central Los Angeles, there would be approximately 280,000 deaths if no shelter were taken. If everyone went inside even a poor shelter, such as a wood frame house, then approximately 160,000 people would be protected from significant radiation exposure. If all those outdoors quickly went inside an adequate shelter, such as a commercial building, then 240,000 people would avoid exposure to dangerous levels of radiation.

Preparing the Public to Take Protective Actions against Fallout

Ann Norwood, Monica Schoch-Spana, Dennis Mileti, David McKernan

Monica Schoch-Spana, Dennis Mileti, and David McKernan, with Ann Norwood as moderator, discussed approaches to educating the public in advance of a nuclear catastrophe.

Fallout protection is not getting the attention it deserves. Dr. Ann Norwood noted that threat fatigue, local fiscal constraints, and reluctance by officials to alarm the public have inhibited efforts to prepare the public for a nuclear detonation. She said that fear of public panic in the face of such discussion is unwarranted and that officials often underestimate the public's ability to handle difficult problems. Dr. Norwood emphasized that a small additional investment in fallout-specific preparedness activities could be highly beneficial in terms of lives saved and could complement existing "all hazards" approaches.

New Center for Biosecurity project will help create radiation (rad) resilient cities. Dr. Monica Schoch-Spana, Chair of the Nuclear Resilience Expert Advisory Group, introduced the Center's Rad Resilient City Project. The goal of the project is to develop a consensus checklist of 7 preparedness actions that cities could take to save tens of thousands of lives following a nuclear detonation. The checklist, endorsed by the diverse range of government and nongovernment experts and practitioners on the Nuclear Resilience Expert Advisory Group, will be provided to leaders of cities at high risk of terrorism. The ultimate goal is to create a unified vision of nuclear preparedness and chart a course toward fallout protection based on specific, concrete actions. Dr. Schoch-Spana noted that the Rad Resilient City Project will greatly advance local planning and should serve to create momentum for tackling other nuclear response and recovery issues.

We know what works to motivate people to prepare for emergencies. Dr. Dennis Mileti summarized the results of his latest research on what works to motivate people to take action to prepare for disasters.

In short, people of all stripes will respond to calls to prepare for disaster if 3 conditions exist:

1. They can observe others—friends, family, coworkers—taking the encouraged action.
2. Preparedness messages are clearly focused on action, not risk. People want to know what to do, how to do it and how taking such action will cut their losses. People are not interested in messages that focus on risk and science.
3. Messages must be consistent, and they must be delivered repetitively by a variety of trusted sources, across multiple channels.

Local realities in preparedness are difficult. David McKernan shared his perspectives as an emergency manager who is working to address fallout preparedness in his jurisdiction. He stated that in Fairfax County, VA, sheltering is the only feasible option because dense traffic would make evacuation impossible. He also noted that preparedness activities in his county are continuing, but with diminished resources due to steady decreases in funding.

Mr. McKernan called for more research to provide local governments with critical information on the consequences of a nuclear detonation and more information on response.

New Proposals and Recent Progress on Medical Response to a Nuclear Detonation

Dr. Richard Waldhorn moderated this panel's discussion of the status and future prospects for the medical response to a nuclear detonation in an American city. He set the stage by explaining that after such an event, more than 150,000 people might have survivable injuries and an additional 125,000 people may be exposed to dangerous levels of radiation. Basic hospital care would likely save many lives, but the local medical response capacity would be severely

degraded, even as tens or hundreds of thousands of survivors would seek care. Dr. Waldhorn noted the critical need to evaluate existing medical response plans, consider their feasibility, identify gaps, and think creatively about how to address them.

There has been progress in national planning. Dr. John Hick discussed both the challenges of medical response to a nuclear detonation and recent progress in planning.

To begin, he described HHS's Radiation Triage, Transport, and Treatment (RTR) system, noting that it would translate operationally to the establishment of *ad hoc* collection points staffed by EMS providers. These sites would provide primary triage and points of assembly and evacuation for the uninjured.

Dr. Hick then described a phased triage system, wherein healthcare providers should focus almost exclusively on the treatment of survivable traumatic injuries early in the response, as the presentation of manageable radiation injuries will be delayed.

Finally, Dr. Hick emphasized that the provision of adequate medical care to the surviving population will require the participation of medical centers across the country, which makes rapid transportation and distribution of patients an integral part of preparedness for a nuclear detonation.

Radiation Injury Treatment Network. Dr. David Weinstock described results of a survey administered to 40 institutions that participate in the Radiation Injury Treatment Network (RITN), a consortium of academic medical centers that volunteer to provide hospital care of patients exposed to radiation. The survey was conducted to assess the ability of facilities to increase their surge capacity under a range of hypothetical interventions. Taken together, the RITN survey indicates that network surge capacity can increase dramatically (up to 12,000 patients) by utilizing alternate care sites and by dramatically altering standards of care.

High throughput ALC: A novel approach to mass screening for radiation exposure. Dr. Eric Toner presented a novel proposal for screening up to a million people for dangerous levels of radiation in just a few days. Currently, there is no operational plan to identify those who have survivable radiation exposures within the 24 to 48 hour period necessary to deliver lifesaving medical intervention.

Dr. Toner noted that current approaches to testing for radiation exposure are impractical on a very large scale. However, there is growing consensus that the absolute lymphocyte count (ALC) is the most practical indicator of radiation exposure in this setting, as it can be quickly performed in most clinical laboratories.

Dr. Toner proposed that, if the nation's large commercial clinical laboratories could be engaged, then their wide geographic reach, surge capacity, and logistical capabilities could be leveraged to great benefit. Large commercial labs have the surge capacity to perform approximately a million ALCs in the required timeframe, and they have the information technology needed to deliver the results to clinicians across the country. For this approach to be viable, however, a number of challenges must be overcome. The Center for Biosecurity is exploring possible solutions to these challenges and will be publishing a detailed proposal in the near future.

Lessons from Three Mile Island for American Nuclear Response

Harold Denton

Harold Denton opened his presentation by detailing the circumstances of the Three Mile Island (TMI) nuclear reactor accident, during which he was the Director of the Office of Nuclear Reactor Regulation.

Communication is central to response. An inadequate communication system left the federal government in the dark for several days about the escalating crisis at TMI. Mr. Denton explained that the communication system at TMI consisted of 2 telephones and plant operators who were so overwhelmed with response efforts that they did not have time to communicate with state or federal officials about what was happening or to provide Mr. Denton with adequate information once he arrived. Consequently, for several days, the federal government was unaware of the seriousness of the escalating crisis.

Support, access, and trust are essential. As President Carter's point person at the scene, Mr. Denton had the full support of the federal government to manage the crisis. He provided President Carter with briefings twice daily and worked closely with Pennsylvania's Governor Thornburgh. Mr. Denton noted that this direct access to these leaders allowed him to effectively coordinate the federal and state response.

