Michigan Department of Community Health
MDCH
Jennifer M. Granholm, Governor
Janet Olszewski, Director

EPI Insight
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Shigellosis Outbreak, Ingham County, Michigan, Fall 2004

By: Susan Bohm, M.S.

Ingham County Health Department (ICHD) was contacted by a Lansing elementary school (School A) on October 19, 2004, regarding a number of students with diarrheal illness and diagnosed shigellosis (including two hospitalized). Shigellosis is an acute gastrointestinal illness with symptoms of diarrhea (with or without blood), nausea, vomiting, fever, and abdominal cramps; however, mild and asymptomatic infections may also occur. From 1999 to 2003, Ingham County reported an average of 9.4 shigellosis cases per year (3.4 cases/100,000). By end of September 2004, 13 cases had been reported in the county. Three confirmed cases of shigellosis that had been reported in September 2004 attended School A.

School A has approximately 240 students (K–5th grade). About 90% of the student body receives a free or price-reduced lunch. A central food commissary supplies packaged lunches for this school and others in the Lansing School District; lunches are transported cold and are reheated at each school. Between October 14 and November 30, 2004, there were 40 confirmed and 19 probable shigellosis cases at the affected school. The peak of the school outbreak occurred on October 15 with 21 cases. One class alone had seven students with the illness onset date of October 15.

On October 20, ICHD environmental health sanitarians began their inspections of School A's premises and maintenance records and reviewed the school lunch program at the school and the central food commissary. All food service workers were required to provide stool specimens. As preventive and control measures, ICHD restricted fresh produce in commissary-supplied school lunches and permitted only commercially-prepared and packaged food for School A events. School field trips and special events were cleared through the health department. ICHD communicable disease nurses performed active surveillance for diarrheal illness by contacting all Lansing area schools daily.

From October 19 to 24, ICHD contacted 114 parents/guardians of students by telephone for a case-control study. A case was defined as a student who attended a Lansing school supplied by the food commissary and who was (i) lab-confirmed shigella positive or (ii) was a probable case with diarrhea and at least one of the following symptoms: abdominal cramps, fever, nausea, vomiting, or headache. A control was a student who attended a Lansing school supplied by the commissary and who was not ill. The survey tool was a 32-item questionnaire used to collect the following information: basic demographics; school and classroom; clinical symptoms and duration of illness; specimen collection information; and for the week of October 11–15, a food history, school and extracurricular activities, and restaurants and grocery stores frequented. A total of 45 cases (24 lab-confirmed) and 55 controls participated in the case-control study. No risk of illness was found related to the consumption of any school lunch food item. School A students who attended school clubs or after-school programs were not at any greater risk of illness than those who did not attend.

All school cases were students with the exception of one teaching assistant. The median age of ill students was seven years (range 5–13 years). Female students accounted for 56% of the cases. The attack rate at the school was 24.6%. Attack rates by grade were as follows: KG, 23.2%; grade 1, 31.4%; grade 2, 22.2%; grade 3, 18.4%; grade 4, 34.5%; and grade 5, 19.6%. By classroom, attack rates ranged from 0% (special education homerooms) to 35.7%. No extracurricular events, field trips, or other unusual activities were noted on

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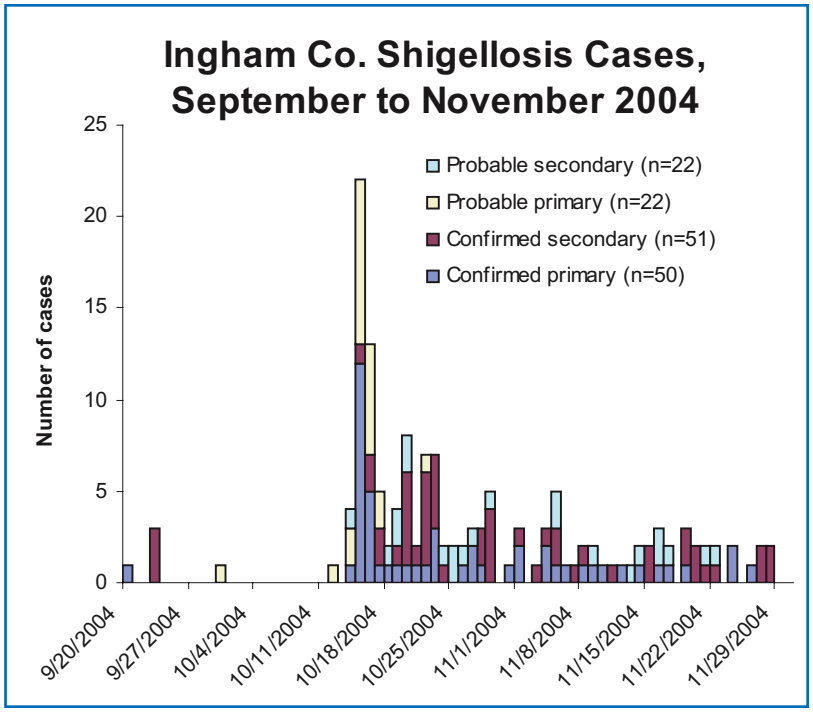
the teachers' lesson plans for the week of October 11–15. Approximately 73% of the school cases received medical care, 14% were hospitalized, and 51% were prescribed antibiotics.

Although no food samples from the school lunches were available from the week of October 11, one of the school lunch purveyors provided microbiological test data. Test results showed bacterial counts within acceptable limits. Stool specimen results of the school food handlers were negative for shigella. Water and plumbing utilities inspections at the school were satisfactory. Building maintenance records did not demonstrate any recent problems. The food service inspection at the food distribution site revealed satisfactory sanitary conditions. No environmental samples from the school were available for the week of October 11.



For the duration of the outbreak (October 14 to November 30), a case series study was conducted to describe the outbreak, document secondary transmission, and identify households at high risk for transmission to susceptible populations. Among 139 cases in the case series study, 97 were lab-confirmed; 70 cases (50.4%) were attributed to secondary transmission. Twenty-one cases were school-aged children attending 13 other schools (15.1%); 16 attended Head Start programs, preschool, or daycare (11.5%); 17 were stay-at-home children (12.2%); and 26 were adults (18.7%). Approximately two-thirds of all cases (92/139) were School A students or linked to one.

