Michigan Department of Community Health
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EPI Insight
Bureau of Epidemiology
Summer 2006

The Prevalence of Epilepsy in Michigan:

Preliminary Results from the 2005 Michigan Behavioral Risk Factor Survey

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Epilepsy is a neurological disorder marked by involuntary, recurrent seizures that arise from excessive discharges of neurons in the brain. Epilepsy is not a single disorder, but a group of disorders with different etiologies, manifestations, and prognoses. Seizures vary in type, severity and intensity.[1] Certain populations are at higher risk for developing epilepsy, including children with mental retardation and /or cerebral palsy, children with a parent who has epilepsy, Alzheimer's patients, and stroke patients.[2] According to the Epilepsy Foundation, 70 percent of people with epilepsy can be expected to enter remission (five or more years seizure-free on medication) and 75 percent of these people can be successfully withdrawn from medication.

Epilepsy, the most common disorder of the nervous system, results in substantial societal burden, including higher rates of unemployment, personal isolation, and stigma. There were over 2,100 hospitalizations for grand mal and other epileptic conditions in Michigan in 2003.[3] However, little is known about the causes, prevalence, burden, and costs of epilepsy in our state.

The Bureau of Epidemiology has worked collaboratively with the Epilepsy Foundation of Michigan to obtain state-specific estimates for the prevalence of epilepsy or seizure disorder. The Epilepsy Foundation funded a module of five questions in the 2005 Michigan Behavioral Risk Factor Survey (BRFS), a cross-sectional, statewide, random-digit-dial telephone survey of adults. Respondents (n = 11,798) were first asked, "Have you ever been told by a doctor that you have a seizure disorder or epilepsy?" Those who responded positively to this question were further asked whether they were currently taking medication, how many seizures they had had in the past three months, whether they had seen a neurologist in the past year, and to what extent their epilepsy or its treatment interfered with their normal activities.

The lifetime prevalence of self-reported epilepsy or seizure disorder was 1.8% (Table). This prevalence did not vary significantly by age, sex, or race-ethnicity. However, the proportion who had ever been told they had epilepsy or a seizure disorder was higher among those with lower levels of education and household income, those who were divorced, widowed, or separated, and among those unable to work.

The follow-up questions on symptoms and care were asked of the 219 respondents who reported that they had ever been diagnosed with epilepsy or a seizure disorder. Nearly half (46.5%) were currently taking medicine to control their epilepsy or seizure disorder. The majority (63.7%) had not had any seizures in the previous three months, 10.9% had one, 16.9% had more than one seizure in the previous three months, and 8.5% reported that they no longer had epilepsy. Combining responses to these questions, one percent of Michigan adults were estimated to have active epilepsy (defined as currently taking medication to control epilepsy or have had at least one seizure in the previous

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DCH-0709 (Rev. 8/02)

Table: Lifetime Prevalence of Self-Reported Epilepsy* by Selected Demographic Characteristics
Preliminary Estimates from the 2005 Michigan BRFS

Demographic Characteristic	% (95% confidence interval)
Total	1.8 (1.5-2.1)
Age (in years)	
18-24	1.3 (0.6-2.8)
25-34	1.3 (0.7-2.1)
35-44	2.1 (1.5-2.9)
45-54	2.3 (1.8-3.1)
55-64	2.0 (1.4-2.7)
65-74	1.4 (0.9-2.3)
≥ 75	1.6 (1.0-2.5)
Sex	
Male	1.6 (1.3-2.1)
Female	1.9 (1.6-2.4)
Race-ethnicity	
White non-Hispanic	1.8 (1.5-2.1)
Black non-Hispanic	1.7 (1.0-2.8)
Other non-Hispanic	1.7 (0.9-3.2)
Hispanic	2.1 (0.8-5.6)
Education	
< High school graduate	2.3 (1.4-3.7)
High school graduate	2.3 (1.7-2.9)
Some college	1.7 (1.3-2.3)
College graduate	1.3 (0.9-1.7)
Household income	
<$20,000	4.0 (3.0-5.3)
$20,000-34,999	2.4 (1.7-3.4)
$35,000-49,999	1.3 (0.9-2.1)
$50,000-74,999	1.2 (0.7-1.9)
≥$75,000	0.9 (0.6-1.4)
Marital status	
Married	1.6 (1.3-1.9)
Member of unmarried couple	0.4 (0.1-1.7)
Divorced, widowed, or separated	2.4 (1.8-3.2)
Never married	2.2 (1.5-3.2)
Employment status	
Employed	1.4 (1.1-1.8)
Out of work	2.8 (1.5-5.4)
Homemaker, student, or retired	1.5 (1.1-1.9)
Unable to work	7.8 (5.8-10.4)

*Response to the question, "Have you ever been told by a doctor that you have a seizure disorder or epilepsy?" (n=11,798)

three months), and 0.8% were estimated to have inactive epilepsy.

Among those with active epilepsy, 61.4% had seen a neurologist or epilepsy specialist in the past year, while 38.6% had not. The majority (58.0%) of those with active epilepsy reported that epilepsy or its treatment had not interfered at all with their normal activities during the previous month, while 15.3% reported that epilepsy had interfered slightly, 11.8% moderately, 8.4% quite a bit, and 6.6% reported that epilepsy had interfered extremely with their normal activities in the past month.

Michigan adults with epilepsy, especially active epilepsy, tended to have poorer general health status, more days of poor physical health in the previous month, activity limitations, and less life satisfaction, as illustrated in the figure. For example, nearly half (49.7%) of those with active epilepsy and one-quarter (25.1%) of those with inactive epilepsy described their general health as fair or poor, while 14.7% of those never diagnosed with epilepsy thought their health was fair or poor.

