

Assessing the Risk to Human Health from Bovine Tuberculosis in Michigan

Melinda Wilkins

Establishing *Mycobacterium bovis* (bovine tuberculosis) as a zoonotic agent is not difficult. There are numerous references in the scientific literature documenting the transmission of *M. bovis* from animals to humans, with a variety of source animals (cattle, goats, deer, elk, buffalo, sheep, camels) and under a range of circumstances (farm, laboratory, abattoir, consumption of unpasteurized dairy products). However, assessing the risk to human health under the circumstances currently existing in Michigan is difficult for a number of reasons.

There are many different types of animals in the northeastern portion of the lower peninsula that have been shown to be infected with *M. bovis* since 1995. They include: white-tailed deer, dairy and beef cattle, coyotes, black bear, bobcat, red fox, raccoons, opossums, and one domestic cat. The variety of animals involved leads to many groups of people being potentially exposed, including dairy producers and cattlemen, veterinarians, laboratory workers, hunters, trappers, taxidermists, and abattoir workers. In addition, there is a very remote possibility that northeastern Michigan residents may be exposed by feeding deer, from infected pets, and from eating improperly-prepared venison from infected deer.

The nature of the organism itself makes risk assessment difficult. The organism is hardy, surviving outside the host for several weeks depending on the conditions. There are several different routes through which humans and animals can become infected including aerosol inhalation, oral consumption of infected food, and through skin wounds, thus leading to different clinical syndromes. Over-reliance on tuberculin skin testing can

be a problem, as persons exposed to *M. bovis* may remain negative for prolonged periods of time.

All physicians in Michigan are required by law to report cases of communicable disease to their local county health departments. The local health departments in turn report these cases to the Michigan Department of Community Health (MDCH). Therefore, any cases of *M. tuberculosis* or *M. bovis* which occur would most likely be reported. MDCH attempts to obtain an isolate from each reported case for culture confirmation and speciation.

Since 1992, the Communicable Disease Regulations require all private laboratories to submit any clinically significant *Mycobacterium* isolates to the MDCH laboratory. Since 1996, the MDCH laboratory has conducted DNA fingerprint analysis on all human tuberculosis (TB) isolates from Michigan residents and many of the isolates from infected deer and cattle. The DNA fingerprint pattern of the TB strain found in deer and cattle is unique and has never been found in a human in Michigan.

MDCH and local health departments routinely investigate all human cases of TB to determine the source of infection and to control spread of the disease. Since 1996, six Michigan residents with bovine TB have been reported. None of these individuals had any contact with deer or recent contact with cattle. Three were born in Mexico and were most likely exposed to TB-infected farm animals in Mexico, or had consumed unpasteurized Mexican dairy products. Two persons, now elderly, were born in the U.S. but spent a considerable amount of time on farms when they were young. This was

during the time when milk was not pasteurized and it was common practice for farm families to drink unpasteurized milk. The DNA fingerprint patterns from these five individuals do not match the fingerprint patterns common to the deer or cattle currently infected with bovine TB in Michigan. The sixth case, from southeast Michigan, is fairly recent; the case investigation and RFLP results are pending.

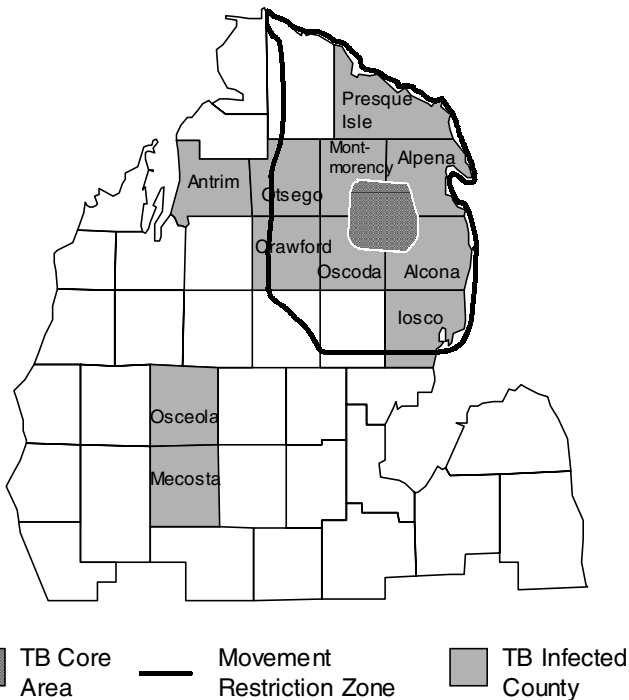
Michigan's livestock population was certified free of *M. bovis* in 1979 and remained free for almost 20 years. In 1998, a small beef herd was found infected with *M. bovis*. Through the fall of 2000, a total of 11 cattle herds and one captive white-tailed deer herd have been found infected. The farm families

