Michigan Department of Community Health
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EPI Insight
Bureau of Epidemiology
Summer 2004

Outbreak of Varicella Among Vaccinated Children

By: Darline K. El Reda, Dr.PH., M.P.H., C.H.E.S.

On November 18, 2003, the Michigan Department of Community Health (MDCH) was alerted by the Oakland County Health Division of a large varicella (chicken pox) outbreak in a kindergarten through third grade elementary school. On December 11, 2003, MDCH and Oakland County, with the technical assistance of the Centers for Disease Control and Prevention, conducted a retrospective cohort study to describe the outbreak, determine varicella vaccine effectiveness (VE) and examine risk factors for vaccination failure/breakthrough disease (varicella occurring >42 days after vaccination). Self-administered standard questionnaire were sent to parents of all students to collect data on students' vaccination and disease history. Parents of cases were interviewed by telephone to ascertain detailed information about potential exposures to varicella and clinical characteristics of disease.

The elementary school housed a total of 580 students and 73/580 (12.6%) met the case definition. Cases were concentrated in first and third graders; grade-specific attack rates were 5.6% (7/125), 15.7% (21/134), 6.7% (9/134), and 26.6% (29/109) for kindergarten, first, second, and third graders, respectively. Male students accounted for 54.5% (36/66) of the cases. The earliest rash onset date was November 5, 2003 in a previously vaccinated third grader. Her rash consisted of two pruritic, vesicular lesions on her neck and stomach of five days duration. She did not appear clinically ill, was afebrile, and missed no school days. Her parents did not recall any potential exposure to varicella in the weeks prior to rash onset. The outbreak peaked seven days after this case; however, an index case was not identified (see figure). Students did not attend school from November 12 through 14 due to parent-teacher conferences, and from November 26 through 28 due to the Thanksgiving holiday. These breaks in attendance may have interrupted disease transmission. Eight secondary cases, outside the school, were identified among six siblings and two adults (one father and one aunt). All developed a rash within two weeks of exposure.

Survey response rate was 95.5% (554 of 580). Among respondents, 62 reported no vaccination history. Among these, 47 reported varicella disease history before the outbreak, 13 reported no previous history, and 2 had an unknown disease history. Among the 507 respondents with no disease history, 492 reported vaccination history, and vaccination was verified for 485 students, resulting in a vaccination coverage of 95.7% (485 of 507); 43 of the 485 verified vaccines were excluded from further analyses because they either reported a previous or unknown varicella disease history (n=32), were vaccinated before age 12 months (n=5), had an unknown age at vaccination (n=2), or were vaccinated < 42 days before the start of the outbreak (n=4), resulting in 442 children who were vaccinated appropriately with no known disease history.

Attack rates were 11.8% (52/442) for vaccinated and 76.9% (10/13) for unvaccinated students. VE was 84.7% (95% Confidence Interval (CI): 77.4 - 89.7) in preventing varicella of any severity and 97.6% (95% CI: 95.0 – 98.9) in preventing moderate to severe varicella. Vaccinated cases were more likely to have mild disease (84.6% versus 20.0%, p< 0.01), were less likely to have fever (44.2% versus 88.9%, p<0.05), and missed fewer days of school (1.3 versus 3.5 median days, p< 0.01) than unvaccinated cases. Children vaccinated greater than four years prior to the outbreak were nearly five times more likely to acquire varicella than children vaccinated within the past four years (relative risk= 4.65, 95% CI: 1.48-

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Asthma Mortality Review – 2002 Findings and Recommendations

Asthma mortality in the United States has increased two-fold since the 1970s. Overuse of beta-agonists, inadequate use of inhaled corticosteroids, smoking, drinking, substance abuse, family problems, and specific work exposures are associated with increased asthma mortality.

Asthma deaths are preventable with good disease management. Investigation as to why people are not able to obtain and maintain good control will allow us to recommend ways to prevent future deaths. The Epidemiology Services Division and Michigan State University (MSU) Department of Occupational and Environmental Health developed an asthma death investigation system to identify those risk factors in asthma deaths among children and young adults ages 2-34. This article summarizes the first full year of investigations.

Methods

MDCH staff identified all 2002 deaths with an underlying cause of asthma in Michigan residents ages 2-34 years of age. MSU staff conducted an interview with the next-of-kin and collected all available medical records from the year prior to death, as well as pharmacy records, emergency response records, medical examiner records, and the autopsy report. A blinded summary of the circumstances surrounding each death is prepared from these materials.

Expert advisory panels, made up of primary care, emergency department (ED), specialty physicians, asthma educators, nurses, pharmacists, respiratory therapists, and social workers reviewed each summary to identify causal factors and preventative activities.

Results

Thirty-two children (2-18 years of age, n=12) and young adults (19-34 years of age, n=20) died of asthma in 2002. The majorities of the deaths were among males (59%), and African-Americans (56%) and occurred in Genesee, Oakland, Saginaw, and Wayne counties.

Death typically occurred prior to the deceased reaching the hospital.

