

CONSULTATIVE THEMES: FRAMEWORKS & POLICIES BREAK OUT GROUP

A.

Osamu Kunii and Yasuhiro Otomo

Theme: Strengthening a continuum of health measures in disaster management

Introductory description: Evidence shows that large-scale disasters would cause excess morbidity and mortality even by indirect impact throughout all the phases of disaster response, especially among the vulnerable and high-risk populations in shelters and temporary housing, as the Great East Japan Earthquake-related deaths almost reached 3,000 as of end September 2013. Although compared to the past disasters in Japan it was perceived that emergency medical response was properly provided and coordinated in the Great East Japan Earthquake, public health response including water/environment/sanitation, food/nutrition, and health/psychosocial care and support, and information management left lots of lessons learned.

Limitations and adaptation: HFA has no specific 'Priorities for action' of preparedness and response in health sector although health is one of the most critical components to be specifically planned in preparedness and responses, and even to build resilience. Lessons learned from the Great East Japan Earthquake need to be reflected in HFA2 or other framework to address health consequences, both acute and chronic, direct and indirect in a comprehensive manner in coordination between medical and public health measures throughout the emergency response cycle from prevention and preparedness to response and reconstruction.

Proposed solutions: Public health response should be initiated in an early stage in coordination with medical and other sectors response and health measures should be provided in a comprehensive and coordinated way throughout all the phases from emergency response to reconstruction. As health impact varies by disaster, location, epidemiology and demography of the affected, health assessment is required rapidly and later thoroughly and regularly to identify public health needs, risks and gaps. Especially, public health response needs measures to identify high-risk and vulnerable affected populations including the aged, the chronically ill, pregnant women and children, to and provide special protection and care, and preventive measures of health impact including immunization, vector control, nutrition and psychosocial care.

Public health response requires a continuum of measures from early phase of life saving (e.g. water and nutrition) to the later phase of disease prevention and health system reconstruction (e.g. infrastructure, information system, human resources). Critical elements of this response are planning, information management, capacity building, and coordination among various parts of public health response and with medical and other sector response.

Based on lessons learned from recent disasters, more specific priorities and detailed action plans in health sector (both medical and public health as continuum of measures) should be reflected in HFA or other frameworks and planning at global, regional and country level.

As one of the critical measures in public health, data and information management including assessment, surveillance, monitoring and evaluation should be highlighted and its capacity should be strengthened as all the planning and response need to start with those information and even reconstruction and preparedness need to be made based on the situation and needs on the ground.

Anticipated impacts: It is anticipated that more attention will be made to a comprehensive and coordinated approach between medical and public health arenas and a continuum of health measures with the common objective to minimize direct and indirect health consequences due to disasters at global, regional and country level. Since there are various actors and resources to be mobilized for preparedness, response and reconstruction for this objective, the revised framework and more detailed and specific action plans would lead to better planning, coordination, capacity building, and other gap filling of country-specific issues for health preparedness and response.

Better coordination between medical and public health preparedness and response will make synergy and a continuum of health measures from emergency response to reconstruction, from prevention to treatment, from health facilities to communities.

As a critical component of public health interventions, strengthened data and information management would improve health planning, response and reconstruction.

Potential policy actions: As country situations vary, the country assessment and mapping of preparedness and planning in health sector (especially in terms of coordination and continuum of health measures) might help consider how and what to move forward. When country leadership and ownership is strong, the health authority, both national and subnational, could take actions. When weak, UN system or other development stakeholders could support countries to plan and take actions. As public health has various stakeholders and potential resources, wider consultation with and greater involvement of those would be a key for better planning and coordination.

Summary with recommendations and proposed responsible parties: 1) The mindset and approach needs to be changed among medical and public health actors and policy makers by setting the one common objective that health consequences of disasters, both acute and chronic, direct and indirect, be minimized in a comprehensive manner throughout all the phases of preparedness, response and reconstruction; 2) more specific and detailed action plans for preparedness and response in health with the common objective are recommended in wider consultation with and greater involvement of related and potential stakeholders; 3) country assessment and mapping of gaps to realize this continuum of measures and coordination would help consider how and what to go forward.

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B.

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Theme: Basic knowledge on radiation is required for response to radiation/nuclear disaster

Introductory statement outlining issue with brief description, context, and

importance: Radiation cannot be detected by human senses and it does not cause immediate signs or symptoms. Moreover, there is no report showing that radiation exposure and or contamination with radioactive materials alone has resulted in immediate death if not accompanied by other life-threatening disease or injury. In addition, radiation exposure may lead to late effects including cancer in the long term. Therefore, the health effects of radiation exposure are a major concern for first responders and medical personnel regardless of the dose received. However, first responders and medical personnel usually have limited knowledge concerning radiation, which leads to misunderstandings and a certain level of anxiety if not outright fear. However, the recent accident at the Tokyo Electric Power Company (TEPCO) Fukushima Daiichi Nuclear Power Plant (NPP) on March 11, 2011 uncovered many problems in the medical response systems.

Background statement highlight why the particular medical or health issue is currently not well or incompletely addressed:

When an earthquake measuring 6.8 struck the Niigata-Chuetsu region of Japan on 16 July, 2007, it caused damage to the Kashiwazaki-Kariwa NPPs, the biggest NPP site in the world. A small amount of radioactive materials was released into the environment; no significant radiological effects were detected in the environment or among the public, nor was any damage caused to the NPP monitoring system, although public infrastructure was affected. However, most disaster medical assistance team (DMAT) members who had been sent from local governments without nuclear facilities to hospitals and first-aid care centers at the NPP site were concerned about the effects of radiation because they lacked adequate knowledge about radiation (Akashi et al. 2010).

Iwate, Miyagi, Fukushima, and Ibaraki prefectures are located on the Pacific coast of the main island (Honshu) of Japan. Earthquakes and tsunamis cause not only death and life-threatening injuries but also have a tremendous impact on the public and infrastructure in affected areas. Upon the Great East-Japan Earthquake, Miyagi prefecture had the greatest damage among these prefectures; more than 230,000 buildings and houses were either completely or partially destroyed. The damage in Fukushima prefecture was greater than that in Iwate prefecture, although the number of DMATs sent to Fukushima was less than that to Iwate. The reason was because officials of local movements who had sent DMAT and also members of DMAT were concerned about exposure to even low dose of radiation due to limited knowledge on radiation.

Limitations and adaptation: The response system for radiation emergency medicine has already been established in countries with a nuclear power plant and there are many countries where the system for medical response to radiation accident/terrorism is thought to be essential. In contrast, there are some countries where the system of radiation regulation is still being establishing. The smooth

transportation of contaminated patients to hospital and also their receipt are vital elements. However, a lack of knowledge about radiation emergency medicine in the personnel who are called upon then results in problems including transportation and acceptance of contaminated patients. International Atomic Energy Agency (IAEA), Radiation Emergency Assistance Center and Training Site (REAC/TS), World Health Organization (WHO) and other organizations including NIRS have conducted training courses on response to radiation emergency for medical professionals and first responders. On the other hand, opportunities for education in radiation emergency are restricted to some countries, whereas accident/terrorism could occur anywhere. Establishing training courses for the trainers is required, since all members of medicine or first responders are unable to attend these courses.

Proposed solution with examples of successful programs (if relevant): As mentioned above, a number of organizations related to radiation emergencies have provided opportunities for training and education to medical professionals and first responders. From these events and experiences, however, it has become perfectly clear that re-education and -training, focusing on precise knowledge and understanding of radiation protection and contamination control of patients during transportation, are urgent. Radiation exposure or contamination with radionuclides does not cause immediate symptoms or signs; these are not immediate life-threatening. Therefore, a patient with accidental exposure to radiation and/or contamination with radioactive materials has to be transported to a hospital when he also has life-threatening diseases or injuries. Thus, understanding radiation correctly is essential for medical professional and first responders.

Metrics: Most of hospitals have radiation devices such as X-ray. Furthermore, there are many hospitals that have a department of nuclear medicine and/or radiation oncology. If medical professionals related to radiation such as physicians, radiation technologists, and medical physicists have correct knowledge on radiation and its effects and can provide the knowledge to other medical professionals, it leads to reducing medical exposure to radiation in not only patients but also themselves.

Summary: To our knowledge, there are few reports about significant effects of radiation exposure to health care providers receiving contaminated patients. It is vital that correct information about radiation exposure be provided prior to any possible accidents. Psychological and social problems can be prevented or at least minimized. We have learned from the Fukushima accident that exact knowledge concerning radiation exposure is absolutely essential.

References

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C.

Yasuhiro Otomo and Shinichi Egawa

Theme: National preparedness of disaster medicine as a tertiary prevention

Introductory description: After experiencing the great disasters, each nation had developed the disaster medical response systems. However, the medical response was not always sufficient to deal with mass casualties and vast area disasters that also damage the hospital function. Preventable deaths were postulated since rapid search and rescue, on site confined space medicine and wide area transportation was not systematically available. The concept of systematic preplanned medical response was developed especially in Japan, where long history of large scale disasters hit the nation. The concept includes Disaster Base Hospital (DBH), Disaster Medical Assistance Team (DMAT), Staging Care Unit (SCU) and wide area transportation, Emergency Medical Information System (EMIS) and disaster medical-public health coordinator. In UN-ISDR Progress Reports, the structural and non-structural strengthening of hospital buildings and regular drills were achieved to some extent, but the function of medical professions and health care facilities were far less described as the effective response. The following table provided by Dr. Mark Keim from the US Centers for Disease Prevention and Control (CDC) helps to shape the priorities for intervention:

Stage of Prevention	Phase of emergency management cycle		Risk management technique	Disaster risk management component
Primary prevention	Prevention		Risk avoidance	Hazard avoidance
Secondary prevention	Preparedness (susceptibility / resilience)		Risk reduction	Vulnerability reduction
	Mitigation	Structural (exposure)		
		Financial (susceptibility / resilience)	Risk transfer	
Tertiary prevention	Response		Risk retention	Residual risk
	Recovery			

Table 3: A comparison among various techniques for prevention, emergency management and risk management as applied to disasters

In a large scale disaster, the nation-wide systematic medical and public health management is strongly required to save lives of the affected people.

Limitations and adaptation: Depending on the health care system, the functions of the hospitals differ in each country. The financial, human and logistic resources are also different greatly from hospital to hospital. Nevertheless, the hospitals should function and cope with the surge of medical and public health needs at the time of disaster. Preparedness of the medical response system within the country and internationally will be the key to save the lives of affected people. Rapid search and rescue, on-site or short access to medical relief and transportation to higher level of care should be provided. In a large scale disaster, the hospitals can be also damaged or to be evacuated from the area due to Tsunami, Nuclear and other hazards.

Disaster Base Hospitals are not only the concept of secondary and tertiary hospitals that provides intensive care of multiple injury, crush syndrome and severe burn in disaster, but DBH responds to incoming and outgoing wide-area patient transportation and provides DMAT. DBH are designated as the local health care head quarter (medical control) and provide medical resource to affected hospitals.

DMAT should be specifically trained to deal with life saving medical procedures under austere conditions and wide area transportation as well as the effective assistance of local hospitals and headquarters. The types of DMAT can be various according to the policy, culture and health care system in the country. But the DMAT to provide the on-site or short access to the medical care and act as a disaster medical specialist should be legally implemented in each country.

