

**Evaluation of Illinois Medical Emergency Response Team
(IMERT)**

By

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ABSTRACT

The State of Illinois has had a well established Emergency Medical System disaster response plan since the 1970s. In the case of a wide spread event the readily available provider resources could be quickly depleted. The concept of an extended statewide medical emergency response was conceived in the mid-1990s. IMERT (Illinois Medical Emergency Response Team) was established. While it is well respected and a role model for other states, the organization is not without inadequacies. This paper is an evaluation of the IMERT program to date.

In 1988 the Institute of Medicine (IOM) report, *The Future of Public Health*, proclaimed public health to be in disarray and prompted national discussion about the status of public health and steps necessary to strengthen its role. The Institute's report defined the mission of public health as, "fulfilling society's interest in assuring conditions in which people can be healthy. Public Health is distinguished from health care by its focus on community-wide concerns – the public interest – rather than the health interests of particular individuals or groups. Its aim is to organize community effort to address public concerns about health by applying scientific and technical knowledge."¹ This report devised a simple conceptual framework for describing core public health activities and identified three core public health functions. They are: assessment; policy development; and assurance. These fundamental guidelines have since served as the basis for performance monitoring and improvement efforts in public health.

The U.S. Centers for Disease Control and Prevention (CDC) in the early 1990's specified a list of ten public health practices that linked directly with the three IOM core functions.² In 1994 The U.S. Public Health Service released the report of the Essential Public Health Services Work Group of the Core Public Health Functions Steering Committee, entitled *Public Health in America*.³ Here the

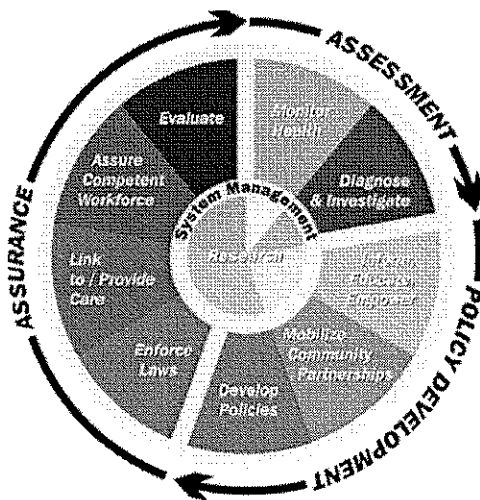
vision, mission, responsibilities, and ten essential services of public health services were identified. They fall into the three core functions and are as follows:

Public Health

- *Prevents epidemics and the spread of disease*
- *Protects against environmental hazards*
- *Prevents injuries*
- *Promotes and encourages healthy behaviors*
- *Responds to disasters and assists communities in recovery*
- *Assures the quality and accessibility of health services*

Essential Public Health Services

- *Monitor health status to identify community health problems*
- *Diagnose and investigate health problems and health hazards in the community*
- *Inform, educate, and empower people about health issues*
- *Mobilize community partnerships to identify and solve health problems*
- *Develop policies and plans that support individual and community health efforts*
- *Enforce laws and regulations that protect health and ensure safety*
- *Link people to needed personal health services and assure the provision of health care when otherwise unavailable*
- *Assure a competent public health and personal health care workforce*
- *Evaluate effectiveness, accessibility, and quality of personal and population-based health services*
- *Research for new insights and innovative solutions to health problems*⁴



One public health responsibility of personal interest is “responds to disasters and assists communities in recovery.” Both resources recognized evaluation of the effectiveness, accessibility, and quality of programs to be essential. I am a member of an organization that provides response to disasters and in this paper will provide my evaluation of this volunteer state-sponsored medical response team, based upon research, personal involvement, and interviews, and how the organization meets many of the essential public health services.

Disaster medicine is difficult to conceptualize. It is broadly defined in several ways. The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) defines an emergency as “a natural or manmade event that suddenly or significantly disrupts the environment of care; disrupts care and treatment; or changes or increases demands for the organization’s services.”⁵ The World Health Organization defines a disaster as a “sudden ecological phenomenon of sufficient magnitude to require external assistance.”⁶ The American College of Emergency Physicians states that a disaster has occurred “when the destructive effects of natural or man-made forces overwhelm the ability of a given area or community to meet the demand for health care.”⁷ Other definitions exist, but the common denominator calls for a disruption of such magnitude that the organization, infrastructure, and resources of a community are unable to return to normal operations following the event without outside assistance. According to Mothershead, “when a disaster strikes, the general population expects public service agencies and other branches of the local, state, or federal government to rapidly mobilize to help the community. Preservation of life and health are of

paramount importance to those individuals affected by these disasters. For this reason, medical professionals must be included in all phases of disaster planning as well as in the immediate response to these events.”⁸

That state of Illinois has had well developed all hazards emergency response and disaster plans since the late 1970s. James R. Thompson, Illinois' longest-serving governor (1977-1991), recognized our vulnerabilities and made public health programs a priority. A major airplane crash at Chicago's O'Hare International airport in 1979 and cyanide tainted Tylenol deaths in 1980 tested the response system and the local and state departments of public health.⁹

Illinois has a vast, very well traveled interstate highway system and railways. Hazardous materials are transported along numerous routes. Lake Michigan, part of a connected waterway, borders the east coast of the state. Tornadoes have leveled communities in years past. The City of Chicago is a major business hub with the stock exchange and numerous state and federal governmental buildings. There and in surrounding suburbs are headquarters of many national and global businesses. Mass transit systems abound and Chicago is home to professional sports teams events that draw huge numbers of attendees. Illinois has more nuclear power plants than any other state in the nation. It is also a region rich with agriculture. The state houses universities with major research centers. Downstate is the state capitol of Springfield, a city of great historical significance as the birthplace of President Abraham Lincoln.

