

*p.44*

*(2) Operational Crisis Standard of Care : The Japanese Experience*

*This paper was presented at the  
aforementioned meeting in 2011 in Beijing.*

## Overwhelmed: Developing crisis standards of care for catastrophic emergencies

When a nation or region prepares for public health emergencies such as a **pandemic influenza**, an earthquake, or any disaster scenario in which the health system may be stressed to its limits, it is important to describe how standards of care would change due to shortage of critical resources. “Crisis standards of care” is defined as a substantial change in usual healthcare operations and the level of care it is possible to deliver, which is made necessary by a pervasive (e.g., pandemic influenza) or catastrophic (e.g., earthquake, hurricane) disaster. To ensure that the utmost care possible is provided to patients in a catastrophic event, nations/regions need a robust system to guide the public, healthcare professionals and institutions, and governmental entities at all levels. Building off the work of the United States Institute of Medicine, *Guidance for Establishing Crisis Standards of Care for Use in Disaster Situations*, this session focus on opportunities and challenges to integrate crisis standards of care principles into international disaster response plans.

Learning Objectives:

- Discuss the challenges of providing fair and equitable care in mass casualty incidents
- Discuss a potential framework for the equitable delivery of care in situations of scarce resources and strategies for operationalizing crisis standards of care in austere environments
- Examine strategies for integrating crisis standards of care principles into disaster response plans
- Highlight the impact of international disaster response on changing the standard of care in the host country

Agenda: (based on a 3.5 hr session)

1:45 p.m. **Introduction: Session Objectives**

MARK KEIM, Session Chair  
Senior Science Advisor  
Office of the Director  
National Center for Environmental Health  
Centers for Disease Control and Prevention (CDC)

1:55 p.m. **A Model for Equitable Delivery of Care in Situations of Scarce Resources**

DAN HANFLING  
Institute of Medicine Committee Vice-Chair  
Special Advisor  
Emergency Preparedness and Response  
Inova Health System, USA

10 min Q&A

2:25 p.m. **Providing Austere Care in Mass Casualty Incidents: Experiences from China**

ZI-JIAN FENG  
Director  
Office of Disease Control and Emergency Response  
Chinese Centers for Disease Control and Prevention

10 min Q&A

2:50 p.m. **Operationalizing Crisis Standards of Care: The Japanese Experience**

YOSHIKURA HARAGUCHI  
Division of Pathophysiology in Disaster (retired)  
National Hospital Tokyo Disaster Medical Center  
Tachikawa City, Tokyo, Japan

10 min Q&A

3:15 p.m. BREAK

4:00 p.m. **Providing Austere Care in Mass Casualty Incidents: Experiences from Latin America**

JEAN LUC PONCELET

Area Manager in Emergency Preparedness and Disaster Relief for  
Latin America and the Caribbean  
Pan American Health Organization/World Health Organization

10 min Q&A

4:25 p.m. **International Health Regulations Treaty: The Grand Experiment**

FREDERICK "SKIP" BURKLE  
Senior Fellow, Harvard Humanitarian Initiative  
Harvard School of Public Health

10 min Q&A

4:50 p.m. **Panel Discussion: Integrating Crisis Standards of Care Principles into  
International Disaster Response Plans**

- How can principles of crisis standards of care be better integrated into existing health systems?
- Examine strategies to facilitate operationalizing crisis standards of care in austere environments.
- Explore the roles and responsibilities of various stakeholders in the implementation of crisis standards of care.

MARK KEIM, *moderator*  
Senior Science Advisor  
Office of the Director  
National Center for Environmental Health  
Centers for Disease Control and Prevention (CDC)

DAN HANFLING  
Institute of Medicine Committee Vice-Chair  
Special Advisor  
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JEAN LUC PONCELET  
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Latin America and the Caribbean  
Pan American Health Organization/World Health Organization

FREDERICK "SKIP" BURKLE  
Senior Fellow, Harvard Humanitarian Initiative  
Harvard School of Public Health

5:30 p.m. **ADJOURN**

# 17<sup>th</sup> World Congress on Disaster and Emergency Medicine

31 May - 3 June 2011 Beijing, China

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## Program

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### 30 May 2011

Nr	Session Title	Start	End	Room	Type
WS1	Applying Principles of the National Disaster Life Support Program to Earthquake Response and Management: Incorporating Lessons from Recent Earthquakes into Education and Training	1:00 PM	5:00 PM	MR 05 (307)	Workshop