In order to provide efficient care, medical information is vital. Nation-wide establishment of such system can make the DMAT and DBH activity better coordinated by the information. Education and training of all medical staffs to get accustomed to these information systems are vital to utilize the information effectively at the time of emergency. Information system should include location, contact information, physical and functional capacity information of hospitals nationwide.

Medical-Public Health coordinators who are educated and trained for the disaster medicine are also required in large scale disaster. Many supporting teams, both medical and humanitarian, and resources will be pushed to the affected area. Without an appropriate coordination, it will cause flooding of the supporting teams and materials in the headquarters, while it is creating the vacant area where the need is most.

Proposed solutions: Identify and engage those countries where the system of disaster medical and public health management is in place and successful, and where implementation is being planned for. In collaboration with WHO regional and economic entities to incorporate the system of disaster medical and public health management into disaster prone developed and developing countries.

The improvement of regular medical and public health care system is strongly recommended so that the vulnerabilities of poverty, malnutrition and infectious disease can be decreased. This is not only the problem of the developing countries but everywhere in the world because the complexity of urbanization and possible increment of vulnerable populations. The financial solution should be focused by the national government because the hospitals usually does not have excess fund to prepare as DBH and to dispatch DMATs. The wide area transportation require the national governmental support in collaboration with uniformed services, such as police, fire department and army. Multi-sectorial approach should be incorporated.

The education and training of all medical professions is essential to build the capacity to receive supports domestically and internationally. International standardization of humanitarian aid, such as Sphere Project is required while the cultural difference of each community should be respected.

Ensure that health initiatives be incorporated into the anticipation and assessment process across all phases of the disaster cycle with emphasis on prevention and preparedness. Design measurable outcome research, in at least 6 disaster prone areas on all continents

Anticipated impacts: It is anticipated that prepared medical and public health management will save more lives of affected people with better quality of life. Beside of efficient response itself, the incorporation of stronger and more functional health facilities will make the health conditions of disaster prone countries better. Even in the developed countries the demographical statistics on the vulnerable population in the community will enhance the better management and care for these vulnerable people.

Establishment of disaster base hospitals will enhance geographical networking of secondary and tertiary centers so that people can have better access to medical care. The sense of better health access will improve the quality of life in rural area and may result in the retardation of rapid unsustainable urbanization. National government has the funding responsibility and authorized management of secondary and tertiary centers and will have better strategies to the community health plan.

Emergency information system can be an effective tool even in the daily practice of medicine. Nation-wide information sharing will enable the medical profession to raise the standards of their own facilities. Multi-sectorial collaboration to achieve effective communication will strengthen mutual understanding of search and rescue teams, transportation teams and medical teams as well as logistics. Rapid push relief arrangement by agreement between responding sectors and supporters will make the planned operation of daily logistics to avoid wasting the resources.

Education and training of DMAT and medical-public health coordinators will emphasize the recognition of disaster medicine in all level of medical professions and the building of support receiving capacities when the hospital was involved in disaster. It will also improve the recognition of disaster risk reduction/disaster risk management at all phase of disaster cycle.

Metrics: Number of the countries that have incorporated DBH, DMAT, disaster medical information system and medical-public health coordinator will be measured. The number and geographical distributions of DBH (designated secondary and tertiary center) and DMAT will be measured. The funding effort of the government to the instrumentation of DBH, DMAT and information system will be measured.

Every health quality parameters including average life span, the rate of newborn mortality, nutritional status, the rate of elderly, disabled and other vulnerable population according to the demographics, the rate of mortality by infectious disease and other major cause of death, mental health parameters should be implemented as the national statistics. The number of mortality and morbidity in small disasters in each province should be measured so that the trend of disaster risks in Anticipation, Assessment, Prevention, Preparation, Response and Recovery (AAPRR) phase can be visualized.

The regular educational activities and drills of DMAT and coordinators should be measured and assured of governmental support for these activities.

Evaluation of disaster medicine unit in every medical and health related schools so that the standardization of concept can be achieved.

Major challenges: The success of this proposal depends largely on the health care system in each country. In the disaster prone area, the repeated destruction of the health facilities and community health impairs the central motivation that preparedness is the far efficient way than spontaneous response. In the areas of extreme climate, unsustainable urbanization areas, extreme lack crisis and loss of biodiversity, natural and man-made hazard can destroy the health qualities of the community. Such destruction also makes the global fund agencies to evaluate the community worthless to invest for risk reduction causing the vicious cycle. Human security should be centralized among the policies. Even though it takes a long time, education will be the best tactics to prolong the sustainability of health care.

Education of next generation about human rights and the importance of health in all levels are required. It can be called as the “health literacy”.

Summary: The Prepared Disaster Medical and Public Health Management is the fundamental tertiary preparedness of the country. Disaster resilient health system can be achieved through the daily health improvements together with the standardized DBH, DMAT and medical information systems. Improvement of “Health literacy” at all levels will be achieved through all medical professions education of disaster medicine.

References:

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Submitted: 5/1/14: Yasuhiro Otomo and Shinichi Egawa

D.

Japan International Cooperation Agency and Yasuhiro Otomo

Theme: Enhancement of the prepared framework of the Foreign Medical Teams (FMTs): Use of integrated international medical resources could make the effective and rapid response to the large scale disasters.

Introductory description: When the extensive disasters or events happen, the gap between supply and demand of providing the medical and the health care services will occur. The needs of medical services to treat the patients for injures as well as chronic disease boost in the affected country of course, simultaneously, the capability of providing the medical services would be get down due to lack of human and equipment resources for treatment. Not all the time but, depending on how much bigger the disaster is, there is the possibility the disaster goes beyond of the domestic medical response. At the moment, the demand of use of international assistance for treating both of the medical care and the public health care will go up especially in early stage of the disaster managements.

However, numerous reports regarding the disaster emergency response claimed the difficulties in the coordination of receiving international medical assistance after and during the disasters. This may cause the untimely medical response. Effective use of the international resources could reduce mortality, mobility and economic losses of the affected country if the coordination is good and the teams are well

prepared. Existing framework of the integration of the FMTs leading by WHO Working Group would assist to resolve this situation.

Background statement highlight why the particular medical or health issue is currently not well or incompletely addressed: This time I reviewed some reports regarding the experiences of the coordination of the international resources after and during the massive disasters, focusing on the government who faced the recipients of the FMTs in Haiti, Japan and US. As a result of the reviews, several issues and ideas for the solutions were found as below. Those governments or academic paper stated various considerations on the managements of the FMTs in a large-scale domestic disaster setting.

A) Issues should be addressed from the reviews: Difficulties in selecting the foreign assistance teams due to lack of information about both of domestic expected needs on health, and the FMTs' capacity, quality, and duration of the operation and so on. The representative of Ministry of Health in Haiti mentioned that for the government staffs it was difficult to recognise even about the international agencies in spite of those groups are common in humanitarian society. Another reason of difficulties in selection of the FMTs was, those government could not state timely the requirements to the FMTs for receiving them with several reasons; such as, the situation was beyond of their anticipation, then the government did not have time to decide the requirements against the FMTs, who has the responsibility for the decision making to receive the offers was not cleared among ministries on the affected country.

Some ideas of solutions from the reviews: 1) To make a focal point among related ministries to receive the FMTs and the government align with the FMTs while accumulating the basic information about them beforehand, in peacetime (Japan). 2) To present the governments' essential requirements to the FMTs such as their availability of selected specialties, the capacity of medical equipment, the duration of the activities and appropriate technology...and so on(US). To state the requirements for the FMTs timely is crucial, although it is challenges in conducting enough and adequate needs assessment rapidly (Japan). 4) The FMTs need be self- sufficient team (Japan).

Issues should be addressed from the reviews: Liability for the accident cases of the FMTs was not cleared (US, Japan) .

Some ideas of solutions from the reviews: The sending side of the FMTs, they need to address the issues for it such as transparent registration, certifications and accountability of the teams (US).

B) Issues should be addressed from the reviews: All document or reports reviews complained that for the government of the affected country, coping with the numerous offers and arrivals of the foreign assistance teams especially at early stages of the massive disasters at the same time burdened their managements extensively. Additionally, at the early stage, since the human and logistics resources were limited in the affected country, the FMTs were required to be self-sufficiency, however, in a fact, there was a gap among the FMTs or Search and Rescue teams if they were well-equipped or not in terms of self- sufficiency. Some teams asked amount of logistics supports from the affected country(Haiti, Japan, US).

Some ideas of solutions from the reviews: The FMTs should prepare to be the self-sufficient team (US, Japan).

C) Issues should be addressed from the reviews: Lack of information or understanding regarding the international coordination system and its roles such as UNDAC/OCHA and other cluster approaches among the ministries of the affected countries (Japan, Haiti).

Some ideas of solutions from the reviews: To emphasise the capacity building for the ministries to let them know the international coordination systems and how to utilise them effectively.

D) Issues should be addressed from the reviews: One of the considerations by the governments to receive the FMTs was if the teams would adjust to the context such as languages, cultures and health systems of the affected countries (Japan, US, Haiti).

Issues should be addressed from the reviews: The teams should concern the importance of adjustment to the affected country's contexts (US).

Issues should be addressed: This was reported from the actors on the field during the disaster that often the health cluster meeting only address the foreign and domestic medical teams for emergency responses that is not included public health care at the early stages, though it have been stated the importance of the intervention of public health care from the early stage for a long time.

Proposed solution with examples of successful programs (if relevant): What we should do to address those issues above based on the catastrophic disasters experiences are; recently WHO Foreign Medical Teams(FMT)Working Group proposes the framework with global guidelines including classification and minimum standards for FMTs in sudden onset disasters. The documents and the framework aim to reduce the provision of insecurity medical services and to meet the expected needs by the affected country as fulfilling the gaps of the relation between supply and demand. Pre-registration system and on-arrival registration, classification of the capacity of the teams, training curriculums, and capacity building for the stakeholders at national level, certification and liability of the FMTs are discussed in the progress of the FMT framework. For the FMTs responses to Yolanda in the Philippines, the health cluster and the country utilized the FMT registration and reporting system of the framework, and it was reported that the system was effective to coordinate the FMTs and could gained the amount of the data regarding FMTs' activities in the field. This would be a first step to improve the FMTs activities effectively because we at least could have the information about the present capacity of the FMTs, the data could help for preparedness associate with the disaster risk management cycle for example for the capacity building of the FMTs.

Anticipated impacts: By using the framework; 1) Improvement in quality of the FMTs: minimum standards and the statement of the classification would accelerate well- trained and well equipped teams. 2) Reduction of the burden of the coordination of the FMTs, by using registration system and by utilise the international coordination systems with trained national personnel. This could help to timely response based on the needs, could lead to early start of the public health intervention and effective hand-over managements. 3) Enhancement of rapid response with reinforced regional approaches against the large scale of disasters in cooperating among the countries in same region, while exchanging the information about the FMTs capacity as well as the potential needs in the disaster and interacting each other in peacetime in the region. It also will enhance the human resource network of the disaster medicine in the region (figure1). 4) Emphasis of accountability to the affected country with accreditation of the FMTs as well as standalisation of the FMTs' training curriculum. 5) Continuous improvement of the FMTs by the data collection. 6) The reduction of economic losses, mortality and mobility deploying the needs matched teams for the affected country (figure2).