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Counties with Bovine TB Positive Wildlife
or Livestock as of June 2000



associated with the positive cattle herds have been counseled by the local health departments regarding exposure risks associated with cattle. Tuberculin skin testing has been offered to these families and farm workers. There is no evidence of *M. bovis* transmission from the cattle to humans on these recently-infected Michigan farms.

It is likely that *M. bovis* has existed in the white-tailed deer population in northeastern Michigan since the late 1950s. Residents have been hunting deer, feeding deer, and trapping animals for at least as long as the infection has been present in the deer population. Since 1995, when the MDCH laboratory began DNA fingerprinting, there

the human health risk from *M. bovis* infection in cattle and deer. An epizootologist will be hired to act as a liaison with the Michigan Departments of Agriculture and Natural Resources and to coordinate state-level efforts to educate the public about exposure risks and prevention recommendations. In addition, an epidemiologist from the U.S. Department of Agriculture will be assigned to MDCH to review the current TB surveillance system in Michigan and to assess the risk factors associated with human *M. bovis* infections nationwide. MDCH will continue to be a full partner in the statewide effort to grapple with the complicated and far-reaching *M. bovis* issue.

has been no case of *M. bovis* in Michigan that can be linked to any of these occupational or recreational activities. Based on results from the existing surveillance system, it appears that the risk to human health from *M. bovis* in the deer population is very low.

MDCH contributes to the effort of defining the scope of the *M. bovis* problem via continued support by the Bureau of Laboratories and the Bureau of Epidemiology. The Bureau of Epidemiology is planning to add two staff members in the coming months to specifically address the concerns surrounding

Bovine Tuberculosis Website Now Available

Brad Carlson

The Michigan Department of Community Health and its partners in the Bovine Tuberculosis Eradication Project would like to announce that a new website on bovine tuberculosis (TB) is now available on-line at <http://www.bovinetb.com>. The Michigan Bovine TB Eradication Project involves a multi-agency team of experts from the Michigan Departments of Agriculture, Natural Resources, and Community Health; Michigan State University; and the U.S. Department of

Agriculture. This website is the result of a joint project among these organizations, and its goal is to provide comprehensive and up-to-date information on bovine TB. Each organization has a unique role in the Michigan Bovine TB Eradication Project utilizing their specific mission, expertise, and resources.

Any questions on the material located on the website should be directed to the agency listed at the bottom of each page.

The MDCH Bureau of Epidemiology is the host site for the

Regional Epidemic Intelligence Service (EIS) Conference

on March 29, 2001
Rackham School of Graduate Studies
at the
University of Michigan



Michigan Society for Infection Control Conference

April 26 & 27, 2001
"The New Millenium Back to the Future"
at
Eagle Crest Marriot
Ypsilanti, MI

For conference brochure, contact
Linda Scott, MSIC liaison, at
517-335-9472 or e-mail
scottlin@state.mi.us



CDC Satellite Course on Immunization Offered

The CDC National Immunization Program will offer a four-week Epidemiology and Prevention of Vaccine Preventable Diseases Course on March 15, 22, 29, April 5, 2001. Each of the four modules will be broadcast from noon to 3:30p.m. Further updates and information will be provided on CDC's Public Health Training Network (PHTN) website at: www.cdc.gov/phtn.



BRFSS Annual Conference

The 2001 Behavioral Risk Factor Surveillance System annual conference will be held in Atlanta in March of 2001. Details about the conference can be found at: <http://www.cdc.gov/nccdphp/brfss/>

Folic Acid Knowledge Among Michigan Women of Reproductive Age

Cassius Lockett

In the United States, approximately 4,000 pregnancies are affected by neural tube defects (spina bifida and anencephaly) each year, and in Michigan approximately 140 infants are born with neural tube defects (NTDs) annually. Consumption of folic acid can reduce the occurrence of NTDs 50-70 percent and may also reduce the risk of other congenital malformations, such as cardiovascular defects and urinary tract

Assessment Monitoring System (PRAMS), a surveillance system which surveys women who have recently given birth in Michigan. Response to the question, "Have you ever heard or read that taking the vitamin folic acid can help prevent some birth defects?" was used as an indicator of folic acid knowledge. The combined 1996-97 sample size was 5,609. The majority of respondents (71.3%) were married, 79.7 percent were white, 18.4 percent were black, 50.7 percent were between the ages of 20-29 years, and 21.9 percent had 16 years of education.