### 31 May 2011

Nr	Session Title	Start	End	Room	Type
PL01	Opening Ceremonies and Welcome	9:00 AM	10:15 AM	Hall 1	Plenary Session
PP01	Disaster Risk Reduction	10:15 AM	11:00 AM	Exhibit Hall	Poster Session
PP02	Recent Events	10:15 AM	11:00 AM	Exhibit Hall	Poster Session
PP03	Emerging Hazards	10:15 AM	11:00 AM	Exhibit Hall	Poster Session
PL02	Earthquakes	11:00 AM	12:30 PM	Hall 1	Plenary Session
PP04	Risk Management	12:30 PM	1:45 PM	Exhibit Hall	Poster Session
PP05	Education, Training and Competencies A	12:30 PM	1:45 PM	Exhibit Hall	Poster Session
BR01	Earthquakes	1:45 PM	3:15 PM	MR 01 (201)	Concurrent Session
BR02	Overwhelmed: Developing crisis standards of care for catastrophic emergencies	1:45 PM	3:15 PM	MR 02 (Hall 3)	Panel Session
BR03	Urban Search and Rescue	1:45 PM	3:15 PM	MR 03 (Hall 2A)	Concurrent Session
BR04	Psychosocial	1:45 PM	3:15 PM	MR 04 (Hall 2B)	Concurrent Session
BR05	Trauma and Emergency Medicine	1:45 PM	3:15 PM	MR 05 (307)	Concurrent Session
BR06	Education Training	1:45 PM	3:15 PM	MR 06 (305 AB)	Concurrent Session
BR07	Risk Reduction	1:45 PM	3:15 PM	MR 07 (305 C)	Concurrent Session
BR08	Civil Military	1:45 PM	3:15 PM	MR 08 (309)	Concurrent Session
BR09	Credentialing and Accreditation Panel	1:45 PM	3:15 PM	MR 09 (311)	Concurrent Session
BR10	Nursing Session	1:45 PM	3:15 PM	MR 10 (Hall 2C)	Concurrent Session
PP06	Education, Training and Competencies B	3:15 PM	4:00 PM	Exhibit Hall	Poster Session
BR11	Japan Earthquake 2011	4:00 PM	5:30 PM	MR 01 (201)	Concurrent Session
BR12	Overwhelmed: Developing crisis standards of care for catastrophic emergencies CONT.	4:00 PM	5:30 PM	MR 02 (Hall 3)	Panel Session
BR13	Evaluation Reporting Guidelines	4:00 PM	5:30 PM	MR 03 (Hall 2A)	Concurrent Session
BR14	Psychosocial	4:00 PM	5:30 PM	MR 04 (Hall 2B)	Concurrent Session
BR15	Trauma and Emergency Medicine	4:00 PM	5:30 PM	MR 05 (307)	Concurrent Session
BR16	EMS - Performance Measurement	4:00 PM	5:30 PM	MR 06 (305 AB)	Concurrent Session
BR17	Triage Discussion	4:00 PM	5:30 PM	MR 07 (305 C)	Concurrent Session
BR18	Effects of Climate Change	4:00 PM	5:30 PM	MR 08 (309)	Concurrent Session
BR19	Public Health - NLM	4:00 PM	5:30 PM	MR 09 (311)	Panel Session
BR20	Nursing Session	4:00 PM	5:30 PM	MR 10 (Hall 2C)	Panel Session

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## INTRODUCTION

When a nation or region prepares for public health emergencies such as a pandemic influenza, an earthquake, or any disaster scenario in which the health system may be stressed to its limits, it is important to describe how standards of care would change due to shortages of critical resources. Such “crisis standards of care” are the level of health and medical care capable of being delivered during a catastrophic event (whether naturally occurring or manmade). To ensure that fair and equitable care is provided to patients in a catastrophic event, nations and regions need a robust system to guide the public, healthcare professionals and institutions, and governmental entities at all levels.

Crisis standards of care has been the focus of several recent and ongoing Institute of Medicine (IOM) activities, including a series of workshops (IOM, 2010) and a letter report, *Guidance for Establishing Crisis Standards of Care for Use in Disaster Situations* (IOM, 2009). An IOM consensus committee is currently updating the preliminary guidance issued in the 2009 letter report, and is expected to issue a full report in late 2011.<sup>1</sup>

Building off these activities, the IOM Forum on Medical and Public Health Preparedness for Catastrophic Events sponsored a session at the 17th World Congress on Disaster and Emergency Medicine, held May 31 to June 3, 2011 in Beijing, China.<sup>2</sup> The session, moderated by Mark Keim, senior science advisor for the Office of the Director in the National Center for Environmental Health at the Centers for Disease Control and Prevention (CDC), focused on

<sup>1</sup> See <http://iom.edu/Activities/PublicHealth/DisasterCareStandards.aspx> for further information.

<sup>2</sup> The role of the ad hoc planning committee of the IOM Forum on Medical and Public Health Preparedness for Catastrophic Events was limited to developing this session for the WCDEM. This summary has been prepared by the rapporteurs as a factual overview of the presentations at the session. Statements, recommendations, and opinions expressed are those of individual presenters and participants, and are not necessarily endorsed or verified by the IOM or the Forum.

opportunities and challenges to integrate crisis standards of care principles into international disaster response plans. Expert panelists discussed:

- The challenges of providing fair and equitable care in mass casualty incidents,
- A potential framework for the equitable delivery of care in situations of scarce resources, and strategies for operationalizing crisis standards of care in austere environments,
- Strategies for integrating crisis standards of care principles into disaster response plans, and
- The impact of international disaster response on changing the standard of care in the “host” country.

This report summarizes the presentations and commentary by the invited panelists.

## SURGE CAPACITY PLANNING AND CRISIS OF CARE STANDARDS

In the US, a catastrophic disaster has been historically considered as one in which there are 1,000 or more human casualties, explained Dan Hanfling, special advisor for Emergency Preparedness and Response at Inova Health System. Catastrophic disasters in the late 1800’s and early 1900’s were generally natural disasters (e.g., flash floods, forest fires) or transportation-related incidents (e.g., sinking steamships). Excluding the 1918 influenza pandemic and casualties of war, the U.S. health care system was not faced with catastrophic disasters for most for the 20th century. However, the terrorist attacks of 2001 and devastation of Hurricane Katrina in the Gulf Coast in 2005 have focused new attention on standards of care in the context mass casualty events and associated shortages of critical resources.

The 2009 H1N1 influenza pandemic, Hanfling noted, also brought to light several very specific questions for consideration as part of overall surge capacity planning: Which patients should receive limited resources, and who decides? Should professional standards of care change? What are the triggers for implementation of altered standards? Should there be legal mechanisms to protect health care workers acting in good faith under crisis circumstances?

### Defining Crisis Standard of Care

To begin to address issues regarding standards of care in national planning for response to mass casualties, the US Department of Health and Human Services (HHS) Agency for Healthcare Research and Quality (AHRQ) released two reports, *Altered Standards of Care in Mass Casualty Events* (2005) and *Providing Mass Medical Care With Scarce Resources: A Community Planning Guide* (2006).<sup>3</sup> AHRQ emphasized that there will be a “spectrum of patient care delivery options” available, and there needs to be stewarding of scarce resources to deliver a standard of care appropriate and sufficient for the situation. Incident planning and response must recognize that standards will change, and protocols for triage will need to be adaptable. The reports note that along the spectrum of care there will be some patients who are “too well” to receive care, and some who are too sick to survive, however all will need to receive some level of health care delivery.

