In October 1999, the Centers for Disease Control and Prevention in Atlanta released a national plan to eliminate syphilis from the United States by the year 2005. Although disease elimination and eradication represent new and challenging public health strategies, the time seems right to attempt syphilis elimination with national rates at an all-time low. Interrupting sustained transmission of this disease would have far-reaching implications for the public’s health. Because syphilis can cause genital ulcers, the likelihood of sexual transmission of HIV and other sexually transmitted diseases is greatly increased. Moreover, congenital syphilis in the young and late syphilis in adults may result in persistent, severe health problems and is sometimes fatal. The elimination of this disease would also address one of the most pronounced racial disparities of any health condition in this country, since a significant majority of all cases occur in African-Americans. Five strategies have been deemed critical to accomplish the goal of syphilis elimination: enhanced surveillance, strengthened community involvement and partnerships, rapid outbreak response, expanded clinical and laboratory services, and enhanced health promotion.

The plan specifically targets 28 high morbidity counties where more than half of all syphilis cases occur nationally. Wayne County is one of these high morbidity areas and receives federal funds specifically targeting syphilis elimination. In 1999, Detroit ranked seventh in the nation for primary and secondary (P&S) syphilis, with a rate of 15 per 100,000 persons. The national goal is to reduce P&S cases to .4 per 100,000 persons and to increase the number of counties with no syphilis to 90 percent by 2005. The accompanying graph illustrates the number of cases of P&S syphilis in Detroit and out-state from 1986 to the present. The number of cases steadily increased throughout the late 1980s, peaking in 1991, and reaching an unprecedented low in 1997. Since 1997, the number of cases in Detroit has been gradually increasing, while the number of out-state cases has stabilized.

The Bureau of Epidemiology has been working with the Division of HIV/AIDS—STD to enhance syphilis surveillance and to develop a better understanding of the epidemiology of syphilis in Michigan. One of our principal objectives is to thoroughly characterize case demographics and risk behaviors in order to target prevention and intervention activities to persons at greatest risk for syphilis acquisition. Towards this goal, we abstracted data from interview records of cases from 1997-99 and were able to identify some interesting trends that occurred over this time period. The proportion of male cases increased from 52 percent to 61 percent of the total P&S cases reported, even though the proportion of cases classified as men who have sex with men has not increased. In addition, cases are getting older on average. The mean age increased from 34.5 years in 1997 to 37.3 years in 1999 for males and from 28.9 years to 32 years for females.

Changes in risk behaviors were noted as well. Although the number of cases increased over this time period, behaviors that typically result in increased STD transmission appear to have decreased. For instance, illicit...
The Michigan Maternal Mortality Study
Joanne G. Hogan

The Michigan Maternal Mortality Study (MMMS) began in 1950 as a collaborative effort among the Michigan Department of Community Health (MDCH), the Michigan State Medical Society, and the medical schools in Michigan. The Epidemiology Services Division works with hospitals, medical examiners, and the MDCH Division of Vital Records to identify cases and conduct the study. The goal is to identify trends in causes, risk factors, and sociodemographic characteristics of maternal deaths in Michigan.

Maternal mortality is defined as the death of a woman during or within one year of the end of a pregnancy. A pregnancy-related death is due to one of the following: complications of the pregnancy, a chain of events initiated by the pregnancy, or an unrelated condition aggravated by the physiologic or pharmacological effects of pregnancy. A pregnancy-associated death is from any cause while pregnant or within one year of the end of the pregnancy, regardless of duration or site of the pregnancy.

The MMMS collects information on both pregnancy-associated and pregnancy-related deaths. An intensive review of prenatal, labor and delivery, and other inpatient records; autopsy reports; and birth and death certificate data is conducted. This information is reviewed by a committee of physicians and nurse midwives to assign cause of death, assess preventability, and recommend educational efforts to avoid future deaths.

Pregnancy-related mortality ratios for both black and white women in the U.S. decreased dramatically between 1940 and 1982. Since 1982, overall ratios have remained relatively constant. Black women continue to experience pregnancy-related mortality ratios of approximately 20 per 100,000 live births, three to four times higher than that of white women in the U.S. Healthy People 2010 sets an overall goal of 3.3 maternal deaths per 100,000 live births. The ratio for white women in Michigan between 1987 and 1996 was 3.6 per 100,000, whereas the ratio for black women in Michigan for the same time period was 22.6. This resulted in the largest racial disparity in the U.S. of 6.3, and a total maternal mortality ratio of 7.5 for the state.

