

- FAX
E-mail: ktsukada@fire.go.jp
Mr. Katsuo Tsukada Dupty Director, Emergency Medical Service Education Section, Japan
Tokyo Fire Defense Department
Address: 1-3-5, Otemachi, Chiyoda-ku, Tokyo, Japan
Phone
- FAX
E-mail: tshirahama@fire.go.jp
Dr. Tatsuoki Shirahama Director, Self-Defence Force Central Hospital, Japan Defense Japan
Address: tshirahama@fire.go.jp
Phone
FAX
- E-mail: shingo@keio.ac.jp
Dr. Shingo Hori Associate Professor, Department of Emergency Medicine, Japan
Keio University, School of Medicine
Address: 35, Shinanomachi, Shinjuku-ku, Tokyo, Japan
Phone
FAX
- E-mail: yamamoto@nippon.ac.jp
Dr. Yasuhiro Yamamoto Professor, Department of Emergency Medicine, Nippon Japan
Medical School
Address: 1-1-5, Sendagi, Bunkyo-ku, Tokyo, Japan
Phone
FAX
- E-mail: okumura@juntendo.ac.jp
Dr. Toru Okumura Assistant Professor, Emergency Medical Division, Japan
Juntendo University Hospital
Address: 2-1-1, Hongou, Bunkyo-ku, Tokyo, Japan
Phone
FAX
- E-mail: setsuo@nrips.go.jp
Mr. Yasuo Seto Head, Fourth Chemistry Section, Department of Third Japan
Forensic Science, National
Research Institute of Police Science
Address: 6-3-1, Kashiwanoha, Kashiwa-shi, Chiba 277-0882,
Phone
FAX
- E-mail: okudera@sinshu.ac.jp
Dr. Hiroshi Okudera Associate Professor, Emergency Medical Division, Japan
Sinshu University Hospital
Address: okudera@sinshu.ac.jp
Phone
FAX
- E-mail: sasaki@mhlw.go.jp
Dr. Shoichi Sasaki Dupty Director, Guidance of Medical Service Division, Japan
Health Policy Bureau, Ministry of Health, Labour and Welfare
Address: 1-2-2, Kasumigaseki, Chiyoda-ku, Tokyo, Japan
Phone
FAX
- E-mail: ohashi@mpcc.go.jp
Dr. Noriyoshi Ohashi Manager, Japan Poison Information Center Japan
Address: 1-2, Amakubo, Tsukuba, Tokyo, Japan
Phone
FAX
- E-mail: nanaumi@jpa.or.jp
Mr. Akira Nanaumi Manager, Japan Pharmaceutical Association Japan
Address: 2-12-15, Shibuya, Shibuya-ku, Tokyo, Japan
Phone
FAX
- E-mail: koriyama@kyushu-u.ac.jp
Dr. Kazuaki Koriyama Director of Emergency Division, Kyushu Kouseinenkin Japan
Address: 2-1-1, Kishinoura, Yahatanishi-ku, Kitakyushu-shi,
Hukuoka, Japan
Phone
FAX
- E-mail: gunzan@joy.ocn.ne.jp
Dr. Yoshirou Itou Dupty Director, Health Science Division, Minister's Japan
Secretariat, Ministry of Health, Labour and

	Address:1-2-2, Kasumigaseki, Chiyoda-ku, Tokyo, Japan	
	Phone	
	FAX	
	E-mail:itou-yoshirou@mhlw.go.jp	
Dr. Hideharu Domoto	Dupty Director, Health Science Division, Minister's Secretariat, Ministry of Health, Labour and Welfare	Japan
	Address:1-2-2, Kasumigaseki, Chiyoda-ku, Tokyo, Japan	
	Phone	
	FAX	
	E-mail:doumoto-hideharu@mhlw.go.jp	
Dr. Hiroto Araki	Chief, International Affairs Division, Minister's Secretariat, Ministry of Health, Labour and Welfare	Japan
	Address:1-2-2, Kasumigaseki, Chiyoda-ku, Tokyo, Japan	
	Phone	
	FAX	
	E-mail:araki-hiroto@mhlw.go.jp	
Dr. Gou Tanaka	Chief, Hospital Service Policy Division, Department of National Hospitals, Health Service Bureau, Ministry of Health, Labour and Welfare	Japan
	Address:1-2-2, Kasumigaseki, Chiyoda-ku, Tokyo, Japan	
	Phone	
	FAX	
	E-mail:@tanaka-goumhlw.go.jp	
Dr. Gensho Uchida	Chief, Guidance of Medical Service Division, Health Policy Bureau, Ministry of Health, Labour and Welfare	Japan
	Address:1-2-2, Kasumigaseki, Chiyoda-ku, Tokyo, Japan	
	Phone	
	FAX	
	E-mail:uchida-gensho@mhlw.go.jp	
Mr. Saburo Uozumi	Director, General Affairs Division, Nationl Hospital, Tokyo Disaster Medical Center	Japan
	Address:3256, Midori-chou, Tachikawa-shi, Tokyo, Japan	
	Phone	
	FAX	
	E-mail:uozumi@tousai.hosp.go.jp	
Mr. Noriyoshi Minagi	Dupty Director, General Affairs Division, Nationl Hospital, Tokyo Disaster Medical Center	Japan
	Address:3256, Midori-chou, Tachikawa-shi, Tokyo, Japan	
	Phone	
	FAX	
	E-mail:	