These data, although broadly representative of the Michigan adult population, do have limitations. These prevalence figures are estimates calculated from survey respondents' answers and may overestimate or underestimate the true prevalence. For instance, to be a survey respondent, a person must live in a private residence with a telephone and be able to talk on the phone. It is conceivable that people with active epilepsy may be less likely to answer the phone and that older people with epilepsy, particularly those with Alzheimer's or past stroke, may be more likely to be living in an assisted living facility or other institutional setting and therefore be missed by the household phone survey methodology. In addition, persons with epilepsy who do participate in the survey may be hesitant to report their condition due to the stigma often associated with this disease. On the other hand, the lifetime prevalence of

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Miller Takes Helm of Bureau of Epidemiology

In May of this year, Corinne Miller, Ph.D., D.D.S., officially became the Director of the Bureau of Epidemiology and State Epidemiologist for the Michigan Department of Community Health (MDCH). Miller has been with MDCH for over five-and-a-half years, previously as Manager of the Chronic Disease Epidemiology Section, and as the Director of the Division of Epidemiology Services. Most recently, she was the Acting Director of the Bureau of Epidemiology.

Miller is originally from Minnesota, earning her Doctor of Dental Surgery and Ph.D. in Epidemiology from the University of Minnesota. She began her public health career as an Epidemic Intelligence Officer in New York. Later, she worked as the Deputy State Epidemiologist at the Kansas Department of Health and Environment, where she provided epidemiologic support for 105 local health departments. Though many of her responsibilities involved communicable disease, she also focused some of her time in chronic disease areas.

As the Michigan State Epidemiologist, Miller sees her position moving toward a broader scope, from being traditionally centered on communicable disease to encompassing all areas within the Department. Similarly, her role as Director of the Bureau of Epidemiology branches beyond typical epidemiology into many diverse scientific disciplines, such as toxicology, environmental and occupational epidemiology, genetics, lead remediation, and vital records. "We have such a broad collection of scientists," she says, and she considers this wide array of disciplines one of the strengths of the Bureau.

Miller reports some of the Bureau's top priorities are ensuring good connection and communication with partners, such as local health departments; identifying opportunities for staff to participate and play a role in other organizations; and building professional and leadership skills of staff. Additionally, she stresses the importance of assuring that MDCH recognizes, understands, and appreciates the Bureau's role in the Department and is willing and able to tap into its expertise to respond to events.

Over the past few years, Miller has seen the Bureau expand significantly, presenting diverse opportunities, but also challenging the Bureau to maintain a cohesive structure with strategic objectives. "We have incredibly talented staff," she points out, "who are receiving national attention." She provides examples, such as the Asthma Death Review, the Vital Records linkages and collaborative projects with multiple programs, the development of the Michigan Disease Surveillance System (MDSS), the numerous partnerships made by the Genomics Unit, the recent Healthy Homes initiative through the Division of Environmental and Occupational Epidemiology, and the Michigan Care Improvement Registry (MCIR) significantly improving vaccination tracking within the state.

Because of these and other accomplishments, Miller views a priority of the Bureau is to market itself to public health professionals, and to develop and maintain funding streams to continue to attract highly dedicated staff. Ensuring and sustaining the diverse and excellent staff within the Bureau is crucial to its future success. And she does not hesitate to convey her sincere appreciation to everyone's support, and adds, "I think every day how wonderful it is to have such incredibly talented staff" – a sentiment her staff also expresses about her.

"Epilepsy in Michigan"

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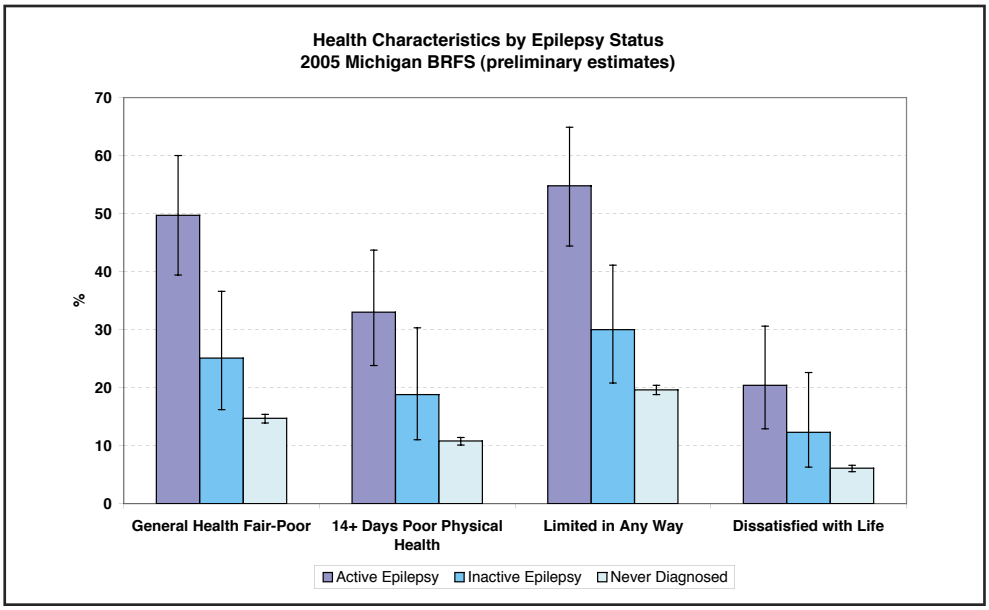

epilepsy may be over reported due to misdiagnosis of seizures associated with childhood fevers or alcohol use. Lastly, these data can tell us nothing about the prevalence of epilepsy among children.

The prevalence of lifetime and active epilepsy in Michigan is similar to that found by other states in past years (Texas 1998, Georgia and Tennessee 2002, South Carolina 2003-2004). Although the prevalence of epilepsy is not as high as some other chronic diseases, such as asthma or diabetes, the considerable impact on quality of life and activity levels indicates a need for public health strategies to support individuals affected by this condition.

