

Nicotine Contamination of Ground Beef Sold to the Public

Jay Fiedler, M.S. and Denise Bryan, M.P.A.*

An incident involving intentional contamination of a food product occurred in Kent County earlier this year. The nature of the contamination, the number of agencies involved, and the interaction of the public health and legal authorities all presented challenges during the course of the investigation. This article summarizes the course of the incident, the epidemiologic investigation, and some of the lessons learned in light of heightened concerns about the safety of our food supplies.

On January 3, 2003, the Michigan Department of Agriculture's (MDA) Food and Dairy Division was notified by officials of a supermarket chain of what appeared to be a routine recall of fresh ground hamburger and ground beef packaged in one of their stores because of complaints received from four families. MDA made routine notifications to the appropriate federal, state, and local agencies. Approximately 36 of the 120 customers responding to the recall reported symptoms of burning in the mouth, nausea, and vomiting after consuming the product. Samples of meat provided by the four index families were sent to a private lab for screening which came back negative for bacterial agents commonly identified in cases of foodborne illness. A second recall was issued. Based on the symptoms being reported, the lab recommended a drug screen. Preliminary results came back positive for nicotine. Subsequent recalls issued by the store indicated the contaminant could not be neutralized by cooking and then specifically identified it as nicotine. The high levels of nicotine detected transformed the routine product recall into a suspected case of intentional food tampering and the FBI became involved.

Evidence suggested that the contamination was limited to the single store and identified the probable day on which the implicated product was ground, packaged and sold. In mid February, a former employee of the supermarket where the contaminated product had been sold was arrested and accused of adding a nicotine-containing pesticide during the process of preparing the ground beef for packaging.

In late January, the local health department initiated an epidemiologic investigation to assess the consistency of the clinical presentation and to establish a case definition. A case was defined as an individual who consumed ground beef product purchased from the supermarket on either December 31, 2002 or January 1, 2003 and experienced one or more of the following symptoms: burning sensation to lips, mouth or throat, dizziness, nausea, vomiting, abdominal pain, diarrhea, sweating, blurred vision, headache, body numbness, unusual fatigue or anxiety, insomnia, tachypnea or dyspnea, and tachycardia or tachyarrhythmias, with symptom onset occurring within two hours of product consumption. Potential cases were located by several means. The store kept a log of individuals returning recalled product or calling into the store to report symptoms. This log was used by the epidemiologic investigator to identify and follow up with individuals to determine who had consumed the product and experienced symptoms. These interviews also identified potential cases in the form of family members and friends who ate meals prepared with the contaminated product.

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Extensive contact tracing ensured that potential cases were identified and interviewed. Death certificates in the appropriate timeframe and geographical area were reviewed for symptoms potentially resulting from nicotine poisoning. Corresponding medical records were reviewed for further information when necessary. Local healthcare providers were solicited for additional cases after the initial recall went out.

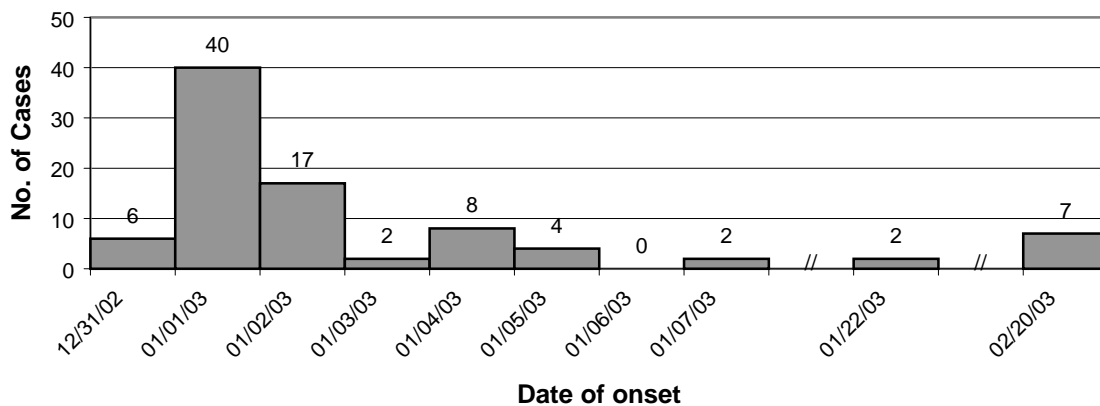
A total of 148 interviews were conducted, and 92 individuals had illness consistent with the case definition. Cases ranged in age from 1 to 76 years, with a median age of 31 years. Males and females were equally represented. Sixty-five percent of the cases lived in the town where the implicated store was located. The epidemic curve shown in Figure 1 indicates the majority of illness occurred during the time period that the contaminated product was sold. The shape of the curve is indicative of a common source outbreak with a contaminant that is not transmissible. The skew to the left also reflects the nature of the source product that would have been consumed within a few days of purchase or frozen and eaten at a later date. Cases continued to be identified as late as 49 days following the last date of potential sale, highlighting the fact that some individuals froze and then consumed the contaminated product even after multiple recalls were issued. Four of the 92 cases sought medical treatment including two who presented to their personal physicians with complaints of vomiting and stomach pains and two who were evaluated in emergency departments. No deaths were linked to the incident.