Building upon the AHRQ reports, Hanfling highlighted several publications describing the augmentation of scarce resources in a hospital critical care setting (Rubinson et al., 2005; Rubinson et al., 2008) and, recognizing that access to ventilators may be a limiting step in the delivery of care, the triage of ventilator resources during a public health emergency (Hick and

<sup>3</sup> Available in the AHRQ online archive at <http://archive.ahrq.gov/research/atstand/> and <http://archive.ahrq.gov/research/mce/>

O’Laughlin, 2006; Christian et al., 2008; Powell et al., 2008). Out of these and other efforts, Hanfling said, a scoring tool was developed using sequential organ failure assessment as a means to help discern who would be most likely to benefit from a ventilator.

### IOM Guidance for Establishing Standards of Care for Use in Disaster Situations

In the fall of 2009, at the request of the HHS Office of the Assistant Secretary for Preparedness and Response (ASPR), the IOM established the Committee on Guidance for Establishing Standards of Care for Use in Disaster Situations. As its first task, the committee issued a letter report describing a framework for establishing crisis standards of care (IOM, 2009).<sup>4</sup>

The IOM committee defined crisis standard of care as

*“a substantial change in usual healthcare operations and the level of care it is possible to deliver, which is made necessary by a pervasive (e.g., pandemic influenza) or catastrophic (e.g., earthquake, hurricane) disaster. This change in the level of care delivered is justified by specific circumstances and is formally declared by a state government, in recognition that crisis operations will be in effect for a sustained period.”* (IOM, 2009, p.3)

Crisis standards of care would be implemented when standard contingency plans for a surge in demand for care are insufficient (Figure 1). A crisis situation may lead to an overwhelming demand for services, and result in shortages of equipment, supplies, pharmaceuticals, personnel, and other critical resources, necessitating operational adjustments (Figure 2). Hanfling noted that under conventional and contingency responses, the focus of care is the patient, however when the

<sup>4</sup> As noted earlier, this committee is now engaged in a second phase of deliberations to update the preliminary guidance in the letter report and a full report is expected in the fall of 2011.

response shifts to crisis mode, the focus of care becomes more of a population-based approach. As the continuum shifts to the right toward crisis care, there are continual efforts toward recovery and resupply to reestablish conventional care.

Summarizing the letter report, Hanfling noted that the Committee stressed the need for fairness and equitable processes (transparency, consistency, proportionality, accountability) in decisions regarding altered standards of care. They also noted the need for stakeholder engagement and appropriate legal and regulatory authority.

#### *Crisis Standards of Care as Part of the Overall Surge Capacity Planning Framework*

Hanfling reiterated that standard of care is a continuum, even in conventional health care practice (impacted, for example, by the number and specialties of the staff working on a busy weekend). He suggested that standard of care is part of an overall framework for response, incorporating planning, substituting, adaptating, re-using, and re-allocating resources. There must be situational awareness that a response is shifting away from a conventional response to a contingency or crisis response because of the changing availability of resources. A participant suggested that what is really changing as a crisis evolves is the provider's scope of practice; they are still providing the highest level of standard of care within that evolving scope of practice or set of emerging circumstances.

#### **Developing National/Regional Crisis Standards of Care: The Duty to Plan**

Hanfling stressed that there is a moral responsibility to plan for catastrophic events. The IOM committee stated that:

“...in an important ethical sense, entering a crisis standard of care mode is not optional – it is a forced choice, based on the emerging situation. Under such circumstances, failing to make substantive adjustments to care operations – i.e., not to adopt crisis standards of care – is very likely to result in greater death, injury or illness.” (IOM, 2009, p. 15)

Along these same lines, Yoshikura Haraguchi, formerly of the Division of Pathophysiology at National Hospital, Tokyo Disaster Medical Center, Tachikawa City, Tokyo, Japan (retired), said that the aim of disaster medicine is to foster the development of a resilient society and to facilitate recovery. He noted that the prime minister of Japan has referred to a concept of working toward a “society of minimal misfortune.” Haraguchi defined the key elements of a systematic disaster medicine approach as ethics; transparency, communication, and legal support; reliability and trust; responsibility and accountability; and public education to achieve “disaster literacy.” Comfort, compassion, dignity, fairness, equitability, and consistency are critical, especially for vulnerable populations (e.g., children, women, elderly, impoverished).

It must also be recognized that catastrophic disasters are really long-term events. When considering standards of care, we must consider the long-term recovery phase and capacity building, not just the acute phase response, Hanfling said, citing the work of Subbarao and colleagues (2010). Different countries have very different levels of health care and different governance structures, yet there is a need for balanced and consistent international response.

Hanfling highlighted several key components that may serve to help develop uniform crisis standards of care:

- Incorporate a *crisis response framework* at the very outset of the acute phase of response efforts

- Steward use of resources to attain *achievable* and *desirable* outcomes
- Establish consistency of healthcare delivery strategies
  - Respect the sovereignty of the “host nation”
  - Develop consistent use of foreign medical teams (based upon an opt-in classification approach)
  - Set goals for *long term recovery* early in the response; emphasize *transition of services*
  - Understand role of palliative care in planned clinical response

Jean Luc Poncelet, area manager in Emergency Preparedness and Disaster Relief for Latin America and the Caribbean, Pan American Health Organization (PAHO)/World Health Organization (WHO), noted that a challenge to developing standards and criteria is the variety of mass casualty incidents that are scattered broadly across a large geographic region and attended to by different actors at different times. The standards applicable to a plane crash, for example, may be different from those relevant to a hospital fire, which may be different again from a volcanic eruption.

