

A collage of images representing various public health and emergency response scenarios, including firefighters, a helicopter, a family, a laboratory, a hospital, a classroom, and a disaster site, all set against a map of Michigan. The collage is composed of several distinct photographs: firefighters in yellow gear, a helicopter with 'N163BK' on its side, a woman holding a baby, a person in a white lab coat working in a lab, a hospital building, a classroom with students, and a disaster site with a person in a white protective suit. The entire collage is overlaid on a light blue map of Michigan.



Office of Public Health Preparedness

INTRODUCTION FROM THE OPHP DIRECTOR

DR. JACQUELINE SCOTT, DIRECTOR
OFFICE OF PUBLIC HEALTH PREPAREDNESS

The terrorist attacks of September 11, 2001 and the subsequent Anthrax attacks that same October rocked the nation and forever changed the face of public health emergency response. The idea of terrorism and bioterrorism on American soil was once perceived only as real as a Hollywood movie plot. We were comfortable and naïve thinking that something like 9/11 would not happen here. It became a much more palpable threat in the fall of 2001 when, as a nation, we quickly realized just how vulnerable we were.

At that time, public health infrastructure was very poor. We did not have the capability to rapidly respond in a coordinated fashion to an event of 9/11 magnitude. Surveillance, laboratory and alerting systems were antiquated; and moreover public health was typically not considered an integral part of emergency response.



In Michigan, pre-9/11 bioterrorism funds facilitated an opportunity for the Department of Community Health to begin a building process by collaborating with new partners: the Michigan State Police, the National Guard Civil Support Team, and the FBI. These partnerships laid a foundation as we worked together to begin to establish a structure that would move terrorism preparedness in Michigan forward. At the time we did not understand the full impact of our efforts, but it was these formative steps that would allow us to more efficiently respond to the deluge of suspicious white powder incidents that would take place after the anthrax attacks. Where many other states' public health and laboratory systems were overwhelmed with potential anthrax cases, Michigan's pre-established chain of custody structure called for the FBI to triage all suspicious white powder incidents, delivering only those that were credible to the state laboratory for testing.

Despite our early preparedness planning efforts, Michigan, like other states across the nation, found itself in the throgs of a situation that we were not comfortable with, nor ready for. Mass dispensing, and risk communication to a worried public were conceptual at best. Public health had to figure out how to move from immunization clinics to clinics of mass dispensing, and how to gain and maintain the trust of its citizens during times when despite what is said, fear and panic might still prevail.

It has been a full decade since the events of 9/11 and the anthrax attacks occurred. Local and state public health preparedness efforts in Michigan, through federal support and much hard work, have taken root and yielded a well established system of strong partnerships, fully-tested and vetted response plans, a robust technology-based infrastructure, and a trained workforce that regularly improve their knowledge through drills and exercises. Many of these advancements and achievements have taken place within the State and in local public health departments and healthcare systems across Michigan. This is evident in our preparedness programs and responses to the real-life emergencies that we have faced during the past 10 years.

In honor of the 10-year anniversary of 9/11, the Michigan Department of Community Health, Office of Public Health Preparedness developed this publication to showcase some of our successes illustrating just how far Michigan's readiness to respond to any emergency has come.

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THE HISTORY OF FEDERAL PREPAREDNESS FUNDING

The earliest funding streams for public health preparedness were awarded to select states beginning in 1999 through a cooperative agreement with the Centers for Disease Control and Prevention (CDC). Michigan received a multi-year award for \$1.5 million per year for the Public Health Preparedness and Response for Bioterrorism Cooperative Agreement Project. These funds were coordinated through the State Bureau of Epidemiology and used to improve the public health preparedness infrastructure in Michigan.

In response to the events of 9/11 and subsequent anthrax attacks, federal funding for preparedness increased exponentially. In early 2002, Congressional appropriation created two funding streams intended to strengthen state and local core preparedness capacity; one through the

Focus of Early Preparedness Efforts (FY00-02)

- Coordinating health emergency management activities
- Enhancing disease detection and reporting
- Improving biological and chemical laboratory capacity
- Enhancing Michigan's Health Alert Network

U.S. Department of Health and Human Services (HHS) to support public health, and the other through the Health Resources and Services Administration (HRSA) to support healthcare preparedness. In response, the Michigan Department of Community Health (MDCH) Office of Public Health Preparedness (OPHP) was established to coordinate the development and implementation of public health and medical services for preparedness and response to acts of bioterrorism, infectious disease outbreak and other public health emergencies.

PREPAREDNESS FUNDING FOR PUBLIC HEALTH

In fiscal year 2002, CDC allocated \$918 million to support state and local public health preparedness efforts across seven focus areas. These focus areas were intended to strengthen public health infrastructure by developing comprehensive preparedness plans, enhancing surveillance and investigation, laboratory, and rapid communication technologies. This core funding stream continued; however, began to decline each successive year. In 2005, focus area funding was replaced with a new Public Health Emergency Preparedness (PHEP) cooperative agreement that emphasized preparedness goals and objectives focused on strengthening state and local public health preparedness capacity.

Michigan received more than \$28.5 million in core and supplemental preparedness funding for fiscal year 2001/02 and another \$32.6 million for fiscal year 2002/03, but like the rest of the nation, levels began declining in 2004/05. This was somewhat mitigated by the addition of supplemental funds for various initiatives; most notably, the Cities Readiness Initiative (funded 2003/04 - present), Pandemic Influenza planning (2005/06 through 2007/08) and for Novel H1N1 Influenza (2009/10). Figure 1 provides an historical snapshot of national and Michigan public health preparedness funding as well as a number of major initiatives that have significantly impacted preparedness efforts over the last decade

Currently, funding for a new cooperative agreement cycle went into effect August of 2011. This cycle incorporates newly developed federal guidance that emphasizes a strategic planning process for state and local health departments to assist in determining jurisdictional priorities among fifteen pre-defined preparedness capabilities.

Figure 1.

Historical Snapshot: Public Health Preparedness Funding and Major Initiatives (2001-present)

Funding Rounded to Millions



Focus Area Funding

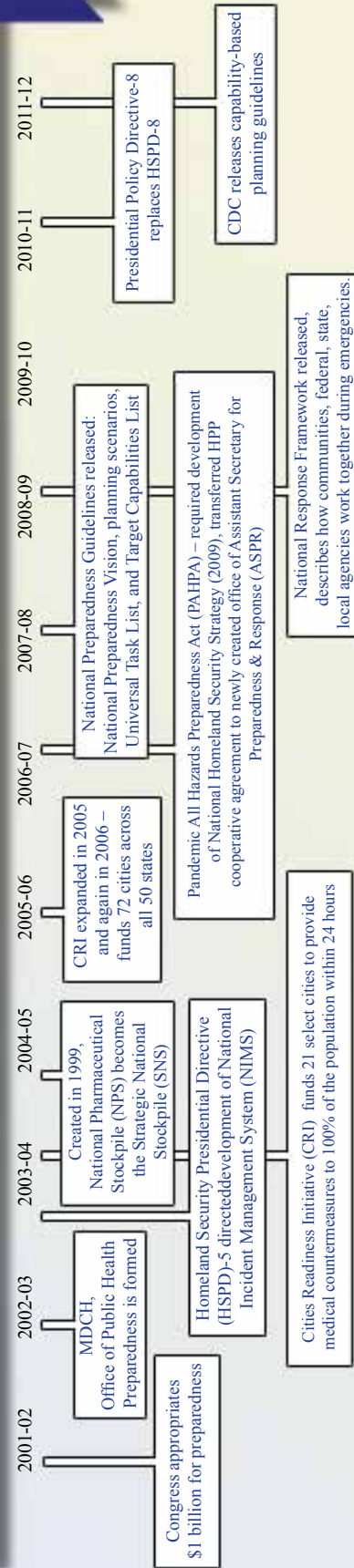
- (A) Preparedness Planning
- (B) Surveillance
- (C) Lab - Chemical
- (D) Lab - Biological
- (E) Health Alert Network
- (F) Communication

Public Health Emergency Preparedness (PHEP) Funding

2005-2010
Preparedness Goals & Measure

Preparedness Cooperative Agreement Funding

2011-2016
Capability-based Planning



Note: Funding bar graph shows federal and Michigan funding over time and is not intended to be a “to scale” comparison between federal and Michigan funding.

PREPAREDNESS FUNDING FOR HEALTHCARE

The National Bioterrorism Hospital Preparedness Program was first funded in 2002 through a cooperative agreement with HRSA to improve surge capacity and enhance hospital preparedness for public health emergencies and mass casualty events. \$125 million was distributed to states for the program in the first year and \$498 million the following year. Michigan received roughly \$4 million and \$16 million, respectively to augment healthcare capacity. Like the PHEP funding, healthcare preparedness funding streams continued each successive year, but decreased steadily after fiscal year 2004/05, except for increases in 2007 and 2010 due to supplemental funds to support Pandemic Influenza planning. As a result of the Pandemic All-Hazards Preparedness Act (PAHPA) of 2006, the cooperative agreement for healthcare preparedness transitioned from HRSA to the newly created Office of the Assistant Secretary for Preparedness and Response (ASPR) under HHS. Figure 2 shows the healthcare preparedness program funding level trend from 2002 through 2011.

Figure 2.

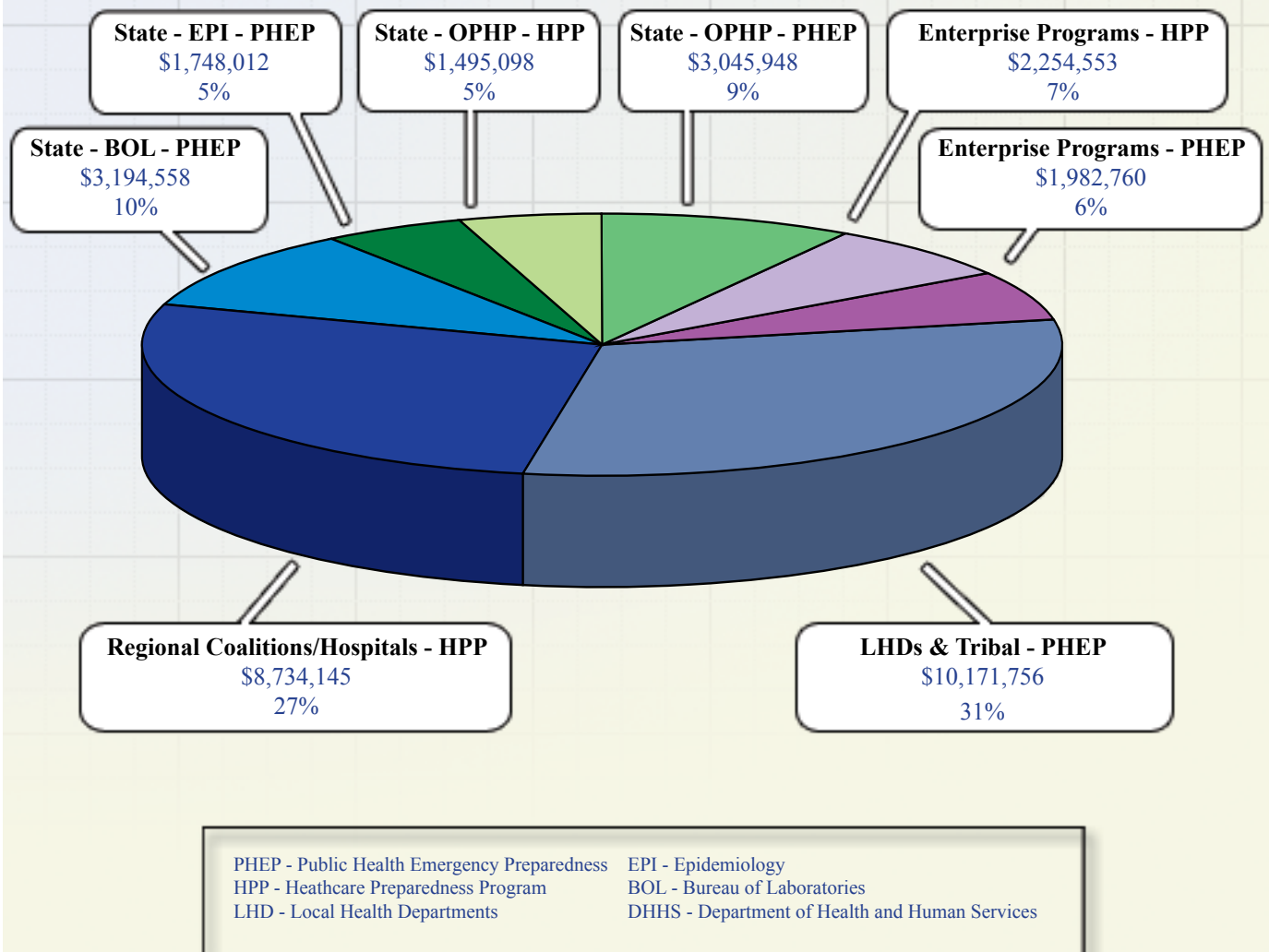


DISTRIBUTION & MANAGEMENT OF PREPAREDNESS FUNDS

Federal public health and healthcare emergency preparedness funds are awarded to the State, which in turn distributes funding to the regional healthcare coalitions, local health departments (LHD), tribes, and other public and private preparedness partners. The funding within MDCH supports state preparedness programs at the OPHP, Emergency Medical Services (EMS) Section, Bureau of Laboratories and Bureau of Epidemiology. Statewide or Enterprise Programs include the Michigan Volunteer Registry, Michigan Health Alert Network, Michigan Disease Surveillance System, Michigan Strategic National Stockpile (MISNS) and other capability-based programs that are utilized by LHDs, regional healthcare coalitions, hospitals, EMS, long term care facilities and other partners across the state.