To position the NRC as a trusted and independent authority, Mr. Denton refused to issue joint statements with the plant operators, opting instead to issue separate daily updates to the public.

Because he had the full support of the president, Mr. Denton also had access to resources, such as the unparalleled logistical capacity of the U.S. military, which he credited with getting necessary supplies to TMI that no other organization could have delivered.

Important changes followed the TMI crisis. The TMI accident is a model for effective federal and state coordination and disaster management during a crisis. The Federal Emergency Management Agency was created in response to this event and was assigned responsibility for coordination during radiological events. To avoid similar problems with communications, all U.S. nuclear reactors are now hardwired to a central surveillance database with real-time reactor status updates, and all relevant domestic and international agencies have rapid access to nuclear reactor performance data.

Full investigation of Fukushima Daiichi is needed. Mr. Denton concluded his discussion by calling for a thorough investigation of the situation at the damaged nuclear power plant in Fukushima. He noted that it would be difficult for the Japanese government or the NRC to learn any lessons from the accident without an independent investigation.

Based on his own experience, though, he did suggest that it would be helpful for the Japanese to have one central spokesperson who can unify the response by keeping decision makers and the press fully informed. Mr. Denton also suggested that the U.S. should reassess its guidelines for evacuation and re-entry into radiation zones.

Leadership in Times of National Crisis

Thad Allen

Admiral Thad Allen reflected on his experience as the federal Incident Commander for the BP oil spill and Hurricanes Katrina and Rita, and he focused his discussion on the legal framework for U.S. disaster response and the role and influence of technical experts and political leaders.

He painted a vivid picture of the complexities of the legal doctrine and authorities at play in disaster response. For instance, he reminded the audience that, absent decapitation of leadership, there is no legal authority for the federal government to preempt state or local leadership in the response to a natural disaster, such as Hurricane Katrina. Leadership requires the ability to work around those constraints and to collaborate with state and local governments effectively.

In contrasting the experience in New Orleans with that of the oil spill, Adm. Allen explained that in the Gulf, there was clear cause for federal preemption because the spill involved 5 states and occurred far off shore. However, under law, responsibility for capping the well rested with BP. Adm. Allen was responsible for holding BP accountable, but BP was responsible for doing the work.

Against that backdrop, Adm. Allen also had to meet the expectations of the president and other government and political leaders, and he had to satisfy the public demand for action. To meet those demands, he established an interagency solutions group to manage aspects of the response that did not fall within the scope of BP's responsibility. He emphasized that private sector and government collaboration is crucial to a one-nation response to a crisis.

Adm. Allen closed by stressing that it is essential for the federal government to learn how to harness and apply the computational power of information technology, to make effective use of expanded bandwidth, and to understand the influence of social media. He asserted that currently, "we don't get it," and that this must change in order to take advantage of cloud computing and other modern technical advances that would enable the government to marshal all resources during emergency response activities.

Preparedness for a Nuclear Disaster: Views From Europe

Ray Powles

Dr. Ray Powles described medical preparedness in Europe for releases of radiological material and discussed a number of ongoing efforts to strengthen regional and global preparedness for a large-scale radiological incident.

The European Group for Blood and Marrow Transplant (EBMT) Nuclear Accident Committee (NAC). The membership of the NAC comprises approximately 500 medical centers and more than 2,000 specialists in hematology and stem cell transplantation from throughout Europe. The NAC was formed after the 9/11 attacks, in response to the threat posed by terrorist acquisition and utilization of a radiological dispersal devise (RDD) in a European nation. The NAC

conducted planning and training activities with their members in response to an overt, or "dirty bomb" scenario, as well as a covert radiation release scenario, in which a small amount of radioactive material, potentially obtained from a medical device, would be located to expose large numbers of people. Dr. Powles reported that the NAC's training and planning efforts served as catalysts for preparedness initiatives by European governments. He further noted that, in contrast to the European Union's diffuse political system, the unity provided by the federal government gives the U.S. a unique advantage regarding preparedness and response planning for large-scale terrorist attacks.

UK is preparing for Olympics. In 2008, a subset of the EBMT's members based in the UK began planning for the 2012 Olympics. One goal of that initiative is to locate treatment sites that would be able to manage up to 200 patients with acute neutropenia from a significant but salvageable radiation exposure. Using a National Health Service database, the investigators were able to identify 132 facilities and more than 2,300 beds that could take those patients, a number that more than meets anticipated need. Training is ongoing to prepare those facilities to receive, triage, and care for patients who have been irradiated.

EBMT response to Fukushima Daiichi. Dr. Powles reviewed the EBMT's response to the release of radioisotopes at the Fukushima Daiichi nuclear power plant in Japan. The EBMT was able to utilize its pre-existing network of providers to rapidly identify those would be willing to help if needed--by providing advice, sharing scarce medical resources, and potentially caring for patients if the Japanese healthcare system became overwhelmed. While the health impact due to radiation from this event was minimal, Dr. Powles noted that 441 centers around the world were mobilized in a "workable timeframe." He also noted that the events at Fukushima Daiichi could be viewed as a real time drill for a much larger response and that optimization of this response would be a focus of the EBMT going forward.

Finally, Dr. Powles made it a point to emphasize the exemplary coordination and harmonization among the United States' RITN, the EBMT, and the World Health Organization. He concluded his remarks by reiterating a common theme of the conference, which is that lives would certainly be lost in the event of a nuclear detonation, but the opportunity to save many lives does exist.

Lessons for the U.S. from the Japanese Nuclear Crisis

William Ostendorff

The Honorable William Ostendorff provided an overview of the NRC's role in response to the Fukushima Daiichi nuclear plant disaster and described the NRC's efforts to improve safety and security of nuclear plants in the U.S.

NRC's role is licensing and regulation. Mr. Ostendorff began by describing the role of the NRC—to license and regulate the civilian nuclear industry in the U.S. The agency regulates 104 commercial reactors, 32 test reactors, nuclear waste, and radiological materials used in various industries. He emphasized that the NRC was founded to ensure *adequate* protection of public health and safety, not to guarantee that an accident or disaster would never happen.

Information about Fukushima Daiichi still not complete. Mr. Ostendorff stated that a lack of reliable information complicated the response to the nuclear disaster in Japan, and that much of what happened is still not clear. As a result, contradictory reports have affected both the response and the perception of the response.

NRC provided information to but did not close U.S. nuclear plants. In response to events in Japan, the U.S. did not rush to close its nuclear reactors as other nations did. Instead, the NRC sent information about the disaster to U.S. licensees and instructed resident inspectors at the reactors to check each facility for equipment to combat flooding, fires, and loss of power. The Commission also issued a bulletin to provide licensees with information on mitigation strategies for disasters and extreme events.