Two factors contributed to the challenge of the epidemiologic investigation and case detection: time and communication. First, the investigation was delayed by the assumption that this was a typical product recall. Lab confirmation of the contaminant took several weeks. Second, a great deal of communication was necessary to resolve the sometimes conflicting goals and organizational cultures of the agencies involved in this joint public health and criminal investigation.

There were many lessons learned during this investigation. With the continued threat of domestic terrorism, public health authorities can no longer assume that any food-related illness is normal or typical. Vigilance and heightened awareness must become part of standard operating procedures of agencies that investigate reports of food-borne illnesses to ensure that unusual events are quickly identified and properly mitigated. Also, communication during an incident is critical. Frequent contacts between all involved parties with documentation of all events and steps in the investigation will help avoid misunderstandings, improve the quality and timeliness of the investigation, and ensure that the public receives clear and understandable messages at appropriate times. Cross-training between public health and legal authorities about priorities, methods and statutory responsibilities should be part of an ongoing process and not occur for the first time during an incident.

* **Denise Bryan** is the Communicable Disease Supervisor for the Kent County Health Department

FIGURE 1. Illness associated with consumption of nicotine-contaminated ground beef by date of illness (total number of cases: 92, unknown onset date: 4)



Norovirus Puts Michigan on the Map

Sally A. Bidol, M.P.H.

Norovirus is a prototype member of the human virus family *Caliciviridae* and causes acute gastroenteritis characterized by nausea, vomiting, diarrhea, low-grade fever, and body aches. The virus was initially named following a 1968 outbreak in Norwalk, Ohio, and until very recently was known as Norwalk virus. It is readily passed person-to-person through the fecal-oral route, as a result of poor hygiene. For example, it can be transmitted from the unwashed hands of an infected person to another's hands, then to the mouth. It takes only a small number of viral particles to cause infection.¹ A common scenario is when an ill person does not wash their hands before preparing a meal, and the food and utensils become contaminated. Evidence also exists that the virus may be transmitted through aerosol formation when vomiting. The virus is hardy and able to persist in the environment and thus can be further spread through contact with soiled objects and surfaces.²

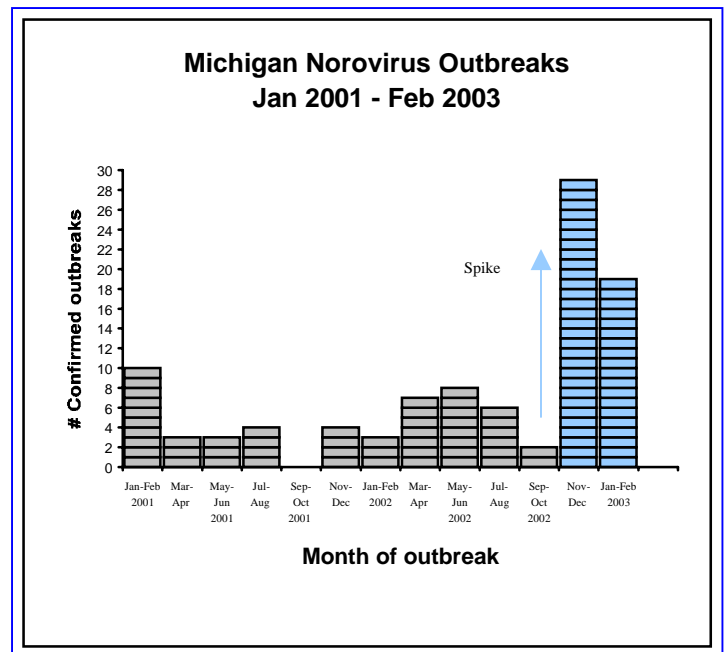
Between November 2002 and February 2003, MDCH received an unusually high number (over 50 reports) of gastrointestinal illness outbreaks occurring throughout all regions of the state, as illustrated in the figure below. Michigan Department of Community Health (MDCH) worked with local health departments to coordinate testing of patient fecal specimens from 49 outbreaks. All 49 sets of outbreak specimens tested positive for Norovirus by polymerase chain reaction (PCR) analysis.

More than half (60 percent) of these confirmed Norovirus outbreaks involved persons in institutional settings, particularly nursing homes and extended care facilities, but also several hospitals. The bulk of the institutional outbreaks were postulated to have occurred via person-person transmission or indirect spread of the virus throughout the close quarters of the institutional environments. Transmission to and from staff was also apparent.