In total, 72 households were affected; 46 persons were designated high risk for transmission if they or a household contact were a daycare attendee, daycare worker, food services worker, or healthcare worker. Throughout the outbreak, ICHD nurses visited high-risk families to deliver warning letters of restrictions and clearance criteria, discuss hygiene practices, drop off stool kits, and pick up samples. Employers of high-risk individuals were notified and advised of the public health order. Clearance criteria were as follows: high-risk cases were required to refrain from work and/or daycare until symptoms abated, treatment was complete, there was no evidence of household shedding, and the individual had two negative stool specimens at least two days after treatment completion and 24 hours apart. A household contact of a high-risk case was cleared when he/she was asymptomatic, provided one negative stool sample and there was no evidence of household shedding.

Standard culture tests for stool pathogens were conducted. The infectious agent was identified as Shigella sonnei D, and was resistant to ampicillin and susceptible to ciprofloxacin, levofloxacin, and trimethoprim/sulfa. Stool samples positive for shigella were confirmed by the State Laboratory. For a selected number of cases, the State Laboratory performed shigella subtyping using pulsed field gel electrophoresis (PFGE); subtyping was also requested for cases that did not appear to be linked to School A. Among 47 PFGE results for patients with illness onset dates between October 14 and November 30, 2004, 63.8% matched the pattern associated with the outbreak; for 31.9%, the pattern differed by one band; and for 4.3%, the pattern differed by three bands. Patterns differing by one to three bands were considered closely related to the pattern associated with the school outbreak. Prior to the school outbreak, this pattern was first detected in the Lansing area in the summer of 2004 and had been circulating elsewhere in Michigan since 2002.

In summary, no point source was identified. Shigellosis cases in this outbreak were most likely the result of person-to-person transmission or person-to-fomite-to-person transmission or both. The high proportion of secondary infections in this outbreak underscores the ease with which shigella can be transmitted. Not only are young children most likely to be infected with shigella, but also are most likely to spread the illness to others.

This investigation was conducted by the Ingham County Health Department under the direction of Dr Dean Sienko; ICHD investigation coordinator was Sharon Walker. Thanks are due to Brenda Brennan, Bradley Carlson, and Dr Darline El Reda (members of the Michigan Emergency Response and Investigation Team [MERIT] from MDCH), and to Sally Bidol, Robbie Madera, and the State Laboratory for their assistance.

Cancer Genomics for Public Health

By: Deb Duquette, M.S., C.G.C.

In the advent of the genomics era, the Centers for Disease Control and Prevention (CDC) is promoting methods to improve genomic competency for public health professionals. Through support of a genomics cooperative agreement with the CDC, the Genomics Unit at the Michigan Department of Community Health (MDCH), along with the Michigan Center for Genomics and Public Health (MCGPH) at the University of Michigan, developed a series of cancer genetics educational sessions for the MDCH Cancer Section. This educational project began in late 2003 with formation of a planning committee, comprised of staff from the MDCH Genomics Unit and Cancer Section, and consultants from the MCGPH.

In order to guide the content of the course, a needs assessment was developed and pilot tested with a focus group of Cancer Section staff in early 2004 and administered to all section staff in June 2004. Results were used to guide the development of Cancer Genomics for Public Health (CGPH). The planning committee created objectives, outlined content for the modules, and selected speakers with specific cancer genetics expertise to present these modules.

Overall Course Objectives:

1. Increase genomic knowledge, interest and perception of relevance in MDCH Cancer Section staff
2. Facilitate integration of genomics into public health practice, specifically cancer programming, policy and services
3. Develop content in Cancer Genomics for Public Health to be distributed through various methods
4. Pilot a collaborative process between public health and genomic experts to increase awareness of public health's role in cancer control.

CGPH is a series of six modules, lasting eleven hours in total. The sessions took place between April 22, and June 24, 2005. The first session included a basic review of cancer genetic principles, genetic counseling and testing issues, and Michigan's existing cancer surveillance system. The second through fifth sessions explored the genetics of the five cancers targeted by the MDCH Cancer Section, specifically colorectal, breast, lung, prostate and cervical cancer. The last session included a discussion about the practical applications of cancer genetics in public health.

CGPH attendance was by invitation only and included the MDCH Cancer Section, chronic disease section managers, genomics staff members, epidemiologists, local public health providers, an Oncology Nursing Society member, and MCGPH staff. Expert speakers came from Detroit, Ann Arbor, Lansing, and Grand Rapids, and represented several systems, including academia (Wayne State University, University of Michigan), independent research (Van Andel Institute), public health (MDCH Cancer Registry) and clinical settings (Spectrum Health, Barbara Ann Karmanos Cancer Institute/Detroit Medical Center, Oakwood Hospital).

This educational initiative included an evaluation component, which consisted of surveys to participants that collect opinions about knowledge, relevance, interest, and confidence in genomics principles in public health and the effectiveness of the educational intervention. In addition, a separate survey was distributed to session speakers, asking their opinions on the intervention's effectiveness and suggestions for improvement. Focus group discussions took place in July, and a follow-up survey will also be done about 18 months later to determine how the Cancer Section applied genomics to their programs and policies. The surveys and information collected will provide valuable insight on the effectiveness, strengths, and weaknesses of the educational sessions, which will allow improvements in the course for possible future applications and further distribution.

The course objective of piloting a collaborative process between the guest speakers and public health is a unique opportunity to increase awareness of public health's role in cancer control. The guest speakers presented the tools and scientific concepts used in cancer genomics. The goal is for attendees to then utilize the presented information for practical application in the realm of public health. It is hoped that this educational project will provide a framework from which to develop future educational courses in other chronic disease areas, and to promote further collaboration with the guest speakers and their institutions.

Change Coming for Varicella Reporting in Michigan

By: Joel Blostein, M.P.H.

The Michigan Department of Community Health (MDCH) will recommend a change in reporting procedure for varicella cases (also known as chickenpox) with the start of the 2005-06 school year. Currently, surveillance for varicella involves aggregate case-count reporting. Physicians, schools, and child day care centers report simple case counts of the numbers of cases for certain age groups to local health departments (LHDs) on a weekly basis. These counts are tallied for each age group and in turn sent from the LHDs to MDCH weekly.

The new change will require varicella cases to be reported on an individual, named-case basis, similar to the way other notifiable diseases are reported. This change, which is being implemented nationwide, was initially a recommendation of the Council of

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A Case Study

This issue of Epi Insight spotlights an environmental epidemiology case study. This case study can be found and documented at the Agency for Toxic Substances and Disease Registry (ATSDR) website: http://www.atsdr.cdc.gov/HEC/CSEM/lead/casestudy_pretest.html. Please read through the case study, think about possible reasons for the problems described and turn to "The Answer" in the following pages to find out the source of the illness.