References

[1]CDC. Living Well With Epilepsy II: Report of the 2003 National Conference on Public Health and Epilepsy. Accessed at http://www.cdc.gov/epilepsy/

[2]Epilepsy Foundation. Accessed at http://www.epilepsyfoundation.org/

[3]Michigan Inpatient Database. Accessed at http://www.mdch.state.mi.us/pha/osr/chi/hosp/frame.htmlepilepsy.epilepsy

Michigan Influenza Surveillance Summary, 2005-2006 Influenza Season
Michigan Department of Community Health

By: Susan Vagasky, DVM

Seasonal Influenza

Data from Michigan's Influenza Sentinel Physician Surveillance sites indicate that increases in the proportion of visits due to influenza-like illness (fever ≥100° F with a cough, sore throat, or both) began in early February, peaked in early to mid-March at 2.3% of office visits, and returned to low levels by late April. In comparison, activity during the 2004-2005 season occurred earlier, peaking in mid-February.

There was one pediatric influenza-related mortality for the 2005-2006 season with one possible investigation pending. Two congregate setting outbreaks were reported this season; one in Southwest Michigan in late February and one in Southeast Michigan in late March. Both outbreaks were confirmed by the Michigan Department of Community Health (MDCH) laboratory as due to influenza A (H3N2).

During the 2005-2006 influenza season, peak activity for flu-like illness in the Michigan Disease Surveillance System (MDSS) was seen between the week ending February 4 and the week ending April 1. The top three weeks for the season were the weeks ending April 1 (18,139 reports), February 18 (17,607 reports), and February 4 (16,214 reports). During the 2004-2005 influenza season, peak flu-like illness activity was seen between the week ending January 29 and the week ending March 12, while the top three weeks of flu-like illness activity were the weeks ending February 12 (36,127 reports), February 19 (32,780 reports), and February 5 (26,963). Based on MDSS information, the current influenza season appears to have been slightly longer, temporally similar, and much less severe than the previous one.

Emergency department visits due to constitutional complaints peaked in late February at roughly 10% of all visits. Visits due to respiratory complaints peaked twice – in late October at less than 14% of all visits and again in late February at over 14% of all visits. During the 2004-2005 season, constitutional and respiratory visits peaked in mid- to late February at roughly 15% and 16% of all visits, respectively. Compared to the previous year, emergency department visits due to constitutional and respiratory complaints indicated flu activity peaked slightly later, was slightly longer in length, and was lower during the current season. Over-the-counter product sales were more variable over the course of the year, but were consistent with the other indicators, suggesting that peak activity in flu-like illness activity in February 2006 was significantly lower than that seen in the previous year.

Sentinel physicians and sentinel laboratories provide virologic data by submitting clinical specimens and/or isolates for respiratory virus culture at the MDCH laboratory. During the 2005-2006 season, the MDCH laboratory confirmed 138 influenza cases. Of these, 132 (96%) were due to Influenza A (H3N2) and 6 (4%) to Influenza B. Eleven influenza A (H3N2) isolates were sent to the Centers for Disease

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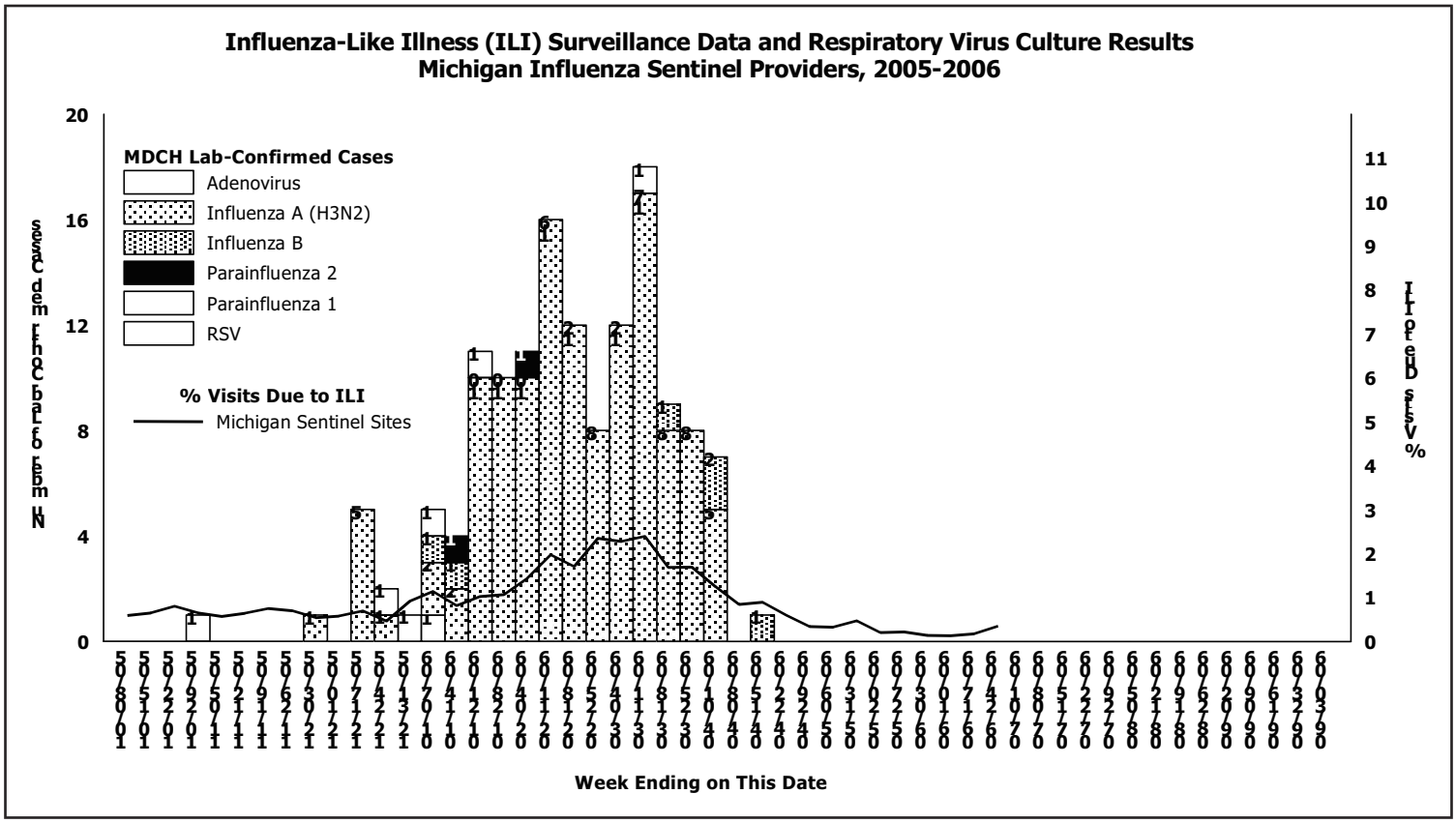