Terrorists have the knowledge and capability to strike anywhere in the world. All communities are vulnerable to incidents involving terrorism, but particularly those situated along routes with high transportation and access potential, or manufacturing and testing facilities. Other examples of locations that may become targets for criminal or terrorist activity include public assembly, public buildings, mass transit systems, areas with high economic impact, telecommunications facilities and places with historical or symbolic significance.¹⁰ “Illinois could be a target for a terrorist attack. It was on the top five list of the terrorists who attacked the World Trade Center.”¹¹

In 1996 Chicago hosted the Democratic National Convention (DNC) at the United Center, a large urban sports arena with a capacity of 30,000 seats located adjacent to the downtown Chicago loop. A large number of governmental VIPs, including both the President and Vice President of the United States, attended all or a portion of the event. For approximately one year prior to this event, a process of cooperative planning for an influx of nearly 30,000 individuals (delegates, media, security personnel, support staff, VIPs and others) was undertaken. Participants in the planning included the Chicago Police and Fire Departments, the Bureau of Emergency Medical Services (EMS), private EMS providers, Chicago Transit Authority, US Secret Service, Federal Bureau of Investigation, Federal Emergency Management Agency, and others. They developed and executed a unique, decentralized and flexible medical response with contingency mass-casualty field hospitals. The event was without incident and the patients who were treated had only minor injuries or illnesses. One of the most important

lessons learned was that sufficient planning and attention is needed to be proactively devoted to equipment, supplies, personnel, and organizational needs in the development of such a mass-gathering response with potential for acts of violence or terrorism.¹²

The DNC experience was a success because of months of planning with all the necessary resources in place, with staff on call for the next shift, and because there was thankfully no event that occurred to test the capacity. Realistically acts of terrorism, and sometimes even natural disasters, do not occur with adequate or any warning.

An act of terrorism could deplete existing resources, and exceed surge capacity. A table-top disaster drill was conducted in conjunction with planning for the DNC. A young emergency medicine physician, Moses Lee, M.D., was the EMS Medical Director at Cook County Hospital, where victims would likely be transported if an event occurred at the convention. He learned the table-top drill was to be conducted and while not invited, he managed to attend. His observation was that no representative emergency department physicians or nurses were involved in this planning. Further he knew most emergency department staff were not trained how to recognize, assess or safely treat victims of weapons of mass destruction (WMD). The recent terrorist attacks in Tokyo confirmed his beliefs that locally we lacked systems to provide medical support in the "field", i.e. pre-hospital setting. Dr. Lee had identified a community health problem. He

personally started seeking more information on large scale preparedness, incident command, and bioterrorism recognition by attending presentations offered by the Department of Justice and other credible agencies.¹³ These initial steps reflect the intent of essential public health services 1 and 2.¹⁴

Nationally more attention was becoming focused on potential threats of terrorism. In fiscal year 1999 the Department of Health and Human Services (DHHS) created the Bioterrorism and Response Initiative, aimed at upgrading our national capacity to respond to bioterrorism and developing a formal response infrastructure in public health departments. Emergency medical services (EMS) funding was not specifically considered in this DHHS program, primarily because EMS is usually funded through traditional first-responder programs in other departments of the U.S. government.¹⁵ That same year CDC awarded more than \$44 million for bioterrorism preparedness to states and cities for enhancements in laboratory and electronic communication capacity. Illinois received over \$1 million that year (and in 2000 and 2001) to support the development of the Health Alert Network information and communications systems, and to fund laboratory capacity improvements.¹⁶ CDC expended another \$32 million to establish a national pharmaceutical stockpile to ensure availability of vaccines, prophylactic medications, chemical antidotes, medical supplies, and equipment needed to support a medical response to a biologic or chemical terrorist incident.

In the Chicago area in 1999 Dr. Lee convened a small group of emergency physicians, nurses, and toxicologists who met with key stakeholders in the Division of Emergency Medical Services of the Illinois Department of Public Health. Initially the group's intent was to assess the level of awareness and preparedness of emergency department personnel in Illinois to respond to a large-scale WMD event that might overwhelm hospitals and surrounding communities. Although planning to enhance preparedness for a major incident was underway in many large cities, the Illinois group realized that the state as a whole needed a network of coordinated mutual support and a more systematic approach to responding to a large scale catastrophe. They realized that it was important to develop organized protocols, formalize communications systems and recognize a core of specially prepared responders to assist in case of a mass casualty event, including one resulting from a WMD. Mobilization of community partnerships was initiated to address the community health issue and policies and plans to support community health efforts were underway.¹⁷ These next steps mirror essential public health services 4 and 5.¹⁸

In the summer of 1999, The Illinois Department of Public Health, along with this group, applied for and received a grant from the Centers for Disease Control and Prevention (CDC) for seed funding for the Illinois Medical Emergency Response Team (IMERT) to develop educational and infrastructure to formalize the ability to respond to mass casualty events.¹⁹ John Lumpkin, MD, MPH, then Director of the Illinois Department of Public Health and Leslie Stein-Spencer, RN, MS, then Chief of EMS, were key supporters and participants in the process.