Between 1990 and 1998, the MMMS identified 516 pregnancy-associated deaths resulting in a pregnancy-associated mortality ratio of 41/100,000. Eighty-nine of these deaths were coded as pregnancy-related on the death certificate resulting in a pregnancy-related mortality ratio of 7/100,000. Pregnancy-related mortality declined slightly for white women (4.2/100,000 in the 1980s to 3.4/100,000 in the 1990s), whereas the ratio for black women remained relatively constant at 21/100,000.

Because pregnancy-related deaths are rare and the numbers vary between only six and 16 each year, ratios can fluctuate widely. However, Figure 1 illustrates the consistent large yearly racial disparities in mortality ratios.

Continued on page 3
Analysis of the M M S data also indicates that while older women are more at risk of dying than younger women, the largest racial disparities for pregnancy-related mortality ratios are between younger black and white women. In terms of educational level, the highest mortality ratio for black women occurs in women with over 12 years of education, whereas the highest mortality ratio for white women occurs in the group with a only high school education. Thus, pregnancy-related mortality in black women is associated with higher education level and age. Black women are also more likely to die from causes leading to pregnancy loss than white women, and black women are more likely to die from pregnancy-related causes than white women given the same level of prenatal care.

Currently, information gathered during the review process is used for training medical providers. Targeted reports, posters and other presentation materials summarizing the findings from this study are being planned in partnership with the Division of Family and Community Health and representatives of professional organizations, medical schools, hospitals, and community based programs involved in the delivery of services to high risk women. This information can be used for training residents in obstetrics and gynecology, emergency room physicians, and hospital intensivists. In addition, it is anticipated that this information will encourage the development of state and local data-driven programs to improve the access and quality of care for pregnant women.

References


Public Health and the Hog

As more and more urbanites undertake longer and longer commutes to claim homesteads in Michigan’s rural heartland, they often come nose-to-nose, perhaps for the first time, with modern agriculture. Although agriculture-related complaints are routed through the Michigan D Department of Agriculture (MDA), the Michigan Department of Community Health’s 1-800-MI-TOXIC hotline also occasionally receives calls from residents seeking relief.

A 1995 census by the MDA showed 1.10 million hogs and pigs residing on some 4,100 hog farms in Michigan, which as a state ranks 11th in the nation. The top five hog producing counties in Michigan — Cass, Allegan, Branch, Ottawa, and Van Buren — are all in the southwestern part of the lower peninsula. These hog farms run the gamut from small farms of only a few animals to factory farms that house thousands of pigs in metal barns where much of the day-to-day operations are mechanized or automated. Regardless of their size, many hog farms have to contend with a serious public relations, and potentially public health, issue: odor. Some local ordinances have provisions for dealing with nuisance odors. However, the Michigan Right to Farm Act, P.A. 93, enacted in 1981, provides farmers with protection from nuisance lawsuits, including odor.

Scientists at the United States Department of Agriculture (USDA) have identified more than 200 separate volatile organic compounds, gases, and airborne particles resulting from livestock operations. The majority of these odors emanate from large on-site manure lagoons, which are the most common method for storing animal waste. These lagoons are largely anaerobic, so the manure breaks down into organic components such as hydrogen sulfide, acids, ammonia, phenols, alcohols, sulfides, and indoles, which combine to create the signature livestock smell. Sufficient concentrations of these compounds can induce respiratory problems, eye irritation, and rashes. These symptoms can be of particular concern to the immune-compromised, the young, and the elderly.

Solutions to the problem may come in the form of feed modifications, treatment of bacteria that live in the lower digestive tract of swine and in the waste lagoons, and operational changes in waste handling. Until then, hog farmers and their neighbors will continue to agree to disagree.

Revised and Expanded Weekly Surveillance Report

The Weekly Surveillance Report of Selected Communicable Diseases published by the Michigan Department of Community Health has been updated to reflect the ever-changing landscape of infectious diseases in Michigan. To do this, we have added expanded county specific information on diseases such as Acute Hepatitis C, Meningococcal Disease, Bacterial Meningitis, Animal Rabies, E. coli, Campylobacter, Listeriosis, Giardiasis, Pertussis, Chlamydia, and Invasive Strep. To make room for additional information on these diseases the report has been expanded by one page and the county specific information on Measles, Mumps, Rubella and H. Influenza has been dropped. (Statewide data on these diseases can still be found in Table 4.) Stay tuned for additional changes as we look to improve the graphic quality of the report in the coming year.