"Michigan Influenza Surveillance Summary"

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Control and Prevention (CDC) for strain typing. Of these isolates, one was closely related to the vaccine strain, A/New York/55/2004 (used for the A/California/7/2004 H3N2 strain), two were A/California/7/2004-like, and eight were related to A/Wisconsin/67/2005, an antigenic variant of A/California. The influenza B viruses isolated at the MDCH laboratory belonged to two antigenically distinct lineages; two were B/Shanghai/361/2002-like, belonging to the B/Yamagata lineage. Four belonged to the B/Victoria lineage; of these, three were B/Hong Kong/330/2001-like, and one sample sent was determined to be B/Ohio/01/2005-like. The B component of the 2005-2006 influenza vaccine was B/Shanghai. These results suggest that a variety of influenza viruses were circulating in Michigan during the 2005-2006 season, with varying vaccine-relatedness.

The 2006-2007 influenza vaccine will contain the A/Wisconsin strain as its H3 component and the A/New Caledonia/20/99-like strain for the H1N1 component. The influenza B portion will be updated to B/Ohio (used for B/Malaysia/2506/2004-like virus), representing a change to the B/Victoria lineage.

Data from the CDC indicate that the United States as a whole had similar experiences to Michigan in the 2005-2006 season. Visits due to influenza-like illness peaked twice nationally. The first peak of 3.3% occurred at the end of December and a later peak occurred in early to mid-March at 3.2%. Influenza A and B co-circulated with A types predominating (81%). Of the 503 influenza A (H3N2) isolates that were antigenically characterized by the CDC, 76% were characterized as A/California/07/2004-like, the H3N2 component recommended for the 2005-2006 influenza vaccine. Fourteen percent were A/Wisconsin-like, which will be in the 2006-2007 influenza vaccine. Nationally, 35 pediatric deaths related to influenza were reported from 13 states. Virus type was known for 31 of these cases; 23 were influenza A infection and eight were influenza B. National pneumonia and influenza mortality data from the CDC indicate that this season was of mild severity.

Novel and Avian Influenza Strains

2005-2006 also saw a dramatic increase in the number of countries affected by the ongoing epizootic epidemic of highly pathogenic avian influenza (HPAI), subtype H5N1. In late 2005, the virus spread in wild birds and poultry from Southeast Asia to Mongolia, Russia and Eastern Europe. By mid-2006, the Middle East, Africa and Western Europe were also affected. From 2003 to June 26, 2006, there were 228 human cases, including 130 deaths, in 10 countries spanning Asia, the Middle East and Africa.

As of this writing, 34 of 84 (40%) cases and 28 of 54 (52%) deaths reported in 2006 have been from Indonesia, including a family cluster that was of interest. The eight cases from that cluster were all related family members, seven of which appear to have contracted the virus from close, prolonged contact with the index family member. The eighth case was a father who had no contact with the index case and was determined to have caught the virus from his son, who did have prolonged contact with the index case. This situation was the first documented case of a second-generation human transmission. There was evidence of mutation in the virus recovered from the son, but this mutation did not appear to convey increased transmissibility and died out with the father. Characterization of the mutation showed no resistance to the antiviral drug oseltamavir, and other family members and healthcare workers with extensive contact have not contracted the disease. Thus, there is no current evidence of the H5N1 virus having efficient human-to-human transmission, but concern still exists for the potential of a pandemic influenza virus.

To access more information about influenza, go to the MDCH influenza homepage at http://www.michigan.gov/influenza. Between October and May, the most current U.S. influenza data is available from the CDC at http://www.cdc.gov/flu/weekly/fluactivity.htm.

Registration is Underway for the MDCH Regional Immunization Conferences

The Michigan Department of Community Health (MDCH) Division of Immunization will offer seven regional immunization conferences in October and November. The one-day fall conferences have attracted a large number of health care professionals who attend to learn about practice-management tools, techniques and information that will help ensure that patients throughout the state are fully immunized.

Registration for the conferences began July 1. This year, we have initiated an Internet registration process with immediate confirmation and payment mailing instructions. For more information and to register, go to the conference website at http://register2006.mihealth.org. Half of the conference locations are expected to fill up in early August. Because of this, early registration is strongly encouraged.

Multi-State Mumps Outbreak

By: Joel Blostein, MPH

A large outbreak of mumps has occurred in several midwest states, including Michigan, since late winter 2006. As of the end of June, over 4800 cases have been reported throughout 14 states, compared to fewer than 300 mumps cases reported each year nationwide during the 2001-2003 period. Iowa first detected the outbreak of mumps in several college campuses in the early weeks of 2006.

Multiple factors may be contributing to this outbreak and its spread, including close contact in college and dormitory settings, insufficient immunization coverage among college-age individuals and other adults, and delayed recognition and reporting of cases.