An executive council, IMERTEC, was created to oversee the development of IMERT. IMERTEC members include emergency physicians, nurses, and paramedics with leadership experience in EMS and disaster planning, as well as selected individuals with relevant military and technical expertise. Advisors from governmental agencies, such as the Illinois Department of Public Health (IDPH), Federal Bureau of Investigation (FBI), and the US Public Health Service (USPHS) also sit on the IMERTEC, which is chaired by Dr. Lee.

Concurrently bioterrorism (BT) preparedness planning in the state began in October 1999 under the auspices of an interagency group, the Illinois Terrorism Task Force (ITTF), which was formalized under order of the governor the following May. From the beginning BT planning was integrated into the state's emergency operations plan, coordinated by Illinois Emergency Management Agency (IEMA.)²⁰ IMERT became one of the agencies on the ITTF.

Initial efforts of the founding IMERT members were directed at developing the first lecture series in Illinois on Domestic Preparedness for hospital-based providers.²¹ Topics covered included recognition of and incident response to explosive, chemical, radiological and biological events. The program content was developed and distributed in conjunction with the Illinois College of Emergency Physicians (ICEP). The IMERT office resides within the ICEP building.

The IMERT founders then considered creating medical support teams. They studied the National Disaster Medical Systems' Disaster Medical Assistance

Teams (DMAT) structure and position descriptions. The National Disaster Medical System is an asset sharing partnership designed to provide emergency medical assistance to States following a catastrophic disaster or other major emergency. The system is designed to care for victims of any incident that exceeds the medical care capability of the affected local and State resources. The Department of Health and Human Services in partnership with other Federal agencies such as the Department of Defense, Department of Veterans Affairs, and the Federal Emergency Management Agency administer the program.

“A Disaster Medical Assistance Team (DMAT) is a group of medical and support personnel designed to provide emergency medical care during a disaster or other unusual event. DMATs deploy to disaster sites with adequate supplies and equipment to support themselves for a period of 72 hours while providing medical care at a fixed or temporary medical site. They may provide primary health care and/or augment overloaded local health care staff. DMATs are designed to be a rapid-response element to supplement local medical care until other Federal or contract resources can be mobilized, or the situation resolved.”²²

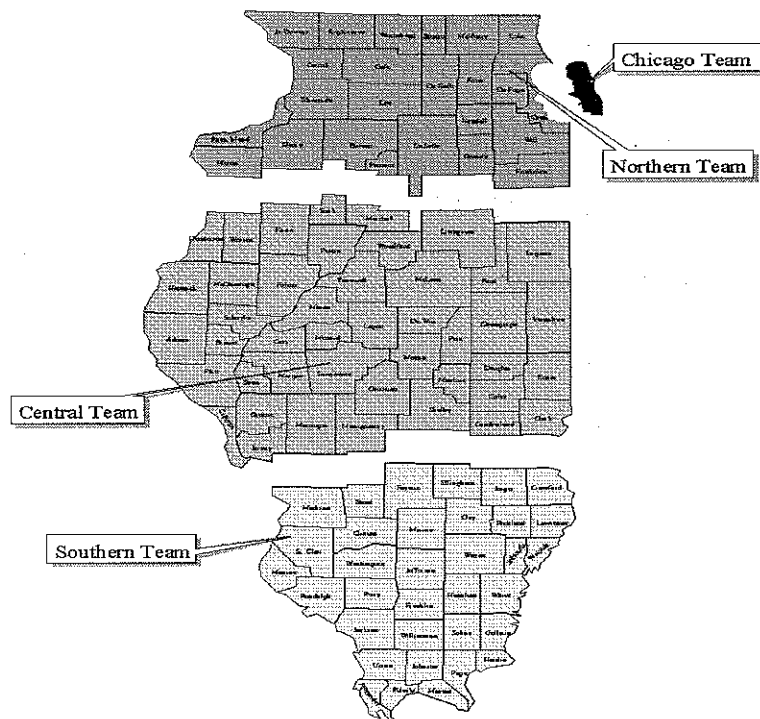
These guidelines were then adapted by IMERTEC for a regional approach.

IMERT team composition initially was established to consist of two teams of four to five medical personnel. Each team was comprised of a physician (MD or DO), a registered nurse (RN), an emergency medical technician-paramedic (EMT-P), and one or two other members with a minimum qualification of emergency medical technician (EMT.) More recently team positions were developed for

other allied health professionals such as physician assistants (PA) and dentists (DDS). Teams are organized throughout the state based upon the three Illinois IEMA regions and in conjunction with the Metropolitan Medical Response System (MMRS) in the City of Chicago. (see map below) Teams are supported with appropriate equipment and provided with ongoing educational opportunities within or near their regions.²³

Illinois Department of Public Health

Illinois Mobile Emergency Response Teams (IMERT)



The original team name was not identified as 'medical' but instead 'mobile'. During a press statement the Governor misspoke and from that moment on we have been known as a medical team. As a result a new uniform logo was designed and put into production.