The remainder of the confirmed Norovirus outbreaks during this period, in whole or part, appeared to involve foodborne transmission. These outbreaks predominantly occurred among work or family groups attending various holiday parties and gatherings, many of which involved either catered food or banquets held at local foodservice establishments. Attack rates were high, with up to 50-75 percent of exposed persons reporting illness. At one large banquet hall, investigation revealed that illnesses occurred among multiple patron groups totaling more than 1,000 exposed persons. All of the

other outbreaks appeared to be separate episodes and lacked any common denominators. In several of the outbreaks, including the large banquet hall, it was determined that there were one or more food workers or waitstaff who worked while ill with signs and symptoms of viral gastroenteritis. In these instances, the workers were believed to have been the source of the outbreak.

MDCH laboratory sequencing of the Norovirus strains detected in the outbreaks during this period revealed that virtually all were of the same genogroup and lineage, suggesting a dominant strain had appeared. The finding of a sole strain was unusual compared to the previous strain diversity seen among discrete outbreaks studied in Michigan. This emergent strain was first identified in Michigan in unrelated outbreaks in Oakland County (April 2002) and Clare County (August 2002). It has since been identified in other outbreaks outside of Michigan, including several of the highly publicized cruise ship outbreaks of Norovirus which affected passengers in record numbers in late 2002.



It is not yet understood whether the Michigan increase may have been associated with distinct properties of the viral strain itself, or whether the upswing was purely consistent with other accounts of increased Norovirus circulation in the U.S. at the time. *Continued on page four....*

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Another possibility is that the Michigan increase may have been influenced by heightened local surveillance due to media attention surrounding the cruise ship outbreaks.

CDC has officially designated this recent Norovirus strain as the "GII/4/Farmington Hills/2002/USA" strain after Farmington Hills, MI-indelibly marking a connection with Michigan.

1. Centers for Disease Control and Prevention. "Norwalk-like viruses." Public Health Consequences and Outbreak Management. *MMWR* 2001; 50 (No. RR-9); 5
2. Centers for Disease Control and Prevention. Outbreaks of Gastroenteritis Associated with Noroviruses on Cruise Ships--United States, 2002. *MMWR* 2002; 51; 1112-15.

New Grants

The National Institute of Environmental Health Sciences has awarded \$2,353,000 to the Division of Environmental and Occupational Epidemiology. Julie Wirth, Ph.D., M.S., in the Site Assessment Program Section will serve as the principal investigator. The purpose of the grant is to assess the effects of polychlorinated biphenyls (PCBs) on male reproductive health.

The institute has also awarded the division an additional grant of \$125,000 over five years. The principal investigators will be Lorri Cameron M.P.H., Ph.D., of the Epidemiology and Surveillance Section and Michele Marcus of the Rollins School of Public Health at Emory University. The purpose of the grant is to determine if hormonal abnormalities are associated with exposure to polybrominated biphenyls (PBBs) in a cohort of females and their offspring from the Michigan PBB Cohort.

The Centers for Disease Control and Prevention has awarded \$70,000 for one year to the Division of Communicable Disease and Immunization, HIV/STD and Other Bloodborne Infections Section for the Sentinel Surveillance for Drug Resistant HIV Strains Follow-Up Study. This is a follow-up study to re-abstract HIV treatment information and repeat laboratory genotypic testing on a cohort of previously enrolled, newly diagnosed and drug-naive clients.

The National Cancer Institute has awarded a \$10,000 one-time grant to the divisions of Communicable Disease and Immunization, and Epidemiology Services to perform an HIV/AIDS and cancer registry match. This is a cooperative project between the HIV/STD and Other Bloodborne Infections and

the Vital Records and Health Data Development sections. The purpose of this study is to investigate the neoplastic outcomes of infection with HIV. Objectives include determining the risk of cancer for persons with HIV/AIDS, which factors may be predictive of cancer among infected persons, and if cancers in persons with HIV/AIDS differ from cancers among the general population. An additional objective is to increase communication between the HIV/AIDS and cancer registries to enhance surveillance.

The Assessment and Local Support Section of the Division of Communicable Disease and Immunization recently received a supplemental grant for \$79,000 to enhance the quality of data in the Michigan Childhood Immunization Registry.

Fall 2003 Regional Immunization Conferences

Planning for the 2003 regional immunization conferences is underway. The locations and dates for the 2003 conferences have been scheduled as follows: September 25 – Marquette; October 14 – Gaylord; October 20 – Kalamazoo; October 22 – Ypsilanti; October 28 – Troy; and October 30 – East Lansing.

Conference brochures will be mailed out by the end of May. All recipients of the Michigan Immunization Update newsletter will receive a conference brochure, and they will also be available upon request. Registrations will not be accepted until the conference brochures are mailed out.

If you have not received a brochure by June 2, you may call the Division of Communicable Disease and Immunization at 517-335-8159 to request a brochure.

For registration details, see the conference brochure. For more information, contact:

Rosemary Franklin (franklinr@michigan.gov / 517-335-9485) or Darcy Wildt (wildtd@michigan.gov / 517-335-9486)

2003 Communicable Disease Conferences

May 16th-Treetops Resort, Gaylord, MI
 June 3rd-Holiday Inn Express, Okemos, MI
 Registration has already been sent out. Please contact Mark Schmidt with questions (517) 335-8186.