The source of the outbreak is unknown but it may be connected to large outbreaks that have been occurring in the United Kingdom and Ireland since 2004. Molecular epidemiological studies of viruses isolated in the US outbreak indicate the epidemic strain is the same one seen in the UK.

A large proportion of the reported cases have a history of immunization against mumps. Since mumps vaccine is not absolutely protective and because most individuals are routinely vaccinated against mumps, it is expected that most cases occurring in the US will be among vaccinated persons. Effectiveness of one dose of mumps vaccine is estimated to be 70 – 80%. Data from the current outbreak and previous outbreak-related studies suggest a two-dose schedule improves effectiveness to an estimated 90%. According to CDC investigators, high levels of immunization coverage in the general population have kept this outbreak from becoming considerably larger.

In Michigan, at the end of July, there had been 67 confirmed, probable, or suspect cases reported. Cases have been reported across all age groups, however, those 1-19 years make up nearly half of the cases. Cases range in age from 2 to 63 years, with a median age of 20 years. Twenty-four counties have reported cases. *(see graph)*

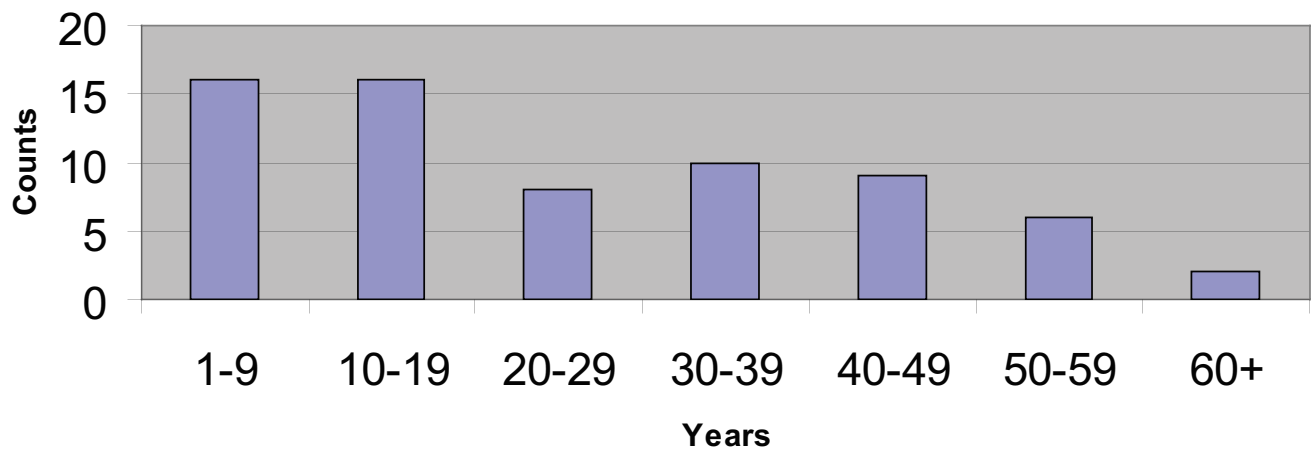
Concerns about an increase in mumps activity in Michigan actually arose in 2005, when 24 cases were reported, compared to fewer than 10 in recent prior years. But despite that increase, there were no obvious outbreaks detected, suggesting "silent" transmission of mumps virus may have been taking place involving sub-clinical or unrecognized cases.

Problems in interpreting mumps tests have complicated the epidemiologic analysis of the outbreak, both in Michigan and elsewhere. Typically, mumps IgM serology tests are used to confirm a case, but these have been found to be difficult to interpret in persons previously vaccinated. The IgM response in such persons may be delayed, quite transient, or missing. Other testing methodologies, such as polymerase chain reaction (PCR) or viral culture, may be helpful but can lack sensitivity. These problems have made making a definitive lab confirmation difficult.

In response to this outbreak, guidelines of the Advisory Committee on Immunization Practices (ACIP) have been revised to specifically recommend two doses of mumps-containing vaccine as appropriate documentation for immunity.

It is important for Michigan health care providers and public health workers to be knowledgeable about mumps and watchful for cases, and to report them to the public health system. Additional mumps information and resources are available on the Michigan Department of Community Health Immunization website at www.michigan.gov/immunize and the website of the Centers for Disease Control and Prevention National Center for Immunization and Respiratory Diseases (formerly National Immunization Program) at http://www.cdc.gov/nip/diseases/mumps/default.htm.

Reported Mumps by Age Group
Michigan 2006, Year to Date



Detroit Receives National Award at CDC National Immunization Conference

Thanks to a tremendous amount of hard work and perseverance at the community, local, and state levels, Detroit was recently recognized for making substantial strides in its immunization levels. Immunization partners at the local and community levels include the Detroit Department of Health and Wellness Promotion (DHWP) and surrounding local health departments in southeast Michigan, Detroit-area health systems, the Alliance for Immunization in Michigan coalition, and private providers.

The 40th Centers for Disease Control and Prevention (CDC) National Immunization Conference was held in Atlanta in early March. At the conference, Detroit was presented an award for being one of seven urban areas throughout the nation showing the most improvement in immunization rates. From 2001 to 2004, Detroit's immunization rates increased by 14.6 percent.

Representatives from Michigan proudly accept the award on behalf of the City of Detroit's health care providers. Pictured from left to right are: Patricia Vranesich, R.N., B.S.N., Outreach and Education Section Manager, Division of Immunization, Michigan Department of Community Health; Dawn Lukomski, M.A., Immunization Program Director, Detroit Department of Health and Wellness Promotion; and Kenneth Onyewurunwa, Lead Provider Services Representative, Detroit Department of Health and Wellness Promotion. Anne Schuchat, M.D., Director of the CDC National Immunization Program (pictured on the far right), presented the award.

