Asia-Pacific Economic Cooperation

The Project Final Report

The Symposium Enhancing Cooperation of Medical Rapid Response Teams in Case of International Disaster Response in APEC Economies

31.6.2012-1.7.2012 Krasnoyarsk Russia

Health Working Group

November 2012

APEC Project: S HWG 05 11A

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APEC#212-HT-01.1

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Introduction

APEC economies pay much attention to development of human resources for health emergency preparedness and response as well as for health disaster response. Each APEC economy is developing its own health disaster response system. But due to there were huge natural or men-made disasters in different APEC economies last decade international cooperation between different disaster response systems became high important. Also the declaration of the **Senior Officials' Meeting (SOM) Steering Committee on Economic and Technical Cooperation (SCE)** in 2010 said: "…the frequency and intensity of disasters will continue to increase in the decades ahead…" and emphasized the fact that the importance emergency preparedness of "…protecting business, trade and economic growth from disruptions caused by disasters, pandemics…"[1]. As a response to the leaders commitment was a project holding the Symposium *Enhancing Cooperation of Medical Rapid Response Teams in Case of International Disaster Response in APEC Economies*. It was planned the symposium would be a platform for sharing experiences in the management of medical disaster response which APEC economies would be able to use.

The project purposes were:

- to create the platform for the development of cooperation and communication between specialists and organizations conducting management of medical emergency response (natural and man-made disasters, pandemics),
- to exchange best practices in public health management of disaster response and to develop recommendations in order to enhance APEC cooperation in health emergency preparedness,
- to create a booklet would consist of information about health disaster response systems of different APEC economies for recommendation to medical rapid response teams.

The project meets the "ECOTHEC Priorities" - *Human Security*. It also associates with priority of the Health Working Group adopted on the first **Senior Officials' Meeting (SOM1)** in Washington DC, the United States in March 2011:
• strengthening health system of each economy including health financing and human resources which would lead to ensuing inclusive and secure growth.[2]

[1] 2010 APEC Senior Officials' Report on Economic and Technical Cooperation, http://publications.apec.org/publication-detail.php?pub_id=1075. P. 17
[2] http://apec.org/Groups/SOM-Steering-Committee-on-Economic-and-Technical-Cooperation/Working-Groups/Health.aspx

Outcomes

Health Disaster Response Systems in Some APEC Economies and Recommendations

The aim of the symposium *Enhancing Cooperation of Medical Rapid Response Teams in Case of International Disaster Response in APEC Economies* was to exchange best practices in Public Health management of disaster response and to develop recommendations for application in APEC economies.

Three main fields were discussed within the symposium:

- the experience in Public Health of disaster response,
- different and unique technologies are used in disaster response in order to enhance international medical response,
- international cooperation in health emergency preparedness.

Fruitful discussion allowed participants to collect data about different health disaster response systems in some APEC economies and to make following recommendations:

China

Health Disaster Response System

The office of health emergency is established in Ministry of Health, in charge of the management and coordination of health emergency response and preparedness. All health departments at provincial level have the office of health emergency; China CDC and partial of CDCs at provincial level have also the specific department for health emergency.

There are also:

- Expert Advisory Committee for Health Emergencies in the health departments at all levels,
- Expert Database for Health Emergencies,
- The deployment and reserve mechanism for health emergency supplies,
- 27 health emergency teams in 4 categories,
- A national network for pathogens laboratory for health emergency.

Recommendations for APEC economies

Due to Health Disaster Response System of China is developing and still weak this economy doesn't give any recommendations for APEC economies. There is a guidebook *International Health Regulation (2005) for International and regional cooperation.*[3]

Indonesia

Health Disaster Response System

The Health Sector preparednessProgram is driven by 3 strategic approaches:

1. Reducing hazards by developing Risk Mapping, Analysis, Contingency and Operational Plans supported by benchmarks and check list to monitor activities implemented at all provinces districts and health facilities in Indonesia,
2. Reducing vulnerability by setting operational units at central, regional, provincial and district levels interlinking with safe community at village levels,
3. Increasing capacity by strengthening coordination and networking among different players, enacting policies, regulations supported by guidelines and standard operating procedures (SOP), and establishing institutionalized national and institutional training courses.