For Japan Disaster Teams, the framework works not only to address those issues, but to accelerate the reviews of the quality and improvement of our team, and enforce the regional engagement for the effective disaster response in the process of making the framework.

Major challenges for the success of this proposal: • The endorsement of the framework's concept by the nations, and the involvement of ministries who would have responsibility to send and receive are the key. To make a good involvement from the nation, some strong authority by UN agency is necessary.

- Each country has different ICS (incident command system) during the disaster, it also should be considered by cooperating with the nations.
- Who should have the responsibility of quality assurance of the team is difficult to resolve even use the framework.
- There is the need of cooperation and differentiation with the existing international coordination agencies such as OSOCC and UNDAC/OCHA.
- Balance of the quality of the FMT system and the cost-effectiveness should be considered in the process of establishing the framework. Adjustment with civil defense is needed beforehand.

Measures that could be followed to track impact:

Essentially, the reduction of burdens of FMTs coordination by the government and relevant stakeholders could be a measurement of effectiveness of the intervention. With the reports of the FMTs activities, the reviews from external evaluation and the questionnaires from the FMTs also could be measurable tool to evaluate the effectiveness and the impact of the FMT system while reviewing the needs matching, rapidness of deployment of the FMTs, the quality of each FMT activities and so on divided by types of the teams and each phase of the disaster management cycle. The cost-effectiveness would be useful for future planning.

Summary: JICA is the one of the agencies to sending the medical teams to foreign countries; however we now consider deeply about the receiving side system too, making the operation effective, and to meets the expected needs by the affected country. As like this, the FMT intervention accelerates to move forward. The framework of the FMTs will be raising awareness of improving the FMTs towards being well-prepared, well-equipped, well-trained, and standardized teams under the international communities. This framework also will assists to enhancement of rapid response in the Asian-Pacific region as building the good relationship up among the countries from in peacetime. I also think that this framework will reduce the burden of response not only for the emergency one, but the other phases' ones in the disaster cycle. UN agencies, other international coordination agencies, the ministries of each country, operational agencies such as JICA need to be involved.

Figure1:Regional approach bring effective response

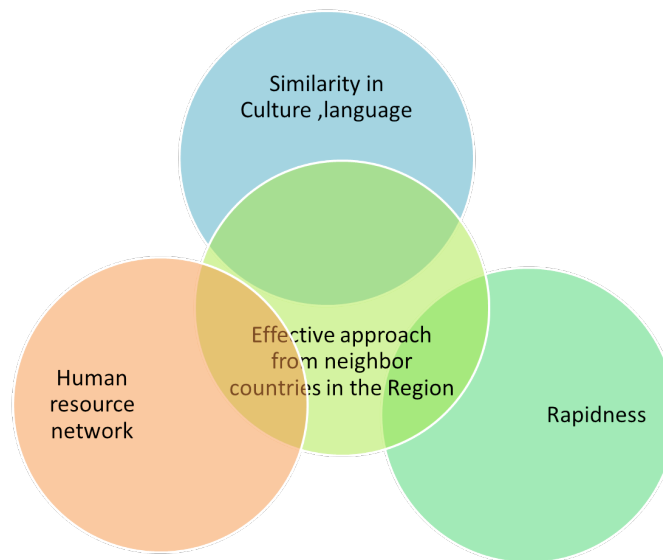
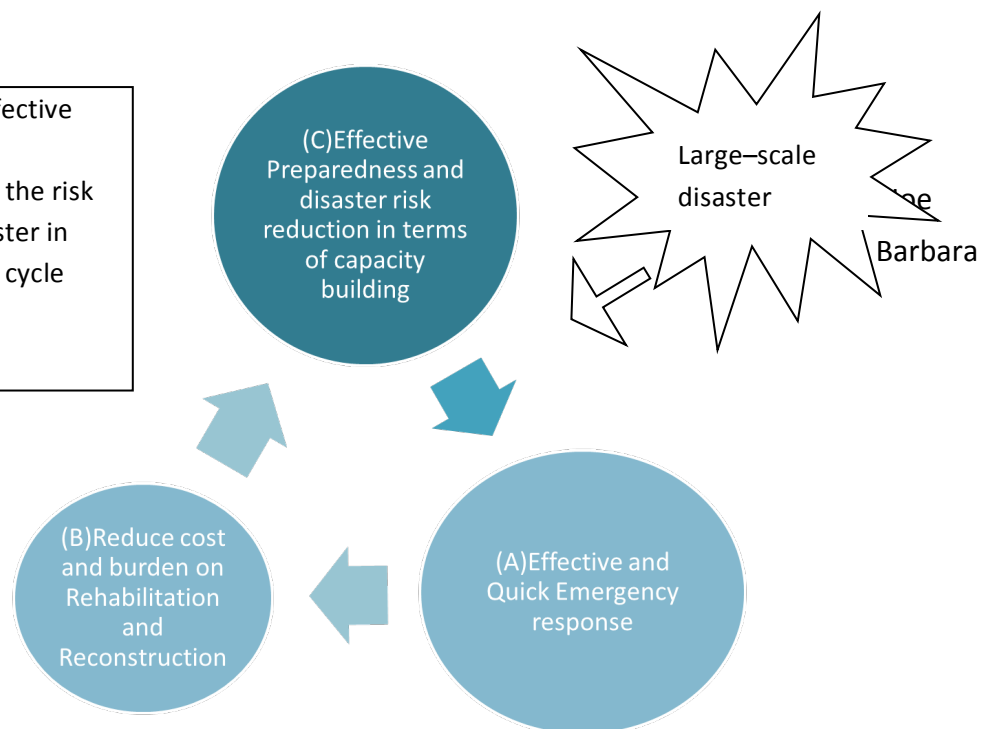


Figure2: Rapid and effective emergency response management reduces the risk of the secondary disaster in disaster management cycle



E.

Frederick M. Burkle, Jr.

Theme: The Prepared Community Concept: Incorporating Community Level Health Initiatives for Disaster Risk Management

Introductory description: For understandable reasons the global community has focused primarily on response and recovery requirements for nation-states experiencing sudden large scale naturally occurring disaster and crisis events. However, science has convincingly shown that a major shift toward the evolution of crises this century has occurred arising from numerous chronic and smoldering factors identified with climate extremes, unsustainable urbanization, emergencies of scarcity and biodiversity losses. It is becoming more and more clear that disaster risk reduction (DRR) and disaster risk management (DRM) must assume central importance if these crises are to be properly mitigated and global health and public health security is to be protected.

Limitations and adaptation: Collectively, global health security is severely limited by the general lack of understanding of the health consequences arising from these events and the impact on everyday health of both populations and individuals. Over 52% of the world's populations live today in urban settings. For the most part these settings provide the desired economic and social protections because urban essential infrastructure can meet the expectations of the population growth and density. Increasingly, there are, on all continents, examples of where rapid growth exceeds the demands of public health infrastructure and social protections that defines "rapid unsustainable urbanization" introducing and exposing increasingly vulnerable populations to multiple and sometimes unique health consequences brought about by industrialization, motorization, income inequities and severe density-driven population vulnerabilities brought about by poor water, sanitation, shelter and health care availability for example infectious diseases and malnutrition to name but a few. This defines rapid unsustainable urbanization. Increasingly, the urbanization of them. This concept has only been implemented in Australia, the UK and was recently adopted by New Zealand, all of which are developed countries. Currently, outcome research is limited and only reported within the response and recovery phases. While vulnerability demographics can reveal unique community health risks, there is no documented evidence they have been incorporated into the anticipation and assessment process. It is predicted that the Prepared Community Concept, essential to the broader "Decade of the Community", will advance rapidly worldwide. It is crucial that the community level process of anticipation and assessment include health risks that will lead to the implementation of appropriate and measurable prevention and preparedness initiatives. There are impoverished disaster-prone areas such as the Pacific Island nations where warehoused Disaster Risk Reduction Bank resources are limited and that some stored supplies are susceptible to weather deterioration. In this scenario regional nations that have mutual agreements in place, such as Australia and the US, have air and temperature controlled resources to both store and immediately deploy those perishable resources by airlift or ship.

Proposed solutions: Identify and engage those countries where the Prepared Community Concept is in place and successful, and where implementation is being planned for. Lobby WHO regional and economic entities to incorporate the Prepared Community Concept into disaster prone developed and developing countries and ensure that health initiatives be incorporated into the anticipation and assessment process across all phases of the disaster cycle with emphasis on prevention and preparedness. Design measurable outcome research, in at least 6 disaster prone areas on all continents.

Anticipated impacts: It is anticipated that a more robust incorporation of the Prepared Community Concept in both developed and developing countries will lead to (1) improved community-specific and disaster-specific planning across the entire cycle, (2) that adverse health outcomes, especially for the most vulnerable populations will be mitigated, and (3) that this process will be prove to be considerably more cost efficient and effective. A full spectrum strategy that deploys a variety of tactics throughout the disaster cycle will provide regional stability, encourage good governance, support human rights and

equality, attention to cultural nuances, restore public health protections, strengthen community resilience and improve the nation's participation as global citizens.

Metrics: Both qualitative and quantitative metrics would be first trialed in each continent, including measures of effectiveness, would be designed for each phase of the disaster cycle, designed to be easily implemented by the existing community resources and be properly reported to Regional emergency management resources for outcome studies. Measures of effectiveness parameters will need to show impact of the AA on PPRR outcomes. Country and culturally specific metrics can be designed by Country CDC and/or regionally-based CDC and CDC-like entities along with buy-in by WHO-Geneva, WHO Regional Organizations and training for the country WRs. The country WRs will be required to participate in community education and training and to ensure that health initiatives are appropriate and implemented in the AAPRR process.

Major challenges: The success of this proposal is dependent on acceptance that disaster risk management is best done at the local level. There will be increasing demand for evolving models of cultural interaction as this program is implemented, especially in developing countries. Emergency management, a powerful political entity in many countries, may object initially to these structural and authority changes. Again, working to identify and train the community leadership will be critical. The trust and leadership of existing emergency management resources is crucial to success, funding, implementation and measurement. Developing countries will first identify and insist that their limited resources for response and recovery remain a priority. It is important to recognize that while these would certainly remain a priority that prevention and preparedness resources will receive equal attention; the value of these additions will be recognized by the host country over the long term. Unfortunately such a program will show limited success if increasing disaster risk occurs because public health infrastructure continues to decline. Policies at the community level are more likely to survive if they align themselves with national interests, diplomacy, are evidenced-based and incorporate ethical realities. Regional economic organizations such as ASEAN and OAS have mandated that a "move from strictly economic, trade and cultural issues to regional crisis/disaster prevention and preparedness in necessary" and are eager to learn what programs are most viable.

Summary: The Prepared Community Concept, in support of the internationally recognized "Decade of the Community" is a worthy and increasingly tested entity for cost-effective and efficient community resilience that deserves translation to disaster prone areas worldwide. Early incorporation of health initiatives across the entire disaster cycle is crucial.

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Submitted: 3/1/14: Burkle

F.