Questions or comments on the report can be forwarded to Brad Carlson through the Communicable Disease and Immunization Division at (517) 335-8165. (Copies of the surveillance report are sent to each local health department weekly or can be found in the WSR Library at http://www.hline.org)
Enhanced Surveillance for West Nile Virus and Acute Encephalitis

Since the geographic spread of West Nile Virus cannot be completely predicted, an expansion of existing surveillance and laboratory capabilities for the detection of new or unexpected acute encephalitis cases is being undertaken in Michigan. This includes cases that may have an arboviral etiology. Michigan Department of Community Health (MDCH), along with the Michigan Department of Agriculture (MDA) and Michigan State University (MSU), will continue their collaboration to provide the most comprehensive and technologically advanced arbovirus surveillance.

Beginning this spring, the active sentinel physician surveillance system for Lyme disease will be extended to include surveillance of acute encephalitis of unknown etiology. The surveillance network will be expanded by enrolling hospital infection control practitioners (ICPs), hospital epidemiologists, and lab directors in all large hospitals in southeast Michigan. MDCH arbovirus testing will again begin May 2001 free of charge for any Michigan resident via physician request. This year, testing will include the detection of serum and/or CSF IgM and IgG antibodies specific for Eastern Equine Encephalitis, Saint Louis Encephalitis, California-group Encephalitis viruses (including LaCrosse), and West Nile virus. The MDCH laboratory utilizes the antibody-capture ELISA assay. It is important for clinicians to utilize MDCH for testing specimens from suspect patients for two reasons: first, the MDCH laboratory has the state-of-the-art testing methodologies available, and second, specimen submissions provide important surveillance data useful in tracking potential arboviral disease in the state. Although the screening ELISA assays have a one to two week turnaround time, arboviral culture methodologies and molecular assays are currently under development at MDCH that will provide our laboratory with the ability to perform confirmatory assays in-house. That potentially removes the need to refer specimens to CDC for confirmation.

In conjunction with MDCH, the MDA and the Animal Health Diagnostic Laboratory at MSU have arranged for passive surveillance of dead corvids (crows, ravens, and blue jays) for initial necropsies and histopathology. Active surveillance for sick and dead corvids will also be enhanced.

MDA will also increase mosquito surveillance and expand active surveillance for acute encephalitis in horses in southeast Michigan.

The recognition of new and emerging infectious diseases always begins with careful observations by an astute clinician. It is our hope that the cooperation of clinicians throughout the state and the activities mentioned above will enhance the laboratory and epidemiological infrastructure to a level that will provide the best arbovirus detection and surveillance system to Michigan citizens. Thus, we ask physicians, ICPs, laboratories, other health care providers, and local health department staff to call the Communicable Disease and Immunization Division at (517)335-8165 to report cases of acute encephalitis or to enroll in the surveillance network. We are specifically interested in cases of pending or unknown etiology.

New MPHA Epidemiology Section

The first planning meeting to form an Epidemiology Section of the Michigan Public Health Association was held at the end of the regional Epidemic Intelligence Service (EIS) officers’ meeting in March 2001. About 30 people attended.

Its mission is to provide a venue to foster communication and collaboration among epidemiologists in Michigan, and to promote epidemiology and public health through training, research, and advocacy. The section will hold at least one meeting annually, either in conjunction with the regional EIS meeting or the annual MPHA meeting, which will provide opportunities for epidemiologists and epidemiologists in training to meet and discuss their ongoing projects and concerns.

All epidemiologists, epidemiologists in training, and those interested in epidemiology are welcome to join.

To enroll in the EPI listserv follow these instructions:

Mail to: mdaemon@localhealth.net
In the message body type: subscribe epi
In its third consecutive year, the physician-based active surveillance project for Lyme disease continues to focus on four counties in southwestern Michigan: Allegan, Berrien, Cass, and Van Buren. Surveillance of this geographic area was initiated due to a population of *Ixodes scapularis* found in northeastern Indiana, bordering Michigan. Case criteria were based on the CDC national case definition criteria. Seventy-eight physicians were enrolled in the 2000 project. Each physician or practice was called every two weeks and asked if he or she had seen any possible acute Lyme disease cases.

Five potential case reports were received at MDCH from the active surveillance network area: two from Cass County, and one each from Allegan, Berrien, and Van Buren counties. Only one of the five reports met the national case definition.

This was a case of an 80-year-old woman from Van Buren County, who presented with an erythema migrans. She did not report any travel.