Surveillance of Medical Errors

Corinne E. Miller, D.D.S., Ph.D.

The Institute of Medicine (IOM) report *To Err is Human: Building a Safer Health System* noted that between 44,000 and 98,000 people die in U.S. hospitals each year from preventable medical errors with total costs running between \$17 billion and \$29 billion.¹ If accurate, this places medical errors among the top 10 leading causes of death in the U.S. As these estimates exclude non-hospital settings, the scope of the problem may be considerably larger. Medical errors can occur in settings ranging from hospitals to patients' homes and can involve medicine, surgery, lab reports, diagnosis, or equipment. The IOM report emphasized that most medical errors are the result of complex systems rather than individual negligence, thus prevention of medical errors must take a systems approach rather than one of individual blame.

Numerous federal, state, and private entities have implemented initiatives to address medical errors. Recently, the Agency for Healthcare Quality and Research and the American Academy of Pediatrics have partnered to disseminate information on preventing medical errors in children. The Leapfrog Group, a voluntary organization that includes more than 120 Fortune 500 companies (such as General Motors) as well as large public health care purchasers, has focused on three hospital safety measures: computerized physician order entry, evidence-based hospital referral, and ICU physician staffing.² Twenty states have mandatory reporting of adverse events. The Joint Commission on Accreditation of Healthcare Organizations encourages self-reporting of sentinel events that include medical errors (e.g., any patient death, paralysis, coma, or other major permanent loss of function associated with a medication error, a procedure on the wrong patient, wrong side of the body, or wrong organ) or events that might involve medical error (intrapartum death).

The science of defining, tracking and preventing medical errors is in its infancy. Although both mandatory and voluntary reporting systems exist, they are unstandardized and vary widely in the scope of information collected. States with mandatory reporting usually have a regulatory focus and collect information on adverse events, including unexpected death or serious injury. Redesigned systems, like New York's, incorporate a broader systems approach. For example, although wrong-side surgery receives much attention, New York data indicated the problem extended to less invasive procedures such as insertion

of chest tubes on the wrong side. As a result the state's health commissioner convened experts to develop recommendations on pre-operative protocols.³

The National Summit on Medical Errors and Patient Safety Research identified goals for research on the epidemiology of errors.⁴ Goals that could be addressed through surveillance include: describing types of errors, assessing error rates by health care setting, and identifying groups at risk for particular kinds of errors. For example, a study found that foreign bodies are more likely to be left in patients undergoing emergency surgery or those who have a higher body mass index.⁵ A federal patient safety data system has been proposed. Its goals are to improve safety by monitoring the cause, frequency, and impact of targeted safety events; establishing priorities for safety promotion programs; and disseminating lessons learned.⁶ A December 2002 article in the *Washington Post*, "No End to Error," suggests that three years after the landmark IOM report little has been done to reduce death and injury. Clearly, epidemiologic skills have the potential to play an integral role in enhancing patient safety through the tracking of medical errors.

1. *To Err is Human: Building a Safer Health Care System*. Washington, DC: National Academy Press, 1999.

2. The Leapfrog Group for Patient Safety: Rewarding Higher Standards. Available from: URL: <http://www.leapfroggroup.org>. Accessed January 2003.

3. NYPORTS: The New York Patient Occurrence and Tracking System Annual Report, 1999. New York State Health Department. Available from: URL: <http://www.health.state.ny.us/nysdoh/commish/2001/nyports/nyports.htm>.

4. Research Agenda: Medical Errors and Patient Safety. National Summit on Medical Errors and Patient Safety Research. October 2000. Available from: URL: <http://www.quic.gov/summit/resagenda.htm>.

5. Gawande AA, Studdert DM, Orav EJ, Brennan TA, Zinner MJ. Risk factors for retained instruments and sponges after surgery. *N Engl J Med* 2003;348(3):229-35.

6. New Federal Patient Safety Data System. National Summit on Patient Safety Data Collection and Use. Rockville, MD: Agency for Healthcare Research and Quality. May 2001. Available from: URL: <http://www.ahrq.gov/qual/taskforce/gerber.htm>.

Presentations

Elizabeth Wasilevich, M.P.H., of the Epidemiology Services Division has had an abstract accepted for a poster presentation at the National Conference on Asthma in June in Washington, D.C. The title of the poster is, "Socioeconomic Disparity in Asthma Hospitalization Rates of Southeast Michigan."

Employee Focus-Brendan Boyle

Brendan Boyle, M.P.A., is currently a Resource Program Specialist within the Toxicology and Response Section of the Division of Environmental and Occupational Epidemiology. Boyle began his career at MDCH in 1988 as a Field Investigator under a newly formed cooperative agreement between the Agency for Toxic Substances and Disease Registry (ATSDR) and Michigan Department of Public Health. Since then Boyle has been part of a team that conducted health assessments on almost every one of the eighty plus Superfund sites in Michigan. The assessments and consultations continue today for "Superfund" caliber sites, Brownfield properties, and other properties impacted in some way by contamination.