**Operationalizing Crisis Standards of Care in Diverse International Settings**

*The Japanese Experience*

Haraguchi described the Japanese experience with the 2011 earthquake and subsequent nuclear crisis as a “mega-disaster,” or catastrophic health event. Such a catastrophic event can trigger a “malignant cycle” of increasing distress. For example, an earthquake may directly cause

other natural disasters (e.g., landslide, tsunami, fire, flood) and building destruction, leading to general trauma and specific diseases, as well as secondary artificial and complex disasters (e.g., traffic system failure; chemical hazards from factories or traffic incidents; biological hazards; nuclear hazard). There are resulting shortages of care and supplies, and apathy and mental health issues emerge, both in victims and caregivers. Downstream there is rumor and/or demagoguery, societal unrest, gradual spread of economic crisis, national crisis, and a broken medical system, all of which can have global impact far beyond the borders of the original event. Interruption at each step in the malignant cycle is essential, Haraguchi said.

Based on experiences and collected data, the *Japanese Disaster Medicine Compendium* was compiled in 2005 and was recognized as the first document of its kind in the world. Haraguchi noted that although much is still in draft form and it is primarily in Japanese, it could serve as a template for a much needed “world version” of a disaster medicine compendium. At over 5,000 pages, the compendium strives to systematize disaster medicine to reduce casualties. Topics covered include, for example, mental health care for both victims and responders; transportation; long-term nutritional and other support; and safety and security of response personnel (e.g., exposure to radiation).

*Experiences from Latin America and the Caribbean*

Poncelet explained that following a succession of major disasters in Peru in 1970, Nicaragua in 1972, and Guatemala 1976, the Minister of Health of the region called for a common approach to disaster response, and thus began casualty management in Latin America and the Caribbean. The main goal was to optimize available resources to save life, while respecting national health practice and criteria.



Poncelet highlighted some of the special issues of casualty management for the small islands of the region. Often, small islands in the Caribbean will have only one health facility. As such, a special program has been in place now for more than 15 years to train first responders. In remote areas, it is the first responders who are members of the community who are on scene in the first minutes or hours of the response. Thus far over 1,000 health, police, fire, defense force, and airport staff have been trained in the English-speaking Caribbean, Poncelet said, and mass casualty management plans and teams have been established in many islands. Triage, he noted, remains the responsibility of senior health professionals.

Prior to the earthquake in Haiti, in most of the mass casualty incidents in Latin American and the Caribbean there were enough hospital beds available for victims. The conditions and experience in Haiti, however, were completely different, Poncelet said. The local capacity in Haiti is quickly saturated, even during a small event, and victims are generally evacuated to other countries (e.g., Guadeloupe or Martinique). There is emergency training in Haiti, but it is of limited impact as no real ambulance or emergency services exist. Following the earthquake, triage services were limited to the few very experienced non-governmental organizations (NGOs) already in the country, and to some well-prepared field hospitals and medical teams. The triage criteria were very different from one institution to another, all justifiable Poncelet said, but with different perspectives. Poncelet also noted the tendency to forget about mass fatalities. The fatality rate in Haiti was extreme and it became impossible, he said, to fully adhere to guidelines for the management of dead bodies that had been established before the earthquake.

*Barriers and Challenges to Operationalizing Crisis Standards of Care*

The health community has been working on mass casualty management for many years, Poncelet said, so what is stopping us from making progress? One of the obviously barriers to

progress is funding; this is challenging in wealthy countries, and even more so in lower income countries. Government leadership is looking for a return on their investment, a demonstration of positive impact. But, Poncelet explained, there is no real way to demonstrate the economic return on investment in casualty management, in part because events are so rare. What is measurable, he suggested, is progress in capacity building, especially when measured against pre-established criteria and through simulation exercises.

Burkle added that rapid urbanization compounds the challenge. Urbanization is the stronghold of the economy in most countries, but during periods of rapid urbanization the population exceeds the existing public health infrastructure.

Participants also discussed some of the legal concerns, including the case of Anna Pou, a physician who found herself facing criminal charges for decisions she made while working in a hospital with no electricity and a large number of very ill patients in New Orleans in the immediate aftermath of Hurricane Katrina. Although the criminal cases were dismissed, she is still facing civil charges. It was noted that there are legal mechanisms under discussion that could provide some protections for healthcare providers operating under the most challenging of conditions. This also emphasizes the importance of having a proactive response plan, Hanfling said, so that the need for reactive decisions is reduced.

A concern was raised that in the setting of a catastrophe resulting from terrorism, the flow of information will likely not be as forthcoming as it would be in a natural disaster.

It was also noted that there is a disconnect between the international humanitarian community and national authorities. The international community makes rules, regulations, and standards for itself that are not necessarily comparable to or compatible with what is being done by the national authorities (if anything is being done at the national level).

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PH 綜合報告書 原口義隆

**Ethical Framework**

Haraguchi stressed that ethics is the foundation of crisis standards of care. He applied classical philosophy to the question of ethics in disaster medicine, citing the concepts of utilitarianism, or “the greatest good for the greatest number of people,” proposed by Bentham and Mill, and the Maximin Principle of Rawls, which seeks justice or fairness by providing the greatest benefit to those who are the worst off.

Hanfling added that respect for the host nation or region is paramount. Response planning needs to be done in the context of the existing capabilities, with an understanding the local strengths, weaknesses, gaps, culture, etc. The goal is to develop an ethical framework for thinking about the delivery of care in crisis. Burkle noted that the basic disaster cycle is ‘prevention, response and recovery,’ but Australia has added ‘anticipation’ and ‘assessment’ to the front end of the cycle. Specifically, information on communities is collected at the national level to better understand the different characteristics and risks of different communities. The time for such assessment, Burkle stressed, is before a crisis so that when something happens, needs are already known.

Poncelet said that ethical standards of care can be more readily agreed to among neighboring and similar countries whose income, technical capacity, and approach to care are similar. It is easier to be fair, Poncelet said, when everyone is operating in an environment that is limited by the same conditions and functionality. Crisis standards of care should be at least as fair as standards in day-to-day operations.