In 1996, 60.3 percent and in 1997, 71.4 percent of the respondents answered yes, that taking folic acid could help prevent

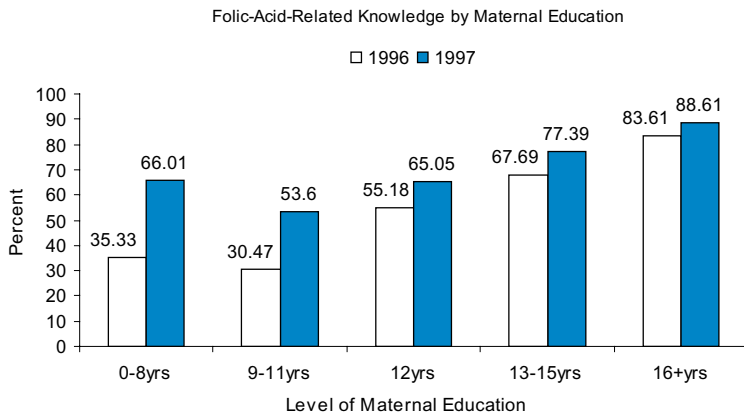
of married women and 57.9 percent of unmarried women had knowledge, representing an increase of 7.7 and 24.6 percentage points, respectively.

Folic acid knowledge was the lowest for women with 9-11 years of education, and increased with increasing maternal education in both 1996 and 1997 (Figure 1). Knowledge increased linearly with increasing age in 1996, whereas age-specific estimates from 1997 showed a different pattern, with women aged 25-29 years having the most knowledge (Figure 2). In both years, women with private health insurance before pregnancy were 2.74 (95% CI=2.68-2.79) times more likely to have folic-acid-related knowledge than women who did not have insurance before pregnancy. In contrast, women who had Medicaid before pregnancy were 3.53 (95% CI=3.43-3.62) times less likely to have folic acid knowledge than women who did not have Medicaid before pregnancy.

Although we cannot establish that knowledge about folic acid translates into behavioral change, the increases observed in folic knowledge by race, age, education, and marital status are thought to be very positive. Statewide educational programs may have contributed to these increases. Examples include the MDCH Women, Infants, and Children (WIC) program and the Maternal Support Services (MSS) program that provide folic acid counsel to at-risk mothers. In addition, MDCH distributes folic acid literature at meetings and presentations. Other organizations, including the March of Dimes and Obstetric and Neonatal Nurses, have developed folic acid educational tools and have spread the folic acid message among Michigan students.

Consistent with other studies, this analysis showed that women of low socio-economic status tended to exhibit the lowest rates of folic acid knowledge. Our results indicate that, in order to increase folic acid awareness, educational interventions should target women who are unmarried, black, have less than a high school education, are less than 19 years of age, and have no health insurance. Physicians continue to have a unique opportunity to raise folic acid awareness among at-risk women during prenatal counseling.

Figure 1

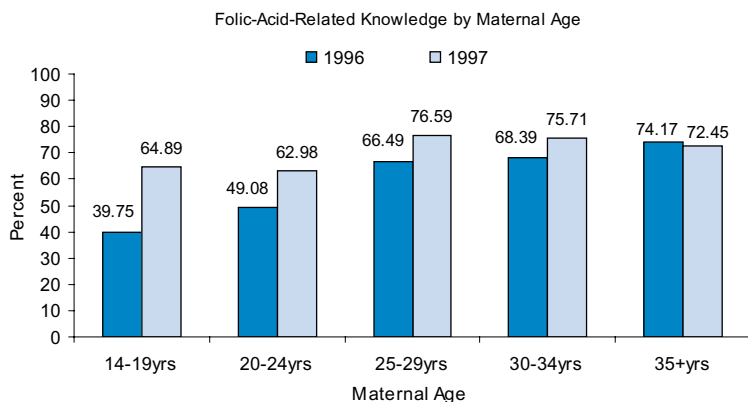


defects. In 1992 and in 1998, the Public Health Service and the Institute of Medicine recommended that all women of childbearing age consume at least 400 ug of folic acid daily from a multivitamin and/or fortified food to ensure adequate intake.