5. Nuclear Disaster Manual(s)

The original manual(s) were first created in FY1998, and were revised after the JCO Criticality Incident in September 1999.

The Japanese revised version was distributed in 1999 and the English version in 2000.

The Japanese version was used and is being used during the Fukushima Daiichi Nuclear Plant Incident.

If the reader is interested in the manuals, please inform me or Yoshikura Haraguchi.

NUCLEAR OR RADIATION DISASTER A SIMULATION MODEL AND A SCENARIO FOR DISASTER DRILLS AND A MANUAL

2000

Published: December 1999 (Japanese Version)
December 2000 (English Version)

臨床研究部 7

Chief Editor: Y. Haraguchi 1),

Coeditor: Y. Tomoyasu 1), M. Kojima 1), T. Nagata 2)

- 1) National Hospital Tokyo Disaster Medical Center
- 2) Shirahigebashi Hospital



Foreword

In this section, I will describe the circumstances leading to the preparation of this manual, as well as its purpose.

Radioactive contamination and radiation exposure disasters often receive media attention throughout the world. Effects of radiation on the body are not easily detected, and this factor increases fear among those involved, contributing to anxiety in a large number of people.

Medical treatment measures had barely been investigated, due to the rarity of large-scale disasters (with the exception of a few cases) and the fact that Japan had not experienced cases which required emergency medical care (until the Tokaimura or Tokai village criticality incident September, 1999).

Due to the increasing use of nuclear generated electricity not only in Japan, but in other parts of Asia and worldwide, we felt the need to prepare a simulation model and scenario (estimations of nuclear power disasters and procedures for treatment of victims) and a related manual (or guidelines). Research on nuclear power disasters (by our study team) was begun in 1996.

We prepared the following two tentative editions of manuals covering large-scale nuclear power disasters in 1997.

- ① Manual for hospital response to nuclear (radiation) disasters, 1997 edition —Response manual to nuclear (radiation) disasters from the perspective of medical treatment (tentative edition). Yoshikura Haraguchi, Yozo Tomoyasu (editors) : National Hospital Tokyo Disaster Medical Center Clinical Research Department: Tokyo, May 1997
- ② Simulation model and disaster drill scenarios for response to nuclear (radiation) disasters—1997 edition (tentative edi-

tion). Yoshikura Haraguchi, Yozo Tomoyasu, (editors): National Hospital Tokyo Disaster Medical Center Clinical Research Department: Tokyo, May 1997

At our institution (the National Hospital Tokyo Disaster Medical Center) we hold disaster medical personnel training more than 4 times a year regularly. This training includes measures for radioactive disasters, such methods for surveying radioactive contamination, and contamination removal.

This form of training was made possible through assistance of radiology specialists at the National Institute of Radiological Sciences. We would like to express our gratitude.

It has only been four years since we began our full-fledged research and training. However, during that time within Japan, there was the Tokai village reprocessing plant accident (level 3) in March 1997, only one year after research was begun, and the Tokai village uranium processing (conversion) plant accident (level 4 or even 5) in September 1999.

The latter resulted in a critical state with a large amount of γ rays and neutron radiation being emitted into the surrounding areas. It was a large-scale disaster that effected a great number of residents within a radius of 10 km. Such disasters were thought highly unlikely, and sufficient consideration had not been made for their response.

However, after careful consideration we felt the necessity for preparation against large-scale disaster worldwide (especially in developing countries such as in South East Asia). Under guidance of the Ministry of Health and Welfare, we combined the two aforementioned tentative manuals and

added corrections to complete this definitive editions.

We attempted to keep this manual as simple as possible. For this reason, it may seem lacking in the eyes of a specialist. However, this manual was mainly prepared for medical treatment personnel with little experience or knowledge concerning nuclear power, radioactivity, or radiation, including those who should have such knowledge, but may have not had previous opportunity to learn.