More facts needed to derive lessons from Japan. Mr. Ostendorff noted that it will take time to derive lessons learned from the Fukushima Daiichi disaster, because many of the facts are still unknown. He reinforced that he is confident in the way that the NRC regulates and licenses U.S. nuclear power plants, including the safety systems and mitigation plans. Still, the NRC is conducting a thorough review of the disaster in Japan to learn what it can do to inform and improve its regulations. One important topic of consideration for the U.S. will be recommendations on evacuation and ingestion zones. Though the U.S. recommended a 50-mile evacuation zone in Japan, this may not be practical for U.S. reactors that are located near major metropolitan areas.

The NRC expects to have a short-term and long-term report of lessons learned. The short-term report, due in mid-June, will focus on how natural disasters can affect the safety and operation of nuclear power plants. The long-term report, expected in the next 6 months, will have a larger research agenda and will be based on a more complete understanding of the Fukushima Daiichi disaster.

Mr. Ostendorff concluded by highlighting the need for an effective communications and outreach effort to NRC licensees and to the public on what was learned from Japan, and the implications of those lessons for the U.S., including implications for the NRC's approach to U.S. regulation and licensure. He further emphasized for the need to have robust exercises, particularly those that include problems at more than one reactor, as was the case at Fukushima Daiichi.

Responding to a Mass Radiation Emergency: Lessons Learned from Japan

L-R: Joseph Fitzgerald, Iyasu Nagata (translator), Yoshikura Haraguchi, Steven Becker, Scott Deitchman, Michael Gresalfi

In introducing his panel's discussion, Mr. Fitzgerald contrasted the Fukushima Daiichi incident with Chernobyl, which served to strengthen oversight of Department of Energy (DOE) nuclear facilities, and TMI, which highlighted the need for greater protection from human error. He then suggested that the Fukushima disaster will likely focus attention on the dangers of natural disasters, the robustness of our severe accident response, and public health preparedness for a major radiological release.

Mr. Fitzgerald noted that, in contrast to the intentional detonation of a nuclear device, there are longstanding policy frameworks for nuclear reactor accidents that ought to be reevaluated. He suggested that the U.S. use the Japanese experience as an opportunity to "re-open the books" and apply our best science to better inform relevant policies. With 435 nuclear reactors operating globally and an additional 250 under development, the world is likely to see a major radiological release occur again.

Two perspectives from the front line in Japan. Dr. Yoshikura Haraguchi reminded the audience that the mortality inflicted by the Fukushima nuclear accident paled in comparison to the tsunami, but the radiological release nonetheless added a level of complexity to the disaster that the Japanese authorities had not anticipated

Dr. Steven Becker, who had recently helped lead a 10-day training program on radiation management for Japanese medical professionals, stressed the need for such training. He observed that, while most Japanese medical professionals had received some training for radiation emergencies, the scope of the crisis necessitated additional training and "refreshers" on how to properly assess, treat, and decontaminate patients.

He also emphasized that the social stigma associated with radiation exposure can deprive large segments of the population from access to evacuation centers, public transportation, and other essential resources.

During his visit, Dr. Becker noticed that, contrary to the Japanese government's policy, local authorities began issuing decontamination certificates to victims.

Dr. Becker recommended that the U.S. evaluate integrative approaches to treating radiation victims in order to understand the psychosocial repercussions of radiation exposure.

Robust interagency response aided U.S. domestic response. Dr. Scott Deitchman explained that, while the U.S. Centers for Disease Control and Prevention (CDC) anticipated that there would be detectable levels of radionucleotides in the U.S., the agency had to determine the reliability of measurements and the levels that would warrant a public health response

Thanks to a robust federal interagency response, the CDC was able to determine there was no discernible threat posed by the Japanese releases to the U.S. population. The CDC worked with the Environmental Protection Agency to access its RadNet data, which collects radiation level data from environmental monitors around the country, to determine that potassium iodide prophylactic measures were unnecessary for citizens living on the West Coast. Based on its contact with the Food and Drug Administration, the U.S. Department of Agriculture, and the U.S. Department of Homeland Security , the CDC was able to assess the level of contamination of produce and packages arriving from Japan and reassure the food and shipping industries.

Dr. Deitchman highlighted the public's need for simple, clear messages about the nature of the threat and protective measures. The CDC made an effort to release its findings through every possible media outlet. He noted that the CDC website and social media outlets were particularly effective as they provided an outlet to not only to push CDC's message out, but also to receive feedback from the public.

FEMA is adopting a Whole of Community approach. Dr. Michael Gresalfi observed that the federal response to disasters is usually unable to surge to necessary capacities. Therefore, FEMA is now

working towards a "Whole of Community" approach that aims to help members of the public augment response efforts. Dr. Gresalfi suggested that, through community engagement, the U.S. could avoid the pitfalls of traditional response efforts because if the people on the ground are orchestrating the response to a crisis, the allocation of resources can be most effectively administered He pointed to the Fukushima disaster response as an example in which the media's selective attention to the nuclear accident detracted from awareness and response efforts to meet the needs of tsunami victims

National Leadership in Building Nuclear Resiliency

Brian Kamoie

Mr. Kamoie discussed the Obama administration's approach to preparedness and efforts to build resiliency to a nuclear catastrophe. He stated that while there is no current or imminent threat of a specific nuclear attack, an educated public could help reduce and manage the significant economic, political, and social impacts that could occur because of a nuclear detonation.

President Obama has advanced new policy for preparedness. On March 31, 2011, President Obama signed Presidential Policy Directive 8, which is aimed toward strengthening national preparedness. The directive outlines the president's vision for strengthening the security and resilience of the nation by adopting 3 key principles:

1. All-of-Nation approach to enhance integration among government at all levels, individuals, families, communities, private and nonprofit sectors.
2. All-hazards approach that is more integrated, flexible, and agile, thus conferring the ability to confront any challenge. (FEMA's Whole of Community approach demonstrates this new focus.)
3. A more rigorous assessment system focused on outcomes, so that progress can be measured and tracked over time.

The nation is better prepared now than ever before. Mr. Kamoie stated that even though resources are constrained in today's environment, the nation is better prepared to navigate a catastrophic incident than ever before. For example, the administration has pursued a series of initiatives to improve medical, public health, and environmental preparedness for radiation emergencies, regardless of their cause The administration developed the second edition of the "Planning Guidance for Response to a Nuclear Detonation," released in June 2010, performed several national level exercises based on the nuclear detonation scenario, and helped to develop the Radiation Injury Treatment Network. Another presidential initiative aims to enhance national capability for the development of medical countermeasures against public health threats, including radiation sickness. Finally, the U.S. is reviewing safety plans and mitigation strategies of domestic nuclear power plants in response to events in Japan.

