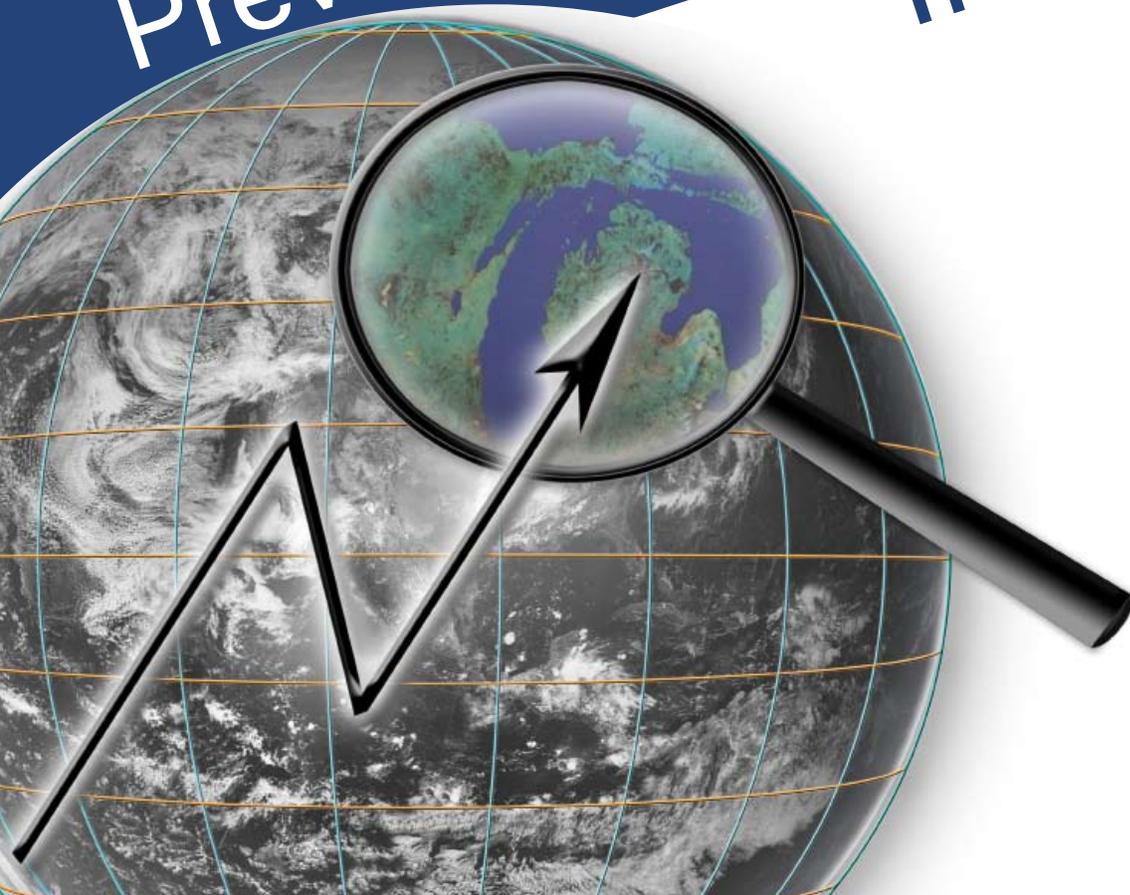


Public Health
Pandemic Genomic Controls Chronic
Immunization Food-Safety
Prevention Ecology Mortality Incidence
Investigation Distribution Chemicals Communicable
Data-Analysis Preparedness Screening Evaluation Perinatal Vaccine
Endemic Impact Population Virus Disease Morbidity Cohort Partnership
Vector Bacteria Zoonoses Prevalence Risk-Factor Environmental
Organism Case-History Predictive-Value Education/Outreach Interview Control Surveillance
Incubation Median Quarantine Response Outbreak

Bureau of Disease Control,
Prevention, and Epidemiology
IN-BRIEF



Michigan Department
of Community Health



2011

Bureau of Disease Control, Prevention, and Epidemiology In-Brief

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Governor, State of Michigan

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Rick Snyder, Governor
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Executive Message



Corinne E. Miller, PhD
Director, Bureau of Disease Control,
Prevention, & Epidemiology

At a time of enormous challenge and difficulty, the MDCH Bureau of Disease Control, Prevention, and Epidemiology continues to protect those who call our great state “home.” Some recent examples include: distributing over 2.7 million doses of vaccine during the 2009 H1N1 influenza pandemic, providing technical expertise to protect the health of hundreds of residents affected by the July 2010 oil spill, performing routine protective actions like ensuring safe removal of lead-based paint, and responding to food-borne illness outbreaks. Through these diverse activities and others, we strive to keep Michigan’s residents healthy and safe.

I am pleased to present this report which highlights the tremendous work of the Bureau and encourage you to read this document from cover to cover to see for yourself how our staff works tirelessly for you and for your communities.

This report describes and organizes our work and accomplishments in the following sections: mission, workforce, programs and activities, division profiles, and public health vignettes – a collection of short stories highlighting the dedication and commitment of our staff to protecting and promoting the health of those who live and work in Michigan. Following those stories is a list of partners, with whom we regularly collaborate in order to best leverage our resources and talent, along with a snapshot of our current funding levels. As you will see, a majority of our staff is supported through federal funding sources, and the benefits to our state are immense.

The range of training and experience among Bureau staff has allowed us to innovate and adapt new concepts that include “healthy homes” and public health genomics. Michigan residents depend upon our staff’s knowledge, which is reflected through the hundreds of thousands of visits to our agency’s websites in 2010 alone. Technology has advanced our work, as we now have electronic information systems to support real-time disease detection and we are developing programs to facilitate two-way communication between electronic medical records and public health databases. And we are well prepared to address public health emergencies with advanced technologies, a commitment to collaboration, and exceptionally skilled staff.

Through my ten years with the Bureau, I have repeatedly witnessed how our staff’s unique knowledge, skills, and dedication to their daily work make Michigan a wonderful place to live. Read on to see for yourself how our staff responds to the constantly changing landscape that is public health.

Best regards,

A handwritten signature in cursive script that reads "Corinne E. Miller".

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Public • Health

The science and art of preventing disease, prolonging life and promoting health through the organized efforts and informed choices of society, organizations, public and private, communities and individuals

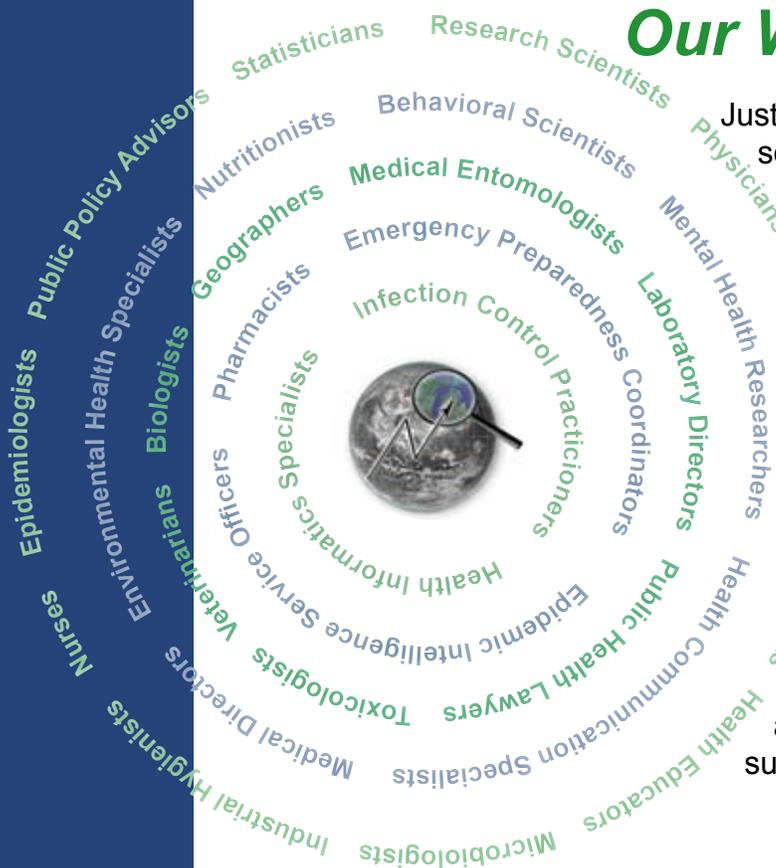
Bureau Mission

The Bureau of Disease Control, Prevention, and Epidemiology advances and promotes the health and quality of life of Michigan residents by:

- Preparing for and responding to infectious disease outbreaks and chemical exposures;
- Collecting, analyzing, and reporting statistics on a wide variety of health conditions and risk factors affecting Michigan citizens;
- Improving access to and quality of health services through program coordination and evaluation; and
- Guiding health policy and health choices through data-driven education and outreach.