A father brings his two-year-old boy into a pediatrician's office for a routine check-up on a Saturday in the late fall. The doctor examines the boy and proclaims him to be in fine physical health. The boy's growth and development indicators are standard for his age. From the father, the doctor learns that the boy's parents are divorced and that he generally lives with his mother and her parents. (The mother had to accompany her parents to her aunt's funeral this weekend and therefore could not make the appointment.) The doctor makes a note of this information.

Three years later ...

Concerned that her child is hyperactive, the mother brings the same five-year-old boy to your office (his previous pediatrician recently retired). At a parent-teacher conference last week, the kindergarten teacher said that the boy seems impulsive and has trouble concentrating, and recommended evaluation by a physician as well as by the school psychologist. The mother states that he has always seemed restless and easily distracted, but that these first six months in kindergarten have been especially trying.

He has also complained recently of frequent intermittent abdominal pains and constipation. The mother has tried over-the-counter medicines as needed for this problem, and wonders if the change to attending kindergarten has a role in his increased complaints.

Family history reveals that the boy lives with his sister, mother, and maternal grandparents in an older suburb of your community. The child's monthly weekend visits to his father's house are working out fine. However, he seems to be fighting more with his sister, who has an attention-deficit disorder and is repeating first grade. Since the mother moved in with her parents after her divorce four years ago, she has worked with the grandfather in an automobile radiator repair shop, where her children often come to play after school. She was just laid off, however, and expressed worry about increasing financial dependence on her parents. She also worries that the grandfather, who has gout and complains increasingly of abdominal pain, may become even more irritable when he learns that she is pregnant. Her third child is due in four months.

On chart review, you see that the previous pediatrician examined the boy for his preschool physical one year ago. A note describes a very active four-year-old who could dress himself without help but could not correctly name the primary colors. His vision was normal, but hearing acuity was below normal according to a hearing test administered for his preschool physical. The previous doctor noted that the boy's speech and language abilities were slightly delayed. Immunizations are up to date.

Further history on last year's visit indicated adequate diet, with no previous pica behavior. Spun hematocrit was diminished at 30%. Peripheral blood smear showed hypochromia and microcytosis. There was no evidence of blood loss, and stool examination was negative for occult blood. The diagnosis was "mild iron deficiency anemia," and iron therapy was prescribed. The family failed to keep several follow-up appointments, but the child did apparently complete the prescribed three-month course of iron supplements. He receives no medications at this time and has no known allergies.

On physical examination today, you note that the boy is in the tenth percentile for height and weight. The previous year he fell within the 20th percentile. His attention span is very short, making him appear restless, and he has difficulty following simple instructions. Except for slightly delayed language and social skills, the boy has reached most important developmental milestones.

Questions:

(a) Is there any information that the previous physician should have asked about or looked for (or did not note) when the boy was brought in as a two-year-old?

(b) What should be included in this boy's problem list?

(c) List several possible causes for the anemia.

(d) What tests would you order to confirm or rule out your diagnosis?

For the Answer, see page 7

2005 Michigan Public Health Association Epidemiology Conference

The Michigan Public Health Association Epidemiology Conference took place on March 11, 2005, in Ann Arbor. Over 130 public health professionals and students attended. A variety of topics were featured, including dioxin exposure, avian influenza, asthma, health disparities, and shigella. During this conference, new officers were elected to the Epidemiology Section. (See photo)

New Epidemiology Section Officers (from left to right): Rebecca Malouin (Section Councilor), Tom Largo (Chair Elect), Amy Lathan (Section Councilor) and Carla Merritt (Program Co-Chair)

Former State Epidemiologist Named Outstanding Educator of the Year

The Association of Teachers of Preventive Medicine recently awarded Dr. Matthew Boulton the 2005 F. Marian Bishop Outstanding Educator of the Year. This prestigious award is given for outstanding contributions to teaching and education in preventive medicine and public health. Dr. Boulton is the former State Epidemiologist and Chief Medical Executive of the Michigan Department of Community Health (MDCH), where he served as the lead scientist/epidemiologist from 1998-2004. During this time, he was responsible for all communicable disease control and surveillance, immunizations, vital records and health statistics, and environmental exposure monitoring within the state. Currently, Dr. Boulton serves as the Associate Dean for Practice, and Associate Professor of Epidemiology at the University of Michigan School of Public Health. In addition, he is Director of the Bioterrorism Preparedness Initiative, and Director of the Public Health/Preventive Medicine Residency at the University of Michigan. The Bureau of Epidemiology at MDCH would like to express its congratulations to Dr. Boulton on such a momentous achievement.

Hepatitis C: Collaboratively Confronting the Challenge

Save the Date

On October 27, 2005, *Hepatitis C: Collaboratively Confronting the Challenge* will be presented by the Michigan Department of Community Health and the American Liver Foundation-Michigan Chapter. The event will take place at the Ypsilanti Marriott at Eagle Crest. The conference is aimed at individuals working with or interested in Hepatitis C issues, such as health care and public health professionals, substance abuse and mental health treatment staff, corrections personnel, HIV/AIDS-related community-based agency staff, and Hepatitis C advocates. The conference will include six workshop tracks: prevention, diagnosis/management/treatment, substance abuse/injection drug use, HIV-HCV co-infections, special populations, and action and advocacy. For more information about the conference and/or continuing education credits, or to be added to the mailing list, please contact: Diane Drago, Conference Coordinator at DMSdiane@concentric.net or 517-663-5147.

Employee Focus – Gary M. Kirk, MD, MPH

In July 2004, Gary M. Kirk became the new Director of the Division of Immunization at the Michigan Department of Community Health (MDCH). Kirk brings to this position years of clinical health care and management experience. Though originally from Montreal, Canada, Kirk grew up in Florida. He later earned his Doctor of Medicine (MD) from McGill Faculty of Medicine in Montreal, his Master of Health Professions Education (MHPE) from the University of Illinois, and his Master of Public Health (MPH) from the Medical College of Wisconsin.

Kirk practiced for many years as a pediatrician. During his career, he has held several leadership roles, including the Director of Inpatient Pediatrics at the University of Illinois Hospital in Chicago, the Director of Inpatient Services at DeVos Children's Hospital in Grand Rapids, the Program Director of the Pediatric Residency program at Spectrum Health/Michigan State University, and most recently the Director of the Sindecuse Health Center at Western Michigan University. He has also served as pediatrics faculty at three different medical universities.

Prior to coming to MDCH, Kirk was actively involved with several Michigan public health initiatives. His interest in asthma led him to serve on community advisory groups, such as the Pediatric and Adult Asthma Network of West Michigan, and the Asthma Resource Center for Children. His affiliation with MDCH strengthened when he became a co-chair of subcommittees for two MDCH-sponsored groups, the Michigan Asthma Strategic Planning Initiative and the Michigan Asthma Advisory Committee. It was during this time, and throughout his ten years as director of the pediatric residency program, that Kirk's interest in public health peaked.