An additional 22 case reports received through passive surveillance met the national case definition for Lyme disease. Of these, 13 were out-of-state exposures, and 10 within Michigan. The exposure location is determined from the patient’s travel recollection. If no travel was recalled, the patient’s county of residence is assigned by default. The 10 cases during 2000 with likely exposure in Michigan are shown on the map as scattered throughout the state, with exposure in Delta (1), Menominee (2), Presque Isle (1), Iosco (2), Isabella (1), Van Buren (1), Branch (1), and Monroe (1).

Please call Denise Nightingale at (517) 335-8165 with any questions.

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**Resource Available**


Partners in producing this document include:
- Interagency Task Force on Antimicrobial Resistance
- Centers for Disease Control and Prevention
- Food and Drug Administration
- National Institutes of Health
- Agency for Healthcare Research and Quality
- Health Care Financing Administration
- Health Resources and Services Administration
- Department of Agriculture
- Department of Defense
- Department of Veterans Affairs
- Environmental Protection Agency

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**SHDC Study Continued**

The HIV Surveillance and Serosurveillance Section will be continuing the Survey of HIV Disease and Care (SHDC) for another year. We have just completed collecting data for a pilot survey of health care provided during 1998. The new study will collect information on care provided during 1999. The SHDC study is funded by the Centers for Disease Control and Prevention, and is designed to collect comprehensive health care information on a randomized cluster sample of patients with HIV infection. If you want to know more about this study, call Jill Ginnebaugh at 517-288-8761.
Employee Focus: Harry McGee

Harry McGee, M.P.H., is the manager of the Health Surveys Section within the Division of Epidemiology Services and is the coordinator for the Michigan component of the CDC's Behavioral Risk Factor Surveillance System (BRFSS). McGee's interest in public health began in 1971 while he was a Peace Corps volunteer in the Congo. As a volunteer he was assigned to work with the World Health Organization (WHO) smallpox program as part of a team whose primary responsibility was giving smallpox vaccinations, as well as measles and BCG vaccinations.

After this Peace Corps experience peaked his interest in public health, McGee came back to the U.S. and enrolled in the M.P.H. program at the University of Michigan, School of Public Health. While in this program, the WHO approached McGee again to work with their smallpox program, this time in Bangladesh. McGee was involved in a surveillance and containment program that responded to outbreaks of smallpox. The program sought to identify cases of smallpox and then vaccinate persons within geographic zones around the cases. In addition they attempted to trace the source for the infected persons and their contacts. During the six months McGee worked in Bangladesh, the number of cases decreased from over 4,000 to none. The last stronghold of variola major had been eliminated, and no endemic cases have been reported anywhere in the world since, except for the laboratory outbreak in Birmingham, England.

After completing his M.P.H., McGee worked with the Michigan Department of Community Health in the swine flu program and then subsequently studied the associated Guillain Barre Syndrome for a year after the swine flu vaccination program ended. McGee took a short break from MDCH to work with FDA and CDC, after which he was asked to return to MDCH to work on the emerging problem of Reye's Syndrome. McGee continued to work on a variety of community-related infectious disease epidemiology projects, including an outbreak of Salmonella which was traced to marijuana use, an outbreak of hemorrhagic colitis for which a new strain of E. coli was isolated (0157-H7), and the initial surveillance activities for Lyme Disease and HIV/AIDS.

In 1989, McGee's public health career shifted from the infectious side of epidemiology to environmental and chronic disease epidemiology when he began work on the Agent Orange Project and the statewide Agent Orange Commission.

McGee has been the BRFSS coordinator for Michigan since 1992. He believes that, as public health professionals, we are obligated to investigate the roots of disease, whether they be chronic or infectious. McGee also sees a need for obtaining better population-based data on the prevalence of chronic disease risk factors at the local level.

Currently he is working on a collaborative effort to redesign the state-level Michigan BRFSS program to make more data available at the local level and to assist and facilitate the ability of local health departments to conduct their own surveys. Throughout his varied public health career, McGee has worked with the epidemiology of emerging and life-threatening diseases. He continues to do so in his work with BRFSS, documenting everyday habits and health practices related to the chronic diseases which are today's major causes of mortality and morbidity in Michigan and the U.S.

Bioterrorism Program Update

Coming Soon...