Frederick M. Burkle, Jr., MD

Theme: Emerging Crises and the Impact on Global Health Security : Requirements for Globally Mandated Prevention and Preparedness Initiatives Through Structured Demographic Assessments

Introductory description: For understandable reasons, the global community has often focused primarily on response and recovery requirements for nation-states experiencing sudden large scale naturally occurring disaster and crisis events. However, science has convincingly shown that a major shift this century has occurred for crises arising from numerous chronic factors identified with climate extremes, unsustainable urbanization, emergencies of scarcity and biodiversity losses. It is becoming clearer that disaster risk reduction (DRR) within an overarching framework of disaster risk management (DRM) must have renewed emphasis if these crises are to be properly mitigated and global health and public health security is to be protected. A critical component of DRR is pre-incident knowledge of potential impacts on the population that can be utilized by multiple sectors.

Limitations and adaptation: Demographic evidence of the potential impact of crises is lacking, especially in rapidly growing urban settings in emerging sovereign economies such as India and Africa. Collectively, global health security is severely limited by the general lack of understanding of the health consequences arising from these events and the impact on everyday health of both populations and individuals.

- ✓ Climate warming is perceived by the majority of the developed world's population and by many key decision makers within the context only of temperature warming. Climate extremes may be a more appropriate descriptor but still with limitation as it does not include issues related to severe water deprivation and droughts now evident on every continent. Many of the world's internally displaced populations attempt to escape these environmental threats, moving mostly to urban centers, yet remain incompletely characterized.
- ✓ Additionally, over 52% of the world's populations live today in urban settings. For the most part these settings provide the desired economic and social protections because the urban essential infrastructure can meet the expectations of the population growth and density. Increasingly, there are, on all continents, examples where rapid growth exceeds the demands of public health infrastructure and social protections. This defines "rapid unsustainable urbanization" introducing and exposing increasingly vulnerable populations to multiple and sometimes unique health consequences brought about by industrialization, motorization, and income inequities. Severe density-driven population vulnerabilities are brought about by abject poverty, poor water, sanitation, shelter and health care availability. Urban health consequences, which used to be exclusively rural tragedies, include preventable chronic and acute infectious diseases and chronic and acute malnutrition, including dehydration. These characteristics are only exacerbated after emergencies and disasters.
- ✓ There are only 34 non-replaceable biodiversity areas in the world. Only one exists in the U.S. and is suffering from severe drought. Over 80% of the biodiverse areas have been the objects of war over the last 5 decades. These cherished areas are the "biological oxygen of the earth" and thus must be preserved. They are responsible for essential food-seed propagation, fresh water and clean air, climate regulation, raw materials, fuel and balance of all species of microbes. Mankind's interference in the latter has contributed to epidemics of West Nile fever, Ebola, Lyme disease, AIDS, SARS and hantavirus. High biodiversity is a major safeguard against

infectious diseases. When a disaster impacts a biodiverse system they must be recovered rapidly. Recent wars give credence to the deployment of “warfare ecologists”; these specialists must be engaged at the prevention and preparedness stages.

- ✓ Evans has warned of the seriousness of “emergencies of scarcity” primarily water, food and energy and the competition for the purchase of these commodities in poor countries by rich import dependent countries and the increasingly aggressive frequency of “distributional wars” that arise from resource competition. Country public health status is increasingly being defined by the presence or absence of these scarce resources.

These 4 entities, which will increasingly dominate our landscape and that of the post-impact environment. They must become the focus of DRR/DRM mitigating and prevention funding and resources.

Proposed solutions: Restructure and redesign global and county DRR/DRM programs to emphasize prevention and preparedness projects, research, political and policy advocacy and pragmatic transdisciplinary and multidisciplinary global solutions. A foundational step would be to fund demographic assessments, heretofore lacking, to identify the vulnerable populations in each continent and mortality and morbidity rates for disaster prone rapidly unsustainable urban settings, impact of current biodiversity losses, potential losses from emergencies of scarcity, and climate extremes where mortality in 2013 was estimated to be greater than 300,000 deaths on each continent. Involving other disciplines such as social scientists, political scientists, civil engineers and others to seek evidence-based solutions in collaboration with public health and medicine can help mitigate these brewing tragedies.

Global health initiatives among several leading countries, but especially the US and China, remain competitive and country-centric and add little to global health security. WHO, its affiliated organizations, and regional economic entities should be lobbied to incorporate prevention and preparedness programs into the disaster prone developed and developing countries areas most impacted by climate extremes and ensure that health initiatives be incorporated into the anticipation and assessment process across all phases of the disaster cycle but with emphasis on prevention and preparedness. This will include incorporating DRR/DRM for measurable outcome research in at least 6 disaster prone areas on all continents and ensure that community resiliency programs are designed to mitigate the potential for climate extreme consequences. More finite and small accomplishments can be made through the incorporation of disaster ecologists into all post-disaster recovery programs. A separate but companion proposal would be to provide strict policy and protection laws for areas worldwide impacted by rapid urbanization, biodiversity losses, extreme climate changes and vital resource grabbing and lobby for implementation of global treaties that protect these current crises from expanding further through innovative prevention and preparedness initiatives.

Anticipated impacts: A full spectrum global strategy, hopefully in the form of a Treaty and in the example of the International Health Treaty (IHR), would deploy a variety of strategies and tactics throughout the disaster cycle to track and emphasize those areas most at risk. With well planned prevention and preparedness programs, these actions would provide regional stability and trust, encourage good nation and global governance, support human rights and equality, attention to cultural nuances, restore public health protections, strengthen community resilience and improve a nation’s participation as global citizens. This will not be realized without Treaty level agreements.

Metrics: Both qualitative and quantitative metrics would be first trialed in each continent. To date the scientific and decision-making community does not have access to some of the most disaster prone urban population centers, biodiverse areas and to short and long term water, energy and agricultural land resources. Universal data requirements would include water, sanitation and air quality and other resources that have direct impact on global health security. Global health security measurements would be designed to measure the impact of risk-specific mortality and morbidity rates the tally of which would best monitor the impact of any prevention and preparedness programs. Incorporate these risks into the WHO, the WHO Regional Organizations and country WHO Representatives (WRs). Requirements for this education and training would be designed for prevention and preparedness and programs and be easily implemented and monitored at community and country levels.

Major challenges: The success of this proposal is dependent on acceptance that DRR/DRM is best done at the regional and global level but that sovereign country level support is essential. The types of data that are sought can conflict with political and propaganda purposes making them harder to seek. There will be increasing demand for evolving models of cultural and economic interaction (e.g., coal burning in India and China) as programs are implemented, especially in developing countries. Unfortunately history has confirmed that the programs suggested here will not receive global health security status without a global Treaty.

Summary: A major shift in the evolution of crises has occurred arising from numerous chronic and smoldering factors identified with climate extremes, unsustainable urbanization, emergencies of scarcity and severe biodiversity losses. Any solutions will come only from global DRR/DRM prevention and preparedness initiatives properly mitigated to protect global health and public health security. This must begin with data collection

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Submitted 3/8/14: Burkle

G.

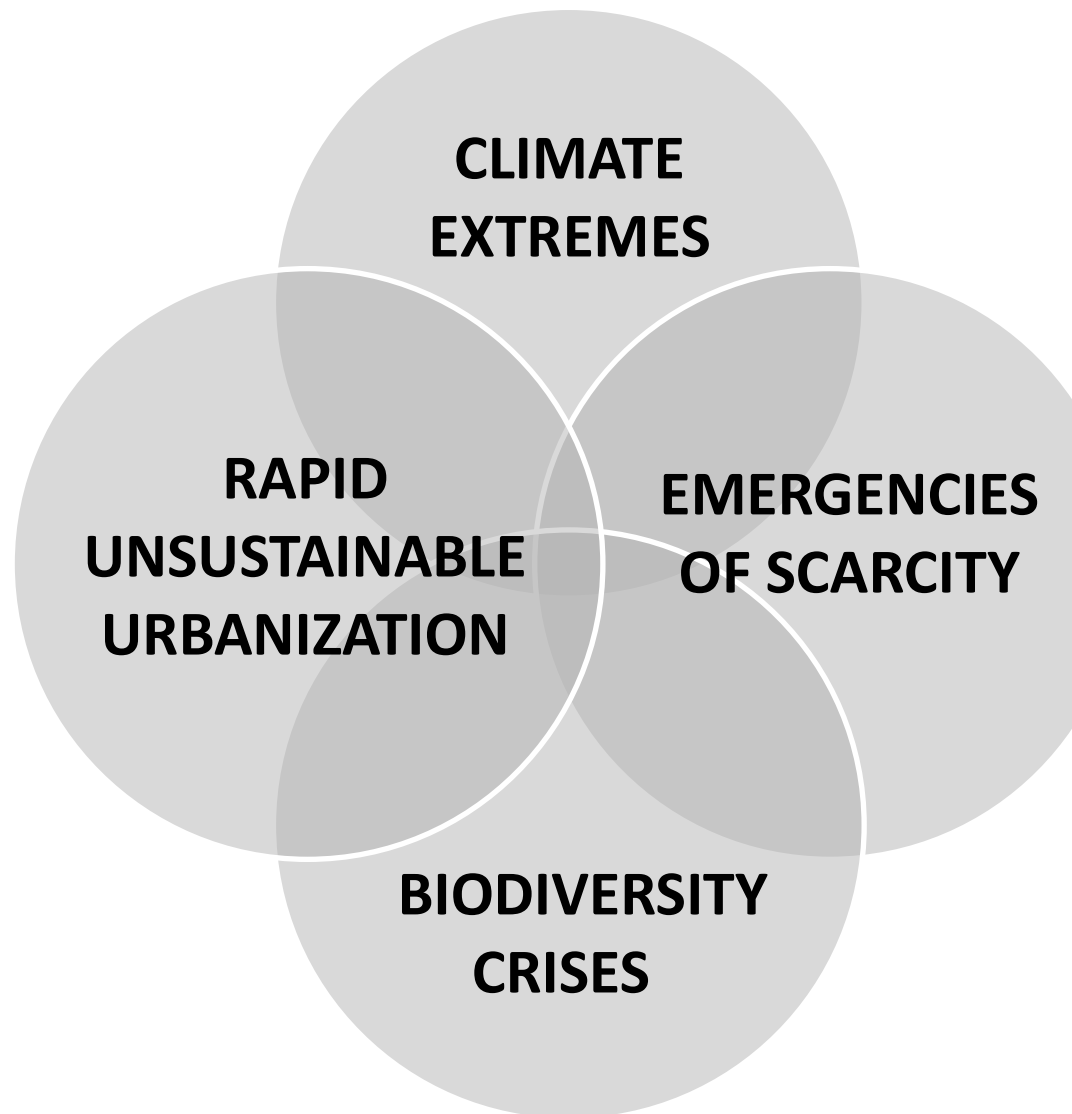
Frederick M. Burkle, Jr., MD

Theme: Treaty-level Global Authority for Prevention and Preparedness

Introductory description: Future crises demand a paradigm shift within the broad global humanitarian enterprise geared toward prevention and preparedness. Strengthening prevention and preparedness within and across nations can only happen with a profound knowledge of nations' populations in relation to risk and vulnerability. Despite the current precision of climate models, demographic trends, and urban agglomerations, there is a failure to make sense of this information and risks both potential victims and decision-makers who are required to craft the necessary prevention strategies and policies. A continued focus on response alone will accomplish very little. The impacts on the health of populations will be direct, but even graver will be the indirect impacts as public health infrastructures break down, human insecurity becomes more prevalent, and large numbers flee. The common thread of these crises and public health emergencies they produce must be seen as a strategic and security issue, one that deserves globally mandated prevention and preparedness programs and projects and an international monitoring system that would only be achieved through a global Treaty.