It is our sincere wish that medical treatment personnel in all areas (including those outside emergency medical treatment) get a

chance to view this manual. We hope that it will serve as a reference point in assistance and cooperation in the event of disaster, not only in Japan, but overseas as well.

Although this definitive edition includes many corrections and improvements from previous editions, criticism, comments, and suggestions for improvements are welcome.

This booklet was made primarily in Japanese in December 1999 and translated in English with modification in part in December 2000.

Chief editor: Yoshikura Haraguchi

Acknowledgement

I would like to express my gratitude to the following physicians and experts for their contribution in writing this manual.

In order of appearance of written contribution, they are **Yozo Tomoyasu** (National Hospital Tokyo Disaster Medical Center: Co-editor), **Michiko Kojima** (National Hospital Tokyo Disaster Medical Center: Co-editor), **Tsutae Nagata** (Shirahigebashi Hospital: Co-editor), **Noriyoshi Ohashi** (Tsukuba Medical Center), **Masami Hoshino** (Tokyo Metropolitan Police Hospital), **Takashi Arai** (National Hospital Tokyo Disaster Medical Center), **Housei Nishi** (National Hospital Tokyo Disaster Medical Center), **Hiroshi Henmi** (National Hospital Tokyo Disaster Medical Center), **Noriaki Kuramoto** (National Hospital Tokyo Disaster Medical Center), **Jun'ichi Inoue** (National Hospital Tokyo Disaster Medical Center), **Masato Honma** (National Hospital Tokyo Disaster Medical Center), **Yoshio Takasato** (National Hospital Tokyo Disaster Medical Center), **Toshinobu Sato** (Ministry of Health and Welfare, Bureau of Health and Medical Affairs, Infectious Diseases Control Division), **Takahiko Tokunaga** (National Hospital Tokyo Disaster Medical Center), **Eiji Shimada** (National Hospital Tokyo Disaster Medical Center), **Takanobu Hayakawa** (National Hospital Tokyo Disaster Medical Center), **Yukihiro Fujimoto** (National Hospital Tokyo Disaster Medical Center), **Gen Suzuki** (National Institute of Radiological Sciences), **Shigenobu Nagataki** (Radiation Influence Research Institute), **Kazuo Neriishi** (Radiation Influence Research Institute), **Tatsuya Kinugasa** (Kobe Mitsubishi Hospital), **Kunihiko Tsutsumi** (Kitazato University Hospital), and **Masatake**

Ishikawa (Tokyo Women's Medical College Hospital).

We would also like to thank the following physicians and experts on this fields for their guidance and advice. Although this is not a complete list, they are:

Nobumichi Sakai (Ministry of Health and Welfare Minister's Secretariat Councilor), **Katsutoshi Saruta** and other physicians with the Ministry of Health and Welfare, **Mitsuhiro Ushio** (Ibaraki Prefecture Health and Welfare Chief), and other staff with Ibaraki Prefecture Health and Welfare, **Shin'ichiro Takahashi** (Director, National Mito Hospital) and other physicians with the National Mito Hospital, **Toshiyasu Hirama** (National Institute of Radiological Sciences), **Yuhei Miyasaka** (Director, Japan Medical Association), **Yoshiro Aoki** (Atomic Safety Commission), **Tetsu Ishihara** (All Japan Hospital Association), **Yusuke Kimura** (Director, Tokyo Medical Association), **Shuji Tanaka** (Kyorin University) and **Futoshi Matsumoto** (Cabinet Office for National Security and Crisis Management).

I also would like to thank for the support, to **Torrey SA**, **Pastel RH**, **Robert R. Eng**, **Rebecca C. Sine**, **Aimee L. Hawley** (AFRRI: Armed Forces Radiobiology Research Institute), **Steven M. Becker** (UAB: The University of Alabama at Birmingham), **Wusho P. Chang** (National Yangming University Medical School, Taipei), **Iyasu Nagata** (Translator), **Turai I** (IAEA), **Yukinori Mackawa** (IAEA), **Kim P** (Albany, USA) and **Boatright C** (Indianapolis, USA).

Closing Remarks

This is a report about flu pandemic measures from the viewpoint of the usefulness of disaster drills, mainly researched between FY2008 to FY2011.

However, just before the completion of this research, “The Tohoku earthquake (USGS)” of magnitude 9.0, hit Japan.