The IMERT mission statement was developed. It reads, "The Illinois Medical Emergency Response Team will respond to and assist with emergency medical treatment at mass casualty incidents, including, but not limited to, chemical, biological, and radiological incidents when a need is identified. The team will respond when activated by the Director of Public Health or designee." ²⁴

Initial recruitment efforts targeted physicians, nurses or emergency medical technicians with current experience in emergency medicine or critical care who had a desire to volunteer with time to help the community in time of need. General requirements included age 18 or above, citizen or permanent resident of the U.S., maintenance of a current and unrestricted license, certification or registration required by team position, availability to report to a pre-designated assembly point within four hours for an assignment, physically fit to handle the rigors of disaster event environments, and meeting individual team qualifications for the appropriate position. Members are required to have an up-to-date medical history on file, attend scheduled mandatory education sessions and team meetings, and adhere to the IMERT code of conduct and all policies pertaining to team participation, involvement, and activities. Members are also responsible for updating contact information, certifications, immunizations, and changes in health status as changes occur.

Team education and training requirements include completion of a basic incident command course, a WMD response to terrorism course in a classroom setting or

online through Federal Emergency Management Agency (FEMA). IMERT continues to offer the 4 hour Domestic Preparedness course for which attendance is encouraged. In addition every team member must attend and complete an IMERT "Boot Camp" training session. Here members are oriented to team policies and procedures, become familiar with the IMERT equipment bags, receive uniforms, and practice selected skills. Initially at Boot Camp, IMERT members here should also be issued an identification card by IDPH indicating IMERT membership with the requirement it be worn at any training or deployment. Annual training now includes participation in at least two team training sessions such as equipment review or deployment debriefings, and/or drills. Essential public health service # 8 is demonstrated with these activities.²⁵

Some communications regarding training have been unclear. Members periodically receive email invitations to attend educational sessions. Then days later a new message arrives with the same offering but with a new date, time and location. While it may be clear to the IMERT staff that this reflects multiple classes of the same session by region, it has not been conveyed as such. Suggestions have been submitted to provide a list of all sites and date related to each training meeting.

The time commitment is a minimum of being available (on call) to be activated 4 weeks per year. Call time is scheduled according to a member's own schedule. IMERT has established both ground and air transportation assistance to get team

members to the disaster site. If a disaster occurs in a member's home region, teams from other regions would be activated to respond to the affected region. Each member is responsible for supplying his/her own personal and toiletries clothing cache and food and water for the period of deployment. Generally the maximum time is 72 hours. The only paid individuals with IMERT are the team coordinator and administrator. Their salaries are paid by the Illinois College of Emergency Physicians and they are contracted to the Illinois Department of Public Health (IDPH).

Each team member is required to maintain a text receiving wireless device (cellular phone, text pager, or PDA) in order to receive activation and other notices from IMERT. Initially only on call members were test paged weekly to ensure that correct numbers were on file. Then a system became available with capabilities of sending an automatic page to every member each Monday morning at 8:00 a.m. to test continued connectivity. When that process began, however, it was not first communicated that it was just a test and members need not respond. The IMERT office phones were flooded with concerned members who were not on call but were paged, and by those who suspected they were going to be deployed. With the change to daylight savings time late October the Monday morning page arrived at 5:00 a.m., three hours early to some members. Others never received the weekly page.

The communications committee recognized that the alerting system did not consistently alert all of the resources needed in a timely manner, thereby delaying the response of team members. In July 2005 an additional alerting system, CityWatch, was initiated whereby a pre-recorded voice message with deployment instructions is sent from a dispatch center to the on call team members. The system is designed to send out alerts until the member responds. Participants were to update their contact number. That process was not clearly conveyed to IMERT members. As a result some members miss the message because it is delivered to a telephone number not readily available to them. Efforts to provide an alternative or secondary number for notifications have been unsuccessful. For example I receive such messages every hour on my home telephone answering device which is not helpful if I am at work. Other members receive text messages inconsistently on other communication devices. IMERT administration acknowledges that the CityWatch alert program needs some refinement.

A new software program has been purchased by the state to enhance communications and records keeping. Primary and default wireless addresses will be programmed into the application for more consistent messaging. The Coordinated Responder Information System (CRIS) has successfully been implemented by the state of Florida in their hurricane and disaster preparedness efforts. Illinois has modified the CRIS application for the state's needs such as grouping of team assignments. Other enhancements include storing members' verified credentials and current medical records information, in case of

emergency. It is scheduled to be activated in November 2005. This enhancement will improve compliance with essential public health service # 9.

The events of September 11, 2001 increased interest with many healthcare workers in methods to fulfill the desire to help their country and their community. By 2002 IMERT had more than 300 volunteer medical responders. The organization was included in the Chicago area component of the national TopOff 2 disaster drill in May 2003. New opportunities were realized and specialized teams were created.

IMERT Urban Search and Rescue (USAR) teams were developed and trained with the FEMA program guidelines. This federal system is a framework for structuring local emergency personnel into integrated disaster response task forces. These task forces, complete with necessary tools and equipment, and specialized training and skills, are deployed by FEMA in times of catastrophic structural collapse. All team members are trained and certified emergency medical technicians. Positions fall into roughly four categories: search and rescue; medical; technical and logistics. The search and rescue positions include engineers with expertise in shoring up, bracing, evaluating, breaching and lifting structural components, rescue specialists, and search specialists who use trained and credentialed search dogs, cameras and listening devices. The medical positions include physicians, EMTs, nurses and others who can set up and staff a mobile field hospital. Technical positions include hazard materials specialists and

communications specialists, among others.²⁶ IMERT now has three dedicated specially trained USAR teams that rotate call monthly.