Limitations and adaptation: Traditional crisis management takes place within the framework of a 4 phased cycle: prevention (mitigation), preparedness, response, and recovery. The international response community has focused primarily on response, with little attention or resources devoted to prevention and preparedness. Nations states and the broad humanitarian community are not prepared to:

- protect urban vulnerable populations nor the public health infrastructure that supports a rapidly urbanized population's well being.
- prevent assaults on vital biodiversity areas or to recover them when destroyed
- prevent or handle emergencies of scarcity, primarily food, water and energy
- prevent the destruction that climate events force on populations
- prevent or manage the complex public health emergencies that these megatrends cause. Figure 1: Overlap illustrates the common thread of public health emergencies that all 4 share.



These megatrends, which will increasingly dominate our landscape, must become the focus of DRR/DRM funding and resources. Research requires a composite multi-sectoral and multi-ministerial approach that utilizes expertise in many disciplines. Preventive solutions emphasizing preparedness will arise from multi- and trans-disciplinary collaborations among the social sciences, humanities, natural sciences, political sciences, economics, the law, diplomacy, health and public health sectors, and civil engineering to name but a few. However, in addition to understanding the science it is also necessary for all disciplines to increase their capacity to trespass professional boundaries. Unfortunately many traditionally grounded professionals remain averse to accelerating solutions outside their favored discipline and political decision makers rarely see the benefits of science or are reluctant to engage in discourse with scientists.

Additionally, these megatrend examples suggest that while the attention to extreme weather and geophysical events under the rubric of climate change is increasing within the humanitarian community, it lacks the multidisciplinary engagement crucial to understanding future humanitarian policy. When *AlertNet*, the humanitarian information network, asked the largest aid agencies to rank the factors most likely to intensify future humanitarian needs, 28 of 41 identified more frequent and

destructive climate-related floods, droughts, and storms as the top factors. The International Federation of Red Cross and Red Crescent Societies' climate unit is dedicated to assisting communities with disaster risk reduction. However, most large international humanitarian organizations lack the technical capacity to address the issues that they have identified. This capacity is further hindered by the shortsighted funding attempts that prioritize response over prevention. These funding methods continue despite studies suggesting that for every 1 USD given for risk reduction policies and programs, 4 USD of emergency response are saved. Such lopsided funding streams could be ameliorated if the humanitarian community brought the evidence-based strength of climate and population research to their climate prevention goals. Both of these sciences—climatology and epidemiology/demography—have evolved to provide “high resolution” images of vulnerable populations and to translate their findings into meaningful disaster risk reduction strategies that can be evaluated over time.

Unlike refugees from war who are protected under UNHCR mandates, no clear legal protection exists for climate/environmental refugees. There are unclear doctrinal guidance addressing the issue of climate change mobility largely because migration for purely climate reasons is hard to define and deduce from other migration push-factors. Some estimate that ecological fragility and competition for resources could produce as many as 200 million “environmental refugees” over the next few decades. Although the recent uprisings in the Arab world are attributed to a political wave of citizen outrage and disenchantment with their authoritarian governments, these revolutions did not appear out of the blue. Water shortages, drought, crop failure, and internal displacement were valid catalysts. This being the case, the time is ripe to provide a strong global initiative worthy of the task at hand.

WHO's mandate through the IHR Treaty for pandemics represents the opening of a door for wider global cooperation. It also begs a larger question for the humanitarian community: can a similar model be introduced to guarantee the coordination and global authority required of all large-scale disasters and crises, which have hitherto been absent in recent catastrophes? We suggest that the 2014 call for a “collective manifesto to transform global public health” through a “powerful social movement based on collective action at every level of society” would require nothing short of a Treaty-level *Global Authority for Prevention and Preparedness*, one that embodies and operationalizes the empirical work of the former Intergovernmental Panel on Climate Change and other scientists who have the technical expertise and institutional basis to devise the treaty content and implementation. While “international treaties will never be entirely fair...they are nonetheless more impressive than the barrage of platitudes that passes for [current] political discourse.” Treaties are crucial, “large powers adhere to their contents with care, as do smaller ones who crave international respectability.”⁷⁴ A treaty option must be considered.

Proposed solutions: Restructure and redesign global and county DRR/DRM programs to emphasize prevention and preparedness projects, research, political and policy advocacy and pragmatic transdisciplinary and multidisciplinary global solutions. A critical step would be to fund demographic assessments, heretofore lacking, to identify the vulnerable populations in each continent and mortality and morbidity rates for disaster prone rapidly unsustainable urban settings, impact of current biodiversity losses, potential losses from emergencies of scarcity, and climate extremes where mortality in 2013 was estimated to be greater than 300,000 deaths. Involve other disciplines such as social scientists, political scientists, civil engineers and others to seek evidence-based solutions along with public health and medicine to mitigate these looming tragedies.

Global health initiatives among several leading countries, but especially the US and China, remain competitive and country-centric and add little to global health security. These efforts must be

curtailed. Lobby WHO regional and regional economic entities to incorporate prevention and preparedness programs into the disaster prone developed and developing countries areas most impacted by climate extremes and ensure that health initiatives be incorporated into the anticipation and assessment process across all phases of the disaster cycle but with emphasis on prevention and preparedness. Incorporate DRR/DRM for measurable outcome research in at least 6 disaster prone areas on all continents and ensure that community resiliency programs are designed to mitigate the potential for climate extreme consequences. Incorporate disaster ecologists into all post-disaster recovery programs. A separate but companion proposal would be to provide strict policy and protection laws for areas worldwide impacted by rapid urbanization, biodiversity losses, extreme climate changes and vital resource grabbing and lobby for implementation of global treaties that protect these current crises from expanding further through innovative prevention and preparedness initiatives and policies.

Anticipated impacts: A full spectrum global strategy, best carried out in the form of a Treaty and in the example of the International Health Treaty (IHR), would deploy a variety of strategies and tactics throughout the disaster cycle emphasizing those areas most at risk. With well planned prevention and preparedness programs these actions would provide regional stability and trust, encourage good nation and global governance, support human rights and equality, attention to cultural nuances, restore public health protections, strengthen community resilience and improve a nation's participation as global citizens. This will not be realized without Treaty level agreements.

Metrics: Demographic evidence of the potential impact of these crises is lacking, especially in rapidly growing urban settings in emerging sovereign economies such as India and Africa. Collectively, global health security is severely limited by the general lack of understanding of the health consequences arising from these events and the impact on everyday health of both populations and individuals. Both qualitative and quantitative metrics would be first trialed in each continent. To date the scientific and decision-making community does not have access to some of the most disaster prone urban population centers, biodiverse areas and to short and long term water, energy and agricultural land resources. Universal data requirements would include water, sanitation and air quality and other resources that have direct impact on global health security. Global health security measurements would be designed to measure the impact of risk-specific mortality and morbidity rates the tally of which would best monitor the impact of any prevention and preparedness programs. Incorporate these risks into the WHO and WHO Regional Organizations and country WRs. Requirements for this education and training would be designed for prevention and preparedness and programs and be easily implemented and monitored at community and country levels.

Major challenges: The success of this proposal is dependent on acceptance that DRR/DRM is best done at the regional level under a global strategy but that sovereign country level support is essential. There will be increasing demand for evolving models of cultural and economic interaction (e.g., coal burning in India and China) as programs are implemented, especially in developing countries. Unfortunately history has confirmed that the programs suggested here will not receive global health security status without a global Treaty.

Summary: A major shift in the evolution of crises has occurred arising from numerous chronic and smoldering factors identified with climate extremes, unsustainable urbanization, emergencies of scarcity and severe biodiversity losses. With the relative certainty of these megatrends, the public health infrastructure, already severely compromised, risks massive decline. Any solutions will come only from global DRR/DRM prevention and preparedness initiatives properly mitigated to protect global health

and public health security. Without a political commitment, supported through a global treaty ratification, global health security, infrastructure recovery and future rehabilitation will be limited.

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Submitted 3/8/14: Burkle

H.

Carmancita Banatin:

Themes: H, I, J

Overall background: the Philippine experience

There occurs a changing landscape of emergencies and disasters. Such changes are illustrated by increase in frequency of occurrence, longer duration, and greater intensity and magnitude. As reported by the Centre for Research on the Epidemiology of Disasters (CRED), the Philippines is one of the top five countries that experienced the most number of natural disasters over the past decade. It is further highlighted that the single deadliest disaster in 2012 was Typhoon Bopha (Local name *Pablo*) which caused 1,901 deaths in the country (Guha-Sapir, Hoyois, & Below, 2013). Much more recently, Typhoon Haiyan (Local name *Yolanda*), believed to be the strongest typhoon to ever make landfall in recorded history (category 5 super typhoon), devastated the country last November 8, 2013. It affected 3M families and caused 6,300 deaths, with an estimated total of 89.6B PHP (about 2B USD) worth of damages across all sectors (National Disaster Risk Reduction and Management Council, 2014b).

In addition to typhoons which are attributed to the global phenomena of Climate Change, the country is also prone to other natural calamities such as volcanic eruptions and earthquakes. The Earthquake Impact Reduction Study for Metropolitan Manila done in 2004 involved projections of possible earthquake scenarios. In the worst-case scenario (i.e. Model 08, 7.2 magnitude earthquake in the West Valley fault), potential casualties include 33,500 individuals dead and 113,600 injured (Japan International Cooperation Agency et al., 2004). The recent 7.2 magnitude Bohol earthquake last October 2013 serves as a reminder of the unpredictability and vulnerability of the country to such events. This disaster affected 671,103 families and caused 222 deaths, with an estimated total of 2.6B PHP (about 58M USD) worth of damages across all sectors (National Disaster Risk Reduction and Management Council, 2014a).

An epidemiological assessment of emergencies and disasters in the Philippines was done using data of events monitored from the operations centre of the Department of Health – Health Emergency Management Staff (DOH-HEMS). The study showed an increasing number of events within the period of 2005 and 2009. In addition to events of natural origin, the country is also prone to emergencies and

disasters of different types both local and international. Examples of these are the biological events (SARS pandemic in 2003, H1N1 swine flu pandemic in 2009, and H5N1 avian flu spread in Asia in 2012), societal events (Wowowee stampede in 2006, Zamboanga siege in 2013, sporadic Mindanao armed conflicts, and the threat of terrorism), and technological events (Fukushima Daiichi nuclear meltdown in 2011 and frequent fire incidents). The recent proactive government effort was in the MERS-CoV patient contact tracing of about 400 passengers from ETIHAD Flight number 474 which landed on the country on April 15, 2014.