A recent analysis of folic acid knowledge among Michigan women of reproductive age was conducted using data from the 1996 and 1997 Michigan Pregnancy Risk

some birth defects. In 1996, 66.2 percent of white women and 35.1 percent of black women had folic acid knowledge, whereas in 1997, 77.1 percent of white women and 46.2 percent of black women had knowledge, representing an increase of 10.9 percentage points for white women and 11.1 percentage points for black women. In 1996, 70.9 percent of married women and 33.3 percent of unmarried women had folic acid knowledge, whereas in 1997, 78.6 percent

Figure 2



Mercury Spills From Gas Meter Regulators

Dave Wade

On August 25, 2000, a gas utility technician in Illinois noticed elemental (metallic) mercury that had been spilled in a private home. Nicor (the Illinois gas utility) identified a regulator valve, which had been removed from the gas meter in 1989 by a company technician, as the source of the mercury. For homes built prior to 1961, regulators containing elemental mercury were routinely installed inside homes with the gas meters. Natural gas companies have been moving gas meters to the outside of homes over the years and removing the mercury-containing regulators, sometimes spilling mercury in the process. As a result, Nicor is now examining approximately 200,000 homes in the Chicago area where mercury regulators were present. Other Illinois utilities have begun their own investigations. In some cases, high levels have been found in homes, resulting in the evacuation of families until decontamination is completed. Residents from contaminated homes are being medically screened for exposure to mercury and evaluated for symptoms of toxicity. Elemental mercury is very toxic when inhaled and is particularly dangerous indoors where it can easily vaporize and reach high air concentrations due to limited ventilation. Mercury inhalation can cause severe illness and death in fetuses and young children who are at special risk for neurological damage, including permanent brain damage.

Shortly after the Nicor incident, a similar spill was reported in Michigan. An individual from Lincoln Park, Michigan, noticed mercury in their home following a regulator removal by MichCon and called U.S. Environmental Protection Agency. MichCon, the largest Michigan gas utility, has since identified 39 homes in the Detroit suburban area where past mercury spills were documented. These homes are now being monitored for mercury in the indoor air. To date, six of these homes have had to be decontaminated due to unacceptable levels of mercury in the indoor environment. A second utility,

Consumers Energy, has identified 15 homes with documented mercury spills and has also begun an investigation of indoor air.

The next phase of the investigation will focus on homes that may have experienced an unreported or unobserved mercury spill during a regulator removal in the 1990s. One company has estimated that as many as 20,000 homes have had regulators removed in this time period. The gas utilities will begin to screen these homes in January 2001 for the presence of elemental mercury.

Chickenpox Incidence Declines in Michigan

Joel Blostein

Michigan disease-report data indicate a trend of declining varicella (also known as chickenpox) incidence over the past five years, suggesting that the varicella vaccine may be a factor in this downward trend. Between 1980 and 1994 an average of 38,000 varicella cases were reported annually in Michigan, as shown in the chart. (Reported figures are estimated to be approximately one-quarter of the cases that actually occurred each year, due to under-reporting.) In 1994, the year before the varicella vaccine was licensed for use in the U.S., 37,982 cases were reported in Michigan. In 1999, 12,260 cases were reported in the state, representing a decline of 68 percent. There is also evidence that the trend is continuing; data for the first 10 months of 2000 compared to the same period of 1999 reveal a further decline of 28 percent.

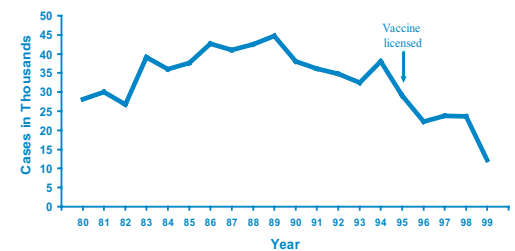
While the clinical course of varicella in normal children is generally mild and self-limited, the disease can be associated with complications. The most common of these include secondary bacterial infections of skin lesions, dehydration, pneumonia, and central nervous system involvement. Moreover, significant health care expenditures, as well as absences from school and work, are attributable to chickenpox. In the pre-vaccine era approximately 10,000 persons with varicella required

hospitalization each year in the U.S. Disease tends to be more severe in adults, and the risk of complications and death varies directly with age.