The largest projects in the health assessment area that Boyle now supports are two petitioned health assessments, one for the dioxin contamination in Midland and one for dioxin on the floodplain of the Tittabawassee River. Boyle says his most rewarding recent accomplishment with the Bureau is "working with about a dozen DEQ and MDCH staff on the Midland and floodplain dioxin situation. This controversial investigation and assessment has had some very difficult moments where "I was able to observe and appreciate people doing the right thing." The investigation is multifaceted and ongoing involving the community, industry, state and local agencies, and local officials.

Currently, Boyle also performs phone consultations, field investigations, health professional training, and prevention actions for elemental mercury spills. In addition, he has worked with Michigan-based utilities, the EPA, physician offices, schools, hospitals, day care providers, home inspectors, fire departments, and local public health departments to raise awareness about the effects of mercury contamination. Using MDCH's state of the art mercury vapor analyzer, Boyle conducts investigations of mercury spills in homes and schools very often due to broken thermometers and promotes safe disposal of mercury containing products to prevent such events. Boyle authors presentations, contributes to agency policy development, and produces informational documents. The goal is to educate people about how to take quick and appropriate action if a mercury spill occurs and how to avoid the associated serious health effects.

Boyle received a B.A. in English Literature from Syracuse University and a M.P.A. from Western Michigan University and has had more training events with ATSDR, Civil Service, and Toastmasters than can be recorded in one blue book. His hobbies include writing (mainly works of fiction), stained glass, fishing, furniture moving, and collecting antique soldering irons. Boyle resides in East Lansing with his wife Kathleen and their two dogs, Cormac and Sonnie.

Michigan's First Surgeon General

Dr. Kimberlydawn Wisdom is Michigan's first surgeon general. Governor Jennifer Granholm appointed her to the position in February 2003. Dr. Wisdom will lead Michigan's public health promotion and disease prevention efforts. She will also be the state's advocate for community-based health.



Dr. Wisdom has been a board-certified emergency medicine physician at Henry Ford Health System in Detroit, and an assistant professor of medical education at the University of Michigan Medical Center in Ann Arbor. She received her master's degree in clinical research design and statistical analysis from the University of Michigan School of Public Health.

Dr. Wisdom has been active in many federal, state, and local community health initiatives. She has contributed to many projects that focus on health concerns in the City of Detroit. Her research interests include diabetes education and policy, of which she has published numerous journals. The Michigan affiliate of the American Diabetes Association (ADA) has recognized Dr. Wisdom for her role in establishing the Detroit chapter. She also received the Michigan ADA Outstanding Service Award for outstanding service to the people of Michigan in the fight against diabetes.

In 2002, Crain's Detroit Business magazine bestowed its Healthcare Heroes Award to Dr. Wisdom for her work focusing on the urban healthcare crisis in the African-American community.

The Michigan Public Health Biomonitoring Planning Grant

Julie Wirth Ph.D., M.S.

Michiganders are exposed both knowingly and unknowingly to a variety of chemicals in their daily lives. These may be environmental exposures, exposures related to food consumption, or occupational exposures. PBB, mercury, and lead are well-publicized examples of these types of chemical exposures with documented detrimental health effects. Measuring the health effects associated with varying levels of exposure to these chemicals is of great interest to public health, as well as identifying, measuring, and monitoring other potentially harmful chemicals. Michigan Department of Community Health (MDCH) is working to enhance their capacity for this practice, known as biomonitoring, through a new partnership.

In October 2001, MDCH received funding from the Centers for Disease Control and Prevention (CDC) for a "Public Health Biomonitoring Planning Grant." The grant was awarded to the Bureau of Laboratories to develop a plan to increase biomonitoring activities in Michigan. The grant represents a partnership between the Bureau of Laboratories, with Drs. Frances Pouch Downes (Principle Investigator), John Riebow, and Paul Loconto; and the Bureau of Epidemiology, with Drs. David Wade, Lorri Cameron, and Julie Wirth. The objectives of the Planning Grant are to: (1) identify chemicals present in the Michigan environment associated or potentially associated with adverse human health outcomes; (2) assure that laboratory protocols and analytic capacity for their measurement are in place; and (3) develop a plan to collect specimens from the general population and from high risk groups to analyze for these chemicals. At the end of the two years, a 5-year grant proposal to implement the biomonitoring plan will be submitted to the CDC.