Detroit is continuing to increase its immunization coverage levels by about one percent per month. Immunization rates increased from 35 percent to 46 percent in the past year alone.* The fact that the Michigan Care Improvement Registry ([MCIR] formerly known as the Michigan Childhood Immunization Registry) is now being used more effectively than in the past plays a substantial role in this turnaround. The increases can be attributed to a number of other reasons as well. The Immunization Program at the Detroit DHWP has developed a team approach to provider quality assurance with providers. In addition, there is strong support, at every level, for protecting the city's children from vaccine-preventable diseases.

"When I worked in Detroit, we always felt that our immunization rates were higher, we just couldn't demonstrate it with data. Through partnerships and the use of the immunization registry, we are now able to measure our progress," said Patricia Vranesich, R.N., B.S.N., Outreach and Education Section Manager, Division of Immunization, Michigan Department of Community Health (MDCH). Pat served as the MDCH Immunization Field Representative in southeast Michigan from 1998 through 2004.

Detroit has also surpassed both the statewide and the national average for giving infants the birth dose of hepatitis B vaccine. Based on the CDC National Immunization Survey results of 2003-2004, Detroit has achieved a rate of 83.4 percent, compared to Michigan's rate of 70.6 percent and the national rate of 46 percent for the same time frame.

Education, communication, and collaboration have been key to keeping Detroit's children safe from vaccine-preventable diseases.

**** These immunization rates reflect the 19-35 month-old patient population as recorded in MCIR for the following doses of vaccines: 4 DTaP, 3 polio, 1 MMR, 3 Hib, 3 hep B and 1 varicella.***

Michigan BRFS Updates

Preliminary results from the 2005 Michigan Behavioral Risk Factor Survey (BRFS) are now available at www.michigan.gov/brfs. These results include the standard set of Michigan BRFS annual tables with estimates by demographic characteristics, two sets of tables with expanded race-specific estimates, and tables with regional and local health department estimates. In 2005, we had the opportunity to expand the sample size of the Michigan BRFS to approximately 12,000. This has allowed us to calculate more precise estimates and to calculate annual estimates for more subgroups in Michigan than has been possible in previous years.

Michelle Cook, our former Michigan BRFSS Coordinator, has accepted a new position working with the BRFSS in Texas. We were very sorry to see Michelle move on but are delighted for her new opportunity.

If you have any questions about these 2005 Michigan BRFS estimates, please contact Ann Rafferty at raffertya@michigan.gov.

New Publication

Janice S. Lee, PhD, MSH; Sharon L. Lee, PhD; Scott A. Damon, MAIA, CPH; Robert Geller, MD; **Erik R. Janus, MS;** Chris Ottoson, CIH; and Marilyn J. Scott, CSP, ARM. Risk Communication Needs in a Chemical Event. Journal of Emergency Management. 2006;4(2).

Recent Presentations

Joel Blostein, MPH, gave an Immunization/VPD Update presentation at the MSIC (Michigan Society for Infection Control) in April.

Deb Duquette presented a talk "What is Pharmacogenomics? Personalization of Medications for You!" at the Michigan Medical Assistants Conference in Lansing, MI, on May 6, 2006.

Deb Duquette presented a talk "Striving for a Healthier You: Genetic Counselors as Health Promoters" at the National Society of Genetic Counselors Region IV Conference in Ann Arbor, MI, on April 8, 2006.

Deb Duquette presented a lecture "Public Health Genomics" at Wayne State University School of Medicine, Genetics Course, on May 12, 2006.

Erik Janus presented "The Use of Chemicals as Weapons: Myths and Realities" for the Epi brown bag lecture series on June 14, 2006.

TaTisha N. McCainey, MPH, Glenn Copeland, MBA, Laurie DeDecker, RN, **Ann Annis Emeott, MPH,** and **Won Silva, MA,** presented a poster "Incorporating Genomics Into Existing State Level Cancer Surveillance System" at the 2006 Michigan Breast and Cervical Cancer Control Program/ WISEWOMAN Program Annual Meeting in Acme, MI, on May 18-19, and at the North American Association of Central Cancer Registries 2006 Annual Meeting in Regina, Saskatchewan, on June 13-15.

Dawn Sievert presented "Community-Associated MRSA: How to Stay Ahead of this Familiar Pathogen" for the Michigan Society for Infection Control 2006 Spring Conference in April 2006.

Dawn Sievert presented "Staph and Spinnerets: Any Connection?" for the 2006 Michigan Communicable Disease Conference in May 2006.

The following Bureau of Epidemiology employee presented at the National STD Prevention Conference in Jacksonville, FL, on May 8-11.

Mark Stenger, Jeff Stover, Michael Samuel, **Katie Macomber,** Lori Newman, Todd Gerber, Charlotte Kent, Wendy Wise, and Gail Bolan presented "Enhancing Gonorhea Surveillance to Guide Program and Policy."

Katie Macomber presented "Lessons Learned: Implications of a Web-Based Morbidity Reporting System for STDs."

The following Bureau of Epidemiology employees presented at the CSTE 2006 Annual Conference on June 4-7 in Anaheim, CA.

James Collins presented a talk on "PHIN Initiative."

Melinda Wilkins and **Eden Wells** presented talks on "Pandemic Influenza."

The following Bureau of Epidemiology employees presented at the 2006 Michigan Healthy Mothers, Healthy Babies Coalition 21st Annual Conference in Mt. Pleasant on June 8-9. This symposium featured presentations on topics related to birth defects prevention and monitoring, including the importance of folic acid in preventing birth defects, the effects of maternal phenylketonuria and other metabolic disorders, environmental exposure to pesticides, the management of insulin dependant diabetes mellitus, and fetal alcohol exposure.

Joan Erhardt, MS, presented a concurrent workshop "Folic Acid Outreach & Multivitamin Distribution in Selected Michigan Counties at High Risk for Neural Tube Defects."