The international response to the 2010 earthquake in Haiti provides several examples of the ethical dilemmas faced in trying to provide the highest level of care to the greatest number of victims in a disaster response. Hanfling cited an article on the Israeli field hospital in Haiti

(Merin et al., 2010) which described their basic triage approach: how urgent is the patient’s condition, are there adequate resources to meet the patient’s needs, and can the patient’s life be saved with the interventions offered? The US (Bureau for Medicine and Surgery of the US Navy and the US Navy Ship Comfort) working with the Ministry of Public Health in Haiti (Ministere de la Sante Publique et de la Population, MSPP), recognized the dilemma of short term solutions (i.e. amputation) on long term impacts, and discouraged practitioners from offering complex medical treatments or surgical interventions that could not be sustained in Haiti after the end of the international disaster relief effort (Etienne et al., 2010). Poncelet noted that as each country assesses its mass casualty management plan or response using their own criteria, it can be very difficult to address questions of ethics. In the case of Haiti, for example, serious ethical questions persist regarding standards of care and the resulting amputee crisis.

There are many difficult ethical questions to be considered, Poncelet said. For example, should a foreign medical team work below its capacity to be fair and provide care comparable with country’s capabilities? In other words, is the “lowest common denominator” of care an ethical solution? Should a trauma technique be implemented when the foreign team knows that they will leave before the follow up process ends? Or correspondingly, can a team refuse to provide some type of treatment because follow-up will not or can not be provided by the host country?

**Community and Stakeholder Engagement and Education**

All participants discussed the importance of community and provider engagement and education. Any process is of little value without community support and education of professionals regarding how to implement the process. It is only through the training of nationals,

as they are the first responders and final authority, that we will be able to find a long-term sustainable solution to crisis care, Poncelet said. Disaster medicine needs to solve community-level issues, Burkle agreed, and added that we have to find ways to make it more attractive to work at the community level.

Hanfling and Burkle stressed the importance vetting crisis triage processes at the community level during the planning stages, and Hanfling noted that the IOM committee is exploring the issue of community engagement in some detail as part of its current task. Keim added that a community often feels empowered by engagement in planning activities before the disaster, but is then disempowered by the multitude of national and international responders that often take over decision making.

Panelists discussed the need for, and impact of, financial and social incentives to encourage stakeholder participation. Poncelet said that it is important to show the benefit for the community of disaster preparedness. He noted that the World Bank has decided that it is economically beneficial to be involved in disaster preparedness, and this drives their involvement.

Participants also concurred that a positive messaging approach is more effective than negative messaging. Haraguchi explained the Japanese philosophy as one of encouraging learning about and preparing for disaster, so that people can work together positively to overcome disaster and continue to enjoy life.

The benefits of including diverse stakeholders at the table were also discussed. A participant pointed out that employers, unions, farm collectives, and other similar organizations should be included in planning discussions as they have vested interests in disaster preparedness, facing financial risk in the case of epidemic diseases or terrorism. In most developed countries, these entities also pay a large portion of insurance premiums for their workers. It was also noted that

involving transnational corporations may help to foster a more level playing field among nations that may not cooperate naturally.

**THE INTERNATIONAL HEALTH REGULATIONS TREATY**

Frederick “Skip” Burkle, senior fellow at the Harvard Humanitarian Initiative, Harvard School of Public Health, described the International Health Regulations Treaty.<sup>5</sup> The 2003 SARS pandemic shook up the global health community, Burkle said. Up until that point, WHO had maintained a passive relationship with countries, offering expertise, but respecting the sovereignty of countries (i.e., countries can refuse WHO assistance). However, the World Health Assembly of Ministers of Health, realizing the severity of the outbreak, held an emergency session and granted WHO the authority to intervene. Thus, WHO evolved from its short term, geographically focused capacity, to having global authority with sustained long term prevention, preparedness, and response responsibilities. This was instrumental in controlling SARS, Burkle said. The new WHO authority was formalized as the International Health Regulations (IHR) Treaty, which entered into force in 2007.

A key to success of the treaty is striking the right balance between the sovereignty of individual nation-states and the common good of the international community. The treaty obligates WHO to obtain expert advice on any declared public health emergency of international concern, and provide that advice to nation-states. The treaty also encourages countries to provide each other with technical and logistical support for capacity building.

With regard to standards of care capacities, the IHR treaty:

<sup>5</sup> See <http://www.who.int/ihr/en/index.html>

- establishes systematic approaches to surveillance early warning systems and response (countries must establish core capacities for surveillance and response by 2012);
- requires National Focal Points to ensure a two-way channel of communications between WHO and member states;
- requires countries to share information relevant to public health risks; and
- introduced a decision instrument algorithm, *Annex 2*, for public health action (see Figure 3).

A recent survey mentioned by Burkle suggests that many nation-states still lack core capacities to detect, assess, and report risks, and may not meet the 2012 deadline. Sixty percent of the 194 nation-states responded to the survey; only 58 percent had national plans, and less than ten percent indicated that they had fully established the IHR capacities required under the Treaty.

Burkle noted that a primary barrier to achieving the goals of the Treaty is the lack of any enforceable sanctions. In the absence of legal consequences, there has instead been a system of “shame and blame” to push countries along. (Burkle noted that one of the reasons cited for not completing the survey discussed above is that countries were embarrassed that they did not yet have the required capacity.) However, the nation-states signed the Treaty, and there is an awareness there that this is something larger than any individual country.

**The IHR In Practice: The 2009 H1N1 Influenza Pandemic**

The new Treaty was put to the test during the 2009 H1N1 influenza pandemic. An external review of the global response to the pandemic (WHO, 2011) found that pandemic responders were in place in 72 percent of the countries when H1N1 appeared; there was timely detection of

the outbreak through the Global Influenza Surveillance network; and there was effective partnering, interagency coordination, and rapid field deployment of teams of experts that had been trained by WHO prior to the pandemic.