Over 34 individuals from a variety of organizations across the state of Michigan provided input into this plan, including state health officials; university scientists; individuals representing the automobile industry, Native-American, African-American and Arab-American groups; and environmental advocacy groups. From this collection of individuals, we selected a group of stakeholders representing the spectrum of environmental health perspectives in Michigan. The stakeholders fell into two groups: those with expertise in clinical laboratory management and analytic techniques (Analytical Chemist Group) and those with other areas of expertise (Implementation Planning Group). The

groups met apart and together three times with the goals of developing a set of criteria for selection of chemicals to biomonitor, a list of chemicals to biomonitor, and the justification for selecting each chemical. At the end of the last session, it had been determined that the selection criteria would be probability of human exposure, human health effects and seriousness of the health effects. We also had a list of priority chemicals to biomonitor and had identified the analytic methods and equipment needed for their analyses. A report containing the priority list of chemicals with background on their selection criteria and their potential for human health effects was written and submitted in April 2003 to the Michigan Environmental Science Board for their review and comment.

The epidemiologists are currently developing a representative sampling plan for the general population of Michigan along with focused pilot studies to assess levels of specific chemicals in high-risk groups. The analytical chemists are finalizing an integrated biomonitoring analytical approach to sample preparation and analysis. The final plan will become part of the Biomonitoring Implementation Grant application, which will be submitted to CDC in early July 2003. If funded, this Biomonitoring plan will provide the Michigan Department of Community Health Laboratories with the latest technology and procedures for chemical analysis. The new analytic resources will also be available to researchers and health practitioners concerned about health effects of environmental chemicals. Not only will the plan collect state-specific human exposure data for these chemicals, but researchers and health practitioners will be able to submit their own samples for analysis to the Michigan Department of Community Health Bureau of Laboratories.

If you have any questions about biomonitoring, you can contact Julie Wirth with the Division of Environmental and Occupational Epidemiology at wirthjul@michigan.gov.

Publications

Schmidt, Mark A. and Eve. D. Mokotoff. HIV/AIDS Surveillance and Prevention: Improving the Characterization of HIV Transmission. Public Health Reports, 2003; 118:197-204.

Boulton, M., Stanbury, M., Wade, D., Tilden, J., Bryan, D., Payne, J., Eisenga, B. Nicotine Poisoning After Ingestion of Contaminated Ground Beef --- Michigan, 2003. MMWR, 52(18); 413-416. May 9, 2003.

An Overview of Meningococcal Disease in Michigan, 2002

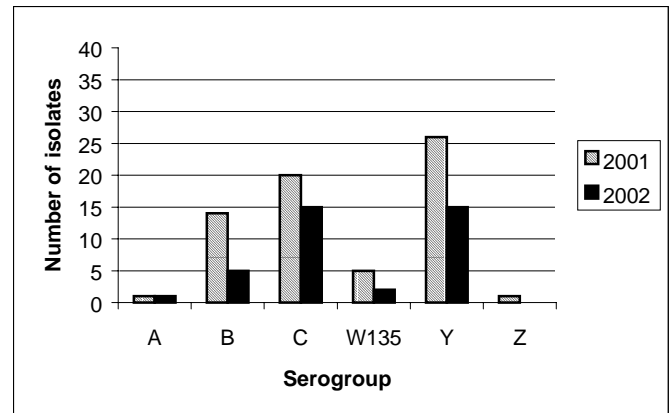
Shannon Manning, Ph.D., M.P.H.
Mark Schmidt, M.P.H.

In 2002, the Michigan Department of Community Health (MDCH), Bureau of Epidemiology noted 47 cases of invasive meningococcal disease reported to local public health authorities. This represents a 43 percent decrease from the number of cases reported in 2001 (n=83) and 35 percent fewer cases than the five-year average (1997-2001). However, year-to-year fluctuations in the number of cases demonstrate a non-significant change over time. For cases reported in 2002, 51 percent were male, which is consistent with the 5-year average (50.8 percent). The mean age for cases in 2002 was 39.1, which is significantly older than the five-year average of 27.1 years ($p < 0.005$). The 2002 case fatality rate, for those cases where outcome was reported, was 13 percent.

The MDCH Bureau of Laboratories (BOL) works with state-wide laboratories to receive clinical isolates of *N. meningitidis* for serogrouping. BOL received 119 invasive *N. meningitidis* isolates between 2001 (n=49) and 2002 (n=70) from 117 different individuals. Only invasive meningococcal disease, where isolates are taken from a normally sterile site, are required to be reported to the health department. Isolates were obtained from various sources in patients ranging in age from 15 days to 99 years. The predominant isolation source was the blood (n=72) followed by the cerebrospinal fluid (CSF) (n= 29). Other sources included the cervix (n=1), eye (n=1), pericardium (n=1), sputum (n=8), synovial fluid (n=1), throat (n=4), urine (n=1), and vagina (n=1). The serogroup distribution is highlighted in Figure 1. The change in the overall frequency of serogroups over time was marginally significant ($p=0.08$). Furthermore, there appears to be an association between isolation source and serogroup. Serogroup Y, for example, was 4.4 times (95 percent CI: 1.10, 18.51) more likely to be isolated in the blood versus the CSF when compared to serogroup B.