Varicella vaccine is recommended for all children without contraindications at 12-18 months of age. The vaccine may be given to all children at this age regardless of prior history of varicella. However, immunization is not necessary in children with reliable histories of chickenpox.

In Michigan, the vaccine is now required for children between 15 months and 5 years of age who are cared for in state-licensed or registered child care and pre-school programs. It will be required for children entering school starting in the 2002-2003 school year. According to data from the 1998-1999 National Immunization Survey, an estimated 36.4 percent of Michigan two-year-old children had received varicella vaccine at or after age 12 months.

Reported Annual Varicella Cases Michigan, 1980 - 1999



Varicella vaccine is also recommended for immunization of all susceptible children by their 13th birthday. Children are considered susceptible if they have not been immunized and they do not have a reliable history of chickenpox. Efforts should be made to assure varicella immunity by this age, because as noted above, after 13 years of age varicella disease is more severe, complications are more frequent, and two doses of vaccine are required.

Does Seasonal Migration by “Snowbirds” Bias Estimates from the Michigan Behavioral Risk Factor Surveillance System (BRFSS)?

Harry B. McGee

In 1999, 16.2 percent of Michigan residents were 60 years old or older. An unknown proportion of this population migrates to warmer climates during the colder months of the year. These seasonal migrants are sometimes referred to as snowbirds. If the proportion of snowbirds in the senior population is large, and if their health indicators differ from Michigan seniors who do not migrate to warmer climates, it could affect Michigan BRFSS estimates.

Figure 1
Mean Proportion of “Ring-No-Answer”
Dispositions by Month Among Respondents
Aged 60+, 1996-1997 MI BRFSS

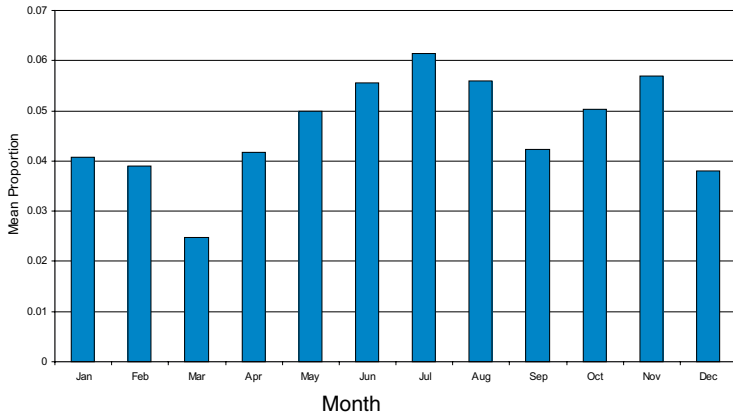


Figure 2
Demographic Characteristics of Respondents Aged 60+
Dec-Feb vs Mar-Nov, 1996 & 1997 MI BRFSS

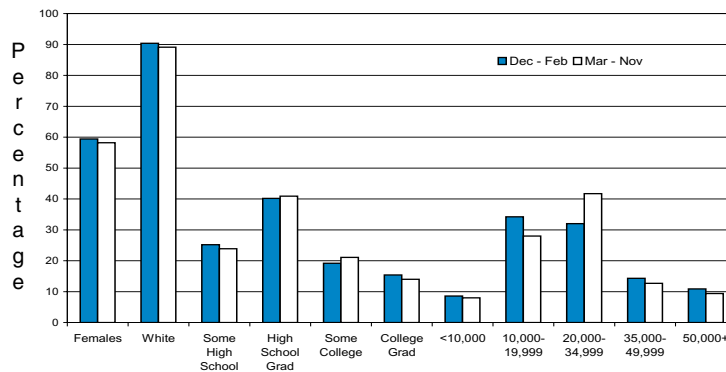
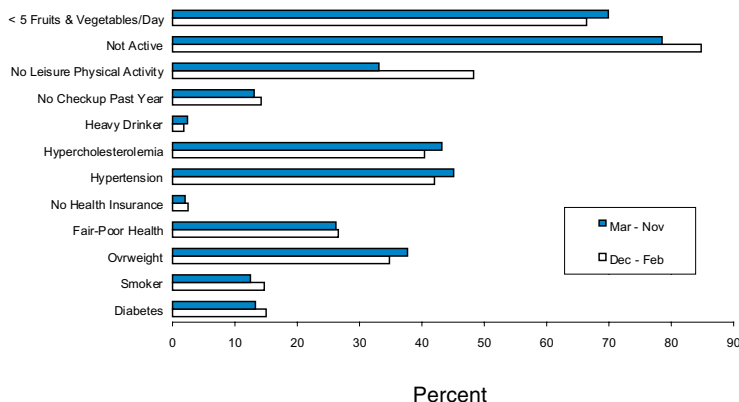