Nations provided samples of live influenza virus to laboratories in the developed world. A vaccine candidate was developed within 32 days, and vaccine seed strains and control reagents were available within a few weeks. To allay concerns that the vaccine would be too costly for developing countries, WHO now has a mandate to provide pandemic influenza vaccine for all those countries that cannot afford it. There is also now a provision to ensure equitable distribution of available vaccine. There were early recommendations regarding the initial target groups for vaccination (including children, Indians in Mexico, Indians in Canada, Maori in New Zealand, Aboriginal tribes in Australia), many of whom had no prior immunizations. Weekly analysis and reporting of the surveillance data was done, and ultimately, proper treatment courses were distributed in 72 countries.

Burkle highlighted some of the key lessons learned out of implementing the Treaty in response to 2009 pandemic H1N1 influenza. First, it is difficult to determine the severity of a pandemic in the early stages. A participant noted that there is some confusion regarding severity. The speed at which the outbreak spreads is the severity of the outbreak, and the phase is declared based on how many regions are affected. Another aspect, however, is the number of casualties or fatalities as a result of the outbreak. 2009 H1N1 was widespread, but not as dangerous as expected. Another point noted by Burkle was that although the first candidate vaccine was available rapidly, the realities of vaccine development meant that no approved vaccine was available for 6 months. The initial IHR pandemic phase structure was rather complex, and the new Annex 2 consists of a simplified phase structure: baseline, alert plan, pandemic. The need

for more global health experts was also identified. In the end however, despite some bureaucratic “hiccups” (e.g., vaccine manufacturing issues), Burkle said that this is exactly the approach needed from a global health authority.

**The IHR as a Potential Framework for International Surge Planning and  
Crisis Standards of Care**

Aspects of the Treaty are now existing standards of care (e.g., time to first candidate vaccine). The Treaty provides a historically unprecedented level of global cooperation for pandemics. This leads to the question of whether such a model for global standards of care could be applied to other large-scale disasters. (Burkle noted that the IHR cover nuclear and chemical health incidents, but have only been tested thus far in pandemics.) To accomplish this, there must be an authority to guarantee universal standards of care to prevent the type of public health emergencies that emerge due to the lack of infrastructure, and/or destroy any infrastructure that did exist. A key question is who that authority might be.

Burkle recalled that the former United Nations (UN) Department of Humanitarian Affairs (DHA) had the responsibility of coordinating the humanitarian community and the UN agencies, but was stripped of all operational responsibilities in 1997 and redesignated the Office for the Coordination of Humanitarian Affairs (OCHA) to avoid being seen as a competitor with UN Field agencies. Currently, OCHA ensures coordination among UN actors and key NGO communities at the country level, and mobilizes resources on behalf of the entire UN system. Burkle opined that OCHA has the best disaster managers, but it is chronically under-resourced, under-funded, and lacks needed authority. A participant countered that he did not see OCHA as being the organization that would have the capacity or the inclination to take on such a role. Burkle clarified that this was one example of the type of organization that could evolve to this

role. (Further, he wondered what the organization might look like today, had the original DHA operational authority not been abolished.) Some kind of global authority is needed, Burkle said, and there may be some potential for formation of an OCHA-like organization.

Burkle also noted that a framework to facilitate proactive planning is discussed in the work of Walker et al. (2011) on a “blueprint for professionalizing humanitarian assistance.”

**CLOSING COMMENTS**

Mass casualty preparedness pays off (e.g., prepositioned medical kits, aid agreements among countries, responders with knowledge of the local language, etc), Poncelet said, and more preparedness is clearly needed. For large disasters, global standards should be established for mass casualty and fatality management. There are models (e.g., the IHR) that could serve as a potential blueprint for developing a crisis standards of care framework. There will be no global solution, however, before there are local solutions.

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PIII 綜合報告書 原口義座

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Suggested figures

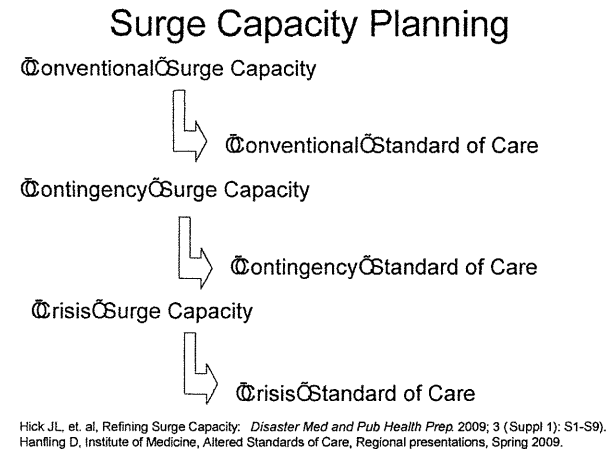


FIGURE 1 The operational flow of surge capacity planning and standards of care. SOURCE: Hanfling presentation at WCDEM (based on Hick et al., 2009 and regional workshop presentations summarized in IOM, 2010) [see Hanfling slide 25]

QuickTime™ and a decompressor are needed to see this picture.

FIGURE 2 Continuum of incident care and implications for standards of care.

<sup>a</sup>Unless temporary, requires state empowerment, clinical guidance, and protection for triage decisions and authorization for alternate care sites/techniques. Once situational awareness achieved, triage decisions should be as systematic and integrated into institutional process, review, and documentation as possible.

<sup>b</sup>Institutions consider impact on the community of resource use (consider “greatest good” versus individual patient needs – e.g., conserve resources when possible), but patient-centered decision making is still the focus.

<sup>c</sup>Institutions (and providers) must make triage decisions balancing the availability of resources to others and the individual patient’s needs – shift to community-centered decision-making. SOURCE: Reprinted with permission from IOM, 2009, page 53. Originally adapted from Hick et al., (2009); Wynia (2009).