[3]Feng Y. Health Emergency Practice in China. Report on The Symposium Enhancing Cooperation of Medical Rapid Response Teams in Case of International Disaster Response in APEC Economies, 31.6.2012-1.7.2012.

To reduce hazards, all health facilities in provinces and districts had undergone hazards mappings where Health Facilities with their available resources are identified.

To reduce the vulnerability, the Ministry of Health, supported by **World Health Organization (WHO)** has established 9 Regional and 2 Sub-regional Crisis Centers throughout the economy. Each Regional Crisis Centers has physical structures to respond to any kind of disasters and control of emerging disease outbreaks. Each crisis Centers is formed by 3 major component, public health facilities (Health Centers), Hospitals and Universities.

To increase the capacity in managing risk, Standard Operating Procedure (SOP) for Health Sector and guidelines for specific area of works were developed and utilized. Standard training courses are organized for health workers with different specialties, responsibilities and located in different types of facilities.

Recommendations for APEC economies

1. Build capacity of health staff and community,
2. Build capacity of health institution through develop Disaster Risk Reduction Plan (Risk Mapping, Contingency and Operational Plans),
3. Set up, Early WarningSystem, Training, Technical Assistance, Community Education, Media Education,
4. Safe health facility – preparedness, mitigation, rehabilitation and reconstruction, strengthen information and communication system and network,
5. Set system to mobilize logistic support in each province and region,
6. Set up Management Excellent Centres to strengthen global networking and capacity building,
7. Conduct operational research in the field of Disaster Risk Management,
8. Strengthen professional and student exchange programmes internationally.[4]

Philippines

Health Disaster Response System

1. The Department of Health is the Philippine Governments lead agency in organizing and deploying medical response teams locally and international,
2. Health Emergency Management Staff of The Department of Health is the implementing office for the deployment of medical response teams of the government.

The team was able to help address the following :

- medical and surgical consultation and treatment,
- psychosocial processing and debriefing,
- environmental and water sanitation,
- disease surveillance and monitoring,
- health education and advocacy,
- technical assistance.

Recommendations for APEC economies

Common recommendations:

1. Teams for deployment must be identified earlier so they can get to know each other better,
2. Team composition must consider the phase or timeline when the teams will arrive at the affected country,
3. Documentation of the team activities must be ensured,
4. Guidelines for use of cash advance must be available to facilitate liquidation of funds,
5. Travel documents such as Visa, Passport, travel tickets processing must be reviewed and shortened to avoid delays in deployment of teams,

[4]Mudjiharto M. H. Indonesia - Health Sector Preparedness Plan. Report on The Symposium Enhancing Cooperation of Medical Rapid Response Teams in Case of International Disaster Response in APEC Economies, 31.6.2012-1.7.2012. P. 9-22.

6. Information about the areas affected and the needs in the area must be available in advance so that the team can prepare,
7. Logistics for use of medical team should be based on prevailing conditions and illnesses in the affected area.

Proposals for regional or global actions:

1. Review existing policies and agreements on International Medical Response Team Mobilization if any,
2. Review, revise or develop standby arrangements for international medical team deployment (consider VISA Exemption waiver or multiple entry),
3. Conduct joint exercise on deployment procedures by economies,
4. Develop protocols/manuals of procedures for teams,
5. Deployment to be used and agreed upon by APEC.[5]

Russia

Health Disaster Response System

The original mobile transport hospital (MTH) was constructed and put into industrial production. One of the features of MTH is its organization in a modular way when each of the modules, if necessary, can be used completely independent from the other units of the hospital.