For the past two decades, the DOH-HEMS office has built existing capacities including: (1) 15 national level policies, (2) health emergency preparedness, response, and recovery plan (HEPRRP) at various levels, (3) 20 training modules and a postgraduate degree program for human resources, (4) Operations centre at various levels, (5) logistic (medicine) packages, (6) promotion and advocacy materials and publications, (7) information system for health emergencies and disasters, (8) partnership and networking within and outside the health sector, and several programs such as Safe Hospitals and SPEED. However, despite all these successes, there are still a lot of things to be done. All these factors, culminated by the recent experience from Typhoon Haiyan, has brought into light critical concerns and lessons learnt from an arguably prepared and relatively well-capacitated country which forms the basis of the following proposed consultative themes.

H.

THEME 1: Strengthening immediate health service delivery through institutionalization of Essential Health Services (Hospital and Community-based) by self-sufficient response teams during disasters

Introductory description: Disasters of large magnitude often require the assistance of foreign response teams to augment the provision of immediate healthcare needs. The experience from Haiti earthquake and Pakistan floods in 2010 prompted the creation of Foreign Medical Team working group in WHO in order to ensure the quality of services provided by international surgical teams (World Health Organization, 2014). However, based on local experience, there are much more diverse services provided by foreign teams. Such teams provide comprehensive public or community-based health services, nutrition services, reproductive health services, WASH services, and/or MHPSS services (with various combinations thereof). Furthermore, the ideal timeline of arrival is not harmonized (i.e. should an MHPSS equipped team be present at the disaster area 1 week post impact?). There is a need to come up with a harmonized understanding and consensus of essential health services to be delivered in disaster affected areas not only from foreign countries but from within national response capacities as well.

Limitations and adaptation: Best practice dictates that the disaster affected recipient nation or local government would communicate what type of assistance is needed. However, this detailed communication of specific needs shouldn't be a reason to delay the arrival of needed aid e.g. what about situations wherein communication systems of the affected area are unable to function? Having a minimum, defined set of services depending on the duration/timeline post-impact and hazard type shall facilitate coordination and arrival of needed services from an external source.

Proposed solutions: Identify and engage different partner agencies, international organizations, institutions and respective government offices who provide health service support to disaster

affected areas. Under the leadership of WHO, form an international technical working group that identifies essential health services for both hospital and community-based settings for up to 2 months post disaster. Design research activities or other mechanisms that would validate the initial output of the technical working group.

Anticipated impacts: It is anticipated that the identification of essential or minimum health services to be provided to disaster affected areas will lead to (1) facilitation that ensures timely delivery of needs, (2) identification, development, and provision of the appropriate type of training for health responders/ aid workers, (3) identification, assembly and preparation of the appropriate type of logistics needed by the health responders/ aid workers , and (4) enhanced understanding and coordination among health responders/ aid workers leading to a harmonized response and minimized duplications.

Metrics: Qualitative and quantitative metrics will be developed, and should be tested across different hazard types. Retrospective document reviews on what were needed and implemented should be complemented by expert reviews and recommendations. Measures of effectiveness parameters will need to show a common understanding of minimum standards or health services among the identified key stakeholders both in the international and local settings.

Major challenges: Success of this proposal largely depends on the acknowledgment that there is a need to harmonize and institutionalize essential health services (or capabilities) of various health response teams. Funding is usually activity dependent where implementing agencies compete to have a better package of services, and having a harmonized minimum set of services should not be perceived as a hindrance. Implementing agencies are encouraged to develop their unique sets of services, but it must be accepted that these considerations are in addition to the internationally defined minimum.

Summary: The Essential Health Services concept ensures that there is a harmonized understanding across disaster responders, and this leads to better and more appropriate preparedness, and facilitates coordination among aid workers.

I.

THEME 2: Foreign Medical Team (as official country representative) coordination

Introductory description: While humanitarian actors and aid workers are highly appreciated in disaster affected areas, the sheer volume and variety of responders could prove to be a major challenge in itself. This has been reported in major disasters such as the Haiti earthquake. One model for coordination is the set-up within the Association of Southeast Asian Nations where the ASEAN Secretary-General serves as the ASEAN's humanitarian assistance coordinator which can be activated any time at the request of the affected ASEAN Member State as stipulated in the ASEAN agreement on disaster management and emergency response (or AADMER) (Association of Southeast Asian Nations, 2014).

Limitations and adaptation: This coordination mechanism must be understood in a different context, and in complementation of, the UN cluster mechanism. To illustrate, the AADMER is an agreement among sovereign states to provide aid to another country upon a clear request for the affected nation. It therefore implies sending humanitarian response teams that officially represents the sending nation. On the other hand, the UN health cluster coordination concerns with all response teams on the ground regardless of whether these are official representatives from other countries.

Proposed solutions: A treaty-level understanding among all participating countries, similar to the AADMER is proposed particularly for health sector response teams (to include WASH, MHPSS, nutrition, reproductive health, and other related services). This should include a standardized mechanism for call for aid i.e. to specify if it should be in writing or whether a verbal public statement should suffice to allow entry of foreign aid specific for the health sector (automatic triggers for health aid entry supported by locally available policies and guidelines).

Anticipated impacts: Having a common understanding of health sector aid arrival and coordination is anticipated to: (1) facilitate timely delivery of critical health services to the affected country and (2) foster improved partnerships among countries through their respective health responder official representatives.

Metrics: Secondary document reviews with primary data validation through interviews with key stakeholders should be done on experiences of health aid sending and recipient countries. Measurements on success parameters for such treaty level will need to show the number of countries willing and agreeing to a certain set of coordination mechanism for health service provision.

Major challenges: The main challenge here is whether such a treaty should only include health service responders or should it include multi-sectoral responders from the sending countries. This consequently may prove to be more difficult to achieve. Furthermore, professional regulatory concerns such as accountability on issues of possible malpractice may also serve as a hindrance. However, the humanitarian and disaster background should serve as a blanket justification to provide diplomatic immunity specific to health aid workers formally representing a sovereign state within a well-defined set of conditions.

Summary: Improving coordination of foreign medical teams that officially represent helping countries will facilitate the timely delivery of critical, life-saving health services in a disaster affected country.

J.

THEME 3: Policy/Framework to ensure continued functionality of Hospital facilities

Introductory description: Disaster resiliency has been a constant theme particularly when it comes to health care facilities such as hospitals. However, there is less agreement on how to specifically achieve this state primarily because initiatives focus more on the structural resiliency of hospitals. There is a need to strengthen not just structural but functional resiliency of health

facilities, sometimes in the scenario where the personnel themselves were victims as well. One such example was what happened in the Eastern Visayas Regional Medical Center in Tacloban which remained functional in the aftermath of Typhoon Haiyan.

Limitations and adaptation: This is in complementation of the Hospitals safe from disasters program. The said program is more focused on the structural aspect to ensure the safety of health care workers and patients currently within the said facility. What is being proposed in this theme is to prepare and enable hospitals to continue providing critical, life-saving health services for disaster victims through strengthening of existing internal and external support mechanisms.

Proposed solutions: A part of this policy could focus on ensuring that hospitals should develop (and test/drill) health emergency preparedness, response, and recovery plans that clearly specifies alternative roles and responsibilities of their personnel during a disaster surge scenario. It should likewise incorporate strengthening of mental health resilience and psychological preparedness of health care workers and staff to a humanitarian worst-case scenario. All of these should be in consideration of the structural integrity of the facility, whether to continue service provision within, in selected parts of, or totally outside of the affected infrastructure.

Anticipated impacts: By having an international policy/framework on continuity of hospital services in disaster affected areas, it is anticipated that mortalities and morbidities will be minimized, and that external health services are maximized by placing them in the critical areas of need.

Metrics: Qualitative and quantitative measures will be developed in order to illustrate what minimum services are reasonably able to continue in a hospital in a disaster affected area. This involves a common level of understanding across hospital facility managers as well as development of tools to determine a functionally resilient hospital.

Major challenges: The main challenge here is the acceptability of work continuity from hospital workers who may be directly or indirectly victims of the event. While some may argue that they need to have a break, some may also argue that continuing their meaningful work is a vital component of psychological first aid.

Summary: Setting up an enabling environment through a policy or framework for hospitals to continue functionality in disaster affected areas will minimize casualties and maximize the limited resources for delivering critical health services.

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May 6, 2014

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K.

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Theme: Development of an Integrated Framework for Professionalization and Accreditation of HA/DR Responders and Response Teams, Based upon an Ethical Foundation and the Establishment of a Consensus Approach to Acceptable Medical Standards of Care

Introductory Description: Examination of recent catastrophic disaster events, most notably the Port au Prince earthquake (2010), has demonstrated the importance of professionalization of disaster and crisis responders. Lessons learned from this event, including the publication of reports and peer reviewed critiques, has catalyzed slow but steady movement towards adoption of 'best practice' guidelines for medical responders, as well as establishing expectations for medical teams responding to disaster events. Lack of professional certifications for health responders and the absence of universal expectations for health care service delivery can lead to disjointed efforts and often inefficient care during a large-scale response. There is also inconsistent commitment to the long term recovery in the disaster zone, with many more organization and entities focused on the response, but not necessarily the stabilization and recovery aspects of an event. There is currently no standard education curriculum for foreign responders. As a result, many responders remain unaware of important engagement and exit strategies to assist in long-term recovery, as well as how to best navigate response delivered outside of one's own country in an austere environment. The absence of these key elements amounts to the delivery of medical care under inconsistent medical standards of care.

Background Statement: One of the key pillars of the original Hyogo Framework includes the important linkage of disaster risk reduction (DRR) to a “*strong institutional basis* [required] *for implementation.*” DRR cannot be achieved without proactive planning for the implementation of a medical response framework based upon a core set of capabilities, and the recognition of what constitutes acceptable and/or unacceptable medical practices under catastrophic conditions. Uniformity and transparency in the response to such events are key features contributing to a more secure and sustainable recovery. Risk reduction is impeded by allowing for a reactive, disjointed response to catastrophic disaster.

The Port au Prince earthquake highlighted the fractured nature by which international medical responders and both formal and informal response teams (including NGOs) descend upon a disaster zone. There was little oversight provided for the categories of teams arriving, scant evaluation of the qualifications of those responders and teams that arrived in-country, and no means for standardizing the approach to medical and surgical care of the victims of disaster. These constellation of concerns are exacerbated in the context of a ‘failed state’ response, where the underlying healthcare delivery infrastructure is barely functioning, or non-existent, wherein the notion that “any care” is deemed better than “no care”. However, such an approach is ethically unjustifiable. What ensued, in the case of the Port au Prince disaster, was nothing short of a chaotic medical response, with many examples of the delivery of inappropriate care, the absence of any stewardship of scarce medical resources and a post disaster health care system left off no better than what existed prior to the catastrophic earthquake.

Proposed solution(s): A framework for response to disaster events that is proactively based upon the recognition of acceptable standards of care for healthcare delivery and response is required. This framework will build upon existing efforts focused on the professionalization of HA/DR responders, and the formalization and registration of Foreign Medical Teams (FMTs), allowing for proactive, and not reactive, health and medical response to catastrophic disaster. This framework would be composed of the following key attributes: (a) pre-event recognition and adoption of basic standards of care for response in the HA/DR environment [see Consultative Theme xxx]; (b) commitment to the long term recovery of the affected region by those elements responding to an event (this may take the form of financial, educational, personnel or other commitments); (c) utilization of a registry for health and medical responders and NGOs that would ensure the completion of core competencies concomitant with response in an austere environment; (d) utilization of a registry and classification system for FMTs and other response teams (i.e. similar to what is already in place for urban search and rescue response teams).