Preparedness Funding Distribution 2011

(100% DHHS Federally Funded - Total \$38,626,830)



The Healthcare Preparedness Program, since 2002, has utilized its pre-established Medical Control Authority (MCA) structure to carry out the fiduciary duties for managing preparedness funds. An MCA is a semi-governmental organization designated by the State to supervise and coordinate pre-hospital care (e.g., EMS). Each MCA is governed by a Board of Directors that is comprised of representatives from local hospitals and EMS agencies. While there are 65 MCAs within Michigan, six of them serve as fiduciary for their designated region. Allocation of funding is based on consensus and identified needs within each region's Regional Planning Board. As a result, each hospital – large or small – has an equal vote in the use and distribution of the HPP emergency preparedness funds.

PREPAREDNESS & RESPONSE IN MICHIGAN



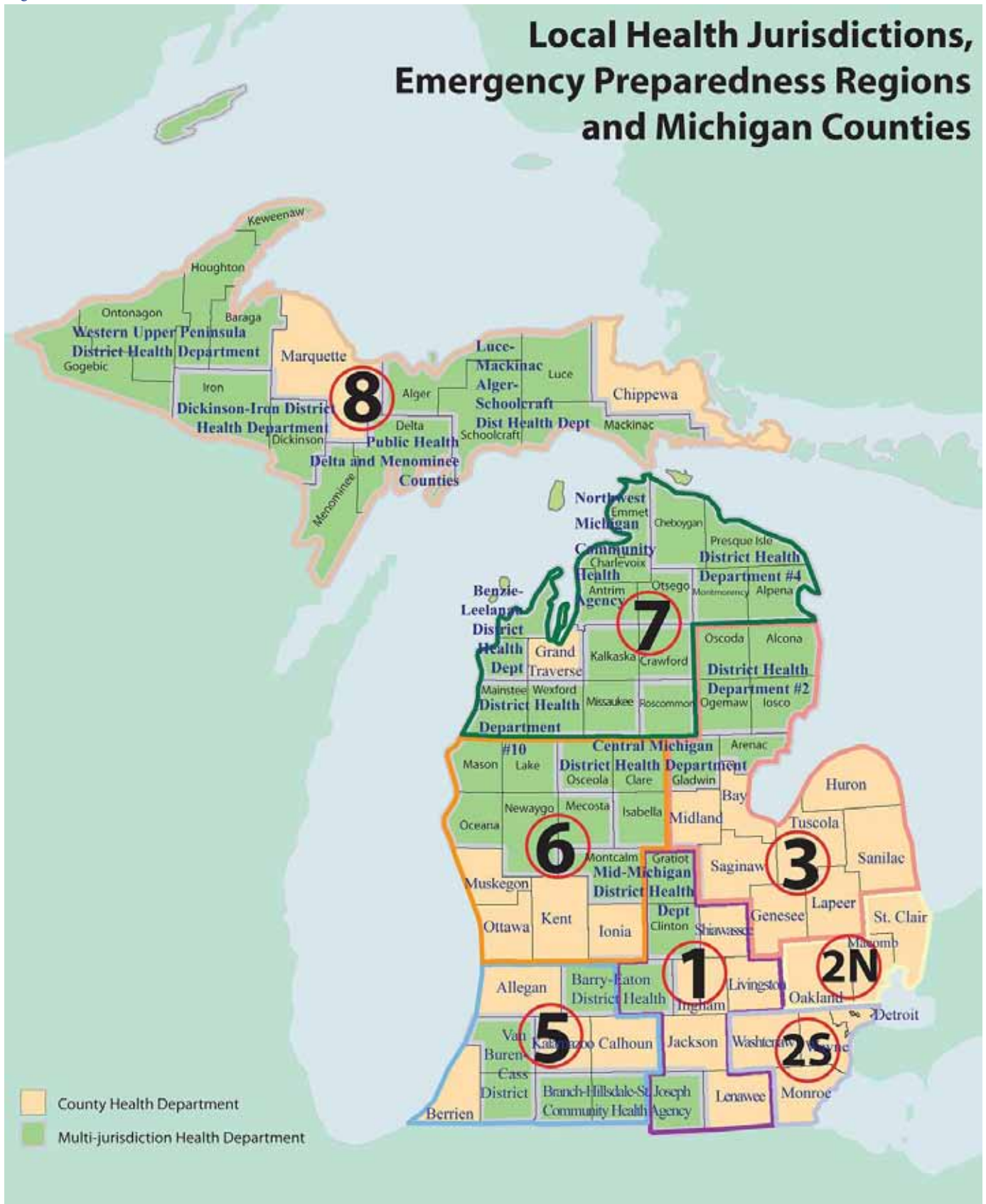
The State Emergency Operation Center (SEOC), under the direction of the Governor, coordinates planning and response to support Michigan governmental activities and serves as a liaison to local, non-profit and private resources, governments in other states and the Federal Emergency Management Agency (FEMA). Each state department includes one Emergency Management Coordinator, and alternates, that act on behalf of their department in the SEOC.

During a medical or public health emergency, the MDCH becomes the lead agency under the Emergency Support Function (ESF) #8 of the National Response Framework. The Community Health Emergency Coordination Center (CHECC) serves as a multi-agency coordination entity for the MDCH, working in direct collaboration with the SEOC. Activities within the CHECC include information gathering and support to the Regional Medical Coordination Centers (MCC) and LHDs.

The OPHP continues close collaboration with the Michigan State Police Emergency Management and Homeland Security Division. This partnership helps to ensure that initiatives from both agencies are integrated and emergency preparedness funds are used to provide maximum coordination at the state level, and serves as a model for the same type of coordination and collaboration to happen at the local and regional level.

The State of Michigan has also established varied committees and mechanisms to ensure our partners participate in planning and implementation of emergency preparedness initiatives. The Michigan Health & Hospital Association and the Michigan Association of Local Public Health are both valued partners that work closely with OPHP. Coordination efforts with the Michigan Primary Care Association and the Michigan Center for Rural Health has led to significant progress towards outreach to primary care providers throughout the state and the integration of these organizations and partners into local and regional public health and healthcare coalition initiatives.

Figure 3.



Geographically, Michigan is comprised of 83 counties that are divided amongst eight emergency preparedness regions. Built upon the existing infrastructure, the eight regions parallel the already established Michigan State Police Emergency Management Districts. Michigan counties are serviced by 45 county and multi-jurisdictional public health departments. Additionally, there are 12 federally recognized tribes in Michigan. Figure 3 shows a state map of these local jurisdictions within their respective emergency preparedness regions.

SPOTLIGHT: PARTNERSHIPS

MDCH AND THE MICHIGAN 2-1-1



Michigan 2-1-1 Call Centers connect individuals with precise information and social services that address their individual needs. As the social services equivalent of 9-1-1, calls are free to the user and answered 24/7/365 by professional Information and Referral Call Specialists.

The Office of Public Health Preparedness has partnered with Michigan 2-1-1 Network since it was established in 2005 to build safe communities day-to-day and in times of emergency. Effective and rapid communication is essential in times of crisis, and can be a significant challenge. Michigan 2-1-1 is equipped to assist during disaster and recovery by:

- Managing and tracking available resources against requests
- Providing rumor and information control
- Providing evacuation/traffic/shelter information to the public
- Providing connections to services for long-term recovery



During the 2009 H1N1 Influenza Pandemic 2-1-1 Call Centers provided accurate information regarding H1N1 and school closures, as well as referrals to immunization sites and medical professionals for those describing H1N1 symptoms. As the vaccine started making its way in larger quantities to Michigan, call volume increased and peaked in November when 12,319 callers contacted 2-1-1 for information about locations of immunization sites for targeted groups.

Call volume increased significantly, particularly in those areas where the local health departments heavily marketed the use of 2-1-1 as the tool for H1N1 information and referrals. This marketing took place primarily in Kent, Muskegon, Ottawa, and Ingham Counties. Kent, Ottawa, and Muskegon Health Departments developed additional agreements with their regional 2-1-1 Call Centers to actually schedule callers for their immunization appointments. At one point, Heart of West Michigan United Way 2-1-1, serving Kent County, was averaging 250 calls per hour.

Currently, 86% of Michigan's population has 2-1-1 service, and development is underway in 26 additional counties.

HEALTHCARE PREPAREDNESS: SURGE CAPACITY

In 2006, Michigan adopted the nationally recognized Medical Surge Capacity and Capability model, which is a management system that maximizes a hospital's ability to provide adequate medical evaluation and care during incidents that exceed its normal medical capacity. This management system includes tiers that sequentially build and include all partners in a medical surge response to public health and medical emergencies.

In a disaster, the amount of patients presenting for care may cause a "surge," increasing demand for additional medical supplies, healthcare personnel, laboratory tests, epidemiological investigations, etc., and may potentially challenge a hospital's normal day-to-day operations.

Tier 1. Surge is determined by the number of inpatients a hospital can receive while maintaining usual standards of care. Hospital Emergency Operation Plans include provisions to identify staff, space and supplies to surge 20% above the average daily census. However, as an incident worsens, resource imbalances increase as does the risk of morbidity and mortality to patients. At this point, response and assistance from local, regional and state agencies may be needed.

Tier 2. Eight regional healthcare coalitions have been developed to support healthcare facilities. These coalitions work with local partners such as local emergency management, long-term care facilities, and other free-standing outpatient facilities within each region to prepare hospitals, emergency medical services and supporting healthcare organizations to deliver coordinated and effective care to victims of terrorism and other public health/healthcare emergencies. Each coalition has established a Regional Medical Coordination Center (MCC) to coordinate medical surge capacity and capability during an incident or event. Available 24/7/365, the Regional MCC supports local Emergency Operation Centers (EOC) by providing assistance with flexible, coordinated, uninterrupted healthcare response.



When traditional healthcare system structures can no longer meet medical surge demands, the Modular Emergency Medical System framework augments local response efforts by organizing outside medical resources – Neighborhood Emergency Help Centers and Alternate Acute Care Centers, which are non-traditional settings that allow for the provision of patient treatment and care when demand exceeds available hospital resources.

Tier 3. Local EOCs coordinate activities among the multiple agencies involved in the response for that jurisdiction. They are responsible for defining incident objectives and an overall response strategy for the community. For public health and medical incidents, local EOCs work with the Regional MCCs.

Tier 4. The management of state response and coordination of intrastate jurisdictions is accomplished within the SEOC and CHECC at Tier 4.

Tier 5. The management of interstate medical and health assistance, which includes mutual aid, incident management coordination and information sharing, is accomplished at this level. This may also include the activation of the Emergency Management Assistance Compact, coordinated through the SEOC. Through the Great Lakes Healthcare Partnership, the MDCH has already established pre-existing relationships with other states in FEMA Region V that also manage HPP programs, including the City of Chicago, Illinois, Indiana, Minnesota, Ohio and Wisconsin.

Tier 6. Federal health and medical assets (supplies, equipment, facilities and personnel) that are organized for response to federally declared public health and medical emergencies under ESF #8 are implemented at the Tier 6 level. HHS is the primary agency for ESF #8 and coordinates all federal public health and medical assistance provided through ESF #8 in support of state, tribal and jurisdictional response efforts.

HEALTHCARE PREPAREDNESS REGIONS

REGION 1:



Region 1 is comprised of nine mid-Michigan counties with a total population of nearly one million residents. The region is home to the State Capitol, Michigan State University, and the Michigan International Speedway. There are five individual county health departments and three multi-jurisdiction health departments that cross boundaries with Region 5 and Region 6. Additionally, there are 14 hospitals and 85 Emergency Medical Services agencies in the region.

District 1 Regional Medical Response Coalition (DIRMRC):

The regional planning board is comprised of hospitals, EMS, Medical Control Authorities, long term care agencies, behavioral health, and pharmacies.

Achievements

- Region 1 Maintains solid partnerships that span a diverse range of disciplines including public health, emergency management, EMS, long term care, local universities, the American Red Cross, and Citizens Corps.
- Partnerships with public health and emergency management are particularly strong. DIRMRC hosted the state's first Smallpox vaccination clinic in 2002, and assists public health with community immunization clinics and co-hosts the annual Emergency Preparedness Symposium with Emergency management.
- DIRMRC is heavily involved in drills and regional exercises last fiscal year, including DirePlay2, which had over 40 sites participating simultaneously over a two-week period.
- The Region follows a "Movable Assets & Resources" model that gives each partner access to regional caches of medical materials, allowing maximum use of funding resources across the region. Assets were deployed to partners during the 2009 H1N1 pandemic and the 2011 winter storm season.
- The Coalition supports resource-limited EMS agencies by developing training materials to assist with the agencies' continuing education needs.
- DIRMRC developed a regional response protocol for mental health needs for times when local resources are exhausted.

REGION 2N:



Region 2-North shares an international border with Canada and is comprised of three counties, two of which are the 2nd and 3rd most populous in the state. All combined, the three counties, Oakland, Macomb and St. Clair, are home to 2.2 million people – nearly one-quarter of the state population. In addition, each county is served by its own local health department

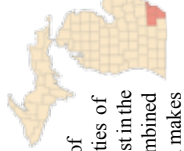
Region 2N Healthcare Coalition:

Partner organizations include 24 hospitals, three Medical Control Authorities (MCA), three county health departments and emergency management bodies, nine casualty transportation companies, the Region 2N MCA fiduciary, long-term care agencies, Visiting Nurses Association, and the American Red Cross.

Achievements

- All hospitals are fully equipped and trained to provide decontamination in a radiological or chemical emergency.
- All hospitals, casualty transportation agencies and members of the Regional Medical Coordination Center are equipped with redundant interoperable communications, which are tested monthly.
- Other essential response equipment available includes:
 - Laptops and scanners for patient tracking during a disaster,
 - Hospital evacuation equipment
 - Mass fatality kits in the event that the number of fatalities exceed hospitals' capability.
- The Coalition is very active in offering education and training opportunities to partners.
- Emergency pharmaceutical caches have been given to all essential personnel and their families to facilitate continuity of hospital operations in the event of an emergency.
- The Region 2N Medical Reserve Corps was established in 2009, and can be mobilized upon request.
- Significant investments have been made in training and exercising disaster preparedness among all hospitals and region partners.

REGION 2S:

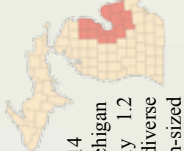


Region 2-South is comprised of the city of Detroit and the counties of Monroe, Washtenaw and the largest in the state of Michigan, Wayne. A combined population of more than 3 million makes Region 2S the largest in the state. Region 2S is also home to the University of Michigan, Wayne State University, and two international border crossings. Communities are serviced by four local health departments – one for each county and the city of Detroit.

Region 2S Healthcare Coalition Achievements:

- Region 2S partners with hospitals, local public health, emergency management, EMS, long-term care facilities and others in neighboring Canada and Ohio.
- Since 2002, the Coalition has been involved in developing and implementing healthcare emergency preparedness and medical operation plans, and pre-deploys medical supplies and equipment for all major events that occur in Southeast Michigan, including:
 - Super Bowl XL
 - All Star Game
 - American League Championship Series and World Series
 - NCAA Final Four
 - The Grand Prix
 - Detroit Free Press Marathon
 - Annual Target Fireworks displays
- In 2007, the Coalition established a task force that researched, conceptualized, designed, implemented and now maintains the Michigan Transportable Emergency Surge Assistance Medical Unit (MI-TESA), a 100-bed mobile hospital that can be deployed anywhere in the state in the event of a disaster.
- Region 2S is a highly proactive training region that provides a successful and in-demand training curriculum, including: Basic Disaster Life Support, Advanced Disaster Life Support, Critical Incident Stress Management, Psychological First Aid, and Incident Command System training tailored to healthcare.
- The Coalition conceptualized and developed an electronic SNS asset request platform for the medical community, which was later expanded and implemented as a state-wide system.

REGION 3:



Region 3 is comprised of 14 counties in mid- and eastern Michigan that is home to approximately 1.2 million people. It is a highly diverse area, ranging from medium-sized cities to highly fertile agricultural areas to sparsely populated areas of undeveloped woodlands. There are four significant urban areas: Flint, Saginaw, Bay City, and Midland; two international airports; two international seaports; and a lengthy shoreline that shares an international border with Canada.

Region 3 Healthcare Preparedness Network:

The Region 3 Healthcare Preparedness Network is made up of key stakeholders actively involved in emergency planning and preparedness. Represented in the network are hospital institutions, pre-hospital providers, Medical Control Authorities, local and state public health entities, fire and law enforcement, local and state emergency management, the American Red Cross, and other key response agencies. Additionally, there are 24 acute care hospitals in the region.

Achievements:

- All 24 acute care hospitals in the region have a base-level of supplies and equipment for disaster response, including:
 - Decontamination equipment
 - Isolation capacity for at minimum one patient
 - Redundant, interoperable communication equipment
- Emergency Medical Services providers have personal protective equipment (PPE), 800 MHz radios, and have been trained in triage, decontamination and use of PPE.
- The Region has five full equipped Acute Care Center trailers and three Mass Casualty Incident trailers placed strategically throughout the region
- The Coalition hosts and maintains two MEDDRUN packs and four CHEMPACK units in the region.
- Currently, efforts revolve around pandemic influenza planning, patient evacuation, and mass fatality planning among other projects.

REGION 5:

The nine southwestern-most counties make up Region 5. With a mix of mostly smaller and rural farming communities and some urban areas, county population sizes range from 45,000 to 250,000. Region 5 is home to Western Michigan University and a number of local wineries. It is home to three tribes and is served by seven local health departments.

Region 5 District Medical Response Coalition (5DMRC):

Region 5 Healthcare Coalition membership consists of representatives from 22 area hospitals, seven public health agencies, nine medical control authorities, 10 emergency management programs, numerous emergency medical service providers, and many more healthcare, long term care, human services and emergency response organizations.

Achievements:

Through the HPP program, available resources can be utilized for major disasters as well as during daily healthcare operations. In addition to the availability of redundant, interoperable communications, a 24/7/365 Regional Medical Coordination Center and a real-time, Web-based hospital emergency room tracking system, achievements include:

- A region-wide training program complete with sophisticated patient simulators. A fully equipped trailer allows trainers to take the simulators to regional hospitals and EMS agencies for training in the field.
- In 2005, Region 5 was called upon to receive, triage, and provide medical treatment for more than 300 Hurricane Katrina evacuees at the MI National Guard's Fort Custer training facility in Battle Creek. Region 5's response to this need was made possible by strong collaboration between the Coalition's healthcare, public health, and emergency management partners.
- In 2008, Region 5 was designated by the Centers for Disease Control and Prevention (CDC) as a Model Community, honoring the region for "establishing and implementing effective strategies that enhance collaboration and strengthen the relationship between public health and emergency care, thereby serving as an example to other communities to promote the improvement of daily operations and disaster preparedness nationwide."

REGION 6:

Region 6 spans a relatively large area across the middle of the state extending from the western border to the center of the state. It is comprised of 13 counties with a combined population of 1.4 million. The region consists of primarily small, rural communities with the largest counties being Kent (600k), Ottawa (263k), and Muskegon (172k). It is served by four county health departments and three multi-jurisdiction health departments that cross regional borders.

Region 6 Healthcare Coalition:

Region 6 partners include: 23 hospitals, two rehabilitation hospitals, 12 MCAs, 12 life support agencies, one air transport unit, 63 long term care facilities, seven local health departments, 16 emergency management bodies, one tribal network, and the Center for Simulation Excellence.

Achievements

- Region 6, in partnership with Mercy Health Partners Muskegon (Region 6 fiduciary) created the Center for Simulation Excellence – a 4,700 square foot facility complete with exam rooms and intensive care, emergency, and surgical units that can simulate emergency scenarios such as auto accidents and a building collapse. Simulation capabilities are complete with life-like training manikins and the ability to incorporate ambient noises such as unanticipated distractions (e.g., sirens, family interactions) and environmental noises typically associated with various hospital units.
- Preparedness funds have been used to purchase, place, train and use: pharmaceutical caches, redundant and interoperable communications, decontamination systems, and mass fatality response trailers.
- Partners utilized Microsoft SharePoint and United Parcel Service software products to create tracking systems for volunteers, education and training and disaster asset inventory.

REGION 7:

Region 7 spans 17 counties across the northern portion of the Lower Peninsula. It is predominately rural with a year-round population of roughly 500,000. The region is home to an abundance of natural resources and a thriving ecotourism-based economy. Extreme seasonal population fluctuations due to tourism and second-home ownerships is a challenge as this region experiences more than 12 million visitor days per year. The Region is serviced by five local health departments and is home to three tribes.

Region 7 Medical Disaster Preparedness Network:

The Region 7 partner network includes 12 hospitals, nine Medical Control Authorities, 17 emergency management bodies, 29 long-term care facilities, 34 health clinics and 14 renal dialysis and/or home care service providers.

Achievements

- Decontamination equipment and trained staff is available to respond to an explosion, chemical spill or other disaster
- All hospitals and life support agencies are equipped with and trained on redundant, interoperable communication systems
- Unique partnerships between homeland security and the medical network provides three Alternate Care Centers, each equipped to supply a 50-bed make-shift hospital unit in the event the local hospital is compromised or overwhelmed during a disaster
- Medical disaster training is promoted among staff and utilized throughout the region, including the availability and use of life-like, high-fidelity human patient simulators, which have been purchased with federal preparedness funds. The simulator patients are used to enhance scenario-based disaster training for emergency medical responders and hospital personnel.

REGION 8:

Region 8 makes up the Upper Peninsula, where it is joined to the remainder of the state by a single, five mile long bridge. With a population of 317,258 – just 19 people per square mile – Region 8 contains nearly one-quarter of the State's land area, but just 3% of its total population. The region is comprised of fifteen rural counties, home to five Tribes, and served by six local health departments.

Region 8 Medical Disaster Preparedness Network:

The Region 8 Network includes 16 hospitals, including one Level II and one Level III trauma center; 12 Medical Control Authorities, 78 ground-based Emergency Medical Service (EMS) agencies that employ approximately 1,100 (mostly volunteer) EMS personnel; six local health departments, 75 emergency management agencies, and five tribal nations.

Achievements

- 24/7 decontamination equipment is available in all hospitals
- All hospitals and life support agencies are equipped with redundant, interoperable communication systems – 800MHZ and two-way hand-held radios, and cellular and satellite phones
- Regional efforts underway to conduct hazard vulnerability analysis
- Medical disaster training is promoted and utilized throughout the region
- Coalition partners have utilized preparedness assets and personnel supported by federal funding to respond to a number of major incidents and events that have taken place over the last eight years:
 - President Obama's 2011 visit to Marquette
 - A shooting threat to Northern Michigan University students in 2011
 - The 2007 Sleeper Lake Fire that burned 20,000 acres of land
 - The 2003 Dead River Dam collapse, which caused a surge of 8 billion gallons of water into the reservoir.

ADVANCEMENTS IN LOCAL PREPAREDNESS

Since 2002, health departments in Michigan have been working to build and enhance their core capacity and capability to respond to public health emergencies. Significant advancements have been made across the spectrum of preparedness in Michigan. Federal funds have enabled Michigan to shore up its infrastructure with personnel, essential communication and response equipment, and to capitalize on advances in technology that provide channels for rapid communication during response and risk communication to an entrusted community. Development of key partnerships between public health, medical, law enforcement, emergency management and the local business community, among others, have expanded depth and breadth of expertise creating a symbiotic system that together can better protect the communities it serves before, during and after an emergency. Regular trainings and exercises hone skill sets, affirm partnerships, enhance coordination, and identify gaps and facilitate continuous quality improvement in preparation for emergencies and other real-life events that threaten the health and well-being of Michiganders.

INFRASTRUCTURE & TECHNOLOGY

All 45 local health departments and 12 tribal entities in Michigan:

- Have an Emergency Preparedness Coordinator on staff dedicated to coordinating planning and preparedness efforts within their jurisdiction.
- Participate in Michigan's Web-based rapid communication and alerting system, the Michigan Health Alert Network (MIHAN).
- Participate in the Michigan Public Safety Communication System, an 800 MHz radio network that utilizes state-of-the-art technology to provide statewide interoperability throughout Michigan during an emergency.
- Have high-speed internet access, updated servers and computers that enable rapid communication in an emergency. Provide multiple avenues to disseminate risk information through public health department preparedness websites and social media outlets: Facebook and Twitter.

PARTNERSHIPS

Across the landscape of public health preparedness and throughout the advancements that have been made over the last decade, the development of strong partnerships has been a golden thread interwoven throughout. Partnerships are an essential key component that allows public health to achieve more with less. Michigan's local health departments are utilizing these partnerships in their preparedness planning efforts, during drills and exercises and to address the preparedness challenges they face. A few examples are highlighted here.

For the last nine years, **Tuscola County Health Department** has convened and coordinated a diverse and dedicated 20-agency planning committee comprised of governmental and community agencies and others committed to all-hazards preparedness planning in Tuscola County.

- | | | |
|-----------------------------------|----------------------------------|--|
| • Emergency management | • Central Dispatch | • The Caro Center |
| • Fire | • County Road Commission | • The Red Cross |
| • Behavioral health | • Tuscola County School District | • RACES |
| • Hospitals | • Michigan State University | • Canteen Services (meal provider for the penitentiary system) |
| • Local and state law enforcement | • Extension | |

The group, which meets monthly advises on priorities for the use of federal emergency preparedness funds, local planning and organizes drills and exercises.

Dickinson-Iron District Health Department in the Upper Peninsula has worked with a number of partners to achieve their preparedness planning goals. Area funeral directors actively participate with the health department and Wisconsin border communities for interstate mass fatalities planning, including the development and maintenance of a mortuary supply inventory and participation in annual mass fatality exercises.

The long-term care community of nursing homes and assisted living centers in both Dickinson and Iron counties work with the health department on continuity of operations planning for all-hazards preparedness. This partnership facilitates a deeper and more meaningful understanding of both public health and medical roles and responsibilities during a disaster.

Local food resource agencies – food pantries, MSU Extension and Services Agency, and school food services – collaborate with the health department to determine how to best meet the nutritional needs of community members who may not be able to access food resources during an emergency, and educate them on personal preparedness and stockpiling of shelf-stable meals.



MASS DISPENSING & VACCINATION

Providing vaccines and prophylaxis during a public health emergency to all residents is a logistical challenge that local health departments have diligently been tackling over the last decade. Michigan's LHDs have plans in place to provide vaccination and prophylaxis to the public through various types of community clinics, dispensing sites, and medical providers, depending upon the circumstances of the emergency. Some have developed alternative methods of dispensing to broaden their arsenal of tools in times of emergency.



As an alternative to traditional mass vaccination clinics, **Luce-Mackinac-Alger-Schoolcraft (LMAS) District Health Department** and community planning partners – emergency management, local hospitals, and the Sault Tribe of Chippewa Indians – developed an emergency plan to mass vaccinate residents utilizing a drive-thru clinic model. County Road Commission and local school bus garages served as vaccination sites for the clinics. These garages provided wide open spaces, and facilities in two counties provided built-in heat and automated exhaust fan systems to prevent carbon monoxide build-up.

The plan was exercised during annual flu clinics and during H1N1 with additional support. Local law enforcement provided security and traffic control while LMAS, hospital and the Sault Tribe nursing staff and paramedics administered the vaccine. One inherent benefit of a drive-thru model for pandemic influenza is the de-facto social distancing; however, LMAS found the through-put to be considerably slower than a traditional walk-through clinic model noting this would be most beneficial in situations where local public health had the benefit of time to vaccinate residents. Notwithstanding, this model is one more tool available to LMAS District Health Department in the event of an emergency.



Washtenaw County Health Department has focused some of its mass dispensing planning efforts on incorporating a closed point of dispensing site (POD) model in its cache of response tools. A closed POD is an organization that serves as a dispensing site for its own members, employees, employee's family members, etc., and is not open to the general public.

SPOTLIGHT: REAL-LIFE EVENT

HURRICANE KATRINA RESPONSE IN MICHIGAN, KENT COUNTY

In 2005, Hurricane Katrina and the massive flooding caused by the failure of the New Orleans levee system caused catastrophic damage and inflicted huge losses of life along the central Gulf coast. Hundreds of thousands of residents were displaced from their homes and sought shelter in other states across the country. Michigan received a relatively small number of evacuees from the affected region. Kent County Health Department (KCHD) was called upon by the Governor to provide housing for 461 evacuees that arrived through Fort Custer.



KCHD in partnership with the Red Cross prepared a local YMCA, which became known as the Red Cross House. The Red Cross House was a “one-stop shop” for resources including computer and internet access, clothing, taxi cab vouchers for appointments, and permanent housing assistance. The health department provided screenings for a range of medical conditions including tuberculosis, sexually transmitted infections, pregnancy, mental health, substance abuse, acute dermatitis, and provided referrals to the Red Cross for follow up care as needed.

The Red Cross House was operational for approximately one month providing assistance and 24 hour on call nursing to individuals and families displaced by hurricane Katrina.

The closed POD planning began as an effort to address the needs of diverse populations to ensure the health department's ability to reach these residents in a mass prophylaxis event. They first approached organizations that serve populations who cannot or are unwilling to seek prophylaxis at public dispensing clinics. They provided orientation, training, informational materials and an enrollment form to those that were interested in participating. The first wave of trainings were provided to group homes, long term care facilities, jails, and centers for independent living, followed by cultural and social service organizations and low income community centers. As the program grew, Washtenaw County enrolled larger entities such as local universities, health centers, major businesses and public utilities that may need to maintain continuity of operations during an emergency. At present, more than 50 organizations, many of which serve diverse populations, or populations that may be more greatly impacted during an emergency, participate in the County's closed POD program.

Ensuring certain population groups have sufficient access to dispensing sites/clinics; however, poses an even greater challenge as cultural differences or physical limitations may make accessing these clinics difficult or unlikely, and the limited availability of resources affect a health department's ability to effectively reach these groups.

Huron County Health Department unexpectedly found a partner in a local home healthcare agency during the H1N1 influenza outbreak, when the agency offered to provide vaccination services to home-bound residents regardless of whether or not the resident was a client. Through this partnership, the health department was able to provide referrals to accommodate the particular needs of home-bound residents who called the health department for assistance.

Van Buren and Cass Counties have a migrant worker population that surges during the summer months. It was in this community that the first Michigan case of Novel H1N1 was identified. While **Van Buren-Cass District Health Department** worked directly with the migrant camp and farmers to provide education and antiviral medication to gain control of the spread of H1N1, it is the health department's partnership with InterCare Health Network – one of the largest migrant health organizations in Michigan – that provides a direct link to this population for public health education and future outreach in the event of a public health emergency. InterCare is a Federally Qualified Health Center (FQHC) that provides health, medical, and dental services to migrant workers in Michigan.

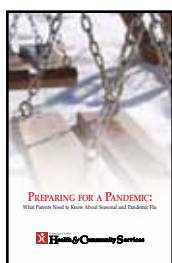
SPOTLIGHT: EMERGENCY RESPONSE. WILDFIRES, CRAWFORD COUNTY

In May 2010, the Region Seven Healthcare Coalition played a supportive role in response to the wildfires that consumed more than 5,000 acres in Crawford County. The Coalition activated its regional Medical Coordination Center in support of the local emergency operations center and deployed an Alternate Care Center trailer to accommodate nursing home residents in need of overnight housing.



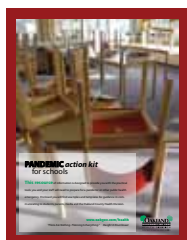
RISK COMMUNICATION AND OUTREACH

Michigan LHDs have utilized federal preparedness funding to develop risk communication outreach programs and materials for local communities. Many examples revolve around influenza preparedness.



Kalamazoo County Health & Community Services developed, *Preparing for a Pandemic: What Parents Need to Know About Seasonal and Pandemic Influenza*, a brief guide to help parents prepare their family for the flu including planning for school closures and stockpiling items for children, while **Grand Traverse County Health Departments** Plan. Prepare. Prevail 10-minute video provides an historical perspective of the impact of pandemic influenza and encourages personal preparedness to lessen the impact and spread of the flu on the broader community.

During the outbreak of H1N1, **Kent County Health Department** delivered its message about flu preparedness in an inventive and fun way during a local holiday parade. Santa-hat clad staff handed out 15,000 goodie bags filled with hand sanitizer, tissue, and information on flu prevention during their 'Tis the Flu Season campaign.



Oakland County Health Division's approach to pandemic flu outreach included a comprehensive kit for schools. The *Pandemic Action Kit for Schools* includes algorithms and information on pandemic planning and communication about school closure, media messages, infection control tips and more tools to assist schools in their influenza planning efforts.

Then: 2001

Partnerships were few, informal and local. Public health was typically not considered an integral part of emergency response.

Technology and communication infrastructure was limited: no, or dial-up internet access only in many areas, basic cellular and land phone lines, and fax machines. LHDs did not have dedicated personnel dedicated for preparedness planning.

Telephones and blast fax were used to communicate between agencies, and to send alerts to healthcare providers, which was often an overnight endeavor and could not account for outdated or duplicate contact information.

In 2001, risk communication modalities included standard media channels: radio, television and print news. Risk communication plans were not typical.

Disease surveillance was typically passive. Local health departments relied on healthcare providers to call or fax information to the LHD.

Now: 2011

Partnerships are diverse, expansive and regional, and commonly include traditional first responders, healthcare, community agencies and businesses, tribal nations and border jurisdictions among others. Now, public health is an integrated and vital partner in emergency response.

Enter the digital age. All LHDs have high-speed internet with enhanced network security. Radio communications, updated computer systems and integrated software programs, and telecommunications devices such as smart phones and Web-based video conferencing capabilities have augmented preparedness capacity. Every jurisdiction now has National Incident Management System (NIMS) trained staff dedicated to local preparedness activities.

Today, truly rapid and redundant communication systems are used for alerting and during response to an emergency: MI-HAN, email listservs, and computer-aided blast fax accommodates many more recipients and allows expedited updates to contact lists. 800 MHz radios, satellite and smart phones, and partnerships with groups such as the Radio Amateur Communication Emergency Services (R.A.C.E.S.) provide for interoperable communications during an emergency.

All LHDs and the state maintain preparedness websites. Many utilize social media outlets such as Facebook, Twitter and Youtube, and have access to the Michigan 2-1-1 to broaden distribution channels to the public. Partnerships with community agencies allow public health to reach a greater diversity of populations, while alliances with public information officers from other agencies/jurisdictions result in coordinated and consistent messaging. Crisis and Emergency Risk Information plans with pre-scripted messages are continually updated and exercised.

The Michigan Disease Surveillance System (MDSS), which serves all 45 Michigan Health Departments, provides a secure mechanism to transfer and analyze communicable disease surveillance information. The Emergency Department Syndromic Surveillance System (EDSSS) securely transmits real-time emergency room chief complaint data, allowing the State to automatically detect potential outbreaks.

EXERCISES & TRAINING

Michigan LHDs, tribes and the OPHP regularly participate in tabletop exercises, functional drills and full-scale exercises throughout the year to test emergency plans and procedures. These include staff notification or call-down drills as well as assembly drills, in which response leadership must demonstrate the capability to convene either in person or virtually within 60 minutes of notification. Other exercises involve testing of Strategic National Stockpile, Mass Vaccination and Pandemic Influenza plans. Drills and exercises often incorporate the participation of partners and other stakeholders that would be involved during the response to a real-life event.

- **Nuclear Power Plant Exercises.** Michigan is home to three nuclear power plants, Enrico Fermi II, Palisades and Cook located in Monroe, Van Buren and Berrien counties, respectively. Local health departments serving these three jurisdictions participate in the power plants' biennial full-scale, FEMA evaluated exercises, which are based on accident scenarios within the power plant. In an actual nuclear/radiological emergency, local public health would be responsible for coordinating public decontamination and dissemination of public health information to the general public.



Source: Nuclear Regulatory Commission

- **MI-TESA New Madrid National Level Exercise.** The OPHP took part in a full-scale exercise in May of 2011 to prepare and coordinate a multi-jurisdictional integrated response to a national catastrophic event using Michigan's Transportable Emergency Surge Assistance (MI-TESA) Medical Unit.



The disaster exercise, which was part of the National Level Exercises simulating the catastrophic nature of a major earthquake in the central United States region of the New Madrid Seismic Zone. This exercise was held at the Summit at the Capital Center in Lansing. It marked the first time the complete mobile field hospital – a 100-bed facility housed in Southeast Michigan and a 40-bed facility housed in Southwest Michigan – was utilized in a full-scale exercise with teams of emergency health professionals from both regions.

MI-TESA would provide medical assistance to patients in need of primary care that are expected to be released within 23 hours of admission. Typical admitted patients would have symptoms or conditions similar to chronic obstructive pulmonary disease, asthma, congestive heart failure, chronic pain syndrome, behavioral conditions, and patients needing IV hydration and IV antibiotic therapy. These are the conditions and symptoms consistent with the type of care rendered in the mobile medical facilities in operation during Hurricane Katrina in 2005.



- **Lac Vieux Desert Band Tribal Health Center Exercise.** Lac Vieux Desert (LVD) tribal health officials, in conjunction with Region 8 Coalition partners: local public health, area hospitals and emergency response agencies, conducted a full-scale pandemic influenza exercise in the fall of 2008. More than 60 volunteers from the local high school and the LVD tribal community participated as mock “patients” in the exercise while crews from Baraga County Memorial Hospital and Grand View Health System transported cots and supplies and set up a 25-bed alternate care center – a makeshift hospital ward – to provide supportive care.

The tribal health center has a total practice of 3,000 Native and non-Native residents from surrounding areas in Michigan and Wisconsin and works with the Region 8 Medical Coordination Center, which in the event of a local incident would coordinate the response by the region’s sixteen hospitals and dozens of EMS agencies.

SPOTLIGHT: VOLUNTEERS

MUSKEGON COUNTY MEDICAL RESERVE CORPS (MRC)

Since the inception of Muskegon County MRC five years ago, the nationally recognized grass roots campaign has grown to one of the largest and most proactive in the state of Michigan, and one that provides a tremendous value to the local health department and the community it serves. The main focus of the MRC is public health initiatives. Volunteers – medical and non-medical – serve to increase the awareness of public health preparedness.



The Muskegon County MRC regularly participates in disaster drills and provides assistance to the health department whenever needed, both in times of and in the absence of a disaster or public health emergency. In 2008, Muskegon County began seeing an increase in shigellosis in elementary schools around the county. The health department utilized MRC volunteers to visit classrooms and teach proper hand washing techniques to the students.



Additionally, when Muskegon County Health Department received a state grant to support a program to reduce the prevalence of gonorrhea and chlamydia in young adults through testing, the MRC was there to help as trained volunteers to collect urine specimens from drop centers and area high schools. MRC volunteers also routinely assist by providing fluoride treatments to students in area schools and have participated in efforts to provide tuberculosis testing at homeless shelters and blood pressure check-ups at local senior centers.

By far; however, the largest activation of the Muskegon MRC – and consequently, the impetus for the largest growth in volunteer numbers – has been in response to the H1N1 influenza outbreak. During this time, the addition of new volunteers doubled the existing volunteer base. Both medical and non medical volunteers who wished to join the MRC underwent a thorough criminal background check, were credentialed, oriented and put into service.

During the response, the Muskegon MRC provided valuable assistance to Public Health Muskegon County and to the community as trained volunteers provided vaccinations at first responder, school, and local community H1N1 clinics. In addition, MRC volunteers provided H1N1 vaccinations at the health department’s WIC clinic and assisted the health department with entering H1N1 vaccination data into the immunization database. All told, Muskegon County MRC volunteers, combined, provided 12,677 hours of service during the response to H1N1. At a median salary-value of \$22.87 per hour, volunteers’ gift of time was valued at \$289,694.29.

SPOTLIGHT: REAL-LIFE EVENT

THE ENBRIDGE OIL SPILL, CALHOUN COUNTY



On July 26, 2010, news of a rupture in an oil pipeline, 30-inches in diameter, near Marshall, reached public health authorities. The six and half foot breach in the pipe released an estimated 844,000 gallons of heavy crude oil into Tallmadge Creek and flowed into the Kalamazoo River, a tributary of Lake Michigan.

Heavy rains and flooding exacerbated the damage. Fifty-year high water levels caused the riverbed to overflow the shoreline and overtop existing dams, carrying oil into surrounding land areas and some 30 miles downstream before it was contained days later. Roughly 80 miles of river bank and hundreds of acres of shore along protected wetlands and developed residential and commercial communities were contaminated as a result.

What ensued was an expansive federal, state and local, multi-agency response to what the U.S. Environmental Protection Agency (EPA) called the largest inland oil spill in Midwest history.



Nearly 250 different agencies including, Calhoun County Public Health Department and the Michigan Department of Community Health, which assisted in leading the response under the Unified Command structure, were initially on scene to assist with the response effort (figure 4). Assessing the extent of the

damage, as well as the impact on public health and the environment, quickly became the first priority as contaminants threatened the air, soil, ground and surface water, and natural habitats.

Air and water quality underwent extensive monitoring and analysis prompting Calhoun County Public Health to take a number of steps to protect the public's health including, banning all use of the river, issuing a bottled-water advisory for specific area homes, and recommending a voluntary evacuation of 61 homes in the area because of high benzene levels in the air.



Figure 4: Primary Response and Cooperating Agencies

- Environmental Protection Agency
 - Michigan Department of Natural Resources
 - Michigan Department of Environmental Quality
 - Michigan State Police Emergency Management Division
 - Calhoun County Public Health Department
 - Calhoun County Emergency Management
 - Kalamazoo County Sheriff's Department
 - City of Battle Creek Emergency Management
-
- Enbridge
 - Agency for Toxic Substances and Disease Registry
 - U.S. Fish and Wildlife
 - U.S. Coast Guard
 - U.S. Geological Survey
 - National Oceanic and Atmospheric Administration
 - Michigan Department of Agriculture
 - Michigan Department of Community Health
 - Local agencies from five area municipalities
 - The Weapons of Mass Destruction 51st Civil Support Team
 - Local fire
 - 5th District Medical Response Coalition
 - Local police
 - Oakland County Hazmat
-

Additionally, epidemiologists collected information from healthcare provider reports, Poison Control Center calls, syndromic surveillance systems, door-to-door surveys, and resident complaints to assess short-term health risks, and provide a foundation for future studies of long-term health risks associated with the exposure.

As of the release date of this publication, clean-up and environmental monitoring efforts are still ongoing; more than one year after the spill.



MICHIGAN DEPARTMENT OF COMMUNITY HEALTH

OFFICE OF PUBLIC HEALTH PREPAREDNESS

The varied activities of the office focus on strengthening existing partnerships among the public health, healthcare and emergency management planning communities. Efforts concentrate on building and sustaining aggressive collaborative response to public health emergencies focusing on an effective and efficient utilization of all resources. Achievement is evidenced at all levels of government, and within the private sector. These comply with the National Response Framework (NRF), the National Incident Management System (NIMS) and the State of Michigan Homeland Security Strategy.

COMMUNICATIONS

MICHIGAN HEALTH ALERT NETWORK (MIHAN)



The MIHAN is a Web-based system for rapid alerting and notification. The MIHAN has over 4,000 users from public health, hospitals, long term care, life support agencies, health clinics, emergency management, state departments, federal agencies, and other partners. The MIHAN is able to send alerts through landline phones, cell phones, text pagers, 800 MHz radio systems, and email. This extensive network is the primary notification tool used during health-related emergency events.

RISK COMMUNICATION

The OPHP has two public information goals: provide public education to build a culture of safety and resilience, and get accurate information to people quickly during an emergency. The OPHP has developed a Crisis and Emergency Risk Communication Plan, built strong partnerships with key community agencies, and established clear channels for disseminating public information.

The OPHP maintains a Risk Communication Team, robust communication technology, contact databases, outreach tools, and a library of resources. Collaboration has been essential as OPHP expands its non-traditional methods for providing outreach to all Michigan's residents. The OPHP's Public Information Coalition has built partnerships with trusted community leaders who assist with disseminating culturally and linguistically sensitive information through their established communication channels such as newsletters, Web sites, email group lists, face-to-face community settings, and informal networks. Together we provide easily understandable information on disaster risks and protection options, especially to citizens at high-risk.

PHARMACEUTICAL CACHE DEVELOPMENT

MICHIGAN STRATEGIC NATIONAL STOCKPILE (MISNS)

The Strategic National Stockpile is a cache of federally purchased medical countermeasures that are available by request from the Governor during a public health emergency when local supplies are deemed insufficient for protecting the health of American citizens. Since 2009, the CDC has awarded the MISNS Plan with a score of 100%, proving that the state remains a leader in public health preparedness. A key component of Michigan's plan to receive and redistribute medical countermeasures is a strong public-private



partnership. The state has partnered with the Michigan Pharmacists' Association, the Michigan Wing of the Civil Air Patrol, the Michigan Volunteer Defense Force, the Michigan Public Health Institute, and commercial warehousing partners to efficiently receive, store, ship, track, and dispense medical countermeasures. The State and local healthcare partners have partnered with community pharmacies, tribal partners, media, and agencies who serve special populations in an effort to ensure that these life-saving assets can reach every Michigan citizen during an emergency. In addition to the MISNS Plan, all 45 local health departments and approximately 180 treatment centers (hospitals) have developed SNS plans that describe local capabilities, protocols, and partnerships that will enable them to dispense these assets quickly and efficiently. The MISNS Team, within the OPHP, continually reviews all local health department and treatment center plans, provides feedback, and also offers on-site technical assistance in an effort to strengthen statewide preparedness.

SPOTLIGHT: PARTNERSHIP

MISNS & THE CIVIL AIR PATROL



Many states have geographical challenges, but Michigan faced a tough one when tasked with Strategic National Stockpile distribution planning for the entire state. Severe weather complications in Michigan's winter months can significantly impact delivery timeframes for transportation of SNS assets.



To solve this issue, the state established a partnership with the Michigan Wing – Civil Air Patrol (CAP) to assist in distribution when needed, especially during the winter months when ground distribution to many areas of Michigan is difficult, if not impossible.

The CAP is an organization of civilian volunteer aviators that is part of the U.S. Air Force. The CAP provides manpower and air support to many activities around the country including search and rescue and disaster relief. Michigan is the first in the country to utilize the CAP for SNS asset transportation.

CAP can quickly activate its fleet of aircrafts strategically placed across the state, rendezvous with inbound ground vehicles and reach remote areas hours ahead of ground transport. Using CAP for the spring 2009 H1N1 response proved not only effective, but well-managed and reliable. Within one day, the CAP was able to deliver SNS assets to seven locations in the Upper Peninsula.

Without the CAP, ground transportation of SNS assets can take a few days or even a week when the State is not in a declared emergency. Having more than one transportation partner and plan helps prepare for the unexpected.

Ongoing exercises help to realize shortcomings, develop solutions, and evaluate partnerships and opportunities that would not otherwise be considered. The most impressive component of this partnership was witnessing the enthusiasm from the partners involved in continuing to research, plan, and organize exercises, respond to actual events, and plan for the future.

MICHIGAN EMERGENCY PREPAREDNESS PHARMACEUTICAL PLAN (MEPPP)

The MEPPP is a statewide plan that contains information on current local, regional, state, and federal pharmaceutical caches available. This plan is updated quarterly and available through the SEOC and CHECC. This plan provides critical information on the type of cache, target audience, content, deployment, and asset availability to ensure prompt identification and distribution of resources during an event.

CHEMPACK



CHEMPACK is a CDC-supplied, state-managed, supplemental source of pre-positioned nerve agent antidotes and associated pharmaceuticals that will be readily available for use when local supplies become depleted. CHEMPACK is a second resource to MEDDRUN assets, which are more quickly mobilized.

MICHIGAN EMERGENCY DRUG DELIVERY RESOURCE UTILIZATION NETWORK (MEDDRUN)

This program provides standardized caches of medications and medical supplies to treat approximately 100 casualties. These caches are distributed between Michigan's rotary air and select ground Emergency Medical Services (EMS) agencies to minimize deployment time. MEDDRUN rapidly delivers these medications and supplies to hospitals and on-scene. This is critical as the need to provide nerve agent antidotes is extremely time sensitive. These resources can be deployed to 90 percent of the State of Michigan in less than one hour of request.



REGIONAL MEDICAL SURGE PLANNING

MICHIGAN MORTUARY RESPONSE TEAM (MI-MORT)



The Michigan Mortuary Response Team (MI-MORT) was established to provide the State of Michigan a mass fatality resource that could be readily deployed to any location in the state in response to an incident in which the number of fatalities has exceeded local or regional resources. This team consists of various professionals to support the local medical examiner and can provide technical assistance and personnel to recover, process and identify deceased victims in a dignified manner. This team is comprised of forensic professionals, funeral directors, search and recovery personnel and many others willing to assist in a mass fatality situation.

MICHIGAN TRANSPORTABLE EMERGENCY SURGE ASSISTANCE (MI-TESA) MEDICAL UNIT

The MI-TESA is Michigan's two interoperable mobile medical facilities purchased in 2007 with federal funds. It is comprised of a 100-bed mobile facility housed in Southeast Michigan, where a large majority of the state's population resides, and a 40-bed facility in Southwest Michigan. Both units are stored on rapidly deployable trailers and can join together to become a 14,000 sq. ft., 140-bed statewide mobile hospital.



The structure includes:

- Rigid aluminum frame base
- Insulated roof and walls and a hard roll-out flooring system
- Self sufficiency for power, climate control and water handling
- Heating/air conditioning, generators
- Hygiene centers, work stations and water purification systems
- Separate staff and patient entrance and outpatient exit

The medical facilities include:

- Trauma unit
- Medical training unit
- Pharmacy
- Neonatal unit
- Isolation unit with negative air pressure
- Supply and staffing shelters



MI-VOLUNTEER REGISTRY



Since 2003, Michigan has followed an aggressive implementation plan to develop and expand an all-hazards registry for any citizen that wishes to volunteer during an emergency that is consistent with the national Emergency System for the Advanced Registration of Volunteer Health professionals (ESAR-VHP). The MI-Volunteer Registry currently has 6,200 volunteers, approximately 50 percent of which are licensed health professionals.

The Registry allows individuals to pre-register, undergo a criminal background check, and have their medical credentials verified prior to deployment. This pre-registration and vetting significantly reduces the time necessary to deploy volunteers during an emergency. The Registry is intended as the "one stop shop" for Michigan volunteers, and it has grown to include the Citizen Corps Programs, including Medical Reserve Corps, State Animal Response Teams, and MI Mortuary Response Team, unlicensed and general support volunteers as well as, physicians, nurses, administrators, social workers, medical examiners, veterinarians, electricians, dentists, security personnel, and paramedics.

DISASTER PORTABLE MORGUE UNIT (DPMU)

The DPMU contains equipment and supplies necessary to initiate operations for a fully functional morgue. All materials are inventoried into kits by section of use and are housed in trailers for mobilization by transport vehicle. The DPMU is designed to be erected, as needed, inside of usable facilities and has its own DPMU team for set-up and inventory of equipment and supplies. This resource can be mobilized during a mass fatality event when local resources are exhausted. The DPMU is a joint effort between the OPHP, the Michigan Funeral Directors' Association, the Michigan Dental Association, and the Disaster Assistance Recovery Team.



GREAT LAKES HEALTHCARE PARTNERSHIP (GLHP)



The GLHP is comprised of healthcare preparedness programs within FEMA Region V (City of Chicago, Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin). Its projects focus on interstate coordination for significant health/medical/trauma-related incidents. The GLHP has developed plans related to communications, burn surge, regional medical resource inventory and typing, and an overarching interstate coordination plan. These interstate initiatives can significantly affect the states' ability to mitigate and respond to an emergency event. The OPHP has taken the lead in this process by volunteering to act as host to the GLHP Project Manager as well as providing supervision for the position. The GLHP is considered to be a "promising practice" by the HHS Assistant Secretary for Preparedness and Response and the program has been represented at national public health and preparedness meetings.

TRAINING & EDUCATION

MI-TRAIN

Michigan's learning management system, called MI-TRAIN, contains a centralized, searchable database of courses relevant to public health, healthcare, and emergency preparedness. Through MI-TRAIN, users have access to courses from nationally recognized course providers. The system contains over 10,000 course listings from over 2600 training providers. A user can browse the course listing or perform a search based on keyword, subject area, course provider, or competency.



K-12 SCHOOL PREPAREDNESS AND RESPONSE CURRICULUM: MICHIGAN MODEL FOR HEALTH



The National Health Security Strategy outlines activities necessary to achieve community resiliency, creating a culture of healthy individuals, families, and communities. In 2007, Michigan embarked on a multi-agency project to build resiliency in our children by developing a K-12 School Preparedness and Response Curriculum. The purpose of the curriculum is to support citizen engagement and participation in preparedness through student learning activities. Michigan's educators are provided with the tools to teach children how to prevent, protect, respond and recover from natural and manmade disasters. This includes empowering children with the knowledge and skills to make smart decisions before, during, and after an emergency. By including the School Preparedness and Response Curriculum in the Michigan Model for Health. These lessons will be taught in over 95 percent of Michigan's public schools, 200 private schools, and 32 other states.

MICHIGAN DEPARTMENT OF COMMUNITY HEALTH BUREAU OF EPIDEMIOLOGY

SURVEILLANCE SYSTEMS

The Bureau of Epidemiology in the MDCH has successfully implemented several innovative systems for tracking and investigating communicable disease occurrence. In their entirety, they represent a new landscape in infectious disease surveillance in the State and region.

THE MICHIGAN DISEASE SURVEILLANCE SYSTEM (MDSS)

- The MDSS is a Web-based electronic surveillance system serving all 45 local health departments in Michigan and was developed according to national data standards. The MDSS facilitates coordination among local, state, and federal public health agencies and provides for the secure transfer, maintenance, and analysis of communicable disease surveillance information. Developed for implementation in June of 2004, the system boasts nearly 1,000 active users from the public health, healthcare, and laboratory communities. In 2010, with the integration of electronic laboratory messaging, the MDSS recorded over 158,000 referrals of reportable communicable diseases. Analysis continues to demonstrate improvements in timeliness and data completion associated with the implementation of this system.



Epidemic curve generated by the MDSS

- In 2008, the MDSS played a major role in an *E. coli* outbreak investigation. On June 10, 2008 MDCH epidemiologists followed up on an inquiry from a southeast Michigan area hospital to reveal an unusual number of suspect cases of Shiga toxin-producing *E. coli* (STEC) at the facility. The next day, epidemiologists detected a statewide increase in reports of STEC to MDSS, via the system's alerting feature. This was the beginning of a multi-state outbreak investigation, in which more than 50 cases from seven states were confirmed, including 23 from Michigan. Ground beef was implicated as the vehicle and two Class I recalls of beef products followed.
- MDSS was also instrumental in surveillance activities during the influenza pandemic of 2009. Modifications to the system were implemented quickly in response to the CDC's request for specific surveillance data. Data on counts, deaths, hospitalizations, and risk factors for influenza were collected and reported out as required.

THE EMERGENCY DEPARTMENT SYNDROMIC SURVEILLANCE SYSTEM (EDSSS)

- The EDSSS was developed to allow for the assessment of the presentation of illness at emergent care facilities throughout the state. A virtual private network is used to transmit real time registration data including chief presenting complaint from emergency department patients in 85 facilities throughout the state. This information is machine-read and categorized and automated aberrance detection algorithms are run against the data hourly.
- This analysis of the nearly 10,000 referrals a day to the system generated over 2,000 alerts in 2010 that were investigated by Regional Epidemiology staff.

SPOTLIGHT: REAL-LIFE EVENT

E. COLI O145 OUTBREAK IN ROMAINE LETTUCE, WASHTENAW COUNTY



In April of 2010, Washtenaw County Public Health (WCPH) was notified by the University of Michigan Hospital emergency department about seven recent cases of bloody diarrhea in young adults, mostly university students. Laboratory results showed two of the cases were positive for shiga-like toxin. Anecdotal evidence suggested the source of the outbreak may have been from a local restaurant that also catered a school event where several of the ill students reported having eaten.

In response to the cluster, WCPH notified the Michigan Department of Community Health (MDCH) and quickly assembled the County Outbreak Team to begin an investigation. Local public health nurses, a WCPH epidemiologist, and the MDCH regional epidemiologist interviewed suspected cases and collected information using the Michigan Disease Surveillance System, while the University of Michigan Occupational Safety Environment and Health along with Washtenaw County Environmental Health investigated the local source and exposure pathway of the food-borne outbreak.

After having contacted bordering states to notify them of the cluster under investigation, the MDCH learned of similar cases in Ohio. Ultimately, 33 confirmed and probable cases of *E. coli* O145 were reported from MI, NY, OH, PA, and TN. These coordinated efforts, including a traceback investigation conducted by the Michigan Department of Agriculture, determined the outbreak was associated with the consumption of romaine lettuce that originated from a farm in Arizona.

Federal preparedness funding has supported capacity building at the state and local level. Improvements in coordination and cooperation between agencies across all levels of government in addition to advancements in public health infrastructure, such as electronic surveillance systems, benefit response efforts for not only terrorism events or major disasters, but also the more routine outbreaks that impact the public's health and well being.

REGIONAL EPIDEMIOLOGIST NETWORK

Each of the state's eight emergency preparedness regions has been staffed with one trained regional epidemiologist who is an MDCH employee housed in a local public health agency. This regionalized approach provides epidemiology resources across the state including some of the only access to this skill set in jurisdictions that are under-resourced in that area. Critical activities of regional epidemiologists include the daily monitoring of disease surveillance systems, as well as providing training in the areas of surveillance and communicable disease reporting. Regional epidemiologists work closely with their Regional Healthcare Coalition partners in planning for and participating in regional drills and exercises and often serve on regional planning and advisory board committees to provide an epidemiologic perspective.

MDCH communicable disease epidemiologists during an active investigation



EARLY WARNING INFECTIOUS DISEASE EPIDEMIOLOGY (EWIDS)



Map of geographic regions represented in the Great Lakes Border Health Initiative

Recognizing that the spread of infectious diseases are not limited by jurisdictional (local, state and international) boundaries, funding for EWIDS supports a collaboration of local, state, federal and international partners in the provision of rapid and effective communications of urgent infectious disease information with neighboring public health programs. EWIDS funding in the Great Lakes region has been used to create the Great Lakes Border Health Initiative (GLBHI), which includes seven U.S. states and the Canadian province of Ontario. The communication framework and key documents produced by GLBHI include an infectious disease emergency communications guideline, containing key contact information and a notification decision tree for cross-border infectious disease emergencies, based on World Health Organization's International Health Regulation guidelines. Also supported is a public health data sharing agreement that has been ratified by the eight participating jurisdictions, and a reportable disease directory.

MICHIGAN DEPARTMENT OF COMMUNITY HEALTH BUREAU OF LABORATORIES

During the fall of 2001, the MDCH Bureau of Laboratories (BOL) had one bioterrorism coordinator and only two laboratory personnel trained to perform environmental sample testing. It soon became evident that our capability was insufficient to respond to an emergency, our facilities were at risk, and testing methods in use did not enable a rapid response. By working with the CDC, FBI, and state and local preparedness partners, MDCH BOL has built and currently retains capabilities and capacities and stands ready to respond.



The MDCH Bureau of Laboratories provides exemplary services statewide including:

- Providing rapid diagnostic and analytical testing services for biological agents in human and environmental samples and rapid analytical testing for chemical agents in human samples due to an accidental, intentional, or natural disaster.
- Coordinating the laboratory response to a public health incident and performs highly technical functions, including the ability to test environmental samples such as: threatening letters containing white powders; water or soil.
- Testing human blood and urine samples to determine exposure to warfare agents such as nerve agents, mustards, cyanide, ricin, and other highly toxic chemicals. MDCH BOL is one of 10 qualified Level-1 domestic partners in the national Chemical Laboratory Response Network (LRN-C).
- Assisting Michigan's federal partners with a biological air monitoring program. Testing for this program is intended to rapidly detect potentially aerosolized biological hazards in urban areas and during special events.

- Expanding its capacity through collaborations with the Michigan Department of Agriculture and Rural Development Laboratory and the Diagnostic Center for Population and Animal Health Laboratory at Michigan State University. This assures surge capacity and testing capabilities for food borne incidents and testing for zoonotic diseases of public health concern.
- Having installed a state-of the-art modular biosafety level 3 laboratory to provide a secure site for receipt and initial testing of samples received from a potential biological (white powder letters) or chemical environmental incident. This assures the safety of testing personnel and the expanded surge capacity testing for the BOL.
- Partnering with the United States Postal Service (USPS) and their biological monitoring system to provide confirmatory testing to the USPS if a bioterrorism event is suspected in postal facilities.
- Using electronic communications to reach out to hospital and clinical laboratories as well as other preparedness partners to provide information about existing or emerging diseases of public health importance.
- Partnering with CDC and other states laboratories to conduct exercises and drills to assure competency of staff, determine surge capacity testing levels and allow for the implementation of preparedness plans.
- Providing training to hospital labs, local health departments, and other preparedness partners on collection of appropriate specimens for testing, packaging and shipping of specimens that may contain hazardous chemicals or microorganisms, and the use of laboratory algorithms to presumptively identify agents of bioterrorism for confirmation by Michigan Laboratory System laboratories.



MDCH BOL in Lansing along with five local public health laboratories located in Kent County (Grand Rapids), Kalamazoo County (Kalamazoo), Oakland County (Pontiac), Saginaw County (Saginaw), the City of Detroit Department of Health and Wellness Laboratory and the Diagnostic Center for Population and Animal Health Laboratory at Michigan State University make up the Michigan Laboratory System (MLS). These seven laboratories are members of the Biological Laboratory Response Network (LRN-B). Each laboratory is trained and equipped to rapidly confirm the identification of suspected bioterrorism agents submitted by Michigan Sentinel Laboratories (clinical/hospital labs).

- The MLS provides statewide surge capacity for large scale events. Michigan's LRN is prepared to respond to a state, local or national public health emergency. BOL maintains fully trained staff; state of the art testing equipment and laboratory information system; and adequate supplies to respond to a biological or chemical event of public health significance.

MICHIGAN DEPARTMENT OF COMMUNITY HEALTH

DIVISION OF ENVIRONMENTAL HEALTH

Following the appropriation of federal preparedness funds in 2002, the Chemical Terrorism and Emergency Preparedness Unit was formed within the MDCH, Division of Environmental Health (DEH). The unit provides services related to planning, preparedness and response to chemical events that pose a threat to human health, including acts of terrorism.

Over the past 10 years, the DEH has worked with local public health partners to build detailed chemical emergency response plans, provide training, participate in exercises, and strengthen the core public health functions of surveillance and response, science-based decision-making, and education of the public about environmental health issues.

SPOTLIGHT: REAL-LIFE EVENT

CHEMICAL POISONING DUE TO INTENTIONAL CONTAMINATION OF GROUND BEEF WITH PESTICIDE



In 2003, federal, state and local agencies, including DEH were brought into a foodborne illness investigation when a presumably routine recall of 1,700 pounds of fresh ground beef at a local supermarket in Kent County was determined to be a case of intentional contamination with a pesticide.

The recall was a result of complaints from four families who became ill immediately after eating the ground beef. While initial laboratory tests ruled out bacteria as the causative agent, a drug screen showed the presence of high levels of nicotine indicating chemical poisoning from a nicotine-containing pesticide as the cause. Ultimately, the investigation identified nearly 100 affected individuals and resulted in the arrest of a former supermarket employee who was implicated in the crime.

What was a seemingly routine investigation evolved into one in which five agencies from the local, state and federal levels became involved – Kent County Department of Health, Michigan Department of Agriculture, MDCH, DEH, the U.S. Department of Agriculture and ultimately the FBI – and brought to light two key lessons. First, the unexpected and nefarious nature of the outbreak heightened awareness of the safety of our food supply and illustrated that foodborne illness can no longer be presumed as routine. Secondly, the incident highlighted the importance of efficient communication and coordination to an effective multi-agency response.

(Source: Centers for Disease Control and Prevention, MMWR Weekly Report, May 9, 2001, 52(18): 413-416, http://www.doh.state.fl.us/environment/medicine/foodsurveillance/pdfs/Handout_4_Nicotine_Poisoning_Ground_Beef_Michigan.pdf, accessed on August 2, 2011)

SURVEILLANCE AND RESPONSE

The DEH's Chemical Emergency Surveillance Response plan, which delineates specific departmental responsibilities, actions, and procedures when responding to a chemical exposure in Michigan, has been activated in response to a variety of chemical poisonings and exposures over the years. This includes a large

outbreak of chemical poisoning due to the intentional contamination of ground beef with pesticide in 2003 as well as the more recent and devastating environmental disaster that occurred on the Kalamazoo River resulting from the Enbridge oil spill in 2010.

The DEH also takes a response role during disasters that occur elsewhere, but that may affect the health of Michigan residents. Most recently, after the Fukushima nuclear power plant disaster, the DEH collaborated with the CDC on the development of a plan to screen and monitor individuals flying into Detroit Metro Airport from Japan, who may potentially have been contaminated with radiation.

Michigan's Poison Control Center is a key partner. DEH epidemiologists and Poison Control Center staff work together to collect and analyze health data on individuals who are sickened from chemical exposures. In addition to assessing adverse health impacts immediately following large chemical releases, DEH and the Poison Control Center continue to monitor reports from healthcare providers, hospitals, and clinical laboratories for illnesses associated with the exposure.

SCIENCE-BASED DECISION MAKING

DEH toxicologists provide technical expertise on chemical characteristics, potential toxic effects, environmental sampling protocols, and appropriate protective measures. Expertise in chemical toxicity, including chemical "weapons of mass destruction," has been developed through training, exercises, and response to real events such as the major explosion and fire at a hazardous materials recycling center in 2005. For large public health and environmental emergency events like the Enbridge oil spill and the hazardous material recycling center fire, DEH toxicologists participate in the incident command structure, which also involves first responders, state and federal environmental agencies, and local health departments.



2005 hazardous waste fire in Romulus, MI. DEH Toxicologists worked with local, state, and federal responders to assess potential health hazards and take protective actions.

PUBLIC EDUCATION

DEH provides information to the public on a number of potential public health threats and concerns. Information garnered from the analysis of surveillance data and environmental monitoring is often used to develop materials and strategies to educate the public on protective health actions. When surveillance data from carbon monoxide poisonings implicated the improper usage of generators and other gas-powered equipment as the cause, MDCH developed an informational website and began issuing generator warnings whenever there are major electrical blackouts in the state.

Additionally, DEH spearheaded an initiative to educate the public living near Michigan's three nuclear power plants about the availability of the radio-protective drug, potassium iodide, and has set up the infrastructure to make the drug available to those who choose to obtain it.

More recently, as the entire preparedness landscape has shifted from emergency preparedness for terrorism-associated events to an all-hazards approach, DEH has committed to bolstering preparedness for the public health impacts of events of particular concern for the State of Michigan such as, major heat waves and winter storms.

2009 OUTBREAK: NOVEL H1N1

The 2009 H1N1 Pandemic was a real-life test of our nation's preparedness planning and readiness efforts. It resulted in a monumental national response effort to mitigate the impact of the pandemic and protect the health of U.S. citizens. The response was a coordinated effort across federal, state, regional, and local levels, and in Michigan it instituted new and strengthened existing partnerships. As in any real event, there are challenges to address and lessons to learn, but there are also successes and achievements.

OUTBREAK & RESPONSE OVERVIEW

On April 22, 2009, the CDC notified the MDCH of a Novel strain of influenza detected in southern California. The MDCH conducted assessments and began monitoring the situation. Four days later, when the first suspected case of 2009 H1N1 was reported to state health authorities, the MDCH activated the CHECC in order to coordinate statewide surveillance and provide support to local public health and healthcare partners. The SEOC and Joint Information Center (JIC) were activated one day later.

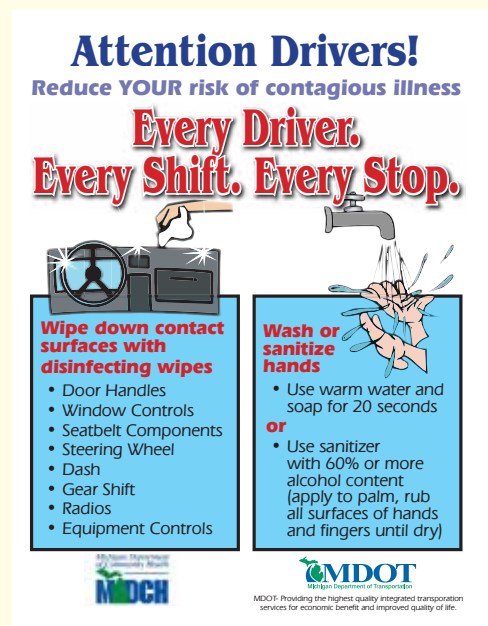
The virus continued to spread and on June 11, 2009, the World Health Organization (WHO) officially declared Novel H1N1 a pandemic. Michigan was impacted in two waves, once during the summer of 2009 and again in the fall of the same year. It was not until August 10, 2010 that the WHO declared the end of the H1N1 pandemic. While the MDCH served as the lead response agency in Michigan during this time, all state agencies and many private organizations held an essential role in the coordinated response efforts.



MCHD Public Health Nurse, Heidi Webb, adeptly administers an H1N1 vaccine during a 2009 Mass Vaccination Clinic held at Bedford High School. (Monroe County Health Department)

SPOTLIGHT: RISK COMMUNICATION AND OUTREACH MDCH & Michigan Department of Transportation FLU POSTER

In partnership with the Michigan Department of Transportation, MDCH developed this poster during the H1N1 pandemic to raise awareness about influenza among transportation department employees and to encourage prevention through hand washing and the use of hand sanitizer and surface disinfectants while at work. The poster was distributed to transportation department service center managers, engineers, maintenance superintendents, and safety committee members, who further distributed it through their respective channels.



MAXIMIZING RESOURCES: 2-1-1 PARTNERSHIP



During the 2009 H1N1 pandemic, Kent County Health Department (KCHD), preparing to provide H1N1 vaccinations to its residents and wanting to minimize the anticipated en masse crowds expected at clinic sites, utilized Michigan 2-1-1 in a novel and effective way.



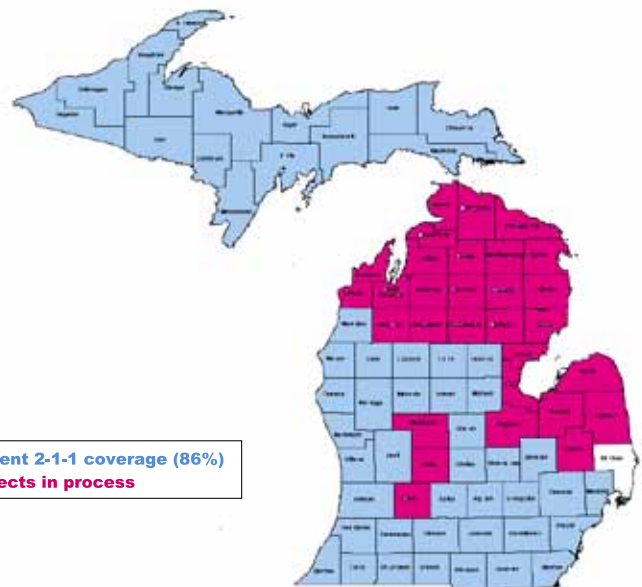
Michigan 2-1-1 is a service currently available to 86% of Michigan's population. Highly trained call center staff provide callers with information on available community resources. During the H1N1 pandemic, Michigan 2-1-1 provided information on H1N1 and school closures, and provided referrals to immunization clinics. KCHD utilized Michigan 2-1-1 to schedule reservations (not appointments) at pre-planned community clinics, allowing the health department to better manage patient flow and vaccine inventory.

KCHD planned three clinic dates for each of two facilities located along bus routes on the north and south sides of the county. The community response was unprecedented. Calls for reservations flooded the 2-1-1 call center initially overwhelming the system. KCHD hired temporary staff to allow 2-1-1 call center representatives to respond to other calls.

To further manage the overwhelming number of reservation requests, Kent County IT staff adapted a low-cost online scheduling software program purchased by the county to supplement the call lines. Residents could select the date/time and location of the immunization clinic that best met their need by way of internet or phone.

The immunization clinics were operational for 9½ hours each day. KCHD maintained a throughput of nearly 8,000 people per day at both clinic sites combined. It should be noted, however, that KCHD had the capacity to vaccinate 10,000 people per day. Average throughput times were approximately 15 minutes for individuals – both able-bodied and for those with special needs – and 30 minutes for families with children. Utilizing Michigan 2-1-1 and the online reservation system allowed KCHD to easily increase client capacity without having to increase staffing.

Current 2-1-1 Coverage & Planned Expansion



SURVEILLANCE

- **State Laboratory.** MDCH Bureau of Laboratories performed both diagnostic and surveillance testing of viral specimens and provided necessary information to healthcare workers and public health officials.
- **Community Agencies.** Improved relationships with community agencies (e.g., schools, volunteer organizations, local community pharmacies, health systems, local prisons) helped with case reporting and implementation of pandemic plans; and during the second wave, coordination of vaccination clinics.
- **Private Healthcare Providers & Local Public Health.** Private healthcare providers partnered with local public health departments to address the tracking of the disease and morbidity and mortality in special populations (e.g., pregnant and pediatric groups), as well as in the dissemination of antivirals and vaccines.
- **Hospitals.** Hospitals participated in enhanced surveillance efforts by reporting bed capacity and influenza activity directly to the CHECC.
- **Epidemiology & Laboratory.** MDCH epidemiologists and laboratorians contributed to the rapidly-developing national knowledge base about this new virus strain, and were involved in numerous CDC-led surveillance studies.
- **Epidemiologic Evaluation.** Enhanced epidemiologic evaluation was conducted throughout both waves by MDCH staff: surveillance and analysis of influenza-associated deaths, intensive care unit cases, Native American impact, morbidity in pregnant and post-partum influenza cases and active hospital-based surveillance was conducted.

SPOTLIGHT: LENAWEE COUNTY HEALTH DEPARTMENT

RESPONSE TO H1N1: A COMMUNITY EFFORT

Every emergency situation brings forth an opportunity to learn new lessons and acquire new skills. The H1N1 pandemic was no exception. The Lenawee County Health Department built new and strengthened existing partnerships that continue to endure today.



The Lenawee Intermediate School District and area schools were exceptional partners helping Lenawee County Health Department immunize students against H1N1 influenza. Through the support of the District Superintendent, Lenawee County Health Department was able to organize flu clinics at every school in the county. The Superintendent was instrumental, facilitating strong lines of communication between the health department and area school superintendents – which was critical to a successful vaccine campaign as information on H1N1 changed rapidly – while local school personnel chipped in however needed to ensure smooth operation of the clinics.

Hospitals, doctors and pharmacies also played an integral role. Hospitals vaccinated nearly 400 healthcare workers against H1N1, while every Obstetric & Gynecology practitioner in the county helped get vaccines out to those at highest risk, including pregnant women and children. Local pharmacies provided vaccinations and worked with the health department to dispense Tamiflu from the Strategic National Stockpile to residents who needed it.

Furthermore, health department staff from every department held a role in the response. This ultimately ensured that in partnership with the school district, school staff, hospitals, doctors, and pharmacies Lenawee County Health Department was able to hold 72 H1N1 clinics between October and December of 2009, and provided nearly as many H1N1 vaccinations each week as were given over an entire typical flu season.

COMMUNITY MITIGATION

- **Hospitals.** Michigan hospitals formally began pandemic influenza preparedness planning in 2005 and since have enhanced their operations to accommodate a 20% surge over normal daily census.
- **Education System.** The MDCH and the Michigan Department of Education worked closely with CDC's new national School Dismissal Reporting System, implemented for the second wave in summer 2009 and the Bureau of Epidemiology staff were specifically dedicated to daily tracking of school dismissals across the state. At the local level, the pandemic response was characterized by strong public health officer and school superintendent communications and collaboration.
- **Infection Control and Personal Protection.** Before pandemic vaccine was available, personal protective measures such as cough etiquette and social distancing were the focus of most public health recommendations. "Wash your hands, cover your cough, and stay home from school or work when you are sick" were the prevailing messages throughout the 2009 H1N1 pandemic.
- **Local Public Health.** Developed and distributed messages of proper hand washing and other flu prevention methods to the public.



Michigan receives antiviral medications & medical supplies from the Strategic National Stockpile.

SPOTLIGHT: WASHTENAW COUNTY HEALTH DEPARTMENT POST H1N1 COMMUNITY SURVEY – HOW DID WE DO?

The role of Michigan LHDs during the response to the H1N1 pandemic revolved around monitoring illness, providing guidance to healthcare providers, disseminating flu prevention information to the public, and working with the healthcare community to dispense H1N1 vaccine when it became available.

Washtenaw County Health Department took their role one step further by conducting a community evaluation, particularly reaching out to vulnerable or at-risk populations, to assess how and whether residents received flu information and vaccination (if desired). To this end, the health department developed and administered a web and paper-based survey asking residents about their experience.

"I am sure it is difficult to deal with something like H1N1. If you aren't successful, people will be upset that you didn't do more to get people vaccinated. If you are successful, people will just assume that nothing would have happened anyway and it was just sensationalism..."

- Survey Respondent,
Washtenaw County Health Department
Post-H1N1 Community Survey

Thirty-four (34) organizations and 910 individuals responded. Washtenaw County Health Department reported the results on their website, stating that 44% of respondents were vaccinated against H1N1, and that almost half of them (47%) received it from their healthcare provider while 30% received it from a public health mass vaccination clinic. Seventy (70%) percent of those who were vaccinated reported the reason for their choice was "to stay healthy." Of those who chose not to get vaccinated, 33% said they "never get flu vaccines," 22% feared it would cause illness, and 19% refrained from vaccination because of concerns about vaccine safety.

Source: Washtenaw County Health Department

http://www.ewashtenaw.org/government/departments/public_health/emergency_preparedness/h1n1-survey/h1n1-survey, accessed on August 8, 2011.

VACCINATION

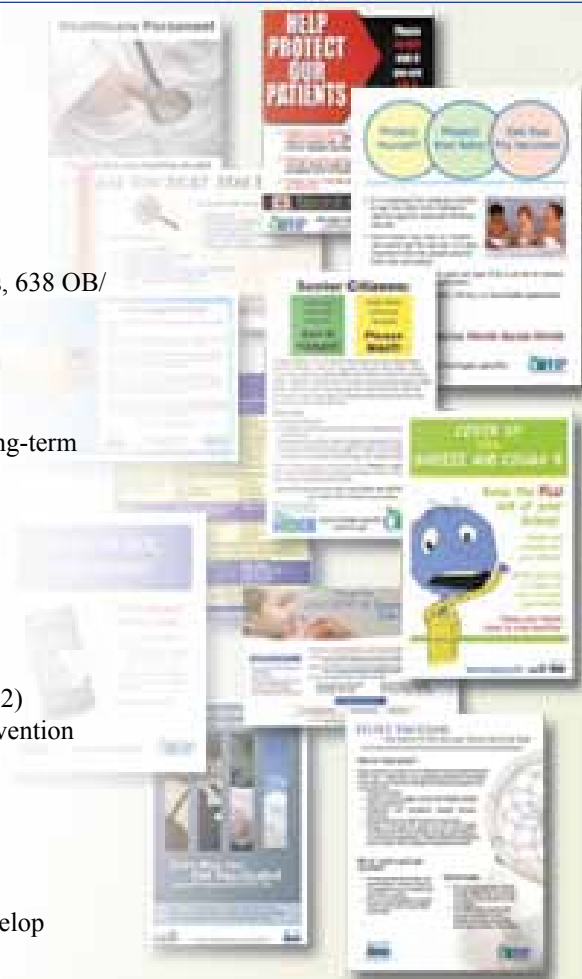
- **Healthcare.** New healthcare providers, specialists, and specialty centers were recruited to address at-risk target groups. The number of provider enrollees more than tripled for the Michigan 2009 H1N1 vaccination program.
- **Pharmacy.** Retail pharmacies became important partners for vaccine administration when prioritization restrictions to at-risk populations had been lifted.
- **Local Public Health.** LHDs organized and held mass vaccination and other community clinics, and partnered with the healthcare community to provide immunizations when the H1N1 vaccine became available.

COMMUNICATION

- **Rapid Communications.** MI-HAN was a critical communications tool during the H1N1 response. Over 4,000 healthcare, hospital, laboratory and public health partners from across Michigan and in surrounding states and Canada were able to rapidly received critical updates to testing or surveillance algorithms, disease activity reports and teleconference information.
- **Web & Social Media.** The Michigan H1N1 website linked closely with the CDC's website and was the state's repository for all state and federal information regarding H1N1. The MDCH and many local health departments also utilized social media such as Facebook and Twitter to disseminate information and updates.
- **Risk Communication.** OPHP Risk Communicators worked with the Bureaus of Epidemiology and Laboratory subject matter experts to develop many resources for stakeholder and public dissemination.

Resources Developed and Distributed by MDCH/OPHP

- 132 rural health centers and 12 tribal health centers received:
 - 30,000 H1N1 vaccination postcards
 - 10,000 hand-washing mirror clings
 - 13,000 infection control posters
 - 9500 H1N1 vaccine posters
- Pregnant women in 220 WIC programs, 80 Maternal Infant Health programs, 638 OB/GYN physicians received:
 - 9000 fact sheet
 - 9000 H1N1 posters
- Persons 25-64 years of age with chronic conditions in 180 hospitals, 430 long-term care facilities and 15,000 licensed physicians received:
 - 13,000 infection control posters
- 600 senior centers and 14 Area Agencies on Ageing received:
 - 32,900 infection control posters
 - 32,900 H1N1 vaccine fact sheets
- 2,439 elementary (K-5) schools, 1,669 middle (6-8) schools, 1,137 high (9-12) schools, and 161 colleges and universities received separate series of flu prevention posters, fact sheets, and letters.
- 30,000 licensed physicians received postcards encouraging them to become vaccinators and to educate their patients.
- Over 500,000 businesses received a flyer and letter encouraging them to develop pandemic plans.



MOVING FORWARD: CAPABILITY-BASED PLANNING FOR PUBLIC HEALTH

In the spring of 2011, CDC released *Public Health Preparedness Capabilities: National Standards for State and Local Planning* for implementation with the new PHEP cooperative agreement that went into effect in August of 2011. The Public Health Preparedness Capabilities is comprised of 15 capabilities that serve as national standards for preparedness. The document is designed to assist state and local health departments identify gaps and determine jurisdictional priorities for preparedness planning.

Throughout the next five years, Michigan will sustain, update current, and build new plans to meet all 15 capabilities. As with any comprehensive and successful preparedness and response program, there are common threads that weave throughout. Core elements will continue to meet those capabilities through diverse stakeholder engagement, redundant communications strategies, training and demonstrated competency, inclusion of all response disciplines, integrated surveillance and laboratory systems, and written plans tested and evaluated through the spectrum of drills and exercises.



IN CLOSING

Millions of dollars and a decade of planning, training, assessment, exercising, more planning and more exercising have led us down a long road. Many have asked and continue to ask if we truly are better prepared today. Advancements in technology and tangible assets notwithstanding, our responses to real emergencies like the Enbridge oil spill in Calhoun County and the Novel H1N1 Influenza Pandemic of 2009 are testaments to the fact that we are better prepared. Still, our work is not done.

We have a great structure in place. Unfortunately, funding is decreasing instead of increasing at a time when we have a change in our focus to capability-based planning. The requirements and accountability of which is much higher than previous. There are areas to refine and others to maintain; all of which are costly, leaving public health preparedness in a place where valuable resources could be lost. In Michigan, we are proud of our accomplishments; proud of how far we have come, but we remain resolute that our work is not done and even in the face of economically challenging times, we are dedicated and continue to move ourselves forward.



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