Joan Ehrhardt, MS, and Carol Wilson, RN, MSN, presented a plenary session "State of the State: Michigan's Folic Acid Campaign and the Continuing Need for Knowledge and Awareness." (Birth Defects Prevention & Monitoring Initiatives PreConference June 7, 2006)

Cassandre Larrieux, MPH, Kobra Eghtedary, PhD, **Violanda Grigorescu, MD, MSPH,** and Alethia Carr, RD, MBA, presented a poster "Effect of WIC Participantion on VLBW Infants Among Medicaid Participants in Michigan."

Cassandre Larrieux, MPH, Violanda Grigorescu, MD, MSPH, Kobra Eghtedary, PhD, and Alethia Carr, RD, MBA, presented a poster "Post-Neonatal Infant Mortality Among Medicaid WIC and Non-WIC Participants in Michigan."

Won Silva, MA, presented a concurrent session "Profile of Birth Defects Among Children of Alcohol Users in Substance Abuse Treatment Programs in the Detroit and Wayne County Area."

Jane Simmermon, RN, MPH, presented a concurrent workshop "Promoting Preconceptional Health: An Essential Birth Defects Prevention Strategy."

Michigan Environmental Health Association Recognizes MDCH Employee Erik Janus

In February, **Erik Janus**, a Toxicologist with the Division of Environmental and Occupational Epidemiology at the Michigan Department of Community Health, received the Michigan Environmental Health Association (MEHA) 2006 Distinguished Service Award – Non-Member. This special recognition award honors individuals who have made significant contributions to environmental health. Janus has worked tirelessly with local public health departments, and has undertaken considerable efforts in chemical terrorism, emergency preparedness, and methamphetamine lab issues. Congratulations, Erik Janus!

New Employees

Terri Adams, RN, BSN, accepted the position of Vaccines for Children (VFC) Coordinator for the MDCH Division of Immunization in April. Adams brings a wealth of public health experience. Having worked in the immunization programs at Washtenaw, Barry-Eaton and Kent counties, she will offer a unique local health perspective to her daily VFC program coordination activities. Adams will work closely with the MDCH Immunization field representatives and local health department immunization coordinators throughout the state to assure VFC vaccine is available and administered properly. Please contact her by phone (517) 335-9646 or email adamst2@michigan.gov with questions about the VFC program.

James Averill, DVM, was hired as the Deputy Pandemic Influenza Coordinator for the Michigan Department of Community Health. In this capacity, he will coordinate pandemic influenza planning and response activities within MDCH, as well as with other state agencies. Additionally, he will assist Dr. Eden Wells in all manner of work related to Pandemic Influenza within MDCH. Averill received his veterinary medical degree from Michigan State University (MSU) in 2001, after which he worked as a Veterinary Medical Officer for the USDA-Veterinary Services in Michigan. In 2002 Averill returned to MSU to obtain a PhD in Epidemiology and will complete the degree in 2006.

Connie S. Bessette was hired in October as the Vaccines for Children (VFC) Clerk for the Division of Immunization. In her new position, she is responsible for data entry and maintenance of the required paperwork for enrollment with the VFC Program. In addition, Bessette manages data entry for the VFC Site Visits, monthly Biological Inventory Reports and Doses Administered Reports (both public and private). She will be getting married on September 16, 2006, after which her new name will be Connie S. Garn.

Steve Cali is an Intern in the Division of Communicable Disease and has recently completed his second year at the University of Michigan School of Public Health Masters degree program in epidemiology. He is finishing up his thesis project in community-associated MRSA under the supervision of Dawn Sievert and will graduate at the end of summer. This summer Cali will work on multiple projects with both MDCH and Michigan State University.

Peter Davidson, PhD, was recently hired as the TB Program Coordinator at MDCH. His responsibilities include planning, development, implementation and evaluation of statewide tuberculosis control and prevention activities. In this position, he works closely with local health departments in the development of TB program guidelines and policies, collection and analysis of TB surveillance data, and development of contractual agreements for prevention and intervention activities. Additionally, Davidson is responsible for the preparation of various written reports and presentations to a variety of audiences and coordination of TB control activities with the American Lung Association of Michigan.

Brian Davis is an Intern in the Division of Communicable Disease. He has been working on different projects, mainly focusing on foodborne illness. Davis is also gaining an overview of operative functions within the division, and will continue his work through the summer. He is a student at the University of Michigan School of Public Health.

Allison Eavey was recently hired as an Intern in the Division of Communicable Disease at MDCH. In this position, she will be working on a rabies post-exposure prophylaxis study. Originally from Hastings, MI, Eavey is a second year veterinary student at Michigan State University, and is also concurrently working on her Master of Public Health from the University of Minnesota.

Ed Hartwick is the new GIS Specialist in the MDCH Surveillance Section. This life-long Michigan resident hails originally from Cass City in Michigan's thumb area. He graduated with a Bachelors Degree in Geography from Central Michigan University in 2004 and recently completed his Masters in Geographic Information Science at Michigan State University. Most of the duties in his new position will consist of mapping and conducting spatial and statistical analyses of disease information.

Carol Romback, RN, BSN, accepted the position of Field Representative for the Upper Peninsula for the Division of Immunization in December. Previously, Romback worked for 23 years as a school nurse for the Negaunee Public Schools. In addition, she has worked as a hospital nurse, and taught nursing for two years at St. Luke's School of Nursing in Marquette. Romback graduated from the University of Michigan with a Bachelor of Science in Nursing.

Curtis Smith was recently hired as a Student Assistant in the Vital Records Customer Services Unit, Bureau of Epidemiology, Vital Records and Health Statistics.

Susan Vagasky, DVM, was hired in May 2006 as an Influenza Surveillance Epidemiologist within the Infectious Disease Epidemiology Section, in the Division of Communicable Disease. Her responsibilities include triaging initial inquiries regarding possible influenza cases, actively reviewing MDSS for influenza cases, and creating and maintaining a database that contains information on influenza cases, hospitalizations, deaths, hospitals involved, and patients quarantined and/or isolated. Additional duties include providing ongoing consultation on influenza to Michigan local health departments and generating and distributing the weekly MI FluFocus Surveillance Report. Vagasky is originally from Otsego, MI. She graduated from Michigan State University (MSU) with a Bachelor of Science in Zoology from the Honors College in 2002 and a Doctorate in Veterinary Medicine in 2006. While in veterinary school, she was president of the MSU Chapter of Omega Tau Sigma, a professional veterinary fraternity. In the fall Vagasky will begin pursuing a Master of Public Health degree through the University of Minnesota on a part-time basis.

Michigan Experiencing Surge in Terrestrial Rabies Cases

By: Kimberly Signs, DVM

The Michigan Department of Community Health (MDCH) Bureau of Laboratories has detected a total of 23 cases of rabies out of 986 animals tested through June 26, 2006. These include eighteen bats, four horses, and one skunk. Over the same time period in 2005, nine positive animals had been detected out of 965 submissions. Typically, July and August are the busiest months in the MDCH laboratory for rabies testing. This year is unusual not only in the number of positive animals detected in the first half of the year, but also in the fact that four horses have been found to be positive for rabies, the most in a single year since 1999 when there were three.

Both 2005 and 2006 animal rabies statistics reflect higher case numbers due to the skunk-strain of rabies. While bat rabies is detected sporadically throughout the state, the skunk-strain of rabies has, in recent years, only been detected in southeast Michigan and the "thumb" counties. In 2005, a total of thirteen animals, including seven skunks, four cats, a sheep and fox, were infected with this strain of rabies. For 2006 to date, four horses and one skunk have been infected with this strain. Diseases in wildlife often experience natural cycles of high and low incidence, and rabies is no exception. Rabies of terrestrial animals such as skunks are more likely to spill over into other unvaccinated domestic animals such as cats and horses as they are more likely to encounter a skunk in their natural environment, especially a sick skunk. Bat rabies rarely spills over into other species.

For most domestic species of animals including dogs, cats, ferrets, horses, cattle, and sheep, there are licensed rabies biologics available. Only dogs and ferrets are required by law to have rabies vaccinations in Michigan, but other species whose daily activities could expose them to potential rabies-infected animals should be vaccinated.

For up-to-date information on rabies surveillance data please visit the Emerging Diseases website at www.michigan.gov/emergingdiseases. Click on the "Rabies" topic.

Michigan EIS Officer Wins CDC Mackel Award

Mark Gershman, MD, the Epidemic Intelligence Service (EIS) officer currently assigned to the Division of Communicable Disease at the Michigan Department of Community Health (MDCH), presented the findings of his investigation, "Delayed Onset Pseudomonas fluorescens Group Bloodstream Infections After Exposure to Contaminated Heparin Flush — Michigan and South Dakota, 2005-2006" on April 27 at the 55th Annual Epidemic Intelligence Service Conference in Atlanta. He won the Centers for Disease Control and Prevention (CDC) Mackel Award for his presentation. This award recognizes the presentation that best exemplifies the effective application of a combined epidemiological and laboratory approach to an investigation. His main co-investigator was Curi Kim, MD, MPH, who did a rotation at MDCH in the Division of Communicable Diseases recently, as part of her Preventive Medicine Residency at University of Michigan School of Public Health. Other collaborators included a medical epidemiologist and several laboratorians in the Division of Healthcare Quality and Promotion, CDC, as well as a nurse and an epidemiologist in South Dakota.

The current investigation built upon a prior CDC and Food and Drug Administration (FDA) investigation in March 2005 of an outbreak of Pseudomonas fluorescens bloodstream infections (BSIs) among patients from multiple states. These patients developed BSIs after being exposed to a contaminated, commercially prepared heparin intravenous flush solution, which was used to flush their central venous catheters as a routine measure to prevent clotting. Some of these patients required hospitalization; most were treated with antibiotics and many had their central venous catheters removed. As a result of this investigation, the manufacturer recalled the heparin flush product in early February 2005.

Dr. Gershman's investigation concerned 28 patients at two clinics in Michigan and South Dakota, who were previously exposed to the contaminated heparin flush prior to product recall, but whose BSIs weren't diagnosed until months later. The mean time from their last potential exposure to the contaminated heparin flush until BSI diagnosis was 237 days (range: 84–421 days). All patients were adult cancer outpatients with implantable venous ports (a type of indwelling central venous catheter). After product recall, they all later experienced symptoms of BSI within several hours of maintenance port flushing; most were treated with antibiotics and all had their ports surgically removed. No deaths were reported. P. fluorescens was recovered from either blood or catheter cultures in all 28 patients. Pulsed-field gel electrophoresis performed on available specimens demonstrated that they all had genetically indistinguishable patterns, both to each other as well as to the patterns of specimens from the prior March 2005 investigation. These findings linked the delayed P. fluorescens BSIs to prior exposure to the recalled contaminated heparin flush. Electron microscopy performed at CDC on explanted catheters demonstrated biofilms with adherent bacterial rods lining the catheter lumens.

A number of hypotheses were posited to explain the delayed presentation and diagnosis of P. fluorescens BSI in these patients. The most significant factor was P. fluorescens colonization of catheter lumens, facilitated by biofilms. Episodic catheter flushing may have physically disrupted colonized biofilms causing symptomatic, intermittent bacteremia. Also, patients receiving chemotherapy initially attributed BSI symptoms to chemotherapy side effects, which may be similar, and delayed reporting them. This investigation gives the first description, to the authors' knowledge, of significantly delayed BSIs after exposure to a contaminated intravenous solution. Furthermore, the authors emphasize that providers need to conduct ongoing surveillance and maintain a high index of suspicion for BSI with indwelling catheter patients previously exposed to contaminated injectables, even months after product recall.

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