Figure 3
Selected Health Risks of Respondents Aged 60+
Dec-Feb vs Mar-Nov, 1996-1997 MI BRFSS



We used 1996 and 1997 Michigan BRFSS data to examine this question. We made the assumptions that the age group 60 years old and older, and the months of December-February, would represent most of the snowbird migration in Michigan. We compared call dispositions, demographics, and prevalence estimates for the months of December-February to the months of March-November. The sample size was 1,677.

Figure 1 shows that the proportion of phone numbers that were called without being answered was similar during the months of December-February (0.04) and the months of March-November (0.05). Figure 2 shows that respondents, aged 60 and older, during these two periods were demographically similar. Figure 3 shows that selected health indicators in this age group were similar between the warmer and colder months, with the exception of the two physical activity indicators.

BRFSS data are subject to errors of noncoverage and nonresponse inherent in telephone surveys, and the data are self-reported and subject to measurement error. In addition, bias due to the snowbird migration may not have been detected if the December-February period and the 60 years and older age group do not represent this phenomenon. Accepting these limitations, we conclude that the evidence we examined did not indicate that snowbird migration biases Michigan BRFSS estimates. The lower level of physical activity during the December-February period could be due to migration of more active elders or to a seasonal decline in physical activity during these months.

Meningitis in Southeast Michigan

Gillian Stoltman

In September and October 2000, there were a number of cases of bacterial meningitis in southeast Michigan which received a considerable amount of coverage in the press. Although bacterial meningitis is not all that unusual, the situation in southeast Michigan gained public attention because of the deaths of three school-aged children, a group which typically is not affected by meningitis. Both *Neisseria meningitidis* and *Streptococcus pneumoniae* infections were diagnosed. Cultures were obtained from most of the cases, and isolates were typed.

Five cases of *S. pneumoniae* meningitis were reported to the Michigan Department of Community Health (MDCH) during September and October 2000 from southeast Michigan. The ages of these cases ranged from 6 to 64 years, and four of these cases were fatal. Isolates were subjected to pulse-field gel electrophoresis (PFGE) at the MDCH Laboratories and were also sent to CDC for serogrouping. The PFGE results showed a different band pattern for each organism indicating that they were genetically different organisms. The serogroup results also showed that the isolates of *S. pneumoniae* were from five different serogroups: 7F, 14, 18C, 19F, and 23B. Investigations by the local health departments failed to find any epidemiological linkages among the cases. So, although these cases appeared temporally associated, they were not causally linked.

<i>S. pneumoniae</i> meningitis				
Age (Yrs.)	County	Onset Date	Fatal ?	Sero Group
6	Wayne	9/24/00	YES	14
9	Macomb	9/26/00	NO	18C
11	Macomb	10/2/00	YES	7F
11	Macomb	10/3/00	YES	19F
64	Genesee	10/4/00	YES	23B

Thirteen cases of *N. meningitidis*, with onsets in September and October 2000, were reported from southeast Michigan. The age range was from 1 month to 64

years. Of the nine cases tested, four were serogroup C, three were serogroup Y, and one was serogroup B. This reflects the current distribution of *N. meningitidis* seen in Michigan, with serogroups C and Y accounting for the majority of the isolates sent to MDCH and serogroup B being the third most frequent. During the fall of 2000 most cases were seen in infants and school-aged children, whereas typically meningococcal disease is more common among persons over the age of 30 years.

A Number of Important Points were Apparent from this Situation.