[See Hanlfing slide 26. This is a direct reproduction of figure 1 from IOM report. Need permission to reprint]

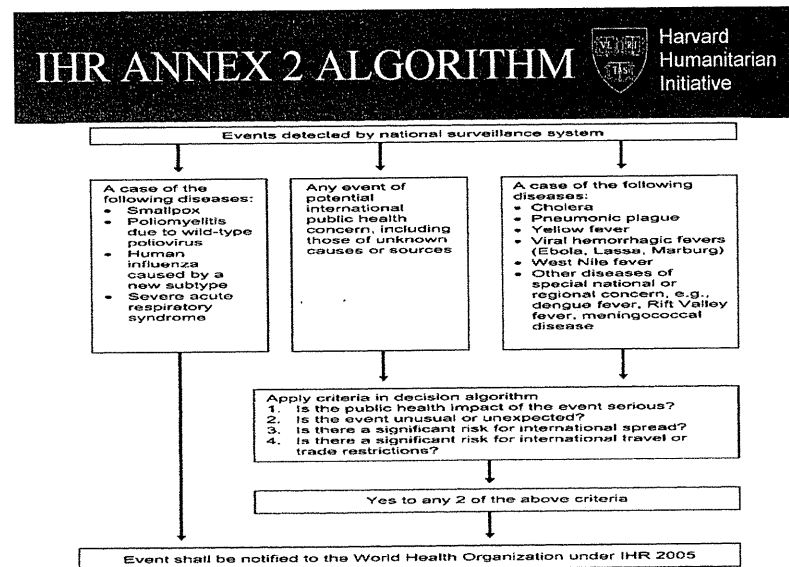


FIGURE 3 IHR Annex 2 Decision Algorithm

SOURCE: Burkle presentation at WCDEM, adapted by Burkle from Annex 2 of the IHR. [take figure from Burkle slide 5]

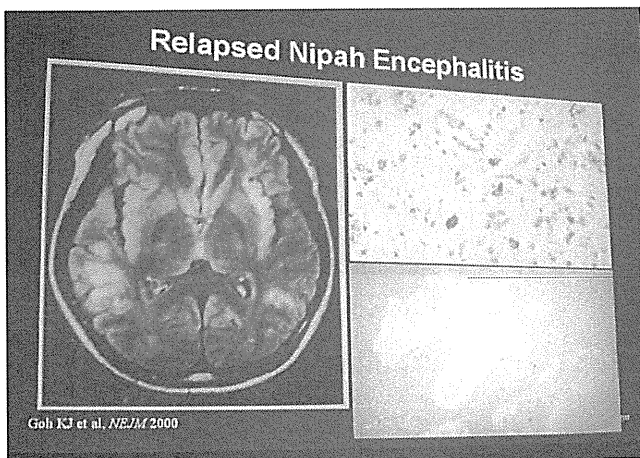
### (3) Nipa virus or Nipa fever infection( Outbreak )

This outbreak was first occurred in the Ipoh, located north in Malaysia. This disease spread Nipa about 100km south from Kuala Lumpur, with more than 100 death.

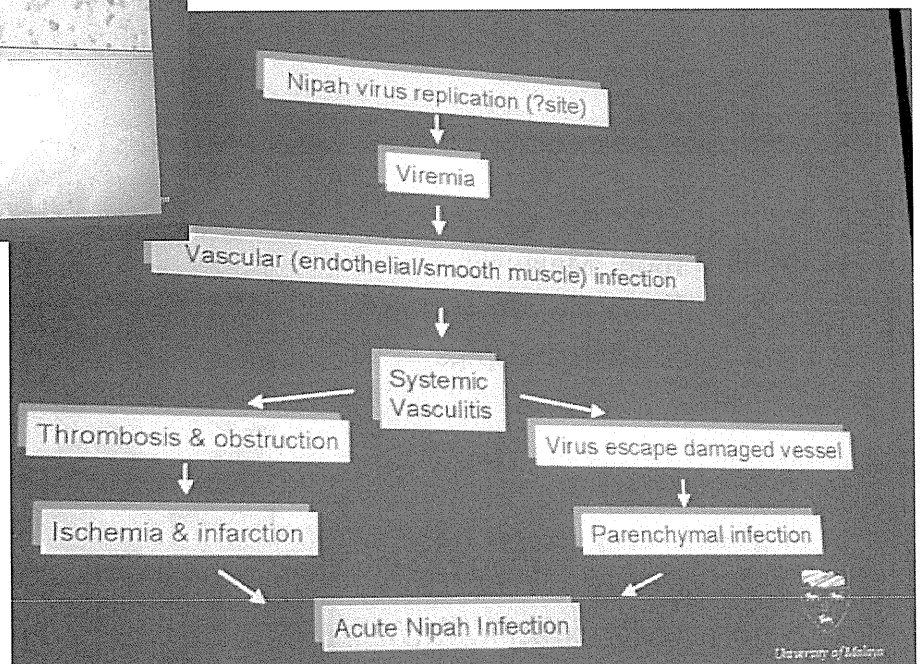
Pigs are totally killed.

Japanese explanation:1998年(頃)マレーシア北部のイポ市近郊の養豚場で発生。南部のニパでウイルスが同定された。100名以上が死亡。その際の資料を提示する。

なお、マレーシアの全ての豚が、と殺され、養豚業が全滅した。




2004.2.