This mega-disaster occurred on March 11th, 2011, 14:16, and is known by several names, i.e., “The 2011 off the Pacific coast of Tohoku Earthquake”, “Tohoku Region Pacific Coast Earthquake,” “Tohoku – Pacific Ocean Earthquake”. The disaster was accompanied by secondary serious destruction of a nuclear plant called Fukushima Daiichi, which dispersed radioactive substances over a wide area.

This event drastically changed the schedule and content of our research.
This is the reason why the publication of this report was delayed.

“Fatal problems” in the field of Japanese disaster medicine became evident after this March 11th catastrophe, especially among which the system of Japanese Medical Support Team or DMAT, etc. was pointed out, although it has been pointed out beforehand by us (Haraguchi Y, Tomoyasu Y, Nishi H), and other experts of disaster medicine, such as Dr. M. Sasaki (his opinion will be stated in other paper).

The main purpose of this study is to assist in establishing guidelines and information for all who respond to mega-disasters, as well as the flu and other pandemics.

Therefore, our experiences and research data from natural and human-related or NBC disasters are included, including the above mega-disaster. The information presented is not limited to data collected between 2008 to 2011 concerning flu research.

The reason is clear. We believe that previous experiences are essential if we consider a good future for our society:

What do you consider to be the ideal for disaster medicine?

Which philosophy do you think should be selected during a disaster, if necessary?

Several concepts have been presented, which are briefly summarized here once more:

1) Utilitarianism (Utilism): “The greatest good for the greatest number of people” or “the greatest happiness principle” of Jeremy Bentham and John Stuart Mill, (presenter: Peter Singer)

Do you simply accept this idea without any doubt?

or

2) Do you think “The Principle of Justice” or the Maximin Principle, proposed by John Rawls, is best?

or

3) Do you agree with the concept of “ the Society of Minimal Misfortune” or MMS, asserted by the previous Japanese Prime Minister, Naoto Kan 菅新首相首相…「政治の役割は、『最小不幸』の社会を作ること。…政治は力を尽くすべき…」

or

4) Will you not accept the one proposed notably (or infamously) by Niccolo Machiavelli, etc.?

Finally, the reasons for including the English version are repeated.

(1) This may be useful for Japanese company employees in foreign countries, where the English version assists with education and will provide hints for staff and people not only in the field of pandemics but also medicine in general, including disaster measures.

(2) In developing countries, this may be directly useful for building cooperative relationships.

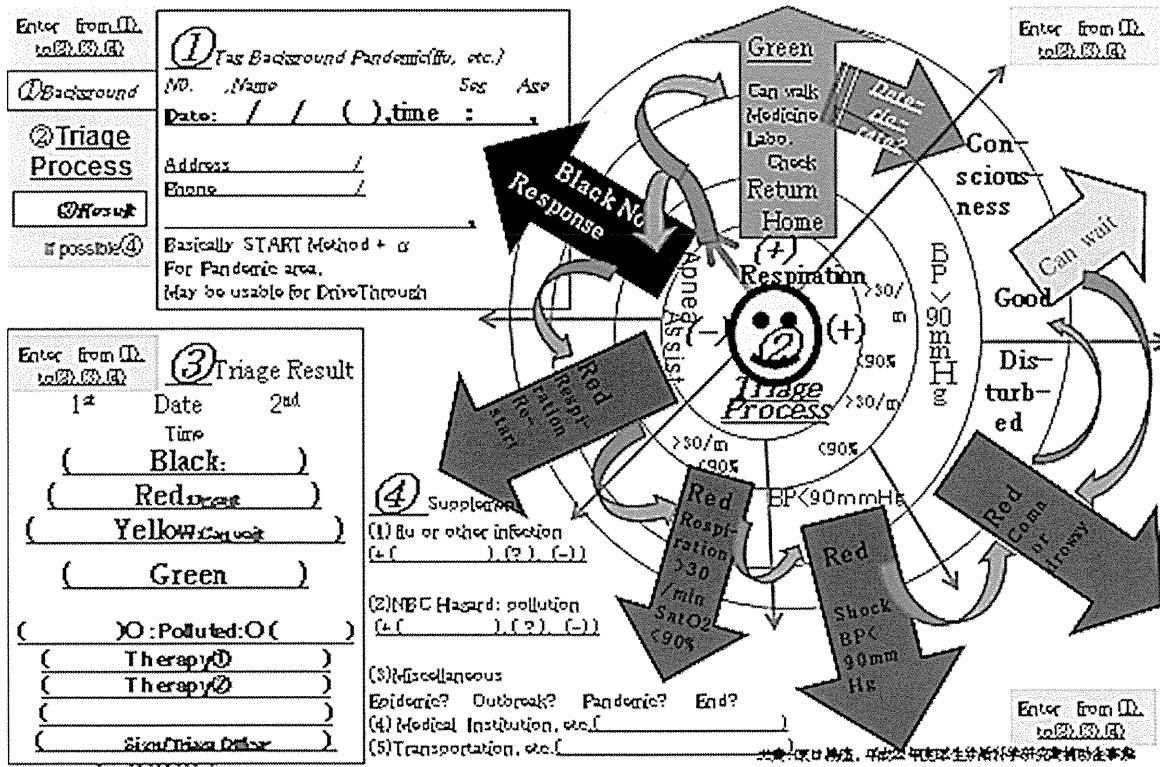
Note: I deeply apologize for the delay in publishing this report.