Investigations were completed in 90% of adult deaths and 25% of child deaths. Selected characteristics of the individuals who died include:

- 78% had some form of health insurance.
- 33% had a condition that complicated their asthma management.
- 47% of adults were obese. 64% of children had a BMI at 90% for their age.
- Trigger Exposures:
  - 35% were current smokers. 61% were exposed to a smoker in the home
  - 61% had pets in the home, including 100% of the homes of child deaths
  - 33% of child deaths had significant family dysfunction that impacted asthma
- Asthma Management
  - 50% were taking inhaled or oral steroids at the time of death
  - 47% were ever referred to a specialist. 33% ever had pulmonary function testing
  - 83% had a nebulizer at home
  - No one had an asthma management plan
- Acute Asthma Events
  - 63% had a previous asthma hospitalization and 18% had a prior intubation
  - 80% had previous ED visits; on average 12.5 visits in the year prior to death alone

The following causal factors were identified:

Health Care Providers	Patients/Caregivers	Systems Level
- Inadequate prescription of steroids - Need to refer high-risk patients to specialists - Need to conduct and properly interpret pulmonary testing	- Need to eliminate asthma triggers - Need to follow up with primary care physician - Need to use steroids - Lack of adequate adult supervision for children with asthma - Suspected ingestion of aspirin in sensitive individual	- Lack of health insurance - Lack of regular care with a primary care physician - Lack of previous asthma diagnosis

The panel made the following recommendations for prevention of future deaths:

Educate health care providers on:

- Prescription of inhaled steroids, including education in emergency departments (ED) on the prescription of steroids by health care providers
- Referral to specialists for high risk cases
- Pulmonary function testing and its interpretation

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"Outbreak of Varicella…" *continued from page 1*

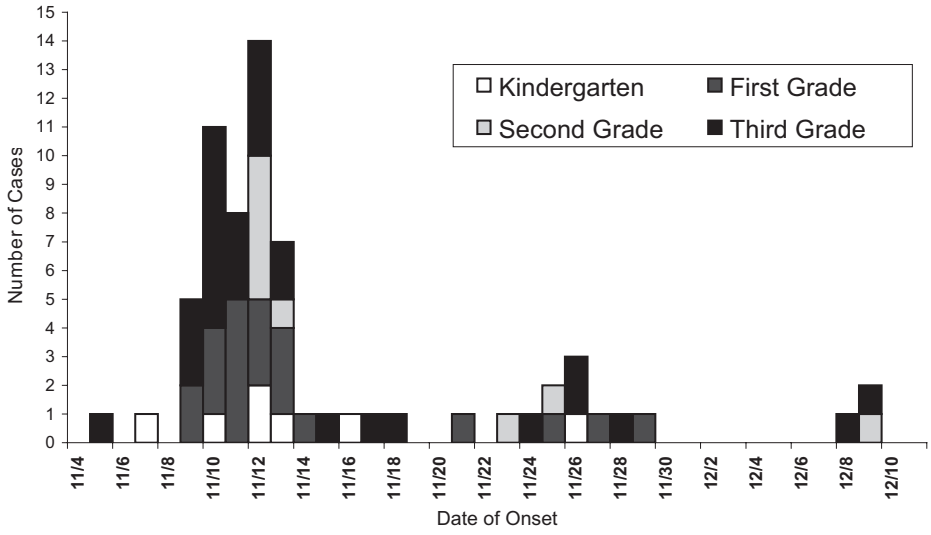
14.61). Age at vaccination, sex, and pre-existing conditions, such as asthma and eczema were not associated with vaccine failure. Vaccine lot numbers were identified for 30 cases; 26 different lot numbers administered on multiple dates by many providers indicated that breakdown in vaccine storage and/or handling procedures was not a likely risk factor for vaccine failure.

In this study, varicella vaccine was effective (85%) at preventing varicella of any severity and highly effective (98%) at preventing moderate to severe disease. Although longer time since vaccination was identified as a potential risk factor for vaccine failure, prospective follow-up studies are needed to examine the importance of individual risk factors for breakthrough disease, after controlling for the effects of other factors (e.g., risk of exposure). Furthermore, these findings underscore the importance of continuing to increase immunization rates nationwide; vaccination should remain the cornerstone of our varicella disease control efforts.

MDCH acknowledges Rick Renas, MPH, Shane Bies, MPH, and Carolyn Bird, MD, of the Oakland County Health Division; and Joel Blostein, MPH and Matthew Boulton, MD of the Michigan Department of Community Health for their participation in this investigation.

Complete article citation: Centers for Disease Control and Prevention. Outbreak of Varicella Among Vaccinated Children-Michigan, 2003. MMWR 2004; 53:389-392.

Figure: Varicella cases by date of rash onset date and grade (n=66)*



Limited to cases with known date of onset and no varicella disease history prior to this outbreak.

"Asthma Mortality Review…" *continued from page 2*

Educate patients on:

- Importance of the use of steroids
- Need to follow up with primary care for prescription of steroids after ED visit
- Severity of asthma and its dangers
- Products that might contain aspirin

Health care providers need to:

- Limit refills for bronchodilators without a physician visit or active approval
- Improve timeliness of referrals to specialists

System level changes are needed, including:

- Case management for high-risk patients
- Improved insurance coverage and provision of regular care for adults without health insurance
- School-based asthma management programs
- Pharmacy notification to alert practitioners of excessive bronchodilator use
- Increased attention to asthma management in foster care system
- Increased public awareness of asthma and its management
- Regulation of insurance companies on referrals to specialists
- Adequate labeling of products that contain aspirin

For more information, please contact Sarah Lyon-Callo (517-335-9315, lyoncallos@michigan.gov). An electronic copy of the 2002 Report is available at http://www.getasthmahelp.org/02AsthmaMortalityAnnRpt.pdf.

Chemical Terrorism Readiness at MDCH: The Chemical Terrorism and Emergencies Unit

By: Erik R. Janus, M.S

Did you know that The Washington Post reported in March 2002 that "as many as 2.4 million people could be killed or injured in a terrorist attack against a U.S. toxic chemical plant in a densely populated area?" There are roughly 15,000 facilities that handle large quantities of dangerous chemicals in our country and many of them are located near