U.S. Response to a Nuclear Crisis: What We Should Learn from Japan

Joseph Krol

RADM Joseph Krol provided an overview of the role of the DOE Office of Emergency Operations in responding to radiological events and emphasized the agency's role in responding to the Fukushima disaster. The office's mission is to serve as the U.S. government's primary response organization for radiological and nuclear events, both domestically and internationally. Operations are split into crisis and consequence management, and the office has a staff of 1,000 people, who deploy approximately 100 times a year, primarily in classified, support-of-military operations.

After assessing the consequences of the release at Fukushima Daiichi, the office had 3 main objectives:

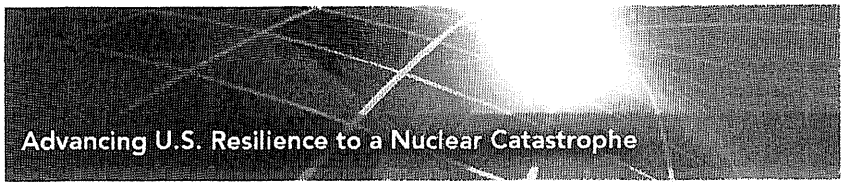
1. Assist the State Department in advising American citizens on protective actions and evacuation guidelines.
2. Assist the Department of Defense in providing disaster relief and humanitarian assistance and in advising military dependents on evacuation.
3. Aid the Japanese government in developing guidelines for protective actions for the public.

The office activated its Radiation Emergency Assistance Center and National Atmospheric Release Advisory Center. A field team was deployed to conduct assessments, aerial modeling, and sampling of releases from the plant and to coordinate communications and assessments activities through the U.S. Embassy. RADM Krol highlighted that DOE scientists served as an unofficial source of radiological advice to military personnel, and that the data produced by sampling and monitoring techniques was very significant in preventing people from going too close to an evacuation area.

Lessons learned for DOE. RADM Krol emphasized that the office's operational response was quite successful, especially because this was the first overseas deployment of its kind. While response efforts are continuing and still being evaluated, there are some key lessons to be learned for future radiological and nuclear events. First, according to Dr. Kroi, response teams must be experienced and adaptable, especially when operating abroad and when U.S. agencies are attempting to carry out nonstandard partnerships. Second, because he did not believe anyone would die from radiation in Japan, Dr. Krol asserted that the total focus of response activities should not be on the nuclear plant. Rather, the focus should include the much more significant industrial contamination and the health risks it poses.

In conclusion, RADM Krol underscored that DOE has the capacity to respond to a nuclear detonation in the U.S., and that the DOE response to the Fukushima disaster exhibits the agency's operational capabilities.

Center for Biosecurity UPMC



Conference Report
Conference Multimedia
Rad Resilient City Project
Agenda
Speakers
Attendees
Sponsor

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Agenda

Responding to New Nuclear Challenges VIDEO

- [redacted], Chief Executive Officer and Director, Center for Biosecurity of UPMC

Bounding the Problem: Updated Models of the Effects of a Nuclear Detonation in a Major City VIDEO PAPER

- [redacted], Global Security Directorate, Lawrence Livermore National Laboratory

Panel 1: Preparing the Public to Take Protective Actions Against Fallout VIDEO

- [redacted], Senior Associate, Center for Biosecurity of UPMC, *Moderator*
- *Building Rad Resilient Cities: A Checklist for Fallout* Preparedness, [redacted], Senior Associate, Center for Biosecurity of UPMC PAPER
- *Public Preparedness: What Really Motivates People*, [redacted], Professor Emeritus of Sociology, University of Colorado at Boulder
- *Local Realities in Preparing for Nuclear Terrorism*, [redacted], Coordinator, Office of Emergency Management, Fairfax County, VA PAPER

Panel 2: New Proposals and Recent Progress on Medical Response to a Nuclear Detonation VIDEO

- [redacted], Contributing Scholar, Center for Biosecurity of UPMC, *Moderator*
- *Health Care Response to a Nuclear Detonation: An Overview of Recent Progress in National Planning*, [redacted], Medical Director for Emergency Preparedness, Hennepin County Medical Center PAPER
- *The Radiation Injury Treatment Network: Leveraging Existing Expertise to Guide Care for Tens of Thousands*, [redacted], Assistant Professor in Medicine, Harvard Medical School, Department of Oncology, Dana-Farber Cancer Institute; Medical Advisor, Radiation Injury Treatment Network PAPER
- *How to Screen a Million People for Radiation Exposure in a Few Days: Harnessing the Private Sector*, [redacted], Senior Associate, Center for Biosecurity of UPMC PAPER

Lessons from Three Mile Island for American Nuclear Response VIDEO

- [redacted], Former Director, Division of Nuclear Reactor Regulation, Nuclear Regulatory Commission

Leadership in Times of National Crisis VIDEO

- [redacted], Senior Fellow, RAND Corporation

Preparedness for a Nuclear Disaster: Views from Europe VIDEO PAPER

- [redacted], Chairman of the European Blood and Marrow Transplantation (EBMT), Society's Nuclear Accident Committee

Lessons for the U.S. from the Japanese Nuclear Crisis VIDEO PAPER

- [redacted], Commissioner, U.S. Nuclear Regulatory Commission

Roundtable Discussion: Responding to a Mass Radiation Emergency: Lessons Learned from Japan VIDEO

- [redacted], Contributing Scholar, Center for Biosecurity of UPMC, *Moderator*
- Yoshikura Haraguchi, National Hospital Tokyo Disaster Medical Center, Department of Critical Care Medicine PAPER
- [redacted], Associate Professor and Vice Chair, Department of Environmental Health Sciences, University of Alabama at Birmingham School of Public Health
- [redacted], Associate Director for Terrorism Preparedness and Response, National Center for Environmental Health and Agency for Toxic Substances and Disease Registry, U.S. Centers for Disease Control and Prevention
- [redacted], Senior Advisor, CBRNE, Response Directorate, Federal Emergency Management Agency PAPER

National Leadership in Building Nuclear Resiliency VIDEO

- [redacted], Senior Director for Preparedness, Resilience Policy, National Security Staff, The White House

U.S. Response to a Nuclear Crisis VIDEO PAPER

- [redacted], Associate Administrator for Emergency Operations, U.S. Department of Energy

Advancing U.S. Resilience to a Nuclear Catastrophe

Conference in Washington, DC

"Advancing U.S. Resilience to a Nuclear Catastrophe"

on May 19th, sponsored by the UPMC Center for Biosecurity in Baltimore

a panel discussion of RESPONDING TO MASS RADIATION EXPOSURE: LESSONS LEARNED FROM JAPAN'S NUCLEAR CRISIS

Yoshikura Haraguchi, MD, Ph.D

Advancing U.S. Resilience to a Nuclear Catastrophe

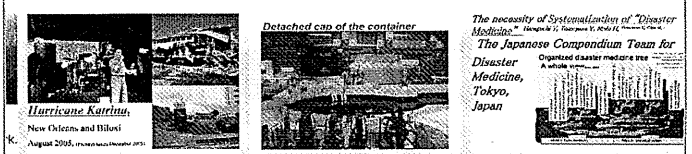
March 11st, 2011, 14:16

"The 2011 off the Pacific coast of Tohoku Earthquake"
"Tohoku Region Pacific Coast Earthquak
"Tohoku – Pacific Ocean Earthquake"
"The Tohoku earthquake" (USGS)
東北地方太平洋沖地震, 東日本大震災, 平成2

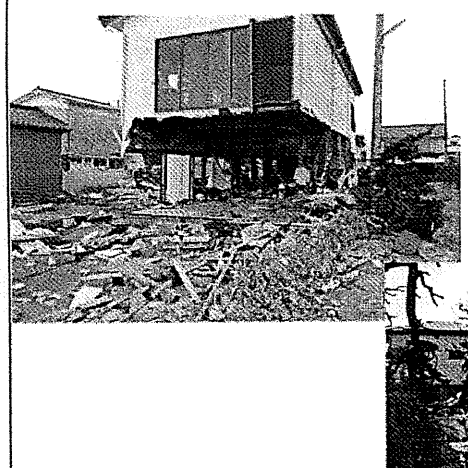
Casualties http://www.mofa.go.jp/mofaj/saigai/index.html
·Deaths 14,817, Wounded 5,279, Missing 10,171
(May 5th: Police Agency)

·Refugees 166,671 (May 2nd: Fire Agency)

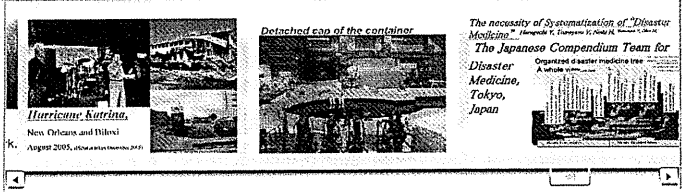
・・東北地方を中心に甚大な被害が発生(その他が関東地方等でも被害あり)。
死者14,817名、負傷者5,279名、行方不明者10,171名(5月5日現在 警察庁)避難者166,671名(5月2日11時00分現在 消防庁)。・



Advancing U.S. Resilience to a Nuclear Catastrophe



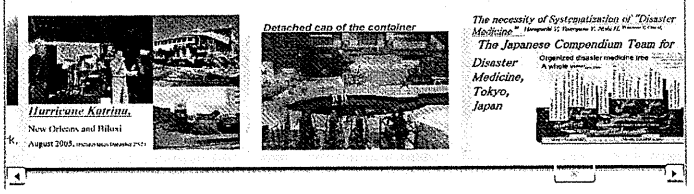
Hisanohama
Iwaki, Fukushima
Tsunami
And Fire



Advancing U.S. Resilience to a Nuclear Catastrophe

Toward the Society of Minimal Misfortune (MMS)

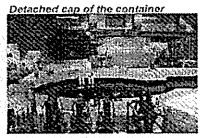
Prime Minister Naoto Kan; Left:
Right: Nationwide Governor/Manor/Chief
Meeting in Japan, May 2009, Tokyo

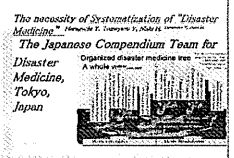


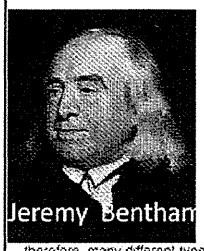
Importance of Philosophy

e.g. Utilitarianism (also: utilism) The famous phrase *"the greatest good for the greatest number of people,"* and also known as "the greatest happiness principle." The idea that the moral worth of an action is determined solely by its utility in providing happiness or pleasure as summed among all sentient beings. It is thus a form of consequentialism, meaning that the moral worth of an action is determined by its *outcome*. The most influential contributors to this ideology were *Jeremy Bentham and John Stuart Mill.*

Modified From Wikipedia, http://en.wikipedia.org/wiki/Utilitarianism





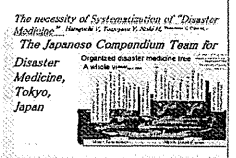


John Stuart Mill

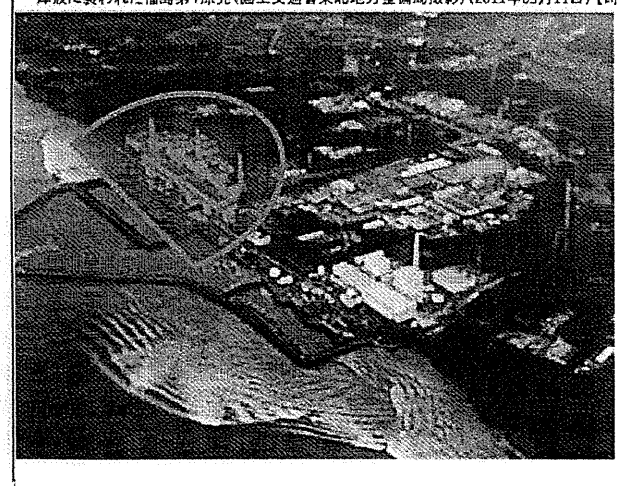
The classic utilitarianism of Bentham and Mill influenced many other philosophers as well as the development of the broader concept of consequentialism. As a result, there now exist many different accounts of the good, and, therefore, many different types of consequentialism besides utilitarianism. Some philosophers Edward Westermarck 2 Vol - reject the sole importance of well-being, arguing that there are intrinsic values other than happiness or pleasure, such as knowledge and autonomy. Other past advocates of utilitarianism include William Godwin, Henry Sidgwick (present Peter Singer) and notably Niccolò Machiavelli.From Wikipedia

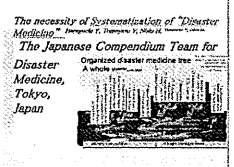
⇔ ***John Rawls:***

The Principle of Justice or Maximin Principle.

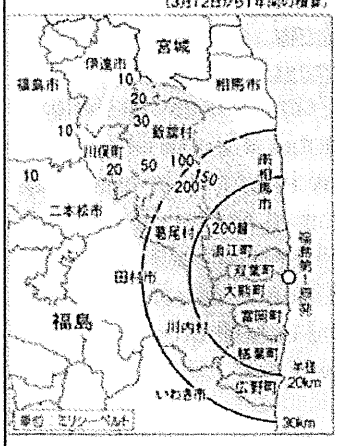


津波に襲われた福島第1原発(国土交通省東北地方整備局撮影)(2011年03月11日)【時事通信社】



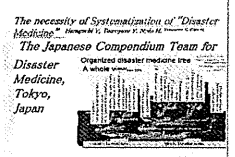


放射線量(推定値)の分布図
(3月12日から1年間の積算)



Tsunami attacked Nuclear Station 東日本大震災で、3月11日に津波が流入した福島第2原発の1号機周辺(写真下)。写真上は地震前(東京電力提供)＝3月11日撮影【時事通信社】

From http://www.jiji.com/jc/c?d=d3&level=70004



Advancing U.S. Resilience to a Nuclear Catastrophe

<< >>

Japanese Government: Three kinds of control

①20 km radius: Not permitted Area

New Direction: April 22nd 2011 from Japanese Government

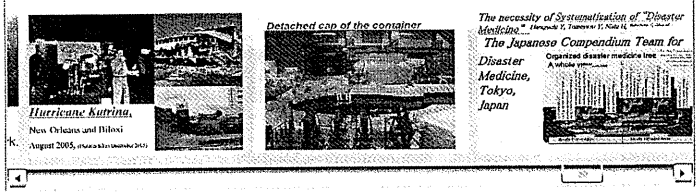
②*Planned or promptly evacuation area* 「計画的避難区域」の設定

(suspected total annual exposure of 20 to 100 mil sieverts

③*Preparation area for emergency evacuation*

Especially CWAP (Children, Pregnant Women, Disabled Persons) should not stay.

The regulation may change.



Advancing U.S. Resilience to a Nuclear Catastrophe

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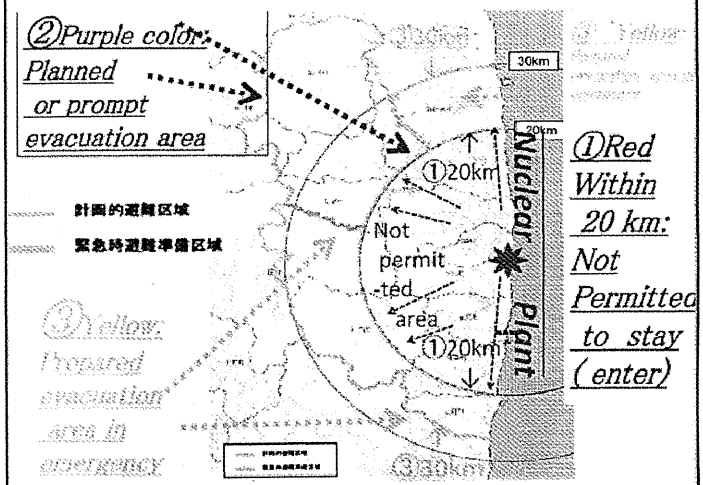

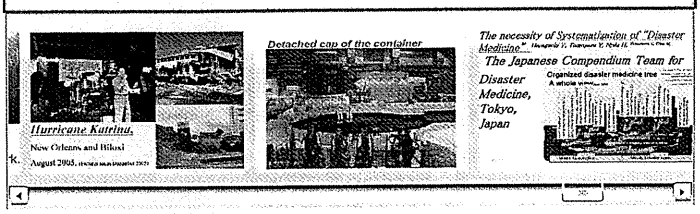

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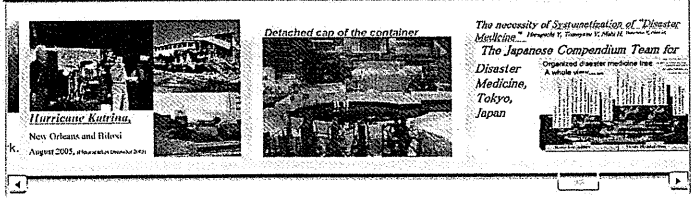
Medical Care with PPE



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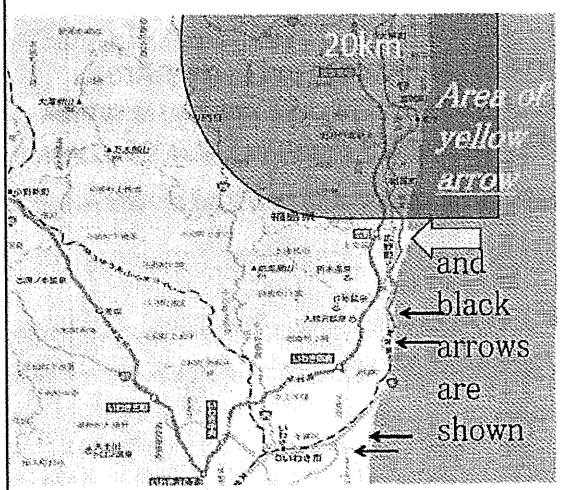

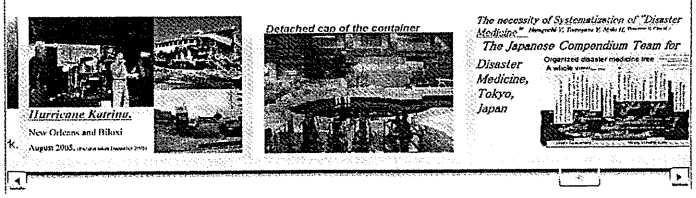

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Traffic Control at the same area

20km from the Fukushima Daiichi Nuclear Plant(Station)

Hurricane Katrina,
New Orleans and Biloxi
August 2005.

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The Japanese Compendium Team for Disaster Medicine, Tokyo, Japan

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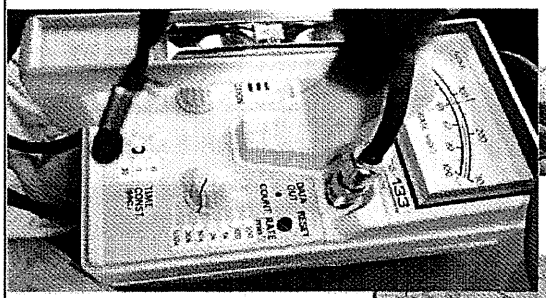

Radioactivity was high, more than 4,000 counts (*more than 40 times*), compared with usual values)March 21, 2011 Yunotaka Parking Area in Highway, in the car

Hurricane Katrina,
New Orleans and Biloxi
August 2005.

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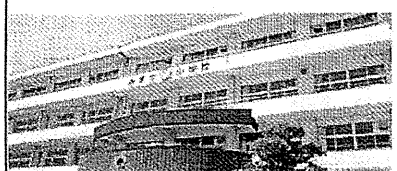

Medical support in the Shelter: Primary School

Hurricane Katrina,
New Orleans and Biloxi
August 2005.

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Shelter

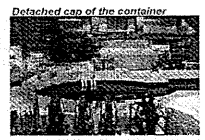
Student,

Younger child,

Aged man

Medical consultation by a nurse in a shelter(primary school). The boy complained headache, yesterday. Appropriate Medical Support is essential. Mimaya Primary School, Hisanohama, Iwakki

Hurricane Katrina,
New Orleans and Biloxi
August 2005.



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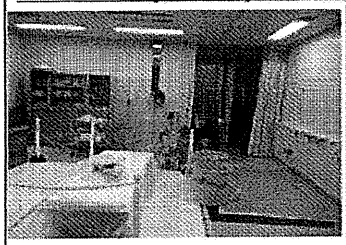
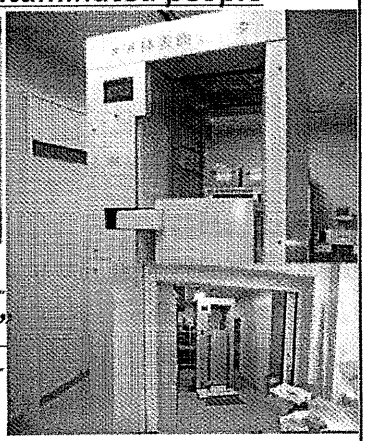
Medical system for contaminated people





March 18, 2011, Mito Medical Center, Ibaragi and its preparedness against "Nuclear Disaster"

So-called "Youjou or 養生" (left) and a whole body counter(right)

Hurricane Katrina,
New Orleans and Biloxi
August 2005,

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Aim of disaster medic

Activities of the Society

社会活動力の範囲

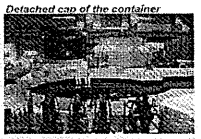
Exhausted Society

災害準備期　災害発生　救出救助　復旧復興

Resilient Society 災害の経過と社会

活動性からみた災害医療の研究の意義・目的

Hurricane Katrina,
New Orleans and Biloxi
August 2005,



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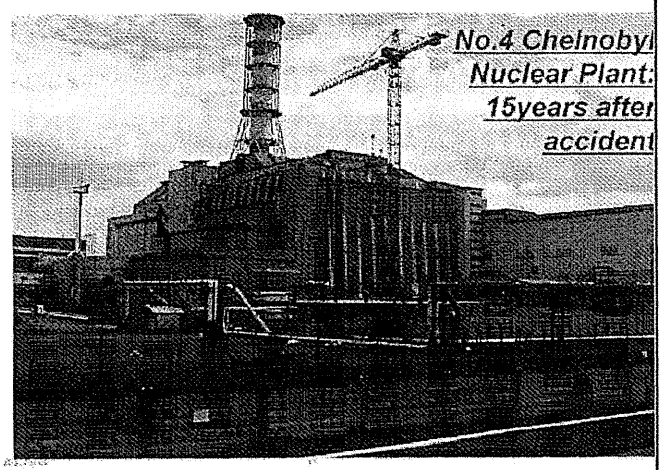
No.4 Chelnobyl Nuclear Plant: 15years after accident



Hurricane Katrina,
New Orleans and Biloxi
August 2005,

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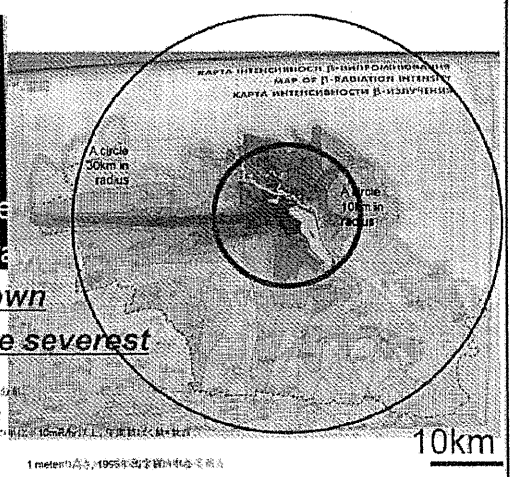
Wide area of ground pollution, indicated by the degree of beta or β ra

The dark brown indicates the severest degree



Hurricane Katrina,
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August 2005,

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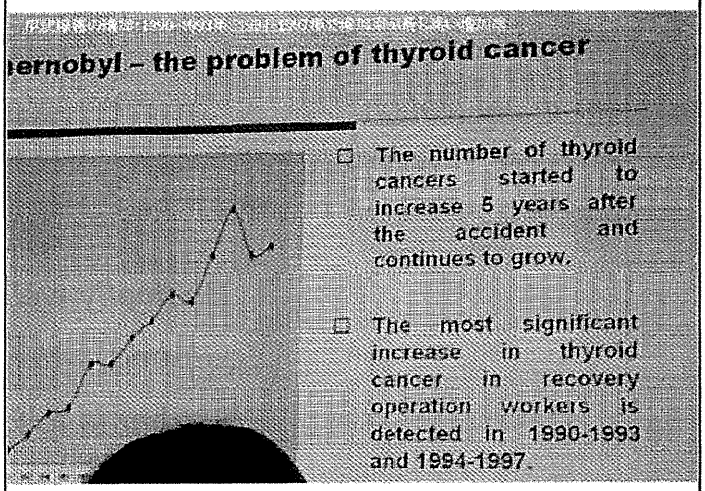

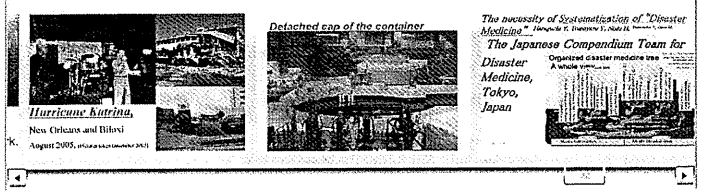

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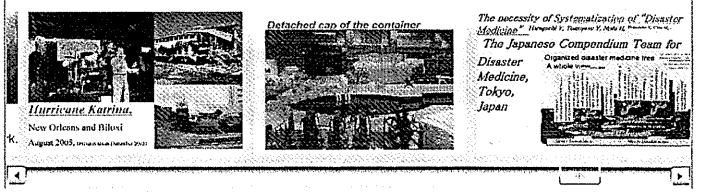

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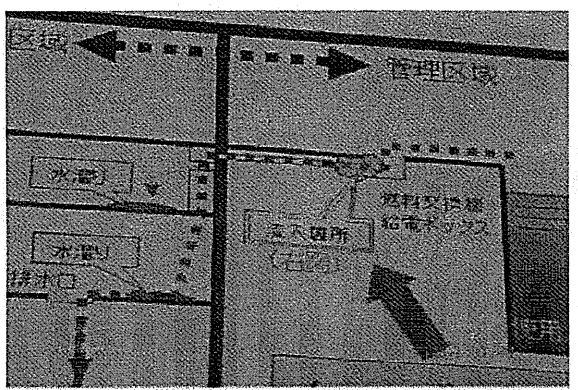

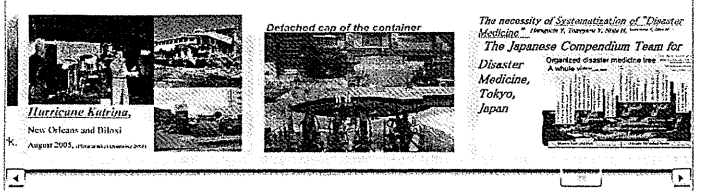

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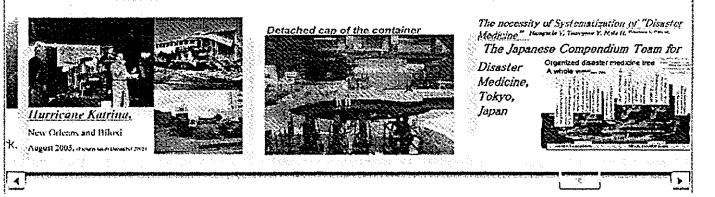

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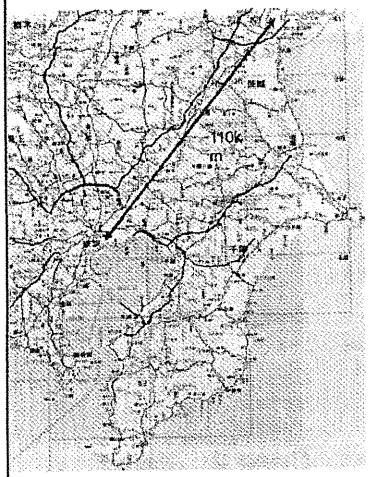

JCO plant Oct.4, 1999

Criticality was caused.

Approximately 100km North West North from the center of **Tokyo**


Hurricane Katrina,
New Orleans and Biloxi
August 2005,


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Organized disaster medicine tree
A whole view

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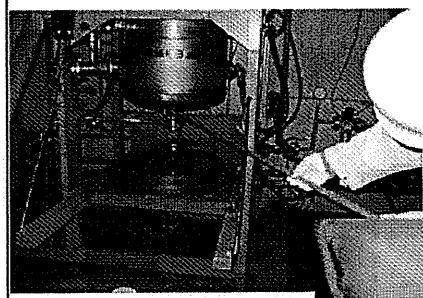

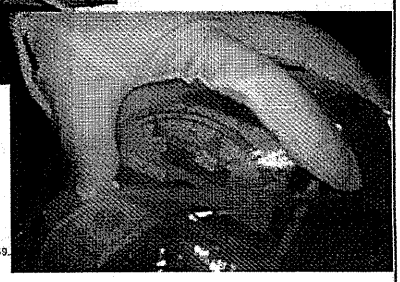

Criticality Incident in this Vessel

Still Radioactivity was lasting

2013/5/23


Hurricane Katrina,
New Orleans and Biloxi
August 2005,


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A whole view

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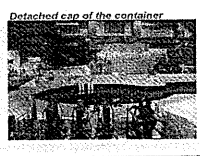
Rupture of Secondary Water Pipe in Mihama Nuclear Plant, Fukui, August 2004.

Eleven workers were involved.
Five died on the spot or after injured.
Six were recovered.


Hurricane Katrina,
New Orleans and Biloxi
August 2005,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A whole view

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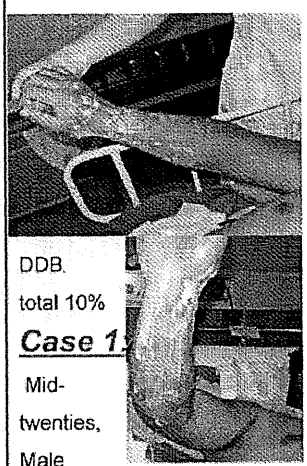
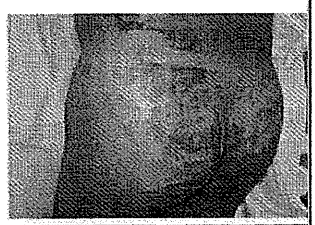
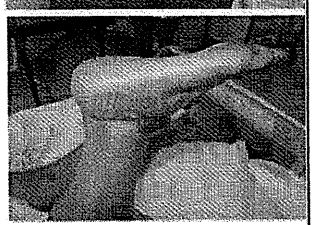


DDB.
total 10%
Case 1:
Mid-twenties, Male





Case 2: Male


Hurricane Katrina,
New Orleans and Biloxi
August 2005,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A whole view

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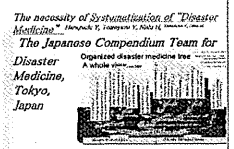
Special care systems for the weak people or CWAP:

long-term nutritional support, essential.

C: children, W: women, A: aged people,
P: the poor or patient

Importance of mental care for victims and medical staff should be considered, too.



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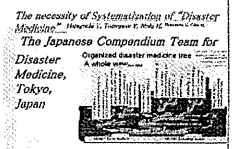
小千谷総合病院からの患者搬送の内の
3名を示す　　Oct 25th, 2004

左上下とは、別の患者の転送　立川病院へ？

Transportation of patients having chronic disease(s)

アンブー
バッグ下呼吸補助しつつ、
左上下の2名の患者を救急車搬送
長岡赤十字病院へ　転送



Advancing U.S. Resilience to a Nuclear Catastrophe

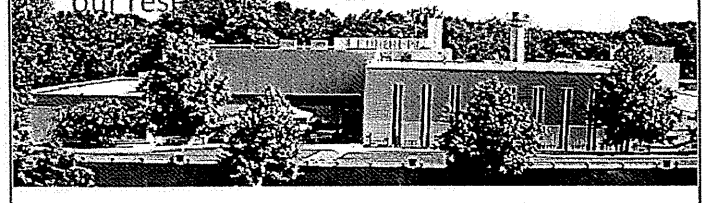
Armed Forces Radiobiology Research Institute

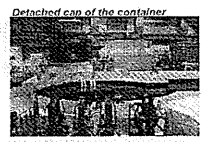
David G. Jarrett, MD
Colonel, United States Army Medical Department
Director, Armed Forces Radiobiology Research Institute
Bethesda, Maryland

AFRRI Research
MEDICAL RADIOLOGICAL DEFENSE
Jarrett@afrri.usuhs.mil www.afrri.usuhs.mil

I would like to present my thanks to ***David G. Jarrett and Eng Robert*** for their support for our research

Japan Emergency Medicine Foundation
March 2004





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Earthquake and Related Disasters, Including Disaster Medicine: ***Summary***

S H A K E

Directly Caused
Landslide, Building Destruction
Tsunami
Fire
Flood

General Trauma and/or Special Disease
Crush Syndrome, etc.
ASR and/orPTSD
PTE, Dust Inhalation
Acute Exacerbation

Natural Disaster: Landslide/Flood in late phases

Secondary Artificial and/or Complex Disaster
Traffic System Disaster
C or Chemical Hazard: Factory, Traffic Disaster
N or Nuclear Hazard: Nuclear Plant etc.
Rumor and/or Demagogy
B or Biological Hazard: Cholera after Haiti Quake, etc.

General Store