The above data demonstrate that despite year-to-year variations, invasive meningococcal disease remains a communicable disease threat in Michigan and is predominately caused by serogroups B, C and Y. Additional research may be needed to investigate whether changes in serogroup distribution will continue and whether serogroup specific factors are important in the pathogenesis and severity of illness.

Figure 1. Serogroup distribution of *N. meningitidis* isolates collected in Michigan between 2001 and 2002.



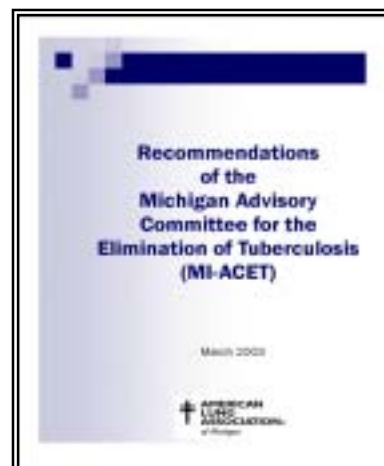
2003 MI-ACET Recommendations Issued

The Michigan Advisory Committee for the Elimination of Tuberculosis (MI-ACET) is a group of representatives from private and public agencies that was formed in 1992 with the goal of developing strategies and recommendations for the elimination of TB in Michigan.

The committee published the first edition *Recommendations of Michigan Advisory Committee for the Elimination of Tuberculosis* in 1995.

A second edition of this document has been recently released. This represents the group's efforts to provide the latest TB prevention and control strategies and recommendations. A copy of the 2003 MI-ACET recommendations will be sent to all local health departments when printing is complete.

Dr. Mary Grace Stobierski along with Gabe Palumbo, Sue Spieldenner, Teri Lee Dyke, and Julie McCallum from the MDCH TB Program and Dale Berry from the MDCH Laboratories participated on this committee.



HIV/AIDS Surveillance –Directions for the Future Nationally and in Michigan Eve Mokotoff, M.P.H.

The Division of HIV/AIDS Prevention-Surveillance and Epidemiology at the Centers for Disease Control and Prevention (CDC) has reorganized to stress new directions for HIV and AIDS surveillance. CDC's Strategic Plan has an overarching national goal to reduce new HIV infections in the U.S. by half, from 40,000 to 20,000, focusing particularly on eliminating racial and ethnic disparities. In order to measure progress on this goal, the need to count new infections is obvious. What is the status of surveillance for incident HIV infections nationally and in Michigan?

Nationally there is a patchwork of HIV reporting systems. Thirty-three areas, including Michigan, have a name based HIV reporting system. These states represent about 60 percent of reported AIDS cases. The remainder has some kind of coded system and one state has no HIV reporting system. The result is that there is no national system for HIV reporting.

For states, like Michigan, that do have an integrated HIV/AIDS reporting system, we still can only report new *diagnoses* of HIV. Given the length of time one can be asymptomatic with HIV, a new report may reflect either a recent or a long-standing infection. CDC is initiating a new surveillance system for measuring incident HIV infection using a less sensitive ELISA test on Western Blot confirmed positive blood specimens that represent a newly reported infection. Michigan is one of five pilot sites implementing this test to measure new HIV infections. As a part of this effort to conduct incidence surveillance, is a related project to measure the presence of antiretroviral drug resistance among recently infected persons. We expect to be eligible to apply for supplemental funds for this project this summer. This information has the potential to focus prevention programs more tightly as well as to evaluate our success in preventing new HIV infections

One objective of the CDC Strategic Plan is to increase the proportion of persons who consistently engage in behaviors that reduce risk for HIV transmission or acquisition. Surveillance for behaviors that can transmit HIV among both infected and uninfected persons can allow us to measure our success at attaining this objective. Nationally there are studies that measure these behaviors. Again, Michigan is well placed to be part of this effort. We have been surveying behaviors among HIV-infected

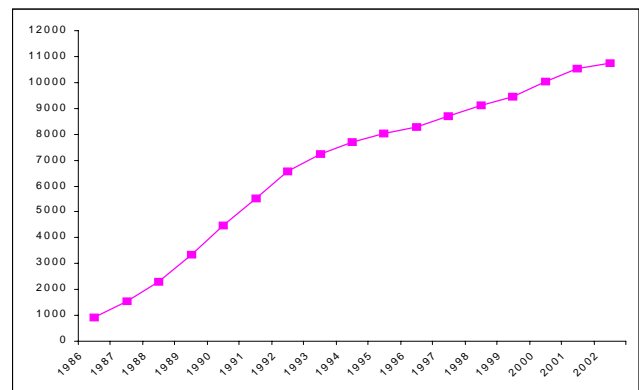
persons in southeast Michigan for over ten years. Last year we completed a survey of risk-related behaviors primarily among uninfected persons. Specifically, we interviewed men who have sex with men in gay bars, injection drug users in the street and at needle exchange programs and heterosexuals who attend public sexually transmitted disease clinics in Detroit, Oakland County, and Grand Rapids. We expect data from this survey to become available later this year. In order to increase the amount of behavioral data available to states, CDC has funded the 15 cities with the highest number of AIDS cases. We were not among them but expect to be funded next year to participate in this new behavioral initiative.