In his current position at MDCH, Kirk supervises and oversees all Immunization staff. His extensive pediatric and health management experience made this job a perfect fit for him. As the most important goal of Immunization is to prevent and eliminate vaccine preventable diseases, much of Kirk's focus is on promoting immunization through statewide programs, such as the Alliance for Immunization in Michigan (AIM) Coalition, a valuable resource of accurate immunization information for medical providers. Although there is much work to be done, he believes Michigan has made great progress in immunization rates over the past decade, currently ranking in the top one-third of the country.

Kirk sees his role of collaborating with stakeholders as a primary and important step in advocating vaccination and boosting immunization rates in Michigan. Active communication with stakeholders and involving them in immunization processes are key to successful programs. One noted accomplishment this year was the development of the Flu Advisory Board, which includes both public and private participants. In addition to his immunization duties, Kirk continues his involvement with state asthma initiatives, including the Michigan Asthma Advisory Committee and the Pediatric and Adult Asthma Network of West Michigan.

Kirk has resided in Grand Rapids for over ten years, where he currently lives with his wife and youngest of two sons. His hobbies include reading, traveling, and collecting cowrie (a type of mollusk) shells. He enjoys staying physically active and is an avid runner.

"Change Coming for Varicella Reporting"

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State and Territorial Epidemiologists (CSTE) and subsequently endorsed by the Centers for Disease Control and Prevention (CDC).

Varicella vaccination has been part of the routine childhood immunization schedule for nearly ten years. Since then, varicella immunization coverage rates have increased impressively and chickenpox levels have declined substantially (in Michigan, the annual incidence of varicella has dropped over 80 percent compared to ten years ago). A national varicella surveillance system has become feasible.

Similar to what has occurred with other vaccine-preventable diseases, such as measles and rubella, the success of the varicella vaccination program may be changing the epidemiology of the disease in other ways. Modifying varicella surveillance to a case-based reporting approach will allow improved monitoring of varicella epidemiology with respect to variables, such as time, place, age, and others. Ultimately it will yield a better understanding of the impact of immunization on the disease, and may provide data for further policy development guiding varicella vaccine use and practice; for example, whether a second dose is needed for optimal protection.

Despite the tremendous drop in chickenpox disease levels, CDC acknowledges that levels may still be too high for in-depth case investigation and extensive data collection. Therefore, case reporting and data collection likely will focus initially on just three variables (in addition to basic case demographic information): age, varicella vaccination history, and a simple index of the case's severity of illness. In time, as incidence declines further, additional information will be required.

Again, this change is not scheduled to begin until the start of the 2005-06 school year. At this time local health departments and their disease-reporting partners (schools, day care centers, health care providers) are encouraged to begin thinking about and planning for this modification of chickenpox reporting. Additional information and guidance will be available in coming months.

The Answer: A Case Study

On the child's lab tests it was noted that he had microcytic anemia. Three of the most common causes of microcytic anemia are iron deficiency, hemoglobinopathy, and lead poisoning. In lead-poisoned patients, anemia is usually evident only when the blood lead level is significantly elevated for prolonged periods. It manifests in only a relatively small number of children with chronic lead exposure. It is possible for a patient to be both lead-poisoned and to have anemia due to some other cause. The relative rarity of nutritional iron deficiency in this boy's age group and the absence of evidence for blood loss suggest consideration of other etiologies to explain the anemia. Because of this, the physician orders a lead-poisoning specific test to rule out another reason for the anemia. With an elevated blood lead level of 50 µg/dL, the conclusion is that the boy is lead-poisoned. In this case, the child had a confirmation test and was referred for appropriate chelation therapy immediately (within 48 hours). All sources of lead exposure for the boy and his family were identified and eliminated. Environmental evaluation, intervention, and remediation began immediately. All household members were also screened for lead exposure in addition to obtaining some lead education.

Upon investigation, two of the obvious sources of lead were leaded paint at home (paint flakes, household dust, and soil) and fumes and dust from solder at the radiator repair shop. To get a preliminary sense of the potential extent of this exposure pathway, questions about the age of the family's house, when it was last painted, and the condition of the paint were asked. Also, the length, type, and precise location of the boy's play at the radiator shop were documented. The previous pediatrician would have done a better job if he or she had asked about the condition of the boy's primary residence as well as the occupations of the mother and father. Upon learning of the possibility of the contamination coming from the radiator repair shop, another great concern was the boy's mother; who is five months pregnant. Because the placenta presents no barrier to lead, the fetus' blood lead level is likely to be similar to that of the mother. It is during the initial weeks of pregnancy that the neurologic system of the conceptus is formed; therefore, damage to the fetus may have already occurred. The mother was no longer working at the repair shop, but she and the family were alerted to the possibility of continued lead exposure via the grandfather, who may be bringing lead dust home on his skin, shoes, or clothes.

Even with complete removal from the source of exposure, the blood lead level will drop only gradually because without chelation, lead is excreted slowly. In addition, even as lead is excreted, it may be replaced by lead currently stored in bones and teeth. Because of an incompletely developed blood-brain barrier, children under 36 months of age are particularly susceptible to neurologic damage at very low blood lead levels. Because children (to age seven) are more sensitive to lead's effects, most adverse effects of lead often manifest at lower blood lead levels in children than in adults. Especially in young children, lead exposure can cause subtle but damaging developmental and neurologic effects that are very difficult to identify on physical examination. In the case study, for example, the boy appeared in good condition when he was brought in as a two-year-old, but may have already been experiencing the onset of problems related to lead exposure, such as slightly impaired speaking ability, and slightly duller mental capability. Because these effects can be so subtle, a physician cannot rely on physical examination alone to determine whether a child is at risk for elevated lead exposure. The physician must also ask questions about the child's environment.

In certain states, public health authorities must be notified if a patient's blood-lead level and ZPP level exceed certain limits. In any case, the state or local health departments should be contacted so all sources of lead in the home can be identified and abated. OSHA could also be notified so the radiator repair shop can be brought, if required, into compliance with the federal lead standard. The reason for notifying these agencies is to prevent lead exposure in others.