1. It is important for health care providers and public health officials, especially when talking with the press and the public, to distinguish between bacterial and viral meningitis and also to distinguish among the various types of bacterial meningitis.
2. It is important for physicians to report all cases of bacterial meningitis promptly to public health so that control steps can be taken. If a physician fails to report a case to public health and further transmission of disease occurs, that physician may be held legally responsible for those additional cases.
3. It is important that physicians report the causative organism. Many cases of bacterial meningitis reported to public health do not have information on the bacterial agent. This leaves significant gaps in our knowledge of the epidemiology of bacterial meningitides in Michigan. The recent situation in southeast Michigan could have been considerably more difficult if we had not known that we were dealing with different organisms and sub-groups.
4. MDCH requests that all isolates of *N. meningitidis* be forwarded to MDCH so that serotyping can be conducted. In unusual situations we also request isolates from other organisms such as *S. pneumoniae*.

Weapons of Mass Destruction Training Opportunity

The Michigan-1 Disaster Medical Assistance team is sponsoring the U.S. Navy course "Chemical, Biological, Radiological and Environmental (CBRE) Casualty Management Program" at the

John D. Dingell Veterans Administration Medical Center on February 23-25, 2001. The course is designed specifically for clinical providers, including physicians, nurses, physician assistants, EMTs, and paramedics who might provide treatment to CBRE casualties. Estimated cost is \$85. Continuing education credits have been applied for physicians, nurses, and Emergency Medical Services personnel. For more information contact the MI-1 DMAT team at taverbuch@msn.com or call (248) 400-1300.

Additional Communicable Disease Data Now Available On-Line

Brad Carlson

In our continuing effort to provide timely, useful data to the MDCH web sites, we have added new laboratory-based information on tuberculosis testing to our Communicable Disease Data page. The rabies laboratory data has also been recently completed. We have updated the site to include 1999 disease reports on these two diseases as well. These communicable disease data can be found at: www.mdch.state.mi.us/pha/epi/cded/cd/cd.htm.

If you have questions or suggestions about this information, please contact Patty Clark, Bureau of Laboratories, E-mail: clarkp@state.mi.us or Brad Carlson, Bureau of Epidemiology, E-mail: carlsonbr@state.mi.us

New Employees

Sandra Gambescia has been selected to be a new CDC public health advisor in Michigan. Gambescia comes from the Immunization Program in Kentucky where she was the program manager. She also brings experience from the Arizona Department of Health, Immunization Program, and has over 10 years of experience working with the CDC in both Atlanta and Detroit.

Dee Simmons Smith is a public health advisor with the National Immunization Program at the CDC, and she has been assigned to the MDCH Communicable Disease and Immunization Division. Smith has been employed by CDC for 10 years

and spent the last two years working at the Ohio Department of Health, Immunization Program. Before working for the National Immunization Program, she was assigned to the Division of Sexually Transmitted Diseases for eight years in Atlanta and Detroit.

Corinne E. Miller is the new director of the Epidemiology Services Division. She comes from the Kansas Department of Health and Environment where she served as the senior chronic disease epidemiologist. Miller also served a dual role as chronic disease epidemiologist and research assistant professor at the University of Kansas Medical Center. She has worked for the CDC as an EIS officer in Albany, New York, focusing on the development of a new hospital-based electronic reporting system for cancer. Prior to that she had her own dental practice in Minnesota.

Sarah Lyon-Callo is the asthma epidemiologist in the Division of Epidemiology Services. She had been working on asthma surveillance and planning issues for the last two years with the Michigan Public Health Institute. Lyon-Callo has a B.A. and an M.A. in anthropology, and an M.S. in epidemiology from University of Massachusetts, Amherst. Before moving to Michigan, Lyon-Callo worked in environmental epidemiology for the Massachusetts Department of Public Health.

Linda Larsen is the manager of the Site Assessment Section in the Environmental Epidemiology Division. Larsen has held supervisory positions in both the Department of Packaging and the Department of Resource Development at Michigan State University. Since 1993, she has been a toxicologist with the Michigan Department of Environmental Quality.

Daniel Lince is the new health educator for the Site Assessment Section, Environmental Epidemiology Division. Lince came from the New York State Department of Health, Bureau of Environmental Exposure Investigation, where he worked for four years as a research scientist. He participated in research investigating the relationships of ambient and indoor air quality measures to asthma attacks and gasoline-related contamination of private wells near gasoline stations.

Azra Hashmi is a third-year resident in the Michigan State University Pediatrics Residency Program at Sparrow Hospital and is in the University of Michigan Preventive Medicine Program this year. She is completing her practicum year in the Bureau of Epidemiology at MDCH. Hashmi has an M.P.H. from Harvard and has worked collaboratively with the Harvard Institute in International Development and with the U.S. Agency for International Development. She has worked in Pakistan as a pediatrician and for the Child Survival Project. She continues to speak and work with Amnesty International on issues such as honor killings in Pakistan, and is a member of Physicians for Social Responsibility.