Anticipated Impact(s): The adoption of such an approach would promote the recognition and unified coordination of key elements (consensus development on medical standards of care, commitment to long term recovery, registry and classification of responders and response teams, and the educational elements required to support this effort) comprising this framework. The promotion of institutional planning is in keeping with the first of the five ‘pillars’ essential for response to natural disasters. Implementing such an approach would enhance DRR by ensuring that a consistent approach to medical care delivery is utilized in response to disaster events. In doing so, this prevents unwelcome “novice response” capabilities that may ultimately do more harm than good in attempting to deliver care in the austere and complex environment of a catastrophic disaster setting. It decreases the chaos commonly experienced in the post disaster recovery period, and mitigates the “indirect” morbidity and mortality that results from an incoherent and inconsistent approach to medical care delivery.

Metrics: Adoption of this framework will require structure, processes and outcomes that are directed towards implementation. Qualitative measures related to the development of “best practices”, “acceptable practices” and “poor practices” will require engagement of selected representatives from health and medical response agencies, NGOs, professional societies and the WHO Global Health Cluster (GHC [see Consultative Theme xxxx]). These measures will need to be tracked over time, with circulation of a consensus statement, with eventual approval and adoption of this framework. Development of an accreditation process for medical professionals and documentation of competency based skills will be required. Finally, the development of a registry for FMTs and a certification process to assure FMT capabilities will be utilized. Outcomes will need to be tracked by the GHC with regards to compliance and utilization of this 4 step framework.

Major Challenges: Because this framework promotes greater professionalization in the HA/DR sector, and specifically addresses relevant standards of care for delivery of health and medical services, many stakeholders may be initially reluctant to participate in and support its development. Encouragement by WHO/GHC of promoting this approach may also require more substantive participation by GHC in the planning of such efforts, including the commitment of funds to support this important international dialogue. Furthermore, the success of this approach will be dependent upon the recognition that proactive planning is a requisite component of DRR.

Summary: A framework comprised of a consensus based approach to establishing the medical standards of care expected in the response to catastrophic disaster in a resource poor environment, combined with an ethical commitment to post disaster recovery and the

enhancement of processes utilized for the establishment of a professional core of HA/DR responders, training in core competencies, and the utilization of a registry and classification system for responding FMTs is required.

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L.

Dan Hanfling & Bruce Altevoght

Theme: Promoting the Recognition of Acceptable Medical Standards of Care in the Disaster Setting, Including those Applicable in a Resource Poor Environment

Introductory Description:

There is need for a Framework that links recognition of acceptable standards of care for guidance of healthcare delivery in the disaster response setting, including those applicable in a resource poor environment. This must be coupled with the professionalization of HA/DR responders (individuals and organized teams), including the promotion of a registry and classification system for FMTs. Current efforts focused on response, DRR and event recovery do not take into account the existing medical standards of care in the affected disaster region, nor do they necessarily reflect the degree of pre-event training and degree of capability required to

operate in this setting, especially when it involves a resource poor environment. Moreover, there are a number of existing training curricula, guidance and ‘official’ response kits that detail medical equipment, pharmaceuticals and supplies that may not reflect current capabilities or relevant standards of care. A consensus approach to understanding and recognizing agreeable medical standards of care for use in a catastrophic disaster response setting would be of benefit to supporting DRR efforts, particularly as this will allow for the prudent use of available resources, and contributes to the limitation of the unintended consequences of a chaotic, fractured, uneven health and medical response to affected disaster zones.

Background Statement:

There are a number of contextual issues that must be taken into account in considering what constitutes an acceptable and appropriate standard of care under catastrophic disaster response setting (see Table below). An important component of the promotion of the professionalization of HA/DR responders (individuals and organized teams) is the agreement upon and establishment of a framework for adoption of acceptable standards of care under catastrophic response conditions. Part of the professionalization effort ought to include working with international partners to explore the matters related to acceptable standards of care, including expectations related to what constitutes appropriate (versus inappropriate or potentially wasteful) delivery of health and medical intervention and care.

In addition to the contextual aspect under which care is delivered (including the adequacy of the existing health and medical infrastructure), there are issues related to the adoption and use of existing WHO recommendations (Emergency Health Kit, 2011), the use of specific medicines, supplies and equipment by HA/DR responders, and the level of training and competencies required to operate in the austere environment. Professional associations and international consensus groups have begun to address these issues, specific to their disciplines (Surgery, Anesthesia, Psychiatry). These efforts would benefit from being discussed and evaluated in coordinated fashion.

Table 16.2 Considerations pertaining to standards of care in catastrophic disaster events

Context of affected nation

Failed state with limited infrastructure and inability to deliver care (e.g. Haiti, earthquake 2010, Somalia 1990 to present)

Developed nation with intact healthcare infrastructure (e.g. Japan, tsunami 2011)

Type of disaster event

Sudden onset (improvised nuclear detonation, earthquake)

Slow onset, sustained (pandemic, famine)

Chronic (failed state)

Refugee/IDP setting

Recognition of varied settings and conditions and need for “graded response”

Urban response environment

Remote area response



From, Hanfling and Llewellyn, *Standards of Care in Catastrophic Emergencies in Conflict and Catastrophe Medicine*, Ryan, et al (eds), Springer-Verlag, London, 2014.

Proposed solution:

WHO should convene an international forum to discuss and review applicable standards of care for use in disaster situations. A recommended framework, based upon a similar effort developed to explore this issue in the United States (see IOM 2009, 2012, 2013) should be considered. This framework includes the following key elements:

- a strong ethical grounding that enables a process deemed equitable based on its transparency, consistency, proportionality, and accountability;
- integrated and ongoing community and provider engagement, education, and communication;
- the necessary legal authority and legal environment in which such standards of care can be ethically and optimally implemented;
- clear indicators, triggers, and lines of responsibility; and
- utilization of evidence-based clinical processes and operations in order to guide standards development.

This effort would result in development of a consensus approach to the establishment of standards of care for use in catastrophic disaster response, and would help to inform the implementation of the suggested Integrated Framework for Professionalization and Accreditation (see Consultative Theme, xxxx, Hanfling) that links the establishment of standards of care to professionalization and formal accreditation, certification and registry of HA/DR disaster responders and teams.

Anticipated Impact(s):

Development of a consensus approach to the description of applicable medical standards of care for use in the disaster environment, and especially in the context of resource poor settings, will be an important adjunct to the professionalization of HA/DR response. It will further the stewardship of scarce and limited resources, and promote DRR by limiting the degree of waste and mismanaged care that occurs in the response to disaster events. It ensures that there is a clear set of expectations attributed to those individuals and response teams that participate in providing services during a disaster event. It will provide a useful framework around which the ongoing discussions around the professionalization of HA/DR response can be conducted.

Metrics:

Successful implementation of this approach will be marked by a combination of publications accepted in the peer reviewed literature, combined with the development and publication of a

consensus statement and report that will detail the framework for adoption of standards of care for use in resource poor settings.

Gold standard metrics will be noted in the subsequent development of outcomes measures that highlight the implementation of this and other recommended strategies in promoting DRR.

Major Challenges:

Achieving consensus on the development of a framework used to guide the establishment of medical standards of care for use in a catastrophic disaster event will require cooperation, coordination and participation of multiple stakeholder groups, some of whom may have a vested interest in not promoting such an effort. Committed individuals and established NGOs both may find the examination of their conduct and the recommendations for greater transparency in the adoption of an approach to the delivery of health and medical care under catastrophic conditions to be at odds with their individual or organizational mission objectives.

Summary:

The adoption of standards of care for use in disaster settings must accompany the ongoing efforts at promoting the professionalization of HA/DR response. A framework with five key elements ought to be adopted as a starting point for further discussion of this issue with international partners and stakeholder organizations.

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M.

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Theme: Recommendations for Consideration to Increase Focus on Global Health Security in Hyogo2

Hyogo2 must "professionally trespass" the 'humanitarian aid' and 'sustainable development' "borders"

The Hyogo Framework for Action 2005-2015 has effectively established the groundwork for a proposed new comprehensive way of thinking about universal Disaster Risk Reduction. It has been unequivocally shown that disasters routinely reverse development gains, and therefore today's current focus on utilizing a "humanitarian response" to disasters using a traditional Disaster Risk Reduction strategy alone no longer makes sense, a "comprehensive, sustainable global resilience strategy" is consequently needed. It should be proposed that all future development goals (and not just 'humanitarian goals') must factor in risk, and the implementation of those development goals must become completely risk-informed, to the greatest extent possible. Therefore, any post-2015 Hyogo Framework for Action must comprehensively draw together the policies, strategies and implementing plans of the 'humanitarian aid' and 'sustainable development' communities in order to result in increased overall global resilience by effectively integrating such current independent goals of Disaster Risk Reduction, Climate Change Adaptation and Conflict Prevention/Peace Building, and Global Health Security, just to name a few. Such a focus on "resilience" could potentially ensure greater implementation of DRR plans and promote more of a comprehensive funding across the "disaster-development" bureaucratic funding mechanisms.

Global Health Security must be incorporated into Hyogo2 underpinnings and implementation goals

The Hyogo Framework for Action 2005-2015 documented the international disaster community's consensus that "risk assessment and early warning systems are essential investments that protect and save lives, property and livelihoods, contribute to the sustainability of development, and are far more cost-effective in strengthening coping mechanisms than is primary reliance on post-disaster response and recovery." The most important practical application of risk-based decision-making is then the requirement to develop outcome-based interventions that best address the specific hazard of highest risk. Therefore, achieving success in emergency management is dependent on the ability to accomplish the agreed upon (consensus-driven), risk-based measures of effectiveness (MOEs). Universally, the most widely accepted MOE is the prevention of mortality or death (primarily measured as the "crude mortality rate.") Consequently, such a "health-outcome" concept is critical to effective Disaster Risk

Management, and therefore MUST become a central and explicit component within any future Hyogo Framework for Action. No US Ambassador has ever declared a disaster in a country because the economic or political situations in that country are declining or corrupt. It is only when those economic, political and other factors in that country combine to create a severe adverse affect on the health of the population (mortality), does a disaster exist. Stated another way, if a tsunami consumes a deserted island where no population resides, then the event is not considered to be a disaster – it was only a big wave. Similarly, if a large-scale earthquake ravages an unpopulated area, and consequently no one was affected, that event would simply be considered a seismic phenomenon - but not a disaster. Therefore, as disasters are usually defined by a health outcome (mortality), health is both the objective and the yardstick of success in emergency management. The UN International Strategy for Disaster Reduction (UNISDR) defines “Disaster risk as the potential disaster losses, in lives, health status, livelihoods, assets and services, which could occur to a particular community or a society over some specified future time period.” By convention, the term that eventually defines and characterizes an international disaster is “Excess Mortality.” In fact, in the words of the former WHO Regional Director for Africa, “figures of dead, injured, malnourished, etc, are essential for an emergency to be recognized.” Excess mortality is typically the most dramatic outcome of complex emergencies and natural disasters, and humanitarian and disaster relief operations have traditionally and rightly been tasked with reducing or averting it to the extent possible. Hence, health outcomes (possibly partnering with the newly-announced Global Health Security agenda) must become explicitly incorporated into the underpinnings and implementation goals of next Hyogo framework.