The 2003 Michigan Behavioral Risk Factor Surveillance Annual Report is Now Available

The Michigan Behavioral Risk Factor Survey is an annual, statewide telephone survey of Michigan adults aged 18 years and older that is conducted through a collaborative effort among the Behavioral Surveillance Branch of the Centers for Disease Control and Prevention, the Michigan State University Institute for Public Policy and Social Research, and the Michigan Department of Community Health. Prevalence rates from 2003 were calculated for health risk factors, preventive health practices, and chronic conditions and can be used to help evaluate current programs or policies, evaluate community health initiatives, and determine priority health issues.

The Michigan Behavioral Risk Factor Surveillance System annual report titled "Health Risk Behaviors in the State of Michigan, 2003" is now available on the Epidemiology Services Division website under Annual Reports at: http://www.michigan.gov/mdch/0,1607,7-132--12702--,00.html. If a hard copy is preferred, please contact Michelle Cook at cookm1@michigan.gov or at 517-335-8144.

Local Health Departments Recognized at Fifth Annual Michigan Communicable Disease Conference

The Michigan Department of Community Health (MDCH) recognized two local health departments at the Fifth Annual Michigan Communicable Disease Conference in May. Health District #2 and the Saginaw County Department of Public Health were both acknowledged for excellence in outbreak investigation and collaboration with MDCH in controlling communicable disease.

Saginaw County Department of Public Health honored at Fifth Annual Michigan Communicable Disease Conference (from left to right): Becky Prill, Susan Gottleib, and John Winden. Health District #2 was also recognized, but were unavailable for photograph.

Health District #2 was honored for their excellent response and investigation regarding a hunter diagnosed with bovine tuberculosis (TB) in November 2004. All of the Health District #2 personnel involved, including Health Officer Dianna Schafer, Medical Director Greg Hanert, Nursing Supervisor Sue Lovelace, and field nurse Sue Roberts, took extraordinary steps in their investigation efforts.

Health District #2 collaborated with MDCH, the Department of Natural Resources (DNR), and several media outlets, as well as the patient, his family, and the attending physician. The District staff ensured that communications between the many agencies and interested parties was timely, complete, and accurate, and was performed with the utmost professionalism.

Not only did this investigation exemplify a great case follow-up, but the District staff was also able to produce the exhumed remains of the implicated deer (not a pleasant or easy task). As it turned out, the bovine TB strain obtained from the deer remains genotypically matched the hunter's TB strain and a strain identified as circulating in lower northern Michigan.

Health District #2 appreciated the significant economic and political implications involved with bovine TB in Michigan, and carried out an efficient and thorough disease investigation.

In the past year, the Saginaw County Department of Public Health was involved in three large outbreak occurrences. Saginaw County staff responded to a rash-like illness among dance competition participants and worked under challenging circumstances to resolve the outbreak. They promptly developed and distributed a press release, and their quick response allowed the dance participants, their families and friends to receive prompt follow-up information.

In August 2004, campers at a Saginaw County campground reported severe gastrointestinal illness. A case-control study of 239 individuals was conducted, and norovirus was determined to be the likely etiology of the illnesses. Cleaning and disinfection guidelines were provided to the campground and its visitors, after which no further illness was reported.

In January of this year, Saginaw staff responded to a cluster of cases of acute respiratory illness. The afflicted individuals stayed at the same hotel while attending a hockey tournament. Saginaw quickly took the lead in the investigation to oversee the data collection, which consisted of more than 16 youth hockey teams across the state.

The Saginaw County Department of Public Health continues to enhance and improve the quality of their communicable disease investigation methods and consistently collaborates with MDCH in a timely and effective manner. Their handling of these situations represents their commitment to high professional standards.

Congratulations to both the Saginaw County Department of Public Health and Health District #2 for their hard work and dedication to quality public health in action!

New Employees

Tracina Cropper is the new CDC Senior Public Health Advisor for TB. Cropper is from Austin, TX where she was working with the Austin/Travis County Health and Human Services Department. Prior to her assignment in Texas, Cropper worked for many years in Philadelphia. She has been working in public health since 1991 and has experience in STD and HIV as well as seven years in tuberculosis control.

Peter DeGuire will take on a new position as the Arthritis/Lupus Epidemiologist for the Chronic Epidemiology Section. In this position, he will be responsible for the design, development and management of all rheumatologic surveillance and epidemiologic activities. DeGuire has been with MDCH for over 25 years, most recently working on the Division of Environmental and Occupational Epidemiology's PBB cohort, as well as working in the Health Data Analysis Services Unit and Health Surveillance Unit of the Division of Health Statistics and Vital Records. Peter holds a Master of Public Health from the University of Illinois.

Noreen Hughes was recently hired through the Michigan Public Health Institute (MPHI) as an epidemiologist in the department of Environmental and Occupational Epidemiology to work on the Hazardous Substances Emergency Events Surveillance (HSEES) project. She received her BS from the University of Michigan in microbiology in 2000 and her MS in epidemiology from Michigan State University in 2004.

Darline El Reda is just finishing up her activities here as an EIS officer, and will be staying on at MDCH as the new Diabetes Epidemiologist. In this position, El Reda will provide epidemiological expertise to the Department on all matters concerning diabetes control and prevention. El Reda has her Doctor of Public Health, International and Family Health from the University of Texas at Houston, and her MPH from California State University at Long Beach.

Dr. Michelle Jaffe began her Preventive Medicine State Health Department residency rotation here at MDCH in May 2005, and will be here for three months. Dr. Jaffe maintains an active rheumatology practice at the University of Michigan, and recently completed her Master of Public Health in Epidemiology at the University of Michigan School of Public Health.

Leslie Jaquette has recently joined the Lead Hazard Remediation Program as the new administrative assistant. Jaquette comes from the Michigan Department of Labor & Economic Growth, Bureau of Construction Codes and Fire Safety where she spent the last six years working for the state.

Kevin Nelson is the new epidemiologist with the Maternal and Child Health (MCH) Epidemiology Unit. This position will mainly be responsible for the MCH Block Grant annual performance measures, as well as conducting the MCH needs assessment process, requiring the intensive use of different data sets housed within the data warehouse. In addition, Nelson's responsibilities will include Michigan Maternal Mortality Surveillance database maintenance, evaluation of different MCH programs, and the design and conduct of epidemiological studies. Nelson previously completed a summer internship with the Bureau of Maternal and Child Health in Rockville, Maryland. He received his PhD in statistics from the Medical University of South Carolina, his MPH from the University of Alabama at Birmingham, and his BA in economics from the University of Chicago. Prior to coming here, Nelson was involved in a variety of research projects with topics related to environment, genetics and psychiatry.