- MDCH Response Plan for Bioterrorism and Emerging Infectious Threats
- Recommended Procedures for Addressing Reports of “Unusual Disease Occurrence/Activity”
- Physician presentation on recognizing the clinical aspects of biologic agents, specimen collection, and reporting.
- Summary of Statewide Performance Assessment — Public Health Emergency Preparedness

CDC's William Atkinson to Speak at Kalamazoo and Southeast Michigan Conferences

William Atkinson, M.D., M.P.H., is scheduled to speak at three of the MDCH regional immunization conferences this fall. Other speakers will include representatives from local health departments, Michigan Department of Community Health, and community providers.

The conference brochures and registration forms were mailed in May. Early registration is encouraged, due to limited spacing. No waiting lists will be maintained.

For more information or a conference brochure, call the Division of Communicable Disease and Immunization at 517-335-8159.
Kim Kirkey, Ph.D., is the new Hepatitis C (HCV) epidemiologist and coordinator. She will be working with the other staff in the Communicable Disease and Immunization Division to standardize reporting and develop a surveillance system for HCV. She will also conduct provider education and training, and work with the Division of HIV and STD and the Bureau of Laboratories as they develop targeted HCV screening programs. Kirkey has an M.P.H. in molecular epidemiology and a Ph.D. in epidemiology science from the University of Michigan. Her doctoral dissertation research focused on exploring treatment options for Epstein-Barr-Virus-associated B cell lymphomas.

Christopher Barrett, M.Sc., is the new HIV epidemiologist in Detroit, HIV/AIDS Surveillance Section, and will be responsible for coordinating HIV surveillance activities at specific sites in southeast Michigan, including Henry Ford Health Systems. He is master’s degree is from the London School of Hygiene and Tropical Medicine. He also spent time in Mauritania as a Peace Corps volunteer.

Sha Juan Colbert, M.P.H., is the SHAS (Supplement to HIV/AIDS Surveillance) study coordinator. He completed his master’s degree at Emory University. Colbert’s graduate thesis research focused on the effects of hip hop music in an HIV/AIDS intervention aimed at African-American adolescents. She will work closely with community-based organizations across Michigan, providing SHAS data.

Mark Schmidt, M.P.H., is the new epidemiologist in the Epidemiology and Laboratory Capacity (ELC) Program. He is joining Sonja Rabow and will be working closely with local health departments. Schmidt has been working as an HIV epidemiologist in our Detroit office.

Shawn Abbyss, M.P.H., is with the HIV/AIDS surveillance staff as an epidemiologist. Abbyss received his public health training at the University of Michigan and he has been a data manager for the HIV Serosurveillance Program for eight years.

David Persaud, M.D., is a preventive medicine practicum resident at M.D. C.H. this summer. He was in family practice in Toronto for nine years before joining the University of Michigan Preventive Medicine Residency program. His practicum will focus on communicable disease epidemiology. His first project will be evaluating the Michigan chickenpox surveillance system.

Chandra Reddy, M.D., Ph.D., is a preventive medicine practicum resident at M.D. C.H. He completed medical training at Msore University, India, with a postgraduate residency in internal medicine at Bellary Medical College, India. His pre-doctoral training was in endocrinology at the National Research Center for Endocrinology, Moscow and he earned his Ph.D. in clinical endocrinology from the National Academy of Medical Sciences, Russia. His first project will be in chronic disease epidemiology, specifically tracking diabetes prevalence.

In recognition of outstanding performance, the following staff have received the Bureau of Epidemiology Director’s Award:

1999
Carla Eldridge
Garald Goza

2000
Joanne Hogan
Sally Bidol

Acknowledgements

Jianli Kan’s poster entitled, “Birthweight-specific neonatal and post-neonatal mortality rates among infants born to black and white women, Michigan 1989-1997” was awarded the second place of best presentations (poster) by the Sixth Annual Maternal and Child Health Epidemiology Conference. The presentation introduced research indicating that birthweight-specific neonatal mortality rates did not differ by race, however, infants born to black women had higher birthweight-specific post-neonatal mortality rates than infants born to white women. This suggests that public health programs should make more efforts to improve the health of infants born to black women to reduce their post-neonatal mortality rate.

At the Six Annual Maternal and Child Health Epidemiology Conference held in Atlanta, GA, on December 12-13, 2000, Bao-Ping Zhu, chief maternal and child health epidemiologist at the Division of Epidemiology Services, received the Award of Excellence (first place, Best Oral Abstract) for his presentation entitled, “Effect of the Interval Between Pregnancies and Perinatal Outcomes: Is There a Racial Difference?”