The MTH consists of treatment and diagnostic modules – intensive care unit (with possibility allocate four victims), operating, dressings, diagnostic modules - x-ray and computed tomography, as well as integrative module - a module headquarters control room, equipped with satellite communication, navigation, high-speed Internet, video conferencing, etc. The MTH modules are designed so to enable a full diagnosis and the provision of any type of specialized surgery, intensive care, trauma and toxicological assistance to victims of a disaster. The modules are installed on the chassis of off-road vehicles and are equipped with an autonomous power supply system to meet all the requirements vehicles (can be delivered to emergency area by air transport, in particular IL-76). In this case it is possible to provide medical assistance to victims in the center of emergency, and at all stages of the sanitary evacuation also in an aircraft. Medical teams of MTH are staffed by multidisciplinary surgeons, anesthetists and intensive care and trauma specialists, radiologists, sonology physicians, nurses, doctors and if necessary, narrow specialties. Currently MTH are put on duty in all Federal Districts of Russian Federation in order to ensure the elimination of the medical consequences of potential emergencies.

Practical implementation of a fundamentally new approach to ensure the health emergency has significantly reduced the time of delivery of the affected person to the modules in the MTH and the beginning of specialized medical care. This has led to more effective medical care to victims of emergencies in general - reduced mortality at all stages of care (evacuation, pre-hospital and hospital phases), the frequency of complications, shortened the terms of rehabilitation, earlier vocational rehabilitation.

Recommendations for APEC economies

1. Minimize the number of medical care stages,
2. Maximize capacity and quality of the medical care by means of providing mobile hospital modules with high-accuracy and high-efficiency medical diagnostics and treatment equipment along with qualified medical personnel to meet the principles of diagnostics and treatment of the heaviest polytrauma cases,
3. Provide faultless work performance despite of the location, presence or absence of electric power and water supply, or the distance from the main highways and airports.[6]

[5]Rivera A. Z. Experience in International Disaster Response to Public Health Emergency. Report on The Symposium Enhancing Cooperation of Medical Rapid Response Teams in Case of International Disaster Response in APEC Economies, 31.6.2012-1.7.2012. P. 37-58.

Chinese Taipei

Health Disaster Response System

The whole territory was sub-divided on 6 medical regions to evenly distribute the medical resources for the development of medical healthcare network. After the 1999 Jiji earthquake, additional **regional emergency operation center (rEOC)** was established within each region to monitor the local emergency events as well as medical resources allocation and information gathering during major disasters. In the year 2000, 2 **national disaster medical assistant teams (NDMATs)** were established for the education and training of disaster response personals as well as managing the human resources for medical treatment or rescue attempt during the real disaster happening.

Besides, in the public health we established surveillance system to monitor if infectious disease outbreak at the affected regions and took care of the respiratory infections, dermatological problems that peaked at the third week.

In March 2006 **TaiwanIHA (Chinese Taipei)**was founded by the Department of Health and Ministry of Foreign Affairs to integrate our medical resources and deliver humanitarian aid, especially during natural disasters.

The main aim is to effectively centralize the resources of various government agencies with local resources via a single channel, in order to optimize the efficient use of valuable medical health resources and personnel. In terms of operating procedures, to design easy methods for medical personnel recruitment; list all possible candidates conducive and available for foreign medical missions; and form international medical rescue teams. International Health Action consists of two conveners, two deputy conveners and an executive director. The executive director is in charge of the conduct of various tasks which are performed under four groups: planning, administration, medical affairs and health. Several consultants from home and abroad are also selected as advisors.

The mission includes:

1. integrating various resources such as medical equipment, instruments, medication,
2. delivering humanitarian medical aid,
3. coordinating domestic organizations to jointly participate in foreign medical relief missions and cooperate with international organizations.

Recommendations for APEC economies

Preparation for emergency medical teams is very important. This preparatory work includes:

1. disaster area information collection,
2. team member selection based on skill requirements,
3. administrative and logistical support.

Diversity expertise included in a medical mission will be useful. For example, the fields of international rescue teams, medical professionals in all fields, bilingual experts and international cooperation project leaders (team builder or designer).

The most important is that different medical missions require different preparation, depending on whether we are facing the aftermath of a flood or earthquake.

And the stage of the disaster will also influence the preparation work. It is possible the changing diagnoses and diseases from early-stage to post-stage. It makes the transparent information and

[6]Kotenko K. A new approach to the medical and sanitary support in case of emergency, technological disasters and local military conflicts. Report on The Symposium Enhancing Cooperation of Medical Rapid Response Teams in Case of International Disaster Response in APEC Economies, 31.6.2012-1.7.2012. P. 31-36.

efficient communication more important, especially concerning the local situation and urgent requests from host economies.[7]

The United States

Health Disaster Response System

Of the 15 Emergency Support Functions in the US **National Response Framework (NRF)**, HHS is the lead agency for the Public Health and Medical Services **Emergency Support Function #8 (ESF-8)**. The spectrum of care HHS is responsible for under ESF-8 includes public health and medical care needs, as well as certain veterinary and animal health issues, and provides assistance to supplement state, tribal, local resources during a response.

The Office of the **Assistant Secretary of Preparedness and Response (ASPR)** is the lead organization within HHS for the coordination of the US interagency public health and medical planning and response activities. To fulfill that role, APSR is responsible for the provision of medical response teams targeted at saving and sustaining lives in the event of catastrophic incidents and natural or manmade disasters. Because a collaborative response has the greatest impact on mitigating the consequences of catastrophic incidents and disasters, ASPR strives to integrate and unify response efforts with local, state, regional, and territorial preparedness partners.

Within ASPR, the **National Disaster Medical System (NDMS)** manages the medical, veterinary, and mortuary response teams, as well as supplements the US state and local medical resources during disasters and major emergencies. NDMS provides overall direction and supervision to the thousands of team members engaged in emergency disaster planning, emergency response and recovery planning and development.

Capitalizing on deployment experiences and after-action analyses over the last decade, NDMS recognized that both domestic and international responses could be optimized for a larger set of mission assignments - and cost savings realized - by providing smaller, more flexible, modular units for response. Deploying large response units slowed the time to respond to an incoming request for assistance, in part because of the time required to roster and travel a large numbers of team members; transporting heavy caches also were a factor in slowing response times. Local circumstances in response zones sometimes required NDMS to create ad-hoc emergent and critical care teams structured to meet the needs of the on-ground situation. In addition, the cost of rehabilitation of a large cache was significant even if only a portion of the cache unit was actually used, or so much as opened, by the clinicians.

As a result of these challenges, NDMS has redesigned its basic medical response team into a modularized 50-person unit. With the right personnel and the right cache, this redesigned medical response team can arrive on-scene faster while still providing efficient and effective clinical care.

When rostered with identified language skill sets, the modular units of the smaller medical response teams can readily adapt to unique situations with both domestic and international response partners. These redesigned units also integrate comfortably and quickly with nearly any type of host medical unit.

The new 50-person medical unit consists of 6-person modular units and include a first response team, two acute care teams, two primary care teams, and a critical care team. These teams are made up of physicians, nurses, and emergency medical technicians who concentrate on immediate patient care, patient flow, and early emergent resuscitative and stabilization measures (e.g., mechanical ventilation, hemodynamic support, and key pharmacologic therapies).

The teams also provide postoperative recovery and preparation for **Medical Evacuation (MEDEVAC)**. Staff for these modular units is selected from the larger DMAT teams based on professional qualifications, certifications, and clinical experience. All certification, licensure, and specialty training documentation are maintained in the NDMS credentialing and privileging system.

[7] Shang T. F. The Experience in Public Health of Disaster Response. Report on The Symposium Enhancing Cooperation of Medical Rapid Response Teams in Case of International Disaster Response in APEC Economies, 31.6.2012-1.7.2012.

The 50-person medical team also has support from a clinical unit (pharmacists, pharmacy technicians, respiratory therapists, and respiratory technicians), a team command unit, and a **Logistical Response Assistance Team (LRAT)**.

The Disaster Medical Information Suite (DMIS) contains patients' **Electronic Medical Records (EMRs)**. DMIS allow the timely exchange of patients' health information so that continuity of care may be maintained from the time of disaster, through their movement to definitive care, and on through when they are returned home or moved to local medical facilities.

The smaller, modular 50-person teams are rapid response units with the capability of being operational anywhere in the continental US and certain international destinations in under 12 hours.

DMAT 50-person modular units may be utilized in a variety of capacities:

- Pre-hospital: Providing the application of medical interventions with other pre-hospital first responder personnel that are targeted at injury conditions associated with preventable deaths (e.g. early application of field tourniquets to prevent exsanguinating extremity hemorrhage, decompression of tension pneumothorax, field amputations in preventing complications from crush injury, or cold-side decontamination and stabilization),
- Hospital medical surge: Working in either an intact or partially damaged but functioning hospital, which may elect to move lower acuity patients to other available spaces, such as shelters and hospital spaces which are traditionally not associated with critical care,
- Hospital surgical surge:Providing resuscitative "damage control" surgical interventions in non-traditional locations, as well as in existing operating rooms,
- Special Medical Needs Shelter:Providing primary medical care to a variety of individuals with chronic care and special medical needs,
- Critical care: Providing care in hospital settings or positioned at points of embarkations, such as rail stations and airports,
- Patient Evacuation. Providing care and assistance while moving large numbers of ambulatory or low acuity patients and persons "at-risk" for medical problems to other areas, allowing medical response capabilities to concentrate its limited resources on those most likely to die or suffer severe morbidity. Patient tracking is an integral part of this mission, and the HHS Joint Patient Assessment and Tracking System (JPATS) may be employed to maintain in-transit visibility thoughout the patient movement system,
- All-Hazards Events. Meeting the mission needs for medical countermeasure distribution, vaccination teams, isolation or quarantine stations, mobilization centers, behavioral health missions, and other just-in-time needs.

Cache Inventory

DMATs are capable of deploying a wide range of medications from their cache inventory to whatever environment the teams are dispatched. The drug cache inventory for DMATs include antibiotics, respiratory drugs, **Advanced Cardiovascular Life Support (ACLS)** drugs, topical medications, anesthetics and analgesics, gastrointestinal medications, and intravenous solutions.

Team members may engage in training modules that begin with a foundational set teaching fundamental clinical and team concepts, and then proceed through a series of advanced courses to build their skill sets for participation in other modular units. The training is tailored to be appropriate for the mission sets that the modular units may realistically encounter, yet at the same time are challenging enough to broaden team members' response capabilities. NDMS has progressed over the last six years towards emphasizing on-line training, which has the benefit of controlling costs and standardizing content. Other types of evidence-based didactic training are also utilized, with additional opportunities to participate in hands-on training and to exercise with the caches.

Recommendations for APEC economies

An optimal response must be inclusive of a broad range of domestic and international partners, and no member country will arrive at a disaster site with a full understanding of the processes, procedures, and systems of the other agencies, organizations, or countries involved in the response. In these situations, the local host may need to furnish:

- Potable water with water heating to 120°F, capable of supplying up to six gallons per person per day,
- Electricity and electric distribution services that provide 200 amps at 120 and 240 VAC,
- Ice services for up to five pounds of ice per person per day,
- Billeting services,
- Toilet facilities/supplies for staff personnel, and as appropriate, animal owners,
- Showering facilities, to include consideration for female and male as feasible,
- Access to Meals Ready to Eat (MREs) or contract food preparation service for two meals per person per day,
- Standard waste removal and cleaning services,
- Refrigeration or cooling capability for vaccines and pharmaceuticals,
- Biomedical waste disposal services,
- Security.[8]

World Health Organization (WHO)

Recommendations for APEC economies

Disaster preparedness: Based on the all-hazard approach[*], WHO developed and implemented several standardized tools which can assist national health systems in their emergency preparedness. Main tools are:

- Toolkit for the assessment of national health–system capacities for crisis management, which analyses the available resources and provides clear recommendations on gaps and challenges. Available under : http://www.euro.who.int/en/what-we-do/health-topics/emergencies/disaster-preparedness-and-response/publications/2012/strengthening-health-system-emergency-preparedness.-toolkit-for-assessing-health-system-capacity-for-crisis-management.-part-1.-user-manual and http://www.euro.who.int/__data/assets/pdf_file/0010/157888/e96188.pdf,
- Hospital emergency response checklist, an all-hazard tool for hospital administrators and emergency managers on how to prepare hospitals for a rapid and effective response to a critical event. Available under: http://www.euro.who.int/en/what-we-do/health-topics/emergencies/disaster-preparedness-and-response/publications/2011/hospital-emergency-response-checklist,
- Hospital preparedness checklist for pandemic influenza. Available under: http://www.euro.who.int/__data/assets/pdf_file/0004/78988/E93006.pdf,
- Hospital Safety Index Assessment, to assess the structural, non-structural and functional safety of hospitals and the probability of staying operational during/after disasters. Available under: http://www.paho.org/english/dd/ped/SafeHospitalsChecklist.htm.

Disaster response: The global *WHO Emergency Response Framework* is a new management tool, which redefines and extends the role of WHO before, during and after emergencies. This tool was tested through exercises in the six WHO Regions and the lessons learned were incorporated into the version, which was presented to and adopted by the 195 WHO Member States during the 65th World Health Assembly in Geneva in May 2012.

The WHO *Emergency Response Framework* defines new core commitments in emergencies as actions that WHO is required to deliver to support countries in disaster response globally:

[8] Helminiak C. Modularization of Medical Response Teams to Optimize an Adaptable and Scalable Response with Domestic and International Partners. The Symposium Enhancing Cooperation of Medical Rapid Response Teams in Case of International Disaster Response in APEC Economies, 31.6.2012-1.7.2012. P. 67-88.

[*] The **all-hazards** approach is an approach to emergency management based on the recognition that there are common elements in the management of responses to virtually all emergencies, and that by standardizing a management system to address thecommon elements, greater capacity is generated to address the unique characteristics of different events.

- In all countries (focusing on those with the highest risk and lowest capacities), to strengthen national emergency risk management programs and capacities in the health sector,
- In all countries experiencing acute emergencies, to reduce mortality by leading a coordinated and effective health sector response,
- In all countries with protracted emergencies, to reduce mortality and morbidity by supporting a work program that ensures access to basic needs and predictable health service delivery, and capacity to detect and respond to public health threats.[9]

[9] Enderlein U. Establishing a WHO corporate approach to emergencies. Report on The Symposium Enhancing Cooperation of Medical Rapid Response Teams in Case of International Disaster Response in APEC Economies, 31.6.2012-1.7.2012. P. 59-66.

Conclusion

The Symposium on Enhancing Cooperation of Medical Rapid Response Teams in Case of International Disaster Response in APEC Economies was very useful. All possessed tasks were performed. The outputs will be needed and actual for a long time.

As a result of the symposium is booklet. As it was planned in the project this booklet consists of information about health disaster response systems of economies for medical rapid response teams going to foreign countries.

There is necessary information:

- management principles of disaster response systems, strategic approaches to emergency,
- composition principles of the medical rapid response teams depending on disaster degree,
- training systems for medical rapid response teams in different APEC economies,
- recommendations for medical rapid response teams of APEC economies and also for authorities provide Health Disaster Response Systems in APEC economies,
- recommendations for organizers of medical support actions on regional or global disaster response.

This booklet can be recommended to APEC economies for implementation this knowledge to medical rapid response teams going to foreign countries and also for government organizations provide Health Disaster Response Systems in APEC economies.

During the symposium representatives of Philippines and Indonesia exchanged opinions on whether there is a possibility that Siberian Clinical Center and Philippines' and Indonesia' Ministries of Health can work on a cooperation program on health emergency preparedness. Program Director HWG joined the discussions. Preliminary talks are going from both sides now.

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1. 2010 APEC Senior Officials' Report on Economic and Technical Cooperation, http://publications.apec.org/publication-detail.php?pub_id=1075. P. 17

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APEC#212-HT-01.1