Melissa Reznar is the new HIV/AIDS Epidemiologist and Data Manager. Previously, Reznar functioned as the Maternal and Child Health Epidemiologist at MDCH. In addition, she has experience as a clinical research coordinator at Wayne State University MS Center. Reznar earned her MPH in Epidemiology, with an interdepartmental concentration in reproductive and women's health, from the University of Michigan. Her BS is in Biomedical Science from Western Michigan University.

Summer Interns

Dana Esterle is a summer intern in the Infectious Disease Epidemiology Section who is assisting with enteric illness surveillance and investigation, including foodborne outbreaks. Esterle is currently a third-year veterinary student at Michigan State University and is also working on a Master in Public Health from the University of Minnesota. She grew up in Reed City, MI and previously received a BS in Applied Biology at Ferris State University. She has an interest in food safety and production and her career goals include working as a public health veterinarian on zoonotic disease.

Steve Cali is a summer intern in the Communicable Disease Division through the Academic Health Department program. He is assisting Dawn Sievert with anti-microbial resistant organism surveillance. Cali will start his final year this fall at the University of Michigan School of Public Health to earn his Master of Public Health in Epidemiology. His public health interests are mainly in infectious diseases. He completed his undergraduate work at the University of Colorado at Boulder in Environmental, Population, and Organismic Biology. Following graduation next spring, Cali plans to work in the field of public health and possibly apply to medical school.

Jennifer Huiwen Zeng will be the Health Disparities Epidemiology Summer Intern. Zeng will be working with the Health Disparities Epidemiologist at MDCH, Shannon Zackery, to explore models of estimating the impact and potential cost savings of reducing racial and ethnic disparities. Zeng is currently a PhD Economics Graduate Student at Wayne State University.

Angela Hungerink is a summer intern in Environmental and Occupational Epidemiology. She is currently a MPH

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candidate (2006) at the University of Michigan School of Public Health, in Health Behavior and Health Education with an interdepartmental concentration in reproductive and women's health. She received her BA in Psychology/Sociology from Michigan State University. Hungerink will be working on activities related to a long-term PBB cohort, as well as organochlorine and endometriosis research. Her prior experience includes managing a research study in the Department of Epidemiology at Michigan State University.

Namrata Shah is an intern in the HIV/STD and Bloodborne Infections Surveillance Section this summer, working on laboratory reporting issues. She received her undergraduate degree in history from Carleton College in Minnesota. After working for a couple of years in the brokerage industry she entered the University of Michigan School of Public Health to study international health epidemiology. She completed this degree in May of 2005 and in the fall of 2005 she will enter medical school at the University of Illinois.

Autumn Thelen is the new word processing assistant for the Lead Hazard Remediation Program. She is a 2005 graduate of Pewamo-Westphalia High School and plans to attend Grand Valley State University this fall to study nursing. She is a temporary staff member and will be with the Lead Abatement Program through August 2005.

Marcus Wasilevich is beginning a summer employment through the Michigan Public Health Institute Applied Epidemiology Center. Wasilevich will be assisting asthma epidemiology staff with data requests and updates of asthma surveillance using hospitalization and mortality databases, and will assist with development of asthma coalition profiles and fact sheets on Medicaid and BRFSS data. Wasilevich has a PhD in Biology from Tulane University. Since moving to Michigan, he has been working with the Mid-Michigan Asthma Coalition, writing grants to fund their activities. Additionally, he teaches at Lansing Community College.

Shaakira Wilson, undergraduate student at Michigan State University, will be working this summer to support the Health Disparities Reduction Program/Office of Minority Health. She will be assisting with the development of a "Policy Framework" for the Health Disparity Reduction Workgroup, compiling a listing of all health disparity prevention efforts by department, along with other projects in support of the program.

Muhammad Younus is a new intern with the Division of Communicable Disease. He is currently conducting a Notifiable Disease profile project, the purpose of which is to create an epidemiological profile for selected diseases. His responsibilities entail analyzing MDSS data and writing summaries for those selected notifiable diseases. Younus is pursing a Master of Science in Epidemiology at Michigan State University (MSU), and has been admitted to the epidemiology doctoral program at MSU. As a graduate research assistant, Younus works at MSU's National Food Safety and Toxicology Center and is involved in infectious disease epidemiology research. His academic background includes a MD from DOW medical college in Karachi, Pakistan. Prior to his arrival at MSU, Younus was a trainee in the epidemiology and biostatistics department at the Aga Khan University Medical College, Karachi. His research interests include infectious disease epidemiology, surveillance systems, and clinical trials.

Recent Publications

Annis AM, Caulder MS, Cook ML, and **Duquette D.** Family history, diabetes, and other demographic and risk factors among participants of the National Health and Nutrition Examination Survey 1999–2002. Preventing Chronic Disease 2005; 2(2). Available from: http://www.cdc.gov/pcd/issues/2005/apr/04_0131.htm

Dombkowski K, **Lyon-Callo S,** and **Wasilevich EA.** Pediatric Asthma Surveillance Using Medicaid Claims. Public Health Reports, in press September 2005; 120(5).

Macomber KE, Boehme MS, Rudrik JT, Ganoczy D, **Crandell-Alden E,** Schneider WA, and Somsel P. Drug-resistant Neisseria gonorrhoeae in Michigan. Emerg Infect Dis 2005; 11(7).

Reeve MJ, and **Rafferty AP.** Healthy Lifestyle Characteristics Among Adults in the United States, 2000. Arch Intern Med 2005; 165:854-857.

Rosenman KD, Hanna E, and **Lyon-Callo SK.** 2003 Annual Report on Asthma Deaths Among Individuals Aged 2-34 Years in Michigan. Michigan State University Department of Medicine. March 2005. Available from: www.GetAsthmaHelp.org

Theisen V, **Duquette D,** Kardia S, Wang C, **Beene-Harris R,** and **Bach J.** Blood Pressure Sunday: introducing genomics to the community through family history. Preventing Chronic Disease 2005; 2(2). Available from: http://www.cdc.gov/pcd/issues/2005/apr/04_0134.htm

Wasilevich EA, Lyon-Callo S, Cook M, and **Rafferty A.** Asthma Prevalence and Management for Michigan Adults. Lansing, MI: Bureau of Epidemiology, Michigan Department of Community Health, April 2005.

Wotring LL, Montgomery JP, Mokotoff ED, Inungu JN, Markowitz N, and Crane LR. Pregnancy and Other Factors Associated With Higher CD4+ T-Cell Counts at HIV Diagnosis in Southeast Michigan, 1992-2002. Medscape General Medicine 2005; 7(1). Available from: http://www.