"Community health resilience" should become an essential component of Hyogo2 Framework for Action

According to the Community Health Resilience Stakeholders Group (coordinated by the US Department of Homeland Security, in partnership with the U.S. Department of Health and Human Services and other key Federal partners, along with a broad range of State, local, private sector, and non-profit organizations), Community health resilience is essential from the individual to global levels in dealing with all hazards disasters and incidents — natural and manmade, including from terrorism, aging and deteriorating infrastructure, technological causes, climate change, and the unexpected event. Community health resilience requires engagement, involvement, and collaboration of the “whole community” of stakeholders with missions, responsibilities, and vested interests in building, maintaining, and improving public health and welfare. A community’s health resilience depends on the reliability and security of the interdependent lifelines, health and healthcare facilities, and other critical infrastructures and assets, and essential service providers that underpin the way of life of its citizens. Critical assets include healthcare and other essential workers and first responders. Better understanding of dependencies and interdependencies among these organizations is necessary to adequately and effectively prepare, mitigate, respond to, and recover from all - hazards disasters and incidents that impact community health resilience. Community health resilience requires unprecedented information sharing — across jurisdictions, sectors, with community and service organizations, and the infrastructure that support them all.

The UN's Human Security Strategic Framework should be used for implementing the Hyogo2 Framework

As argued by the UN Commission on Human Security, a new paradigm is required by both the 'disaster' and 'development' communities, in which the concept of human security "is utilized to respond to the complexity and the interrelatedness of both old and new threats – from chronic and persistent poverty to ethnic violence, human trafficking, climate change, health pandemics, international terrorism, and sudden economic and financial downturns. Such threats tend to acquire transnational dimensions and move beyond traditional notions of security that focus on external military aggressions alone."

According to the United Nations Trust Fund for Human Security's 2009 publication, entitled Human Security in Theory and Practice, "human security brings together the 'human elements' of security, rights and development. As such, it is an inter-disciplinary concept that displays the following characteristics: people-centered; multi-sectoral; comprehensive; context-specific; and prevention-oriented. As a people-centered concept, human security places the individual at the 'centre of analysis.' Consequently, it considers a broad range of conditions which threaten survival, livelihood and dignity, and identifies the threshold below which human life is intolerably threatened. Human security is also based on a multi-sectoral understanding of insecurities. Moreover, human security emphasizes the interconnectedness of both threats and responses when addressing these insecurities. That is, threats to human security are mutually reinforcing and inter-connected in two ways. First, they are interlinked in a domino effect in the sense that each threat feeds on the other. For example, violent conflicts can lead to deprivation and poverty which in turn could lead to resource depletion, infectious diseases, education deficits, etc. Second, threats within a given country or area can spread into a wider region and have negative externalities for regional and international security. This interdependence has important implications for policy-making as it implies that human insecurities cannot be tackled in isolation through fragmented stand-alone responses. Instead, human security involves comprehensive approaches that stress the need for cooperative and multi-sectoral responses that bring together the agendas of those dealing with security, development and human rights. With human security [as] the objective, there must be a stronger and more integrated response from communities and states around the globe." The UN finally emphasizes, "in addressing risks and root causes of insecurities, human security is prevention-oriented and introduces a dual focus on protection and empowerment." Therefore, human security encompasses a broadened understanding of threats and includes all causes of insecurity, which are divided into 7 categories: economic security; food security; health security; environmental security; personal security; community security; and political security. Consequently, through a proposed Hyogo2's integration and application of the already UN-endorsed (HDR, 1994) 'Human Security strategic framework', future Hyogo2's implementation across the broad "disaster" - "development" domains could necessarily also incorporate health security, as it is one of its 7 basic types of Human Security.

Create synergies between Global Climate Change Initiatives and Hyogo2 Framework implementation

A major challenge for the Disaster Risk Management community is to ensure that risk management is prioritized within the many and broad policy frameworks and fully integrated within economic, political, institutional and sectoral practices, to help save lives, protect livelihoods and reduce economic losses. This will necessarily require innovative, 'trans-bureaucratic-boundary' thinking and strategic execution. For example, the effects of global climate change are predicted to cause more frequent, more intense,

and more frequent extreme natural disaster events, including flooding, droughts and cyclones. Urban populations are growing, and as demand for food increases, pressures on land and water resources increase. Although well-articulated in the strategy, a major weakness of the Hyogo Framework for Action 2005-2015 is its failure to ensure that "well-crafted" disaster risk reduction (DRR) policies were actually implemented. Compliance with Hyogo Framework for Action 2005-2015 is voluntary, and there are no penalties for failing to implement. Consequently, a potential 'integration opportunity' for the future Hyogo2 implementation strategy is that the future Hyogo2 Framework could be crafted to utilize or expand onto existing Global Climate Change strategies (which also seem to be receiving more resources.) Such a 'strategic merger' could potentially provide more effective support to core emergency management mission areas and a long-term vision of reducing physical (including health) and economic loss from disasters in three primary ways: (1) impacts on mitigation, preparedness, response, and recovery operations, (2) resiliency of critical infrastructure and emergency assets; and (3) triggering indirect impacts — population displacement, migration, public health risks — all of which increase risk. Many countries' and region's (e.g., the Caribbean) DRR activities are increasingly being incorporated into their respective climate change adaptation plans, and are subsequently being funded through those evolving Global Climate Change mechanisms. Additionally, the 'Durban Platform', which was committed to in December 2011, requires countries to negotiate a new climate change treaty by 2015, and contains 'legal force'. Thus, negotiations under this 'Durban Platform' could potentially be argued to include measures to mitigate disaster risks and be required to consider how DRM could then deal with 'loss and damage' if those climate change mitigations and adaptations are unsuccessful.

Create innovative synergies between MDG / SDG Initiatives and Hyogo2 Framework implementation

Furthermore, two additional potential 'integration opportunities' might exist for the future Hyogo2 framework's implementation strategy - potential innovative incorporation into, and integration with, the Millennium Development Goals (MDGs) and with the Sustainable Development Goals (SDGs). As with the HFA, 2015 also marks the end of the Millennium Development Goals. Also, currently, incorporation of DRR into the Sustainable Development Goals (SDGs) is being discussed in the run up to Rio+20. A comprehensive integration (or at least concurrent strategic planning process) of these policy-shaping developments could potentially result in significant synergies for DRR. These two unique alignments of international development policy processes with national government, private sector and civil society interests (both of which include significant health involvement) could present additional opportunities to include DRR as a cornerstone in efforts to foster resilient and sustainable growth and development.

The follow-on Hyogo2 Framework for Action needs to have "Teeth"

Several organizations are currently on record stating that the world "has no appetite for a legal disaster-prevention treaty" for DRR - especially one that might include a provision for penalties. However, perhaps an existing UN agency (such as OCHA) or another Inter-Governmental body (such as the former Intergovernmental Panel on Climate Change) could possibly have its mandate expanded or modified to not only provide global strategic oversight, but additionally some level of UN fiduciary oversight for the execution of future Hyogo2 framework implementation. This could then, help put "teeth" into the HFA.

A Community-level focus, with an emphasis on urbanized areas is needed for Hyogo2 implementation

As 'all disasters are local', a community-level focus is needed for Hyogo2 implementation in order to maximally promote DRR at the local level, with efforts linked across the international, national, regional, district and local levels. Under the current Hyogo Framework for Action 2005-2015, even in those countries with adequate legislation and national plans there is "limited progress on the ground, especially in small, rural municipalities and informal settlements within large cities." Furthermore, rapid unsustainable urbanization throughout much of the world urgently requires a 'sea change' in funding prioritization and strategic implementation of DRR initiatives globally. This rapid unsustainable urbanization also will provide a major challenge for Global Health Security implementation, both in terms of DRR, disaster response and 'traditional' sustainable development strategies and techniques / procedures.

Effective Inter-sectoral coordination and planning is needed for Hyogo2 implementation

The Hyogo Framework for Action 2005-2015 led to the creation of national legislation and organizational structures for implementing DRR, but "the danger in creating new organizations is that the work of those that already exist is not acknowledged or strengthened." Consequently, many Governmental departments, such as Water Resources, Health and Agriculture may already be doing much to reduce the impact of hazards, without labeling their work as DRR. However, their activities are rarely coordinated and often go unnoticed. Departments are not accustomed to working together on cross-cutting issues, but can be encouraged to do so through inter-sectoral planning and budgeting for DRR and wider efforts to make development progress more resilient. Given that DRR cuts across both 'disaster' and 'development' sectors, ministries and economic policy, and usually involve multiple stakeholders at all levels, Hyogo2 Framework implementation should be both main-streamed into a broad range of disaster and development sectoral activities and supported by a dedicated, technically sound and efficient coordinating instrument. The Hyogo2 Framework architecture needs to reflect this, with the post-MDGs, SDGs and climate change agreements offering a 'mainstreaming' opportunity; and the Hyogo2 Framework should highlight its interconnectivity with other frameworks. Such Inter-sectoral coordination will require simultaneous work on multiple sectors, especially for global health security.

An emphasis on Critical Infrastructure Protection, involving both public and private sectors is needed

Infrastructure is owned and managed by both the public and private sector, and includes a number of structures that improve living conditions and commerce, including schools, hospitals, roads, bridges, dams, sewers, and energy systems. In the private and public sectors, aging transportation, communication, energy, and health care infrastructure pose significant threats and are in great danger of failing, especially during disasters. Consequently, emergency managers could use significant investments in infrastructure as an opportunity to enhance community resiliency, especially community health resiliency. Currently, neither emergency managers nor health infrastructure planners are always active participants in the discussions that surround infrastructure construction. If they were integral participants in these discussions, their technical and strategic insights could be offered into how to view a community's or region's infrastructure investments as a system, with consideration to making the area

more resilient. Within the United States, the "Healthcare and Public Health Sector" is one of the 18 Critical Infrastructure / Key Resources (CIKR), under the National Infrastructure Protections Plan - and most other countries which have such a plan include their Healthcare and Public Health systems / sectors as well. An emphasis on Critical Infrastructure Protection in Hyogo2's strategic approach would enable health professionals and emergency managers to also offer advice in other areas, such as building code standards, risk assessments, consequence mitigation, and land use. For example, degrading transportation infrastructure would hinder the movement of materiel and personnel to disasters, degrading water infrastructure would make firefighting more difficult, and degraded health care infrastructure would make it more difficult to treat disaster survivors.

Hyogo2 should develop Official Definitions / Universal Lexicon - Agreed upon by all Participating Parties

Lastly, many DRR-related terms have different definitions according to the doctrine and policies of different countries and organizations. Especially during disasters, the use of a common lexicon and agreement upon the definitions of terms are extremely important. Hyogo2 could play an extremely important and 'universally organizing' function by forging an agreement on all related terms, such as those used above, for all Participating Parties to use. This single function would greatly facilitate (and hopefully ensure) effective and efficient inter-sectoral collaboration within countries and regions, as well as effective and efficient inter-organizational collaboration - both of which are critical not only during emergencies, but also during any interdisciplinary planning process. In championing such a process, Hyogo2 could indirectly serve as a major international unifying body which could ensure that all participants in Hyogo2-related implementing activities are "singing from the same sheet of music."

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