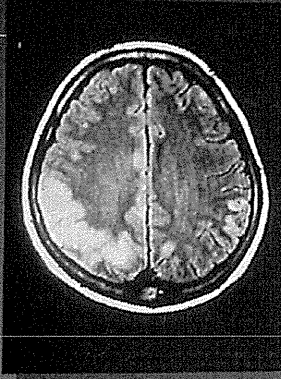
バングラデシュにおけるニパウイルス感染症に関連すると思われるオオコウモリ



Indian flying fox  
(*Pteropus giganteus*)

- インドオオコウモリと呼ばれる (*P. giganteus*) はインドからバングラデッシュにかけて生息している
- バングラデッシュにおけるニパウイルス感染症発生の際に調べた結果、ELISA法により、このオオコウモリがニパウイルスに対する抗体を保有していることが判明した (44頭中2頭陽性)

再発および遅発性ニパウイルス脳炎



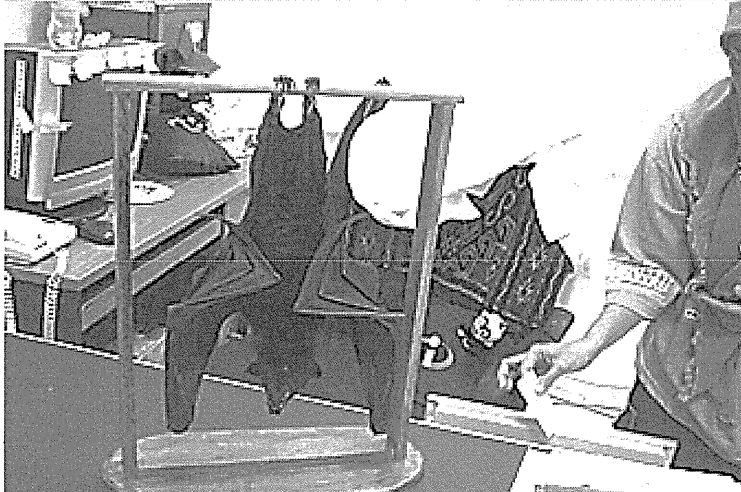
- ニパウイルス脳炎の再発は急性ニパウイルス脳炎に感染し回復した人の約9%で発生している
- 遅発性ニパウイルス脳炎は、脳炎を起こさなかった患者もしくは不顕性感染の患者の約5%で発生している
- 再発もしくは遅発性の発生期間は感染後通常13ヶ月で、最大4年半に及ぶ
- 今までの検査結果では25名の患者のうち3名の患者が発症し死亡している

2005.7 Ipoh, Malaysia  
From motion picture:  
The dead pigs



イポでの国立感染症研究所で  
上:閲覧したビデオより撮影

*Nipah virus,  
in Malaysia, killed  
many pigs and people  
too, through fruit  
bats, below.*



下:宿主とされる蝙蝠(フルーツバット)  
Fruit bat/Host

Need for Academic Approach to Disaster Medicine  
(災害医療への学問的取り組みの必要性)

It is certain that disaster medicine has a practical role in the broader field of medicine.

However, one major problem is that it often becomes excessively technical, as was apparent with the Japan DMAT during the catastrophe in Japan in 2011.

A brief overview of some of our attempts to bring an academic approach to disaster medicine are shown below.

(1) Systematization of Disaster Medicine: from page 264

( (2) Operational Crisis Standard of Care : The Japanese Experience: from page 246 )

(3) Responding to Mass Radiation Exposure: Lessons Learned from Japan's Nuclear Crisis (a Panel Discussion)  
From page 271

(4. *Bioterrorism and/or NBC Terrorism/Disaster* from page 290)

(5. Nuclear Disaster Manual: from page 309)

# Cover page

Title: *Systemization  
of Disaster Medicine,  
—From experience of  
compilation and  
systemization of the  
disaster medicine—*

Authors:

Yoshikura Haraguchi, MD, Ph.D. et al.

(November 2006).

Cover page(continued)

Title: Systemization of Disaster Medicine,

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Part of this paper is presented in the 8th APCDM, Tokyo, November 2006 (entitled as Disaster Medicine and the Compendium of Disaster Medicine) and in THE 15<sup>TH</sup> WCDEM2007(WORLD CONGRESS ON DISASTER AND EMERGENCY MEDICINE (entitled as "Importance of Disaster Medicine and the Significance of the Compendium — toward the Establishment of Disaster Medicine Guidelines that Emphasize Evidence")

## Systemization of Disaster Medicine,

*-From experience of compilation and systemization of the disaster medicine-*

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### [Abstract]

For the last four years, we have worked on compiling a compendium of disaster medicine.

This is tentatively completed with 22 volumes, dealing with various and wide areas from the viewpoints of disaster medicine as of the financial year 2005.

It is expected to be useful for medical staff as well as for the general public or people/student's education.

Although most of it is written in Japanese, some of them are translated into English.

### [Introduction]

In order to solve the various problems caused during disaster from medical points, present and previous studies strongly suggest the necessity of compiling or

systematizing an approach to **"DISASTER MEDICINE"**.

For the last four years, our team have worked on compiling a compendium of disaster medicine.

This is now tentatively completed.

The results are presented as a whole.

The contents are shown in English in figure(1).

The whole view is presented in figure(1).

Title of each volume are presented in table (1) to (3).

As an example, a part of index page covering A to B is shown in table (4).

### [DISCUSSION]

Disaster medicine is becoming more important. The establishment of systematic measurement and medical response systems against disaster have become an urgent issue<sup>1),2)</sup>.

In order to solve diversification or the various medical problems caused during disaster, "DISASTER MEDICINE" was compiled from a broad perspective or from a bird's-eye perspective and a long-term view.

Also, the concept and posture against disaster is important.

Needless to say, early surgical response is crucial. However, on-site medical treatment with an overemphasis on practicality alone is insufficient, and it is necessary to acquire a broad range of knowledge and skills concerning disaster medicine, establish human qualities and trust, and morals which form the basis of mutual cooperation. In other words, it is necessary to increase the level of medical ethics, responsibility, and accountability.

On the other hand, consideration should be given to uniform, cookie-cutter methods of training that are characterized by competition to get to things before others, a frenzied drive to produce results even at the expense of others, and a complete lack of originality

### [CONCLUSIONS]

The concept of the compendium is briefly explained.

It is expected to be useful for education not only for medical staff, but also for teaching the general public.

Although most of it is written in Japanese, some of the text has been translated into English, and others are under translation.

The concept of the compendium is briefly explained.

#### Reference:

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