Relaying the Message: How Communicating with Stakeholders can Prevent Misunderstanding

By: Bridget Patrick and Susan Spieldenner

The first priority of any disease investigation, protecting the public health by treating those who are ill and controlling further spread of disease, is usually time consuming and labor intensive. Quite often the importance of information sharing is overlooked until public interest becomes heightened, and that dreaded media call is received. In the case of tuberculosis (TB) investigations, effective and timely health risk communication is necessary.

At times, the need to make a public statement is weighed by evaluating whether the information to be shared will frighten, repulse or infuriate individuals when they learn about a disease control investigation. An unusual case, or one in which numerous people must be contacted for case investigation, may prompt additional public awareness and interest.

When a hunter with bovine TB was reported to the Michigan Department of Community Health (MDCH) in 2004, it was quickly recognized that this case went beyond that of typical disease control. This case could possibly have had a negative outcome on the economy of the area through its effect on tourism and future hunting. It was understood that many stakeholders would be impacted by the news. Stakeholders include individuals or groups who are interested in or affected by the information to be shared. Identification of such persons and the appropriate timing of the release of relevant information are of key importance.

A primary important step in this bovine TB case was notifying the Bovine TB Eradication Project partners, those who work for regulatory agencies in the Michigan Departments of Agriculture (MDA), Community Health (MDCH) and Natural Resources (MDNR), as well as the U.S. Department of Agriculture. Early information sharing allowed these partners to prepare well in advance for questions from the public.

Additional stakeholders identified included individuals engaged in the cattle, dairy and tourism industries; privately owned businesses in northern lower Michigan that cater to hunters and farmers; local health departments; legislators; Michigan State University (MSU) researchers; veterinarians and extension agents. All of these individuals and groups needed to be notified, prior to the release of information to the general public, that a case of bovine TB in a hunter had occurred.

Surprises, or not having the relevant knowledge, when asked about such a case can place stakeholders in difficult situations. Individuals working on bovine TB issues are expected to have first-hand knowledge of current events in the news. It is also important to consider chambers of commerce, travel and tourism associations, and local units of government. If representatives from these areas are provided with relevant information prior to informing the general public, then they too may be better equipped to support information that is later released.

The above-mentioned stakeholders received early notification (or a 'heads-up') before the Michigan hunter press release went out, and before national headlines put Michigan on the map. They received justification for the release of information, along with a brief history of the issue and a statement regarding the impact the information may have on stakeholders. A 'heads-up' should include information on how rare or unusual the case is, and whether the case could have been predicted. Using statistics and/or information from previous investigations may help put the current case in perspective.

When disseminating information to the public, it is important to always consider the audiences that may be impacted by the news. In this case, they were farmers, hunters, business owners and wildlife enthusiasts. But, as with any disease, there are also unique special interest groups. Information should be truthful, but easily understood. If the message is controlled, it is much more likely that the information will be accurate. Past experience with investigations dealing with both Mycobacterium bovis and M. tuberculosis have shown that failure to appropriately release information to the public can often cause rumors and misunderstandings.

Additionally, it is important to develop a health risk communication protocol for all disease investigation situations that could be of public interest. Planning now for implications in announcing information to stakeholders and the public can save precious hours of investigative time later. The key is to assess the impact the information will have on relative constituents before it is released. Will the shared information frighten, infuriate or repulse constituents? If yes, then collaboration with all parties who may be impacted by the information is imperative. The perspective of these groups or individuals on how the news might affect their families, children, friends, and businesses should be considered and acknowledged when addressing the issue.

Communication should occur both internally and with stakeholders. The more often information is shared, the more often the message will be consistent. Each group of stakeholders will require differing amounts and details of information. Once all steps have been taken to inform immediate internal and external partners, the information should then be released to the general public in a timely manner.

In the case of the hunter with bovine TB, external audiences included livestock producers and hunters, industry representatives and special interest groups. Individuals representing the Michigan United Conservation Clubs, Michigan Farm Bureau, the Sunrise Side Association, the Alpena Chamber of Commerce and the Northeast Council of Governments were contacted and expected to notify their members of the situation.

The general public was informed through newspapers, radio, television, the Emerging Diseases website (www.michigan.gov/

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emergingdiseases), public meetings of the Natural Resources Commission, Agriculture Commission, the MDA Bovine TB Advisory Committee, and the Michigan Advisory Committee for Elimination of Tuberculosis.

Timeline of information flow regarding the Michigan hunter with bovine TB:

- October 1, 2004: Hunter accidently contracts bovine TB through a skin wound of the hand.
- November (mid): Private physician submits serum sample to MDCH Lab.
- November (late): Preliminary lab tests confirm TB. MDCH Lab Technician contacts MDCH TB Program Coordinator. Program Coordinator contacts local health department.
- November (late): 'Heads up' to internal staff and partner agencies.
    - Additional tests take 4-8 weeks to confirm strain.
- December (late): Prepare talking points and draft press release.
    - Epidemiologic investigation and lab tests confirm bovine TB infection is a Michigan strain.
- January 5, 2005: Contact stakeholders 4 to 24 hours before release of information.
- January 6, 2005: MDCH and LHD District 2 release information.
- Story printed in 87 national news outlets and several international outlets.

The planning involved in the bovine TB incident resulted in the appropriate individuals being well informed of the situation. The accurate and open communication with every conceivable stakeholder prevented potential misunderstandings.

Recent Presentations

Melinda Wilkins and **Jim Collins** presented "Protocol for Novel Surveillance System Signal Evaluation and Response" at the *Public Health Information Network Conference* on May 12, 2005, in Atlanta, Georgia.

The following Bureau of Epidemiology employees presented at the *2005 Council of State and Territorial Epidemiologists Annual Conference* on June 5-9, 2005, in Albuquerque, NM.

Tom Largo presented "Work-related Injuries Treated in Emergency Departments: Data from a Representative Sample of Michigan Hospitals."

Hien Q. Le, Stuart Batterman, Alireza Sadeghnejad, **Julia J. Wirth,** Mary Lee Hultin, Michael Depa, and **Robert L. Wahl** presented "Association of Ozone with Low Birth Weight in Southeast Michigan, 1990-2001."

Tom Largo presented a poster "Putting Data to Work: Occupational Health Indicators from Thirteen Pilot States for 2000."

The following Bureau of Epidemiology employees presented at the *Fifth Annual Michigan Communicable Disease Conference* on May 19, 2005, in Gaylord, and on May 26, 2005, in Lansing.

Mary Grace Stobierski facilitated the conference and also presented "Local Health Department Awards" and "Communicable Disease Reporting Rule Update."

Sue Spieldenner, Julie McCallum and Gail Denkins presented "Tuberculosis Risk Communication and Regional TB Nurse Update."