Additionally State Weapons of Mass Destruction (SWMD) IMERT teams were organized. Training was based on needs to support Illinois' Weapons of Mass Destruction Civil Support Team (WMD-CST). Illinois is one of ten states in the nation to create WMD-CSTs in 2001. The WMD Civil Support Teams were established to deploy rapidly to assist a local incident commander in determining the nature and extent of an attack or incident; provide expert technical advice on WMD response operations; and help identify and support the arrival of follow-on state and federal military response assets. They are joint units and, as such, can consist of both Army National Guard and Air National Guard personnel, with some of these units commanded by Air National Guard lieutenant colonels.

The mission of Weapons of Mass Destruction Civil Support Teams (WMD-CST) is to support local and state authorities at domestic WMD incident sites by identifying agents and substances, assessing current and projected consequences, advising on response measures, and assisting with requests for additional military support. The WMD civil support teams are able to deploy rapidly, assist local first-responders in determining the nature of an attack, provide medical and technical advice, and pave the way for the identification and arrival of follow-on state and federal military response assets. They provide initial advice on what the agent may be, assist first responders in that detection assessment process, and are

the first military responders on the ground, so that if additional federal resources are called into the situation, they can serve as an advance party that can liaise with the Joint Task Force Civil Support.²⁷

Now when an Illinois State Police Tactical Team or WMD-CST is deployed to investigate a possible terrorist operation an IMERT team is deployed, by order of the governor, to be their onsite medical provider. Medical assessments of the officers are conducted pre and post-exposure to any possible WMDs to measure physiologic response to use of personal protective equipment. On-site care is provided as necessary for any illnesses or injuries. IMERT SWMD teams are on call every two weeks and 16-50 responders could be deployed according to the situation.

IMERT like other response groups was impacted by lessons learned following the attacks of 9-11. Members of the press and others reportedly had successfully forged responder badges in New York City as a means to gain closer access to ground zero. Their presence disrupted the work of the true responders. As a result IMERT, like many other response groups, were mandated to cease disbursement of identification badges. This was posted 1/10/2005 on the IMERT website for members: "We are currently implementing a credentialing, tracking and identification that will streamline the process. This is a new and time consuming task. Please be patient as we transition into the new system. For those of you who just attended a boot camp in 2004, you will not be getting an

identification badge until all the badges are done.”²⁸ This was consistent with essential service #6.²⁹

Additionally with the terrorist attacks of September 11, 2001, the need for a credentialed healthcare workforce to respond to a mass casualty event was realized. In disaster situations, individuals who claim to be qualified providers and who want to volunteer their services typically approach health care facilities.³⁰ Congress recognized the need to make optimum use of volunteer health personnel in an emergency and authorized development of an Emergency System for Advance Registration of Health Professions Volunteers (ESAP-VHP).³¹ This national program is a public law and part of the *Public Health Security and Bioterrorism Preparedness and Response Act of 2002*. HRSA was delegated the responsibility for carrying out this legislation and is assisting each state in establishing a standardized, volunteer registration system. This was the new process referenced on the IMERT webpage. Each state-based system is to include readily available, verifiable, up-to-date information regarding the volunteer’s identity, licensing, credentialing, accreditation, and privileging in hospitals or other medical facilities. Illinois is one of ten states to receive funding and be accepted into the program. Pilot testing began in the spring of 2005. When all states systems are functional, a national system will be formed, allowing efficient utilization of health professional volunteers in emergencies by providing identity and credentials to locations or facilities in need of assistance. IMERT will be the first volunteer medical group to have ESAR-VHP ID’s processing.³²

IMERTEC continually researches and responds to emerging guidelines and technology which relates to essential public health service #10. As the federal government developed the National Response Plan, the National Incident Management System (NIMS) training became the gold standard in emergency response incident command and communications. In December 2004 NIMS training became a new requirement of completion for sustained IMERT team membership. It was offered locally and as an online course through FEMA, and the content has been integrated into all IMERT training.

Funding, both annual and biannual, continue with IDPH through federal grants from HRSA and CDC. The IDPH Chief of EMS and Highway Safety is responsible for grant applications and submissions. The IMERT administrator/commander is required to provide weekly reports to IDPH and ITTF. Quarterly reports are provided to HRSA. As funding has increased so have equipment purchase approvals. IMERT now has 8 Suburban vehicles available to transport teams as well as 16 equipment trailers stored at various locations across Illinois. The basis equipment cache per team deployment represents approximately \$50,000. Soon new 24 foot trailers will also be available that will carry additional equipment and all terrain dune buggy-like patient transport vehicles.

Also following TopOff 2 IMERT response expectations continued to change and membership grew to 900 participants. IMERT team size is currently 7-10

members with 13 teams on call at once. There are eight established committees: training, communications, research and publications, education, policy and procedure, equipment, recruitment and retention and safety. Now with any IEMA related event or drill IMERT also participates. April 16-19 this year some 50 IMERT team members participated in joint exercise training with the CST, Army National Guard, and members of the Air Guard in the Springfield area. IMERT's SWMD worked closely with the CST and made significant advancements in communication abilities and logistical planning that will improve IMERT's capacity in future deployments. On April 19 both IMERT's General Team and SWMD were on standby at Camp Lincoln and the CST staging areas prepared to respond in the event of a mass casualty incident. This assignment was considered a deployment and was approved by the Governor. After these events team members provided feedback and suggestions to improve IMERT's future response capabilities. This training opportunity coincided with the dedication of the Abraham Lincoln Presidential Library, Library which was attended by the four living former U.S. Presidents.³³

The purpose of participation in drills is not to reduce the likelihood of a disaster because, by definition, a disaster is an uncontrollable event. Drills are integral to the process of troubleshooting weaknesses in emergency plans. They are designed both to provide training exercises and to identify weaknesses in the response plan so shortcomings can be addressed.³⁴ These experiences provide lessons also in team dynamics, logistics, knowledge and usage of equipment, and

in communications. Additionally it allows for relationship building and trust between law enforcement and medical responders.³⁵ Essential public health services #s 8 and 9 are addressed with these experiences.

This past summer in 98 degree weather, a WMD drill was held over three days in Springfield, Illinois. Participants included Illinois State Police Tactical Teams, the state WMD-CST, and an Ohio WMD-CST team. During the course of the exercise IMERT teams were deployed. Initial assignments on scene included conducting pre-medical screens of the officers who would potentially be exposed to unknown agents. This began at 10:00 p.m. in an unlighted staging area. The IMERT equipment trailer had a generator and fuel, but no electric light fixtures or lanterns. Medical staff relied on mini-flashlights to see their watches and blood pressure gauges to ascertain and document physical assessments.

Overnight the drill evolved. There were over thirty college students posing as hostage victims who had spent the night in an abandoned poorly ventilated building. By morning they were overheated and dehydrated. All required cooling with ice packs and oral fluids; some required intravenous re-hydration. The volunteer 'pretend' victims had become real world victims requiring medical intervention. When the next shift of IMERT team members arrived on scene at 7:00 a.m., supplies were depleted. It became needs had been underestimated. As the new team attempted to locate necessary items each 33 gallon equipment bin was opened. None of the containers are labeled with anything listing contents,

which was time consuming and frustrating. For volunteers who travel region to region the equipment caches need to be consistent with the same stock items and readily identifiable contents. Larger equipment trailers, on order, will afford better organization of materials. On extended operations one will be set up as a base camp trailer with showers and sleeping cots.

Locally team members were able to purchase ice coolers and plastic bags to make ice packs and additional IVs were obtained. As the drill progressed the different tactical and WMD-CST groups accessed the building over the course of the day to conduct searches for evidence in full protective equipment. They all underwent pre and post-entry physical evaluations and all required hydration therapy after completing the decontamination process. Some were initially disoriented but responded to familiar faces, as medical care was provided. Several confided their comfort in recognizing their care providers and the knowledge that they had expertise to properly treat them.

One of the challenges IMERT leadership faces is keeping a balance for its members between training requirements and call time. There is a tremendous commitment for volunteers and concerns of how to keep them motivated have arisen. Incredibly then, another disaster occurs, resulting in renewed interest and dedication, and another influx of IMERT applicants.

Such was the case this September as a result of Hurricane Katrina. The IMERT model has been considered so successful that several others states have sought

guidance from the organization in development of such a team. To date there had only been conversations about the possibility of IMERT responding within a FEMA region, thereby crossing state lines, with no formal memorandum of understanding established. IMERT is unique in that it is state supported, leadership is the state department of public health, IMERT is purely a medical unit, and it is not under the jurisdiction of the emergency management agency. Volunteers are considered state governmental employees during deployment for the duration of the emergency and are covered by workers' compensation laws. IMERT is also very strong in skills and because of the teams' participation in drills they function cohesively.

On August 30, 2005 Louisiana Governor Kathleen Blanco made an Emergency Management Assistance Compact (EMAC) request for medical teams. EMAC, executed by 48 states and several territories, authorizes license reciprocity for healthcare practitioners in any member jurisdiction during an emergency or disaster duly declared by the governor of the affected state.³⁶ Her request was processed within one hour through IEMA to IDPH to Illinois Governor Rod Blagojevich and IMERT deployment was authorized.³⁷ Suddenly IMERT would travel out of state, and new requirements and regulations applied. Concern about financial resources and reimbursement for health and medical care provided during a mass casualty event applies to all providers, organizations, and sites, including governmental, nongovernmental, not for profit, and for profit.³⁸ The State Emergency Operations Center was also activated to coordinate all state relief efforts to the hurricane-ravaged states. The Illinois Office of Homeland

Security issued this press release: "The Illinois Emergency Management Agency (IEMA)'s response to the catastrophic tropical storm caused by Hurricane Katrina is coordinated through the State Emergency Operations Center (SEOC) and Illinois officials. The SEOC is in continual contact with emergency management officials in the affected areas through the Emergency Management Assistance Compact (EMAC). The compact includes other states in a mutual aid agreement and partnership that facilitates states assisting other states during emergencies."³⁹

An all call message was sent to IMERT volunteers that a team was requested for relief in Louisiana and deployment would be up to 14 days, requiring personally provided food and rations for that same period. Those who responded in interest were directed to provide financial statements of any loss their employers would sustain during their period of absence. This could include hiring a replacement worker or estimated lost productivity. This step took hours to complete for the group of eleven who would go. Final directive to deploy would not occur until IEMA forwarded the financial requirements to Louisiana for approval of reimbursement. That came the next day and the group left for Baton Rouge with three trucks and three trailers of equipment. En route they considered fuel needs for vehicles and generators while heading to an area already reported to be short of gasoline. They purchased and filled large capacity gas cans along the way and frequently topped off their vehicle fuel tanks.

They arrived at Louisiana State University at 1:30 a.m. on September 1, 2005 where a field hospital had been staged in the athletic center. No triage system was

in progress and the local command structure, most of whom had experienced the hurricanes, were overwhelmed. Shortly after arrival the area commander requested IMERT assume command of the field hospital where over 220 critically injured and ill persons were being treated by a few healthcare providers who lacked critical care and trauma experience. By 4:00 a.m. the IMERT administrator realized the need for more assistance and a request for deployment of additional IMERT members was made.

That message was sent to volunteers only hours later and the IMERT office was flooded with emails and telephone calls. Financial coordination was needed again for this group as was team notification, backfilling of teams remaining in Illinois, resource allocation and re-supplying of equipment. A team of 40 (15 registered nurses, 23 advanced life support specialists, and 3 support personnel) were gathered. National Guard and military vehicles were also mobilized by order of the Illinois governor.

After many delays this larger group was flown to Baton Rouge on a National Guard aircraft the next day. Challenges they faced included the excessive weight of foods and drinking water (one gallon per person per day) for 14 days for 40 volunteers and conflicting military's orders to bring additional gear that would exceed safe weight requirements.

At the LSU field hospital it quickly became evident that the usual position titles within the established IMERT command structure confused the local personnel. On scene a decision was made to permanently amend titles (field administrator

(administrator, command staff,) so they now reflect military chain of command (Lieutenant, Lieutenant Commander, Commander) with associated uniform insignias. The need was also evident for a leader of nursing services. A Chief Nursing Officer (CNO) position was created with responsibilities for the health and mental health issues of the team members. On all extended operations a CNO and Deputy Commander will now be appointed. What remains the same is a physician as medical director is in charge of medical operations. These changes were emailed to IMERT members immediately.

What was apparent to all was how well the IMERT command structure does work, despite titular changes. A triage method was taught on site to untrained volunteers. LSU students were directed to handle traffic control. A credentialing check was put in place and approved participants arm banded as identification. The CNO organized patient areas and proper triaging of patients was done for medical attention and severity and those who required inoculations and shelter. The IMERT logistics person became responsible to the unified command that was established. 6,100 patients were treated with 3,000 in the first 36 hours of IMERT's presence. 2 babies were born, and only 3 deaths occurred – two were hospice patients and one person died of dehydration. The teams also inoculated and medically screened 150 Louisiana State Police and 500 Illinois firefighters who were deployed to assist Louisiana fire departments.⁴⁰

Forty IMERT members returned via an Illinois Air National Guard C130 cargo plane on September 8. The remaining eleven returned via ground with equipment

on September 10, 2005. Only two members sustained injuries during deployment and were treated on site by IMERT physicians. This deployment was truly representative of essential service # 7.⁴¹

Typical of public health programs, IMERT constantly assesses processes, evaluates outcomes and makes changes as warranted, demonstrating essential service #9.⁴² Lessons learned reinforced the uniform command structure, that Information Technology staff are essential, supplies needs should be anticipated and requested before required, mental health/ Critical Incident Stress Debriefing is critical, and mobile wireless devices (satellite) are needed. Additionally during deployment additional IMERT office staff are needed, all financials must be done prior to deployment request, and that the CRIS and ESAR-VHP systems are crucial.

The most recent communication issues center around the code of conduct, reimbursement process, and job descriptions. The code includes directives that IMERT uniforms are not to be worn outside of official team business, and that published materials or statements about IMERT activities must be cleared by IMERTEC. While the code has been emailed to members, it is not posted on the website. Plans are now in place to add that. The reimbursement policy was shared again recently that "IDPH/IMERT policy is that we reimburse all mandatory training for specialty teams, deployments and special events as approved by IDPH and IMERTEC prior to the event," per an IMERT administrative email November 3, 2005. There is no reimbursement for travel or

other expenses related to normal training. Finally IMERT members have been encouraged to apply for leadership positions such as Lieutenant, but no position descriptions are posted on the website or otherwise available for review.

The ID badge issue is finally near resolution. As of November 2, 2005 IMERT reportedly was only days away from creating the badges with the state seal and the ESAR-VHP compliant template – newly approved by IDPH. The badges will contain a bar code that refers to CRIS for specific details of credentials and contact numbers. The badges will not, however, be released until members have updated their personal information within the CRIS system. Instructions on that process were to be written for distribution also in early November.⁴³

In disaster planning and response flexibility will always be the key. The events of September 11, 2001 altered all exiting plans reinforcing the need to be prepared as each event will be different, unique and all will be unpredictable. Those involved must be able to rapidly assess and adapt to very fluid situations, inter-agency coordination and trust is crucial, and effective communication is critical. The steps needed are: assess, adapt, tailor available resources, and respond.⁴⁴ IMERT continues to demonstrate its ability to meet these steps.

The response from IMERT volunteers remains impressive. On November 3, 2005, pager calls were sent to IMERT registered nurses with this message, "A RN team requested by Louisiana to support hospitals. If available for 2 weeks please call IMERT office." The request is to relieve nurses in New Orleans who are

trying to reestablish critical care units at several sites. Today this is posted on the website: "We have a 10 person IMERT Team Awaiting Deployment orders on an EMAC request from La. The team is ready for deployment awaiting acceptance of the EMAC Response." The IMERT commander ends his written messages with this Latin phrase "*NON SIBI SED SUIS*" which translates "not for one's self but for one's people." This reflects the volunteers' sentiment and commitment to their roles in public health.

End Notes

- ¹ Institute of Medicine (1988). *The Future of Public Health*. Washington, DC: National Academy Press.
- ² McLaughlin C. & Kaluzny A. (1999). *Continuous Quality Improvement in Health Care Theory, Implementation, and Applications*. 2nd Edition. Gaithersburg, MD.: Aspen Publishers, 362-364.
- ³ Turnock, B. (2001). *Public Health What It Is and How It Works*. Gaithersburg, MD: Aspen Publishers, Inc., 13.
- ⁴ USPHS (1994). *Public Health in America*. <http://www.health.gov/phfunctions/public.htm>
- ⁵ Joint Commission on Accreditation of Healthcare Organizations. *Facts About the Emergency Management Standards*. Available at: <http://www.jcaho.org>
- ⁶ World Health Organization. <http://www.who.int>
- ⁷ American College of Emergency Physicians. <http://www.acep.org>
- ⁸ Mothershead, J. (2005). *Disaster Planning*. Available at <http://www.emedicine.com>
- ⁹ Turnock, B. (2004). *Public Health Preparedness at a Price: Illinois*. Princeton, N.J.: The Robert Wood Johnson Foundation.
- ¹⁰ Federal Emergency Management Agency & National Fire Academy. *Emergency Response to Terrorism: Self Study*. Available at <http://www.training.fema.gov>
- ¹¹ Gajewski, C. (2003). *Bioterrorism Preparedness in Illinois*. Presentation at Illinois Nurses' Association Conference on Bioterrorism, Oakbrook, IL.
- ¹² Binder, L., Willoughby, P., & Matkaitis, L. (1997). Development of a Unique Decentralized Rapid-Response Capability and Contingency Mass-Casualty Field Hospital for the 1996 Democratic National Convention. *Prehospital Emergency Care* Vol. 1. No. 4: 238-245.
- ¹³ M. Lee, personal communication, October 8 and November 3, 2005.
- ¹⁴ USPHS (1994)., op. cit.
- ¹⁵ Lillibridge, S. (2003). New Developments in Health and Medical Preparedness Related to the Threat of Terrorism. *Prehospital Emergency Care* Vol.7, No. 1:56-58.
- ¹⁶ Turnock (2004), op. cit.
- ¹⁷ IMERT website available at <http://www.imert.org>
- ¹⁸ USPHS (1994). p. cit.
- ¹⁹ IMERT, op. cit.
- ²⁰ Turnock (2004), op. cit.
- ²¹ M. Lee op. cit
- ²² <http://teams.fema.gov/dmat/about/ndms.html#dmat>
- ²³ IMERT op. cit.
- ²⁴ Ibid
- ²⁵ USPHS (1994). op. cit.
- ²⁶ *National Urban Search and Rescue Team Response System*. Available at <http://www.fema.gov/ust/>
- ²⁷ Weapons of Mass Destruction Civil Support Teams. Available at <http://www.globalsecurity.org/military/agency/army/wmd-cst.htm>
- ²⁸ IMERT op. cit.
- ²⁹ USPHS (1994) op. cit.
- ³⁰ Agency for Healthcare Research and Quality. *Altered Standards of Care in Mass Casualty Events*, Chapter 5.
- ³¹ *HRSA Bioterrorism and Hospital Preparedness*. Available at www.hrsa.gov/bioterrorism/esarvhp/
- ³² M. Lee, op. cit.
- ³³ IMERT, op. cit.
- ³⁴ JCAHO (2005). *Standing Together: An Emergency Planning Guide for America's Communities*. Available at www.jcaho.org
- ³⁵ Butler, J., Cohen, M., Friedman, C., Scripp, R., & Watz, C. (2002) Collaboration Between Public Health and Law Enforcement: New Paradigms and Partnerships for Bioterrorism Planning and Response. *Emerging Infectious Diseases* Vol. 8, No. 10, 1152-1156.

³⁶ Hodge, J., Gable, L. & Calves, S. (2005). Volunteer Health Professionals and Emergencies: Assessing and Transforming the Legal Environment. *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science* Vol. 3 No. 3, 216-223.

³⁷ Conley, T. (2005) *Operation Katrina/IMERT Update*. Deployment review presentation for IMERT team members October 8, 2005.

³⁸ Agency for Healthcare Research and Quality. *Altered Standards of Care in Mass Casualty Events*, Chapter 4

³⁹ Illinois Department of Homeland Security. Available at <http://www.illinoishomelandsecurity.org/>

⁴⁰ Conley (2005). op. cit.

⁴¹ USPHS, op. cit.

⁴² Ibid.

⁴³ E. Lee, personal communication, November 2, 2005.

⁴⁴ Marghella, P. (2005). *Surge Capacity and Response in Catastrophic Casualty Events*. Presentation at On Our Watch III – Bioterrorism and Surge Control in the Emergency Department. American College of Emergency Physicians. Chicago, IL. June 7, 2005.