Kathleen Bainbridge joins the Epidemiology Services Division as a diabetes epidemiologist. She has bachelor's and master's degrees in chemistry, an M.P.H. in international health, and is completing a doctoral degree in epidemiology at the University of Michigan, School of Public Health. Prior to her graduate work in Ann Arbor, Bainbridge worked with Project Hope in Malawi and was a Peace Corps Volunteer in Niger.

Sue Herring has returned to the Division of Communicable Disease and Immunization, this time as the contracts and conference coordinator. She has been with state government for 25 years. Her most recent prior position was with the Lead Hazard Remediation Section, Division of Community Services, where she was the contract coordinator for the elimination of lead hazards in homes where children reside.

Eileen Worden is an assessment specialist with the Southeastern Michigan Health Association working on contract with the Immunization Program, Communicable Disease and Immunization Division. Worden previously worked at the Olin Health Center, Michigan State University, as a triage nurse.

Christine Rhoades is an assessment specialist with the Southeastern Michigan Health Association working on contract with the Immunization Program, Communicable Disease and Immunization Division. Rhoades previously worked at Pfizer Corporation.

Grants Awarded

The Division of Environmental Epidemiology has a new project that will increase capacity for core public health surveillance in Michigan. The National Institute for Occupational Safety and Health, CDC, funded a four-year cooperative agreement to develop occupational health surveillance in Michigan. A major part of this project will be to identify and coordinate surveillance activities within MDCH and elsewhere. Our non-MDCH partners in this project are the Bureau of Safety and Regulation, Michigan Department of Consumer and Industry Services (the MIOSHA Program); the Division of Pesticides and Plant Management, Michigan Department of Agriculture; and the Occupational Medicine Program at Michigan State University headed by Dr. Ken Rosenman. Principal investigator of this project is Lorri Cameron, Ph.D.



The Bureau of Epidemiology was the recipient of \$90,000 CDC funding for one year of assessment and planning activities for the National Electronic Disease Surveillance System (NEDSS). CDC support for the development of NEDSS will allow for the upgrade, standardization, and integration of many different disease surveillance software currently in use at MDCH. Each state will plan for a personalized new system using commercial off-the-shelf software based on national standards.

The Bureau of Epidemiology is convening a workgroup, including partners from the Bureau of Laboratories, Microcomputer Information Systems, and local health departments. For additional information, contact Jim Kent at kentj@state.mi.us or at 517-335-8172.

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MDCH Reports and Publications

2000 MMWR Reports

Compendium of Measures to Control *Chlamydia psittaci* Infection Among Humans (Psittacosis) and Pet Birds (Avian Chlamydiosis), 2000 and Compendium of Animal Rabies Prevention and Control, 2000. July 14, 2000 / 49 (RR8).

Consequences of Delayed Diagnosis of Rocky Mountain Spotted Fever in Children - West Virginia, Michigan, Tennessee, and Oklahoma, May - July 2000. October 6, 2000 / 49(39); 885-888.

Multistate Outbreak of Listeriosis - United States, 2000. December 22, 2000 / 49(50); 1129-30.

Salmonellosis Associated with Chicks and Ducklings - Michigan and Missouri, Spring 1999. April 14, 2000 / 49(14); 297-299

Recent Publications

Blanck HM, Marcus M, Tolbert PE, Rubin C, Henderson AK, Hertzberg VS, Zhang RH, **Cameron L.** Age at menarche and tanner stage in girls exposed in utero and postnatally to polybrominated biphenyl. *Epidemiology* 2000 Nov;11(6):641-7.

Dunne EF, Fey PD, Kludt P, Reporter R, Mostashari F, Shillam P, Wicklund J, **Miller C,** et al. Emergence of Domestically Acquired Ceftriaxone-Resistant Salmonella Infections Associated with AmpC β -Lactamase. *JAMA* 2000;284:3151-3156.

Inungu JN, Morse AA, Gordon C. Risk factors, seasonality, and trends of cryptosporidiosis among patients infected with human immunodeficiency virus. *Am J Trop Med Hyg.* 2000 Mar;62(3):384-7.

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.

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