Many of the surveillance-associated projects that CDC has funded over the last decade are being re-evaluated to assess their ability to measure progress on meeting the goals of the Strategic Plan. Michigan is well positioned to rise to this challenge and produce data useful for our own prevention and care planning.

Status of the Epidemic in Michigan:

Current trends among persons newly infected with HIV in Michigan show that the epidemic is stable in Michigan. In order to evaluate trends we adjusted cases for reporting delay. Using these adjusted numbers we see that in the early-to-mid 1990's approximately 1,000- 1,100 persons were diagnosed each year. This number decreased to 800-1000 cases each year during the late 1990s and is again increasing to 1100 cases diagnosed during 2001. The trend over this time period is, therefore, level. This is also true for risk, race, and sex sub-groups. Because the number of people newly diagnosed each year is larger than the number who die the overall prevalence of HIV disease in Michigan is increasing. This is shown in Figure 1.

Figure 1: Reported number of MI residents living with HIV/AIDS.



Collaborations

The MI BRFSS, within the Health Survey Section of Epidemiology Services Division is collaborating with the Michigan Center for Excellence in Health Statistics (MICEHS) on the issue of accessing household populations through changing technology. An award by the National Center for Health Statistics established the MICEHS. This center is housed at the University of Michigan Institute for Social Research and includes researchers from the UM School of Public Health, the University of Maryland, and the National Opinion Research Center

Coverage and cooperation by household populations is an increasing concern for the long-term viability of current telephone survey methods. Since much of public health surveillance currently depends upon this methodology, a large portion of essential public health data is at risk. We will collect data on fixed line telephone service, the availability and usage of cellular phones, screening devices, and internet service for this effort in our 2003 survey.

The Vital Records and Health Data Development Section, also within the Epidemiology Services Division, is involved in several new collaborations.

Work is nearly complete on a collaboration of a study of the birth outcomes among children born to parents who are childhood cancer survivors. This study is titled "Pregnancy Outcomes in Childhood Cancer Survivors" and is being conducted in Michigan by Merlin Hamre, M.D., of Children's Hospital and the Karmanos Cancer Institute. The role of the Vital Records and Health Data Development staff is to link the patient data to the live birth files to identify the children of the survivors, develop de-identified statistical files of the data, and select a control group of live births for comparison purposes. The study involves the linkage of patient data for survivors of childhood cancer with the birth files to identify births to the survivor (3,135).

A follow-back study that will investigate a sample of invasive cervical cancer cases diagnosed over the years 1998 through 2000 and all cervical cancer deaths between 1998 and 2001 is being conducted in collaboration with staff in the Cancer Control Section. The study will conduct medical record reviews to collect data on screening history, case management, treatment, and outcomes. The goal of the study is to identify primary factors that contribute to late stage at diagnosis and cervical cancer death and to develop baseline information on indicators that relate to poor outcomes. Office staff has

provided statistical data for use in study design, data for drawing of the samples, and the actual information on the cases needed to locate the appropriate records for abstracting.

Three related studies are being conducted using live birth data and various medical history information on children with asthma. The studies are being conducted by researchers at Henry Ford Health Systems, with the project director being Christine Joseph, Ph.D. Vital Records staff link the data files to live birth files for extraction of key information, with birth data located on all but 170 of the 8,796 cases. The three studies that are being conducted explore racial differences in asthma patients, age of asthma incidence, timing of immunizations as risk factors for asthma, and the relationship of blood lead levels and asthma.

New Employees

Erik R. Janus, M.S., is the new toxicologist for the chemical terrorism group in the Division of Environmental and Occupational Epidemiology. He comes from Baltimore, Maryland, where he was an environmental scientist and risk assessor with the U.S. Army Center for Health Promotion and Preventive Medicine. He holds a M.S. in Environmental Science from Johns Hopkins University and has been trained at the Risk Sciences and Public Policy Institute of the Johns Hopkins School of Public Health. Janus will primarily serve as a subject matter expert in the toxicology and laboratory analysis of chemical weapons of mass destruction.

Tim Bolen, Ph.D., M.S., is the new regional epidemiologists for Bioterrorism in Region 3 (Central East Michigan) based at the Midland County Health Department. Bolen has had diverse experiences as a respiratory therapist, an educator, and an epidemiologist in Kent County. Bolen received his M.S. from Central Michigan University and his Ph.D. from Michigan State University.

Tracy Proverbs-Singh, M.P.H., is the new regional epidemiologist for Bioterrorism Region 2N (Oakland, Macomb and St.Clair). Her home office is in Oakland County Health Department in Pontiac. She received a B.S. in Microbiology from the University of Michigan in May 2001 and a M.P.H. in Epidemiology from Tulane University School of Public Health and Tropical Medicine, in December 2002. Previously, she worked in prostate cancer research at Louisiana State University.