Sally Bidol and **Jennifer Beggs** presented "Michigan Pandemic Influenza Plan."

Carrie Bonemer presented "West Nile Virus Update."

Kim Signs presented "Rocky Racoon: It Ain't Just a Tune."

Erik Foster presented "Tails from the Streets: Lymphocytic Choriomeningitis Investigations."

Shannon Andrews presented "Prion Diseases: A Michigan Perspective."

Brenda Brennan presented "Plume of Doom: Environmental Cleaning and Disinfection of Norovirus."

Sally Bidol presented "Food Exclusions & Restrictions."

Jennifer Beggs and **Pat Fineis** presented "Hepatitis A in Michigan."

Robbie Madera and Shannon Manning presented "Molecular Epidemiology of Shiga Toxin E. coli in Michigan from 2001-2004."

Dawn Sievert presented "Reporting Antimicrobial Resistant Organisms in Michigan."

Carla Merritt and **Roger Racine** presented "Surveillance Enhancements in Michigan."

Scott Schrieber and **Kim Kutzko** presented "Healthwatch: New On-line Data Collection Tool."

The following Bureau of Epidemiology employees presented at the *39th Annual National Immunization Conference on March 21-24, 2005, in Washington, DC.*

Kyle Enger presented at a breakout session on 4-day grace analysis using MCIR data.

Bob Swanson presented at a plenary session "Using Immunization Registry Data in Program Decision Making."

The following Bureau of Epidemiology employees presented at the *Michigan Public Health Association Epidemiology Conference* on March 11, 2005, in Ann Arbor, MI.

Ann Annis, Mark Caulder, Michelle Cook and **Deb Duquette** presented a poster "Associations of Diabetes and Family History Among Adult NHANES Participants 1999-2002." This poster

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was also presented at the *19th National Conference on Chronic Disease Prevention and Control* on March 1-3, 2005, in Atlanta, GA, and at the *2005 Michigan Summit on Genomics and Public Health* on May 2, 2005, in Lansing.

Jennifer Beggs presented at a breakout session "Got Hurricanes? Michigan's Public Health Response to Florida's Little Wind and Water Problem."

Michelle Cook presented a poster "Cholesterol Screening and Awareness in Michigan." This poster was also presented at the *19th National Conference on Chronic Disease Prevention and Control* on March 1-3, 2005, in Atlanta, GA, and at the *National Behavioral Risk Factor Survey Conference* on March 5-9 in Atlanta, GA.

Jay Fiedler presented at a panel discussion of the University of Michigan Dioxin Exposure Study.

Erik Foster presented at a breakout session "Lymphocytic Choriomeningitis in Michigan: Patient and Ecologic Investigations."

Rachel Potter, Mary Rossano, Julie McQueeney, Michael Diamond, Doug Daly, Andrew Mullard, Nigel Paneth, and **Julie Wirth** presented a poster "Patterns of Sport-Caught Great Lakes Fish Consumption Among Men Attending Michigan Infertility Clinics."

Linda Wotring presented at a breakout session "Disparities by Race and Sex in the Hospitalization of HIV-infected Persons, Detroit, 1990-2003."

Shannon Zackery presented at a breakout session "The State of Michigan's Approach to the Elimination of Health Disparities and the Epidemiologist's Role in Achieving this Goal."

The following Bureau of Epidemiology employees presented at the *2005 Michigan Summit on Genomics and Public Health* on May 2, 2005, in Lansing.

Ann Annis, Deb Duquette, Michelle Cook and **Earl Watt** presented a poster "Family health history questions in Michigan surveys."

Ann Annis and **Laurie DeDecker** presented a poster "Michigan Genetics Education Needs Assessment for Nursing."

Janice Bach presented a session "Overview of the State Genetics Plan: Needs Assessment and Accomplishments."

Rosalyn Beene-Harris, Janice Bach, and Marcia Radin presented a poster "Michigan Genetics Plan: Assessment of Service and Infrastructure Needs."

Katherine Berger, **Bao-Ping Zhu,** and **Glenn Copeland** presented a poster "Survival Experiences of Michigan Infants Born with Congenital Anomalies, 1992-1998."

Glenn Copeland presented a poster "A Different View of Birth Defects as a Cause of Mortality: Using Birth Defects Registry Data to Evaluate the Full Effect of Birth Defects on Infant and Childhood Mortality, to Examine the Relative Risk of Mortality and Determine the Cause of Death Distribution among Children with Birth Defects."

Glenn Copeland, Nilsa Mack, Yolande Moore, and **Eve Mokotoff** presented a poster "Monitoring Birth Defects Rates in a Cohort of Perinatally HIV-Exposed Infants."

Violanda Grigorescu, Michael Paustian, and **Glenn Copeland** presented a poster "Contribution of Preterm Births to Michigan's CSHCS Program Population."

Rebecca Malouin, William Young, Denise Pleger, **Karen Andruszewski,** Harry Hawkins, and Kevin Cavanagh presented a poster "Redefining Cut-Points for Congenital Hypothyroidism in Michigan."

Nelda Mercer, Jane Simmermon, Janice Bach, Jennifer Dickinson, and Srimathi Kannan presented a poster "Survey of Dietetic and Nursing Professionals in Michigan Reveals a Need for Continuing Education on the Role of Folic Acid in Preventing Neural Tube Defects."

Barb Neureither, Merle Heidemann, **Janice Bach,** John Fyfe, Susan Conrad, David Dewitt, Lori Buwalda, Tim Holcomb, Lisa Weise, **Deb Duquette,** and **Mary Teachout** presented a poster "Frontiers in Genetics: A Collaboration Between Michigan State University and the Michigan Department of Community Health to Educate Secondary Teachers."

Rupalia Patel, Violanda Grigorescu, Glenn Copeland, Jane Simmermon, and **Janice Bach** presented a poster "Trends of Major Birth Defects in Michigan, 1992-2001 – Michigan Birth Defects Registy."

Lorrie Simmons presented a poster "Quality Assurance Methods for Field Audits."

Mary Teachout presented a poster "Genomics and Public Health in Action: Enhancing Chronic Disease Prevention in Michigan through Integration of Genomics in Public Health Programs."

Velma Theisen, **Debra Duquette,** Sharon Kardia, Catharine Wang, **Rosalyn Beene-Harris,** and **Janice Bach** presented a poster "Blood Pressure Sunday: Introducing Genomics to the Community Through Family Health."

EPI INSIGHT is published quarterly by the Michigan Department of Community Health, Bureau of Epidemiology, to provide information to the public health community. If you would like to be added or deleted from the EPI Insight mailing list, please call 517-335-8165.