Our Workforce

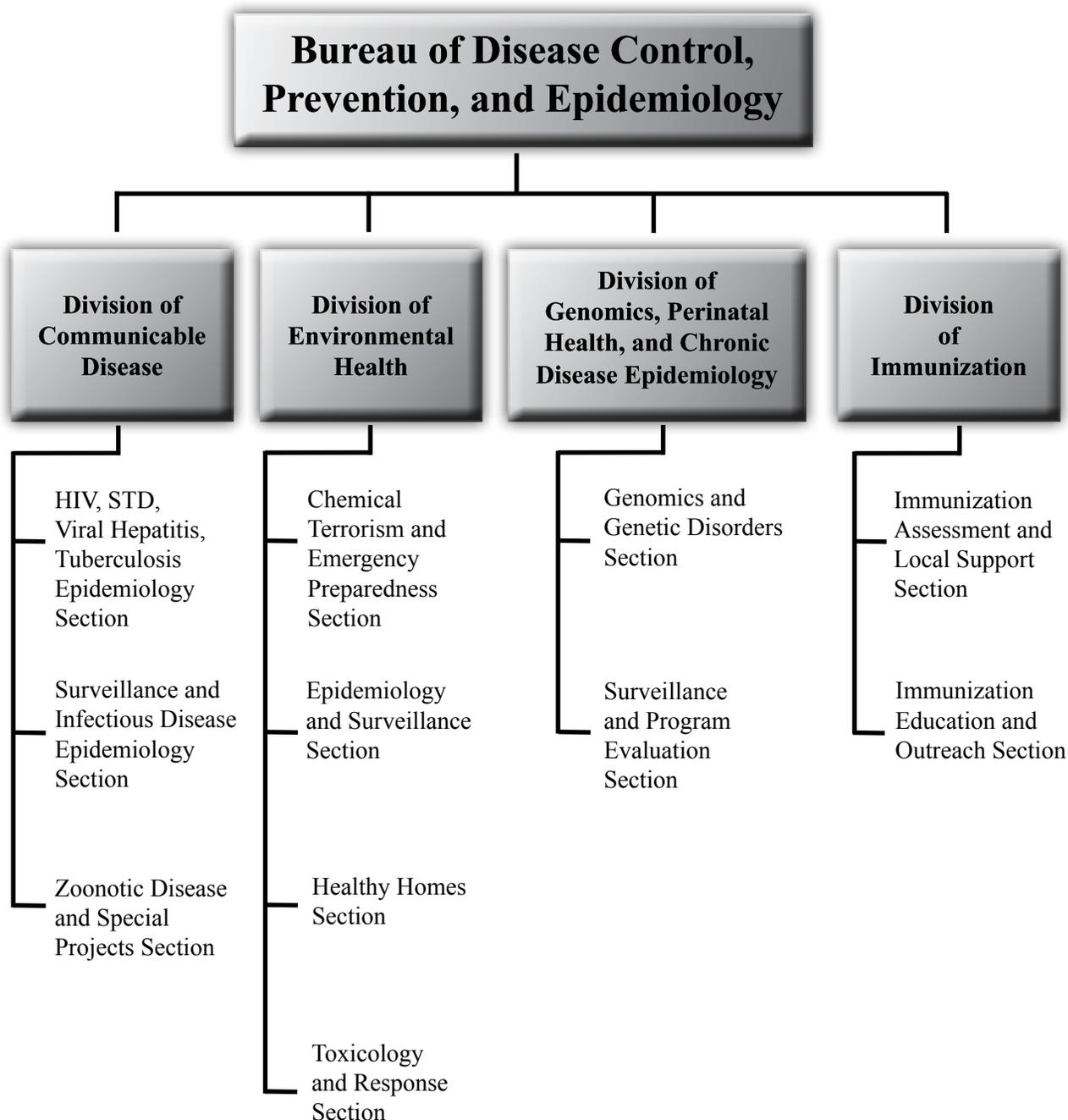
Just as the successes in Public Health are diverse, so too is the Public Health workforce. The continued success of the Bureau is due to the assembly of a diverse, highly-skilled, and specialized staff. Our professional staff, with masters or doctoral level degrees, includes toxicologists, epidemiologists, nurses, genetic counselors, industrial hygienists, immunologists, physicians and veterinarians. We host CDC Epidemic Intelligence Service Officers, Council of State and Territorial Epidemiology Fellows, preventive medicine residents, and interns from Michigan's major universities. Some of our staff also serve concurrently in uniformed services and the Bureau. Finally, we could not accomplish all that we do without a wonderful support staff of secretaries and technicians.



Bureau Programs and Activities

Introduction

The Bureau of Disease Control, Prevention, and Epidemiology carries out its mission in what can be described as a continuum of four basic steps: identifying health issues, collecting and analyzing data, determining the public health response, and evaluating the public health response. The Bureau is divided administratively into four divisions: Communicable Disease; Environmental Health; Genomics, Perinatal Health, and Chronic Disease; and Immunization. The roles of each division are outlined in subsequent pages.





Division Profiles

I. Division of Communicable Disease

Responds to outbreaks and other public health emergencies, and collaborates with clinicians, universities, and local, state, federal and international public health authorities. By using education, technology and the epidemiologic process, we promote data-driven decisions, to identify, prevent, and control communicable diseases. Examples of the types of diseases we investigate include: HIV/AIDS, tuberculosis, hepatitis, sexually transmitted disease, food and water-borne disease, influenza, rabies, Lyme disease, West Nile Virus, and antibiotic resistant bacteria. In addition, all “emerging” and unknown infectious diseases, including bacterial and viral agents with bio-weapons potential fall within the Division’s scope of responsibility.

sur • vei • llance

The ongoing, systematic collection, analysis, and interpretation of data essential to the planning, implementation, and evaluation of public health practice

The Division provides state and nationwide leadership in the areas of:

- **Communicable Disease Surveillance:** Continuously enhancing surveillance systems to better gather, visualize, analyze and quickly distribute key information around infectious disease presentation in Michigan. Improving coordination of activities with local health department communicable disease programs via support for the Epidemiology and Laboratory Capacity program.
- **Health Information Integration:** Continued development and support of the Michigan Disease Surveillance System (MDSS) and Emergency Department Syndromic Surveillance System. These electronic disease surveillance tools are integrated into the State of Michigan Health Information Exchange as well as the Michigan Health Information Network to improve the timeliness of disease detection, reporting and response.
- **Preparedness:** Training the public health workforce to respond to public health emergencies including natural disasters and Pandemic Influenza. Leadership in the statewide response to the 2009 H1N1 Influenza Pandemic by tracing individual cases, and aggregating cases by geography and demographic factors throughout both waves of the pandemic.
- **Enhancement of Response Activities:** Coordinating with local, state and federal partners in investigations of infectious diseases, including food and animal borne illness that have identified exposures leading to nationwide recalls of contaminated products and the quarantine of potentially infectious animals.

II. Division of Environmental Health

Provides state-wide scientific leadership in the prevention and detection of, and response to adverse health outcomes related to exposure to environmental hazards through collaborations with clinicians, communities, and local, state, and federal public health authorities. This is accomplished by:

- Health assessments of chemical exposures at sites of environmental contamination to evaluate possible human exposures and potential for resulting health effects.
- Preparedness for and response to acute chemical releases, emergencies, and extreme weather events in collaboration with local, federal, and other state agencies by providing

technical expertise on chemical characteristics, potential toxic effects, appropriate sampling protocols, health surveillance, and protective measures.

- Training, oversight, and interventions to reduce childhood lead poisoning and promote “healthy homes”, including: guidance to the industries which identify and abate lead-based paint in housing, and improvement of home conditions to reduce illness among low-income asthmatic children.
- Asthma surveillance and epidemiology activities to identify disparities in exposures, symptoms, management, adverse events and opportunities for intervention, and to evaluate performance of Asthma Prevention and Control Program activities.
- On-going epidemiologic surveillance and studies of adverse health effects from hazardous exposures focusing on heat events, air pollution, occupational diseases, pesticides, metals, carbon monoxide, traumatic injuries and violence, and abuse of alcohol and other drugs.
- Education of the public, public health professionals, and health care providers; including updated advisories on safe fish consumption, and potential public health impacts associated with climate change.

tox • i • col • o • gy

The study of the adverse effects of chemicals on biological systems

III. Division of Genomics, Perinatal Health, and Chronic Disease Epidemiology

Provides leadership for the translation of research and evidence-based prevention strategies into public health policy and practice. Staff with expertise in genomics, epidemiologic science, evaluation, and survey methodology support public health programs targeting maternal and child health as well as chronic diseases across the life span. Key activities and projects currently include:

- Providing epidemiological and scientific expertise to genomics, maternal and child health and chronic disease programs such as: cancer, cardiovascular disease, stroke, lupus, obesity, nutritional standards, oral health, tobacco use, family planning, and the women, infants, and children program (WIC).
- Coordinating follow-up, referral and medical management for 49 disorders detected by newborn screening such as PKU, cystic fibrosis, hypothyroidism and sickle cell disease.
- Managing the Michigan BioTrust for Health, an initiative to make residual newborn screening blood spot samples available for research.
- Tracking the occurrence of birth defects and promoting prevention strategies.
- Monitoring the use of genetic tests for breast/ovarian and colorectal cancers, and educating providers to foster best practices based on evidence-based recommendations.
- Facilitating death review systems for maternal mortality and sudden cardiac death of the young.
- Documenting Michigan health trends and disparities through administration and analysis of national population-based surveys—the BRFSS (Behavioral Risk Factor Surveillance System) and PRAMS (Pregnancy Risk Assessment and Monitoring System).

ge • no • mics

Genomics is the study of all human genes and their interactions with behaviors and the environment



IV. Division of Immunization

Eliminates vaccine-preventable diseases through management and distribution of vaccine, tracking of immunizations using the Michigan Care Improvement Registry (MCIR), ongoing disease surveillance and response to outbreaks, educating health care providers and communities on the most up-to-date immunization recommendations, and partnering with clinicians as well as local, state, federal, and international public health authorities to assure all Michigan citizens are appropriately vaccinated.

ep • i • de • mi • ol • o • gy

The study of the causes, distribution, and control of disease in populations

Key activities include:

- Coordination and oversight for the acquisition and distribution of vaccine through the Vaccines for Children (VFC) program.
- Outreach and education to local health departments, VFC and private providers, and the general public:
 - Distributing a newsletter to over 5,000 providers.
 - Holding eight annual regional immunization conferences annually.
 - Making educational modules available for physicians, nurses, and clinic staff.
 - Maintaining a toll-free immunization information number available 24 hours a day in multiple languages.
- Surveillance of all vaccine-preventable diseases:
 - Monthly case reports, technical assistance, disease investigation and outbreak control.
- Management of the Perinatal Hepatitis B prevention program to identify pregnant women who carry the virus and ensure necessary prophylaxis.
- Immunization assessment & feedback directly to immunization providers to assist in increasing immunization coverage levels.

H1N1 Vaccination Campaign: Lives saved, partnerships strengthened



Photo: Chris Fryer, The Saginaw News

Registered nurse Novenda M. Shindorf, of Chesaning, administers a nasal H1N1 vaccine during a free clinic for the general public put on by the Saginaw County Department of Public Health.

Massive efforts from state and local public health, as well as the entire health care community, were influential in managing and implementing the 2009 H1N1 flu vaccination program. Throughout the campaign, immunization staff managed the distribution, accountability, and reporting of over 2.7 million doses of 2009 H1N1 vaccine. Along with partners in local public health, we were successful in managing 3,628 provider agreements and 2,742 Michigan Care Improvement Registry (MCIR is the state's confidential, electronic immunization registry) enrollments – a huge increase in providers as compared to a typical flu season. Further, MCIR was used to track over 12 million doses of influenza antiviral drugs from the Strategic National Stockpile.

MCIR helped to set Michigan apart from other states: when a non-safety vaccine-related recall occurred, we were able to identify the affected lot numbers and notify providers who carried those lot numbers. This promptness in communicating vaccine recalls to providers positions Michigan as a leader in vaccine safety and would surely prove beneficial in the event of any future vaccine recalls. Michigan is prepared to face future public health emergencies, and MCIR is the backbone of our preparedness efforts.

Learn more at:
www.michigan.gov/flu

The Kalamazoo River Oil Spill Disaster and the Public Health Response

On Sunday, July 25, 2010, 911 dispatch began receiving calls reporting strong petroleum odors near the town of Marshall. The following day, the source of the odor was identified as heavy crude oil spilling from a ruptured pipeline into the Talmadge Creek. Ultimately over 800,000 gallons of crude oil flowed down the creek and into the Kalamazoo River. By Tuesday, widespread, noxious odors from the spilled oil were driving people from their homes along the waterways. Monitoring of the potential impacts of the spill on public health began almost immediately, alongside cleanup efforts led by the United States Environmental Protection Agency (EPA).

Bureau toxicologists and epidemiologists mobilized to the Marshall Incident Command Center to provide technical support to the EPA, the Calhoun County Public Health Department, and other State of Michigan agencies.



Oil sheen on the Kalamazoo River.

Photo: Bureau Staff



This support included interpreting environmental and human health data related to the spill and making recommendations to protect human health. We immediately issued an advisory recommending that people have no contact with the affected waterways and not eat fish caught in the area of the spill. Air sampling results showing high levels of benzene, a chemical coming from the oil that can cause serious long-term human health effects, prompted us to recommend a voluntary evacuation of homes near the spill site and along Talmadge Creek. A bottled water advisory was issued for people whose wells were within 200 feet of the creek or the river.

Acute illnesses associated with the spill were monitored by obtaining daily reports of patients with oil-spill related illnesses from doctors and hospitals and by conducting door-to-door surveys in four highly impacted communities along the waterways. Over 450 individuals were identified with oil-spill related symptoms, including headache, nausea and respiratory problems.



Photo: Bureau Staff

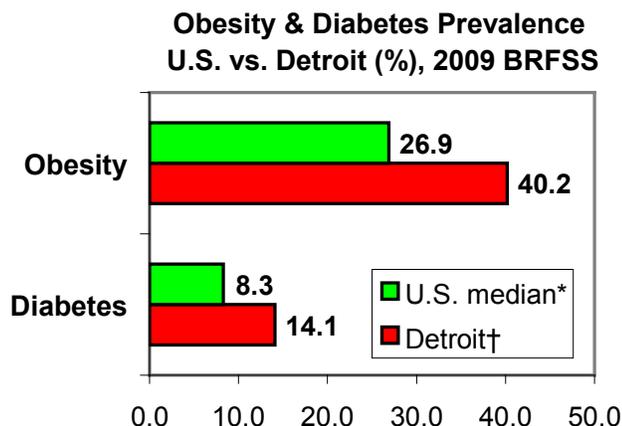
Environmental health staff at incident command center during the 2010 Kalamazoo oil spill.

The initial clean-up of the oil has been completed, and efforts are moving into a longer follow-up phase that will include continued monitoring and testing of surface water, drinking water, soil, and fish to ensure that the public will not be exposed to any toxins or harmful effects of remaining oil.

Learn more at:
www.michigan.gov/MDCH-toxics

Population Based Health Estimates The Michigan Behavioral Risk Factor Surveillance System

On September 28th, 2010 we received a request from CNN New York, asking for data on obesity and diabetes rates in Detroit. CNN needed to know where Michigan stood in comparison to the rest of the nation. We used data from the Michigan Behavioral Risk Factor Surveillance System (MiBRFSS), and in less than one hour, CNN had the data.



“The results were provided to CNN in less than one hour:”

Obesity: The 2009 obesity rate among Detroit adults is almost 50% higher than the 2009 median obesity rate for the nation.

Diabetes: The 2009 diabetes rate among Detroit adults is 70% higher than the 2009 median diabetes rate for the nation.

*2009 CDC BRFSS (www.cdc.gov/brfss/)

† 2009 Michigan BRFSS (www.michigan.gov/brfs/)

MiBRFSS is composed of annual, state-level telephone surveys of Michigan residents, aged 18 years and older. This surveillance system is the only source of state-specific, population-based estimates of the prevalence of various health related behaviors, medical conditions, and preventive health care practices among Michigan adults.

diseases. MiBRFSS is used by many national media channels and journalists which helps in creating awareness to improve health conditions across the nation including Michigan. Being able to provide timely feedback is possible because of the valuable data collected by MiBRFSS.

These prevalence data have been crucial for developing new policies targeted to improving the health care services and outcomes. MiBRFSS results are used by public health agencies, academic institutions, non-profit organizations and others to develop and evaluate programs that promote the health of Michigan citizens. One recent policy success - The Smoke Free Air Law, used MiBRFSS as one of its core sources of supporting information.

MiBRFSS will continue to be a popular and valuable source of information to assist our policy makers in making appropriate decisions for the benefit of Michigan citizens. MiBRFSS is also important for securing further funding from federal agencies/government by providing the evidence based data required to adequately address serious health issues that currently affect Michigan residents.

Learn more at:
www.michigan.gov/brfs

Each year we address many different data requests related to behaviors or chronic

Hold the Lettuce! Bureau Staff Uncover a Nationwide Outbreak

Last time it was ground beef. This time, Bureau disease investigators and local public health partners helped discover and then solve the cause of a nationwide outbreak: the culprit – romaine lettuce. It all began when a group of law students in Michigan attended a monthly seminar with the attraction of a free lunch featuring Mexican food. Later that week, Bureau staff were notified that two emergency departments were seeing several cases of bloody diarrhea among college students. Some of the ill reported attendance at the law school luncheon. Other patients reported eating at a Mexican-style restaurant. Sure enough, this same restaurant had catered the law student lunch. This gave investigators a possible source, but not a specific food item.

As the investigation continued, cases and associated lab results were reported into the Michigan Disease Surveillance System (MDSS), an important web-based disease reporting and surveillance application developed right here in Michigan.

We determined that the cause of this outbreak was an *Escherichia coli* (*E. coli*) infection that had originated in bagged and shredded romaine lettuce, which had been supplied to restaurants. Over thirty cases of illness were identified from five states, including Michigan. Almost half the patients needed to be hospitalized



Communicable Disease Division staff coordinated with federal food-safety and health authorities, and other state's departments of health to identify and control a multi-state outbreak of *E. coli* involving Michigan, Ohio, Pennsylvania, Tennessee, and New York.



and three people were critically ill with life-threatening hemolytic uremic syndrome, a rare complication of *E. coli* infection. The lettuce had been distributed nationwide. Coordination with public health and regulatory agencies in multiple states, along with our federal partners, next led to a recall of this lettuce product that had been distributed from a central processing facility. This action ended the threat of more cases occurring from this outbreak.

Learn more at:
www.michigan.gov/cdinfo



Photo: Bureau Staff

Communicable Disease Division investigators assessed potential contaminated food items and routes of exposure during a nationwide *E. coli* outbreak.

Pertussis: A Personal Story



Photo: Bureau Staff

Justine Springborn (middle) – a mother who lost her son to pertussis – with Dr. Annette Mercatante, Medical Director, St. Clair County Health Department and Dr. Greg Holzman, Chief Medical Executive, Michigan Department of Community Health.

Pertussis (whooping cough) activity is on the rise in the U.S. and in Michigan. From 2003-2007, the annual average number of reports (in Michigan) was about 340 cases per year; however in 2010, there have been 1,285 cases reported (as of November 30). While the statistics surrounding this outbreak are truly alarming, nothing hits quite as hard as hearing from a mother who has lost a child to pertussis.

On February 22, 2010, Justine Springborn of St. Clair County lost her 3-month-old son, Collin, to pertussis. Justine said “Collin would cough until he turned blue and vomited.” Doctors at the hospital were unable to diagnose what was wrong before he died.

Even as physicians had not yet determined what had killed Collin, his twin brother, Corbin, developed a cough just a few days later. Corbin was hospitalized for more than two months from the disease, having to sleep with a special monitor at night to make sure he didn’t stop breathing. Fortunately, Corbin did recover from the disease, and is now a normal, healthy 12-month-old boy.

After losing her son, Justine called the local health department and told them that she would like to help raise awareness of pertussis, in the hopes that other parents will not have to suffer through the loss of a child. Justine has been working with the St. Clair County Health Department on a public awareness video and shared her story in a press conference this fall.

On November 19, MDCH and the Alliance for Immunization in Michigan (AIM) Coalition gave Justine an award for her courageous efforts to educate Michigan’s citizens about vaccine-preventable diseases and her work advocating for immunizations among her friends, family and community. Justine has shared her story with courage, dignity, and wisdom. Her efforts to spread the word on pertussis have made a big difference in our state.

Learn more at www.michigan.gov/immunize

Human Stories Behind the Numbers

The Michigan Pregnancy Risk Assessment Monitoring System

The Pregnancy Risk Assessment Monitoring System (PRAMS) is an ongoing mail-telephone survey of mothers who deliver live births. The goal of the PRAMS is to improve the health of mothers and infants by reducing adverse outcomes such as low birth weight, infant mortality and morbidity, and maternal morbidity. PRAMS provides state-specific data for planning and assessing program initiatives, and promoting policies by describing maternal experiences that may contribute to maternal and infant health.

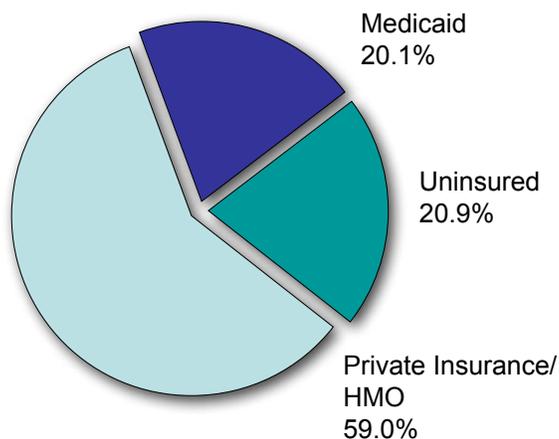
Sleep” campaign sponsored by MDCH, MDHS, and MDE.

Besides providing answers to questions, respondents are given the option to comment on different issues that their offspring or families may have experienced. The lack of insurance outside pregnancy remains a big concern of many women and a major reason for poor preconception/interconception health status.

For example, the information provided by PRAMS about the high prevalence of bed sharing in Michigan was a timely contribution to the planning for a statewide “Infant Safe

Based on multiple analyses of PRAMS data, the state identified unintended pregnancy as a priority public health concern. A public private partnership created a “Blueprint for Preventing Unintended Pregnancies”. The partnership achieved several major objectives based on partner recommendations. Michigan requested and received a waiver from the federal government to expand access to family planning through Medicaid for women at up to 185% of the poverty line (Plan First program). In addition, healthcare providers established an advisory committee to develop the Michigan Quality Improvement Consortium guidelines to prevent unintended pregnancy in adults 18 years and older. These guidelines were published in June, 2007.

Health Insurance Status of Pregnant Women in the State of Michigan at the Time of Delivery*



Learn more at:
www.michigan.gov/prams

Healthy Homes

Saving Lives....One Family at a Time

Healthy Homes University is a program for low to moderate income families in Ingham County and surrounding areas who have children with asthma. Its focus is to improve conditions in the home that can make asthma worse, while at the same time taking a comprehensive approach to making homes safe and healthy. In several cases it’s been a lifesaver, literally, for the families involved.

Families accepted into the program are visited by a field team who inspect the home and install products to help prevent injuries and reduce home triggers affecting a child’s asthma



symptoms. A health educator works with the family over a six month period, teaching family members how to use the products they are given to make the home safer and healthier.

Besides information and products related to asthma, families receive first aid and safety training and items such as smoke and carbon monoxide alarms, fire extinguishers, first aid kits, safety gates, and lead-based-paint cleaning kits.

Below is an example of the lifesaving impact of this program, taken from one of many letters from grateful families:

"My daughter and I want to thank you for helping to save our life..... the carbon monoxide detector that you gave me started to go off that night (after the team's visit).....You also told me to call the fire department or Consumers Power....Consumers Power came and found that the furnace was cracked and that there was also a leaking valve. My daughter and I left our apartment and one week later the landlord put in a new furnace..... I can't thank you enough for the asthma products you gave to help my daughter with her asthma but I am even more grateful for the safety products you gave us to make our apartment safe. If you had not told us about carbon monoxide or had not given us the carbon monoxide detector we would not have known to call for help."

Since the program began in 2005, over 500 families have been helped. Families report a significant decrease in their children's asthma symptoms, emergency room visits, hospitalizations and missed school days as a result of the program. Our Healthy Homes University program is a national model for the Healthy Homes approach. The concept is to address multiple childhood diseases and injuries in the home by focusing on housing-related hazards in a coordinated fashion, rather than addressing a single hazard at a time. The importance of this is underscored by the fact that about 20% of our Healthy Homes families also have a lead poisoned child.

The environmental health and safety concerns covered by Healthy Homes University include mold, lead, allergens, asthma, carbon monoxide, home safety, pesticides, and radon. Healthy Homes University helps Michigan address national objectives as stated in Healthy People 2010 for health promotion and disease prevention in home and community environments to reduce indoor allergen levels, reduce the proportion of housing units that are substandard, and reduce the population's exposure to pesticides.

Learn more at:

www.michigan.gov/leadsafe



Photo: Bureau Staff

Children at a home served by Healthy Homes University.

West Nile Virus and the Blood Supply

Emerging Disease Investigations

West Nile virus (WNV), a mosquito-borne agent, is an example of a disease that has been recently introduced into the U.S. It was first found in birds and people on the East Coast in 1999. In the summer of 2002, during a large WNV outbreak that included 44 states, the virus claimed the first human victims in Michigan. More than 640 human WNV cases occurred in the state, resulting in more than 50 deaths.

During the outbreak, Bureau scientists received reports of persons who had received blood transfusions and blood products and subsequently developed illness due to WNV, but who had no exposure to mosquitoes. Because this was puzzling, our staff investigated 18 instances of



Photo: James Gathany/US Centers for Disease Control

A *Culex* mosquito, the vector of West Nile, feeds to repletion. These mosquitoes are common in Michigan's urban environments.

Our epidemiologists subsequently worked with the blood collection agencies to trace potentially infected blood products and remove them from use. As a result of these investigations, it was determined that this new illness in the United States could also be transmitted by blood transfusions. This was the incentive for the U.S. Food and Drug Administration to develop and approve a blood test to screen the nation's blood supply for this virus. The following year, such a test was developed to routinely screen blood donors for WNV, greatly improving the safety of the blood supply in the face of this new disease. The MDCH contributed significantly to these efforts, which were reported in the *New England Journal of Medicine*.

suspected transfusion-related WNV illness in Michigan citizens to determine the source of their infections. By working with the CDC and blood collection agencies, Michigan discovered they led the nation in cases that had occurred as a result of blood transfusions, a route of transmission previously unknown.

Learn more at:

www.michigan.gov/emergingdiseases

Michigan Among Top States for Childhood Vaccination Coverage

Michigan received an award for high immunization coverage levels at the CDC National Immunization Conference, held in Atlanta in April 2010. In fact, Michigan ranks among the top states in the nation for childhood vaccination coverage levels. Michigan has dramatically increased immunization coverage levels for children in Michigan, thereby protecting even more children from very serious, life-threatening diseases.

But Michigan hasn't always ranked among the top for immunization levels. In fact, the first time a National Immunization Survey (NIS) was conducted by the Centers for Disease Control and Prevention (CDC) - in 1994 - Michigan had the lowest immunization coverage levels in the country at 61% coverage for four doses of diphtheria, tetanus and pertussis/whooping cough (DTP), three doses of polio, and one dose of measles, mumps and rubella (MMR) vaccines.



Photo: Bureau Staff

MDCH Immunization Division Director Bob Swanson accepts honors from Lance Rodewald, Director of Immunization Programs, at the Centers for Disease Control and Prevention National Immunization Conference.

However, those times have changed, as Michigan now consistently ranks high for immunization coverage. In the most recently released 2009 NIS coverage levels, Michigan ranks 5th highest in the nation for the following series: four doses of DTaP, three doses of polio, one dose of



MMR, three doses of Hepatitis B, one dose of varicella (chickenpox), and four doses of pneumococcal conjugate vaccine at 76.5% complete.

Among other significant accomplishments: Michigan boasts the highest coverage rate for four doses of DTaP and birth dose hepatitis B vaccine in the country at 91.3% and 80.7% respectively. Michigan also has the second highest rates in the country for three doses of polio and four doses of pneumococcal conjugate vaccine at 97.1% and 87%.

Learn more at:
www.michigan.gov/immunize

Asthma Deaths are Preventable



Photo: Bureau Staff
A child with asthma uses an inhaler before riding bikes with her friends.

An African American teenager who had asthma most of his life, died from an asthma attack in the fall. On the day of his death, after walking back and forth to a religious service, he began having breathing problems and used his rescue inhaler, he then collapsed and later died in the emergency department (ED). In the year prior to death, the deceased had stopped using his regular medications and was seen in the ED four times and hospitalized four times for a breathing problem because his asthma was poorly controlled. With better use of appropriate asthma medications, coordination of care and referral to specialists, and better recognition that asthma has serious consequences, this young man would likely be alive today.

Since 2001, the Asthma Mortality Review (AMR) has investigated over 180 asthma deaths among children and young adults to identify causal factors and develop recommendations for interventions.

Over 90% of these Michigan asthma deaths are preventable! The majority of people who died were seen in the ED multiple times in the year prior to death. Lack of regular use of inhaled corticosteroids and exposure to asthma triggers such as cigarette smoke were major causes of these deaths. Major gaps were noted in management by health care providers, including poor appreciation of the severity of the patient's condition, lack of timely referral to a specialist, and inadequate prescription of inhaled corticosteroids. More than 68% of children and young adults who died because of their asthma were enrolled in Michigan Medicaid programs at the time of death.

Epidemiologic analyses of Medicaid claims indicate that there are many children with similar profiles of high risk asthma utilization. 30% of children with asthma in the Medicaid program have been to the ED at least once in the last year. 34% did not fill a prescription for inhaled corticosteroid. 12% overuse their short-acting beta-agonist medications.

Based on its analyses and investigations, the MDCH Asthma Prevention and Control Program refocused its limited resources to areas with highest burden (Detroit, Flint, Lansing and Saginaw). In-home asthma case management services are being implemented in 8 Michigan counties to provide access to the more than 7,222 children with high-risk asthma utilization profiles. The AMR and Medicaid claims analysis are important examples of using epidemiology to identify points of intervention and catalyze action.

Learn more at:
www.getastmahelp.org

Too Young to Die:

Exploring the Causes of Sudden Cardiac Death in Young People



Stock Photo

"I thought we were forgotten, I thought no one cared," are the words of a mother asked to participate in a next-of-kin interview regarding the sudden death of her teenage son. Darryl* had collapsed and died unexpectedly at age 18 while playing basketball in a recreational league. Bystanders did not know how to perform CPR, and no AED (Automated External Defibrillator) was available. The family never received information about the cause of his death, or whether other relatives could also be at risk. Sudden deaths in young people are especially tragic and often high profile. Not infrequently, they occur in athletes who were thought to be at their prime.

Over the last seven years, the Bureau has been working to uncover answers for families like Darryl's through creation of

a surveillance system for sudden cardiac death of the young (SCDY), the first such effort by a state public health department. The project has used multiple data sources including death certificates, population health data (Behavioral Risk Factor Surveillance System), medical records, autopsies, next-of-kin interviews, and expert reviews to better understand the burden of SCDY in Michigan. As a result, we now know that about 300 sudden cardiac or unexplained deaths occur in people between the ages of 1 and 39 each year, and 6.3% of Michigan residents have a family history of SCDY. There are significant racial disparities. The age-adjusted mortality rate for black males is 15.8 per 100,000, more than double the rate for white males at 6.4 per 100,000.

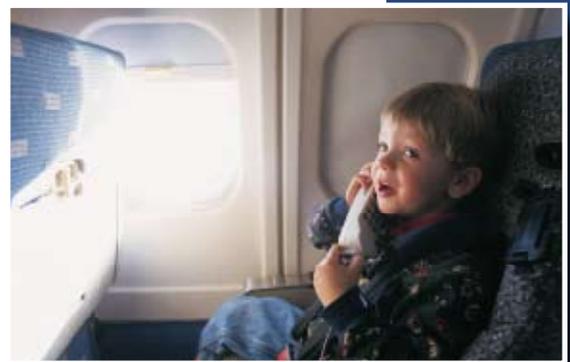
The causes of SCDY vary, but many are genetic and can run in families. Michigan's SCDY surveillance system has provided important data for action and systems changes needed to prevent future deaths. In collaboration with numerous partners representing the medical community and parent advocacy groups, Genomics Program staff continue to promote changes in pre-participation sports screening, provider education, public awareness of SCDY risk factors and cardiac symptoms, CPR/AED training, and emergency response and medical examiner protocols.

Learn more at:

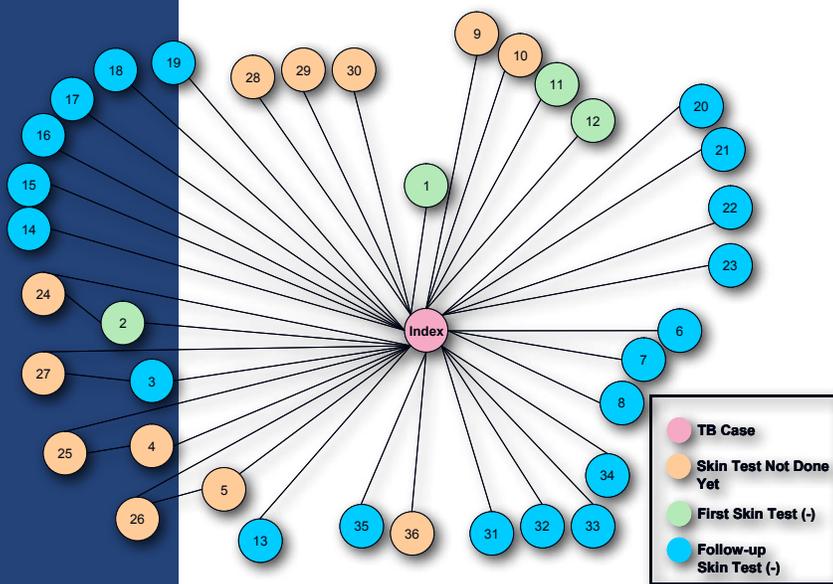
www.michigan.gov/genomics

Fly the Friendly Skies....TB Free!

During the fall of 2009, a young, foreign-born man from another country was in the middle of an extended travel-vacation in the United States, visiting and living with friends on a university campus in Michigan. In December 2009, he was hospitalized in Washtenaw County due to symptoms consistent with tuberculosis (TB). Laboratory tests at the hospital confirmed that the young man had active TB and was considered infectious. The patient had a very active social life prior to hospitalization and 36 people were



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This diagram represents a “contact investigation” involving 36 individuals who had close exposure to a patient with active, infectious tuberculosis. These individuals, known as contacts, were identified through extensive interview with the patient and were asked to receive tuberculin skin tests. A positive skin test would indicate the contact had been infected by tuberculosis bacteria as a result of their exposure to the patient. Fortunately, none of the contacts who received skin testing in this investigation had positive results.

and Quarantine, and Public Health Agency Canada staff to advise them of the possibility of international travel. All parties agreed the patient should be strongly advised not to attempt commercial air travel in either country. The Public Health Agency of Canada advised the patient would not be admitted into Canada until he was no longer infectious to others.

After six weeks of treatment in Michigan, the patient was no longer infectious to others. The CDC and The Public Health Agency of Canada were notified of the patient’s improvement and all travel restrictions were removed. He was discharged to the home of the family of a university friend, during which time the patient made arrangements to return directly to his home country to complete treatment. The patient returned home in early 2010 and continued his course of treatment without complications.

Learn more at:

www.michigantb.org or www.michigan.gov/tb

identified that had spent considerable time with him, many of whom were university students. They needed to be evaluated to determine if they too had become infected with TB.

Bureau TB staff worked with the local public health departments that coordinated the contact investigation, and the patient’s care in hospital for approximately six weeks. He had developed complications during treatment which required extended care. This case investigation ultimately involved 12 Michigan counties and three universities in Michigan. Of the 36 close contacts identified, 20 had completed a skin-test evaluation at least eight weeks post-exposure, and all were negative.

The patient had plans to continue travel to Canada, and then on to Europe. Tuberculosis program staff coordinated with CDC Division of Global Migration

Michigan Leads the Way in Immunization Education and Technology

Health information technology and electronic medical records are now common terms, but this technology is nothing new to Michigan. For years, our state has boasted one of the most robust, technologically-advanced immunization registries in the nation. Formerly known as the Michigan Childhood Immunization Registry, the Michigan Care Improvement Registry (MCIR) transitioned to a lifespan registry in 2006. MCIR has been

a driving force in the success of Michigan’s vaccination program, propelling Michigan forward as a national leader in immunization. Today, MCIR contains over three million adult vaccination records and 74 million childhood records.

MCIR has expanded beyond an immunization registry into a more broad-scale public health registry, integrating data from lead screening,

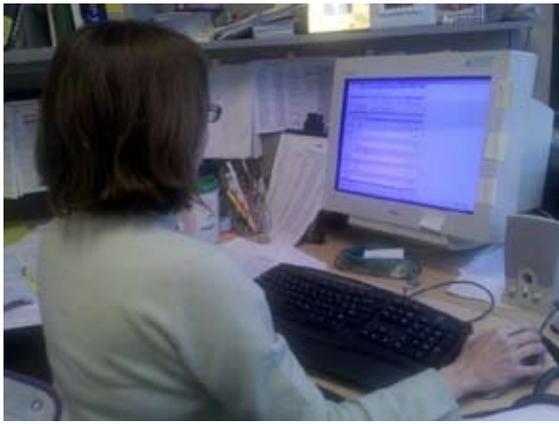


Photo: Bureau Staff
Epidemiologists in the Immunization Division continuously analyze and provide quality control for the MCIR.

of their patients are protected from vaccine-preventable diseases.

Not only is Michigan recognized for its advanced immunization registry, but the state is also known for its strong immunization educational programs. Every year, staff conduct eight regional immunization conferences across the state, and attended by approximately 1,800 immunization providers and those interested in the immunization field.

Moreover, immunization staff supports the Immunization Nurse Education and Physician Peer Education modules which provide relevant, up-to-date vaccine information - free of charge - in immunization clinics, grand rounds, and a variety of other health care settings. Frequently, we are contacted by our counterparts in other states to share information about Michigan's immunization web sites, online toolkits, educational webinars and NetConferences, newsletters (MI Immunization Timely Tips, FluBytes), posters and flyers, and a multitude of other educational programs.

Learn more at:
www.mcir.org

newborn hearing, newborn genetic screening, and Early and Periodic Screening, Diagnosis, and Treatment (EPSDT). MCIR is also utilized to support vaccine ordering and accountability for over 1,575 Vaccines for Children (VFC) providers (of which 770 are participating in e-ordering) and 45 Local Health Departments across the state. In December 2010, Michigan became the first state to place an order in the national Vaccine Tracking System (VTrckS), a feat made possible only through our advanced registry. MCIR is vital to the immunization program and many providers in the state rely on this tool daily to ensure all

Newborn Screening Saves Babies

Laura and Lenny Harris* never expected a problem with their new baby, but when David was just four days old they received a call from the pediatrician: their son's newborn screening test was positive for PKU (Phenylketonuria). PKU is a genetic disorder affecting protein metabolism. Left untreated, brain damage ensues and leaves children severely developmentally disabled for life.

The Newborn Screening Follow-up Team acted quickly to make sure David was referred to specialists at the Children's Hospital of Michigan Metabolic Clinic where treatment with a special dietary formula was started. Today he is a healthy, active three year old, and brother to Mitchell, also born with PKU. "Newborn screening saved my boys, the essence of who they are," says Laura. These boys are not alone; millions of Michigan infants have been screened since 1965, with more than 4,400 children diagnosed through the screening panel that now includes 49 disorders.

Early identification of genetic metabolic disorders, and treatment within the first days of life can prevent serious developmental and medical complications, even death. Bureau staff ensure an effective statewide newborn screening system by working with hospitals and medical providers,



Stock Photo



coordinating follow-up, developing referral and treatment protocols, and linking families to services.

Newborn screening has been saving babies for 45 years, and now promises to make additional contributions to the public's health in new ways. For instance, Michigan has become a key player in a federally funded surveillance system being developed as a model to better understand the impact of diseases—in this case sickle cell disease and related hemoglobin disorders—at different life stages, beginning with children identified through newborn screening. Another innovation is the development of the Michigan BioTrust for Health, an initiative that makes leftover specimens, also known as “dried blood spots,” available for population-based medical and public health research. On October 1, 2010, Michigan became the first state in the nation to implement written consent from parents for use of their newborn's leftover de-identified specimen in possible future research. Staff provide community outreach to inform the public and facilitate a novel Community Values Advisory Board that provides input on BioTrust policies.

Learn more at:

www.michigan.gov/newbornscreening

Eat Safe Fish!

Michigan's Fish Advisory Spreads the Word

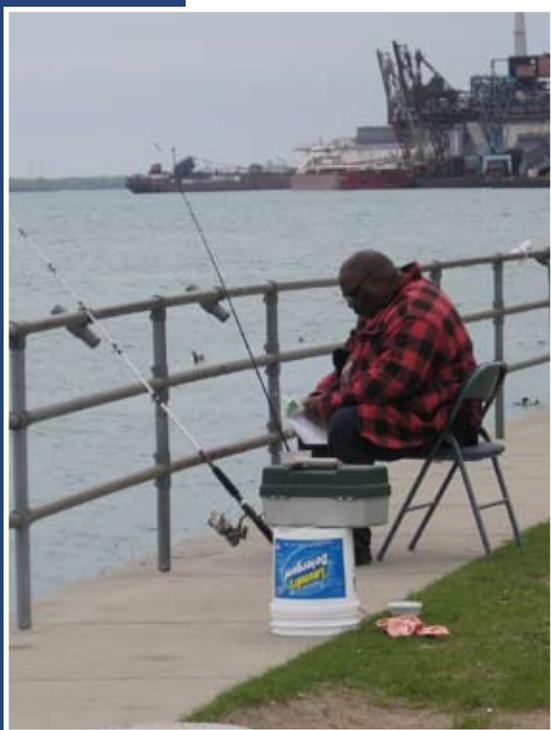


Photo: Bureau Staff

A Michigan man reads the Fish Consumption Advisory during an autumn fishing excursion.

For over forty years, Bureau Environmental Health staff have educated Michigan residents about choosing wisely when it comes to buying and catching fish in Michigan by publishing the Michigan Fish Consumption Advisory. Information in the Advisory helps people make informed choices regarding eating fish and avoiding harmful chemical contaminants that are found in fish from some Michigan lakes and rivers.

These chemicals can build up in the body of the fish. When these fish are eaten, the chemicals in the fish can then build up in humans and may cause long-term health effects, or harm brain development if eaten in large quantities or over a long period of time. Young children and unborn babies are at greatest risk from these contaminants.

Our health educators and toxicologists are constantly looking for ways to make the Advisory easier to use and more accessible to the public. Recently, our staff has taken their message of “Eat Safe Fish” directly to at-risk populations in two Michigan communities: the Saginaw Bay area and the city of Detroit.

These communities were targeted for special efforts due to the level of chemical contamination in the Saginaw River, Tittabawassee River, Saginaw Bay and Detroit River, and the amount of fishing that occurs on these water bodies. Many of those fishing are low income and depend on locally-caught fish as a way to put dinner on the table. The goal is to educate anglers to choose the right kind of fish and to process them to remove the fat which contains many of the contaminants. In this way they can limit their families' exposure.



We are working with partners in these communities to put the “Eat Safe Fish” message literally into the hands of at-risk individuals including anglers, pregnant women, and children. By distributing brochures at popular fishing sites, displays in WIC clinics, interactive school programs, and community events, we are able, with very limited funds, to reach many more individuals with the “Eat Safe Fish” message.

Photo: Bureau Staff
Children learn about environmental health and safe fishing.

Learn more at:
www.michigan.gov/eatsafefish

Good Night, Sleep Tight.... The Return of an Unwelcome House Guest

Imagine waking up in the morning to find yourself or your child broken out in a strange itchy rash, and small blood spots on the sheets. You scramble to find the source of the rash only to discover that behind the headboard hides hundreds of small little blood-sucking insects! This is not the product of a Hollywood horror movie but a real and increasing epidemic sweeping Michigan and the United States. The human bed bug is the most rapidly emerging public health pest in North America, and presents public health institutions with myriad challenges.



Photo: Piotr Naskrecki/
CDC PHIL

The bed bug is a nocturnal, bloodsucking ectoparasite supremely adapted to human living environments. Infestations may lead to measurable physical and mental health effects. People may present to the emergency room or their physician for treatment of bite symptoms, and a major concern is that people will attempt to control the insects using unsafe chemicals. Bed bug infestations can also lead to decreased productivity, missed work, stress, anxiety, and insomnia.

Bureau staff responded to this increase in concern from the public by creating an interagency public/private working group to coordinate responses and provide recommendations for proactive prevention and control. Members of the group include bureau staff and state department representation from Agriculture, Human Services, State Housing Development Authority, and Education as well as private partners in property management, pest management, and lodging and tourism representatives. Working together, we have trained thousands of public servants from local code enforcement, environmental health, and human services agencies to recognize infestations and provide recommendations to clients for control. A comprehensive and nationally recognized manual was created which has site specific guidance for facility management including schools and day cares. It has been reproduced by many other state and local departments of health.

Despite limited funding for bed bug management and education, bureau staff continue to forge ahead with public/private partnerships to leverage resources and help the citizens of Michigan get a good night's sleep.

Learn more at:
www.michigan.gov/bedbugs



Partnerships in the Community

The efforts of the Bureau of Disease Control, Prevention, and Epidemiology in improving health status are successful because of integral partnerships developed with individuals and groups within our community. Most important are our colleagues in the local health departments and healthcare facilities across the state, who help collect health data and develop public health and medical interventions. We also work closely with other Bureaus within MDCH. In addition, coalitions of many other organizations have partnered with our Bureau to develop scientifically based interventions to improve the health of all Michiganders. Some of these organizations include:

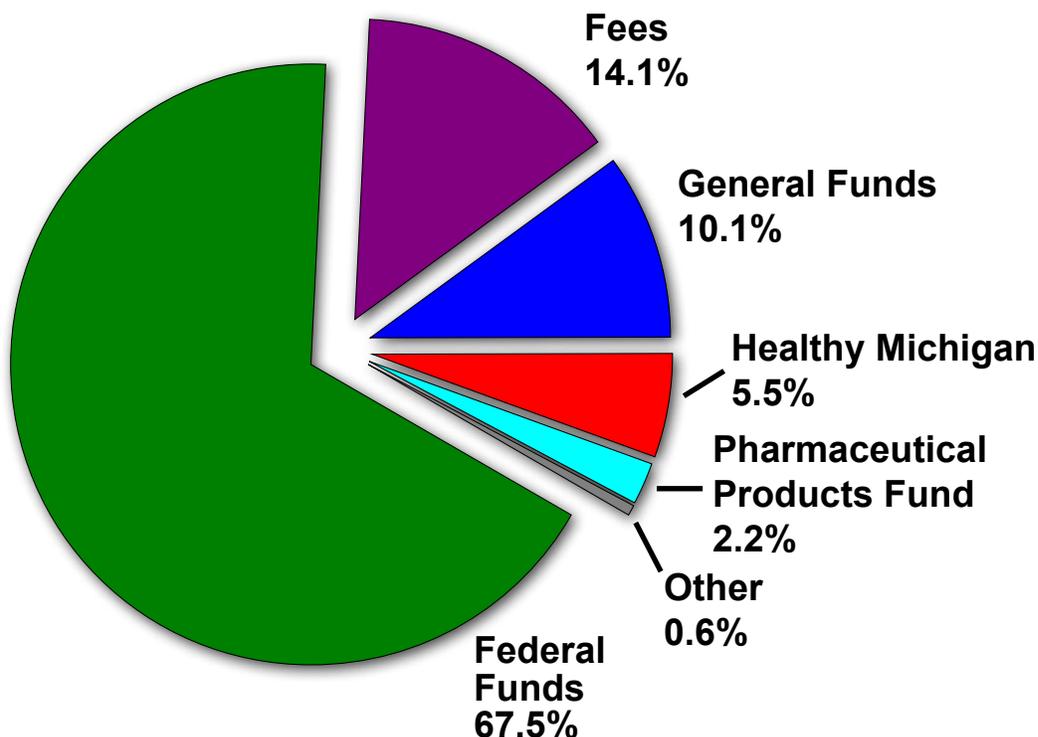
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| Agency for Toxic Substances and Disease Registry | Ecology Center |
| Alliance for Immunization in Michigan | Fetal Alcohol Spectrum Disorders Taskforce and Diagnostic Clinics |
| American Heart Association, Midwest Affiliate | First Ward (Saginaw) Community Center |
| American Lung Association of Midland States | Genesee County Asthma Network |
| Arab American and Chaldean Council | Genesee County Intermediate School District |
| Arab Community Center for Economic and Social Services | Genomic Applications in Practice and Prevention Network |
| Association of Maternal and Child Health Programs | Great Lakes Division of the American Cancer Society |
| Association of Women's Health, Obstetric and Neonatal Nurses | Great Lakes Fish Consumption Advisory Consortium |
| Asthma & Allergy Foundation of America – Michigan Chapter | Health Plan of Michigan |
| Asthma Network of West Michigan | Health Resources and Services Administration/Maternal Child Health Bureau |
| Baldwin Family Health Care | Healthcare-Associated Infection Advisory Group |
| Beaumont Hospitals | Healthy Mothers/Healthy Babies |
| Blue Cross Blue Shield of Michigan | Henry Ford Health System |
| Children's Hospital of Michigan | Hurley Medical Center |
| City of Lansing, Development Office | Karmanos Cancer Institute |
| CLEARCorps – Detroit | Lighthouse Communities Inc. |
| Covenant Health Systems | March of Dimes |
| Cystic Fibrosis Care Centers | Medicaid and Medicaid Health Plans |
| Council of State and Territorial Epidemiologists | Michigan Academy of Family Physicians |
| Detroiters Working for Environmental Justice | Michigan Advisory Committee for Elimination of Tuberculosis |
| Diabetes Partners in Action Coalition | Michigan Advisory Committee on Immunization |
| Diagnostic Center for Population and Animal Health | Michigan Antibiotic Resistance Reduction Coalition |
| Detroit Lead Partnership | Michigan Association of Code Enforcement Officers |
| Detroit Local Emergency Planning Committee | Michigan Association of Health Plans |
| Early On® Michigan | |

Michigan Association of Housing Officials
 Michigan Association of Local Public Health
 Michigan Association of Medical Examiners
 Michigan Association of Public Health and
 Preventive Medicine Physicians
 Michigan Association of School
 Administrators
 Michigan Association of School Boards
 Michigan Birthing Hospitals, Neonatal
 Intensive Care and Special Care Nurseries
 Michigan Cancer Consortium
 Michigan Cancer Genetics Alliance
 Michigan Chapter of the American Academy
 of Pediatrics
 Michigan Chapter of the American College of
 Obstetricians and Gynecologists
 Michigan Consortium of Asthma Coalitions
 Michigan Council for Maternal and Child
 Health
 Michigan Dental Association
 Michigan Department of Agriculture
 Michigan Department of Education
 Michigan Department of Environmental
 Quality
 Michigan Department of Natural Resources
 Michigan Environmental Council
 Michigan Environmental Health Association
 Michigan Family to Family Health Information
 and Education Center
 Michigan Flu Advisory Board
 Michigan Health and Hospital Association
 Michigan Infectious Disease Society
 Michigan Liquor Control Commission
 Michigan Lodging and Tourism Association
 Michigan Mosquito Control Association
 Michigan Nurses Association
 Michigan Osteopathic Association
 Michigan Pest Management Association
 Michigan Poison Control Centers
 Michigan Primary Care Association
 Michigan Public Health Association
 Michigan Public Health Institute
 Michigan Quality Improvement Consortium
 Michigan Sea Grant
 Michigan Society for Infection Control
 Michigan Society of Neonatologists
 Michigan State Housing Development
 Authority
 Michigan State Medical Society/Perinatal
 Committee
 Michigan State Police
 Michigan State University
 Michigan Veterinary Medical Association
 Molina Health Care
 Munson Medical Center
 National Association of State Public Health
 Veterinarians
 National Birth Defects Prevention Network
 National Institute of Health/ National Heart,
 Lung and Blood Institute, and National
 Institute of Child Health and Human
 Development
 Oakwood Hospital & Medical Center
 Pesticide Advisory Council
 Priority Health
 Property Managers Association of Michigan
 Region 4 Genetics Collaborative
 St. Joseph Mercy Health System
 Sickle Cell Disease Association of America—
 Michigan
 Southeast Michigan Environmental Health
 Association
 Southeastern Michigan Epidemiology
 Committee
 Spectrum Health
 U.S. Department of Agriculture – Animal and
 Plant Health Inspection Service
 U.S. Centers for Disease Control and
 Prevention
 U.S. Environmental Protection Agency
 University of Michigan
 Washtenaw Asthma Coalition
 Western Upper Peninsula Planning and
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 Wayne State University



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A majority of the federal funds support operations, including staffing, although a significant portion of some federal awards along with fees generated by the newborn screening follow-up and lead abatement programs are distributed to partner agencies.

State general funds support approximately 5 percent of the bureau's staffing costs. Nearly half of the general fund dollars are distributed to local health departments and federally-qualified health centers primarily to support vaccination efforts.

Other sources of state funds contribute to critical program infrastructure. Healthy Michigan funding helps support the Michigan Care Improvement Registry, a nationally recognized electronic immunization information system.

The pharmaceutical products fund is used to buy vaccine for initiatives such as vaccination of people at high-risk of hepatitis B infections where vaccine purchases are not covered by federal vaccine programs such as the Vaccines for Children program.

Within the "other" category of the pie chart, Michigan Health Initiative funds are essential to the conduct of the Michigan Behavioral Risk Factor Survey, a survey that provides the only statewide estimates of adult obesity, cigarette use, physical activity and healthy eating.



*“An ounce of
public health is
worth a pound of
healthcare”*

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