The supplemental materials include several video records related to various kinds of drills against flu pandemics and the newly developed “Triage Tag for pandemics.”

We should continue to strive to achieve a smooth recovery from the above-mentioned disaster as well as to prepare against new toxic bird flu, which is expected to spread in the near future.

(English Version, Research team for countering pandemic flu by establishing preparedness and effective exercises:
Report of FY2008 to FY2011, funded by the Ministry of Health, Labour and Welfare of Japan)

Haraguchi Y



Pandemic triage

Pandemic triage : How to use.

- I : basic rule from left upper ① Address, affiliation, etc.
 - ② Middle/right figure: describe the contents
 - ③ left bottom: Results
 - ④ bottom right: additional information

- II : Contents to be checked during triage(repeat!)
 - Start from center mark: toward left upper arrow
 - If he/she can walk, go to right (green) → Check Respiratory Rate, Artificial Saturation O₂, Bacterial Culture/laboratory data, if necessary, → Check other vital sign etc., → **GREEN** Administer appropriate Medicine → Return home
 - If respiratory/cardiac arrest → Resuscitate immediately
 - No Response → **BLACK**
 - Response → **Red or Yellow** →
 - If respiratory/cardiac condition is not good, i.e., Respiratory Rate > 30/min Art. Saturation O₂ < 90% Shock State or Coma → **Red**
 - If above "Vital Signs" : Maintained → **Yellow**
- ~~~~~(End of the principle triage procedure)~~~~~
 If necessary, additional comments outside the figure.

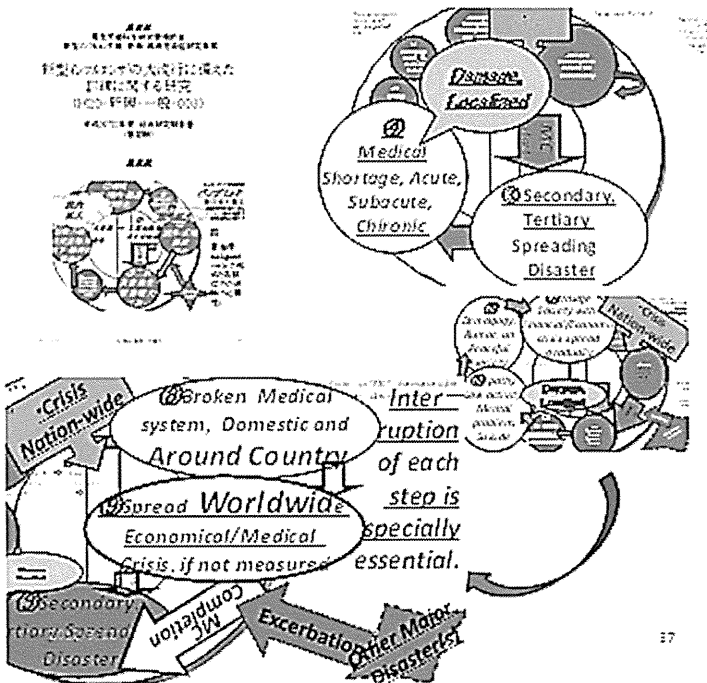
Malignant cycle and the mega-Disaster or the catastrophe

This is our concept in Disaster, which will be explained.

Megadisaster has The Risk of Malignant Cycle or "MC" formation after Ultra-large or Mega-Scale Disaster

① MAJOR	⇒	② Large
MEGA		Victims
DISASTER		

start → MC



MINIMIZE THE DAMAGE TO THE SOCIETY

-from the attack of flu and other pandemic, and NBC hazards/ terrorism:
 The actual way to protect people, medical system, company, home-

Three years' Report of Research, from 2008 to 2011,

The research team against pandemic flu through establishment of the preparedness and effective exercise
 (Study of the emerging and re-emerging infectious diseases, funded by the Japan Ministry of Welfare, Labor and Health)

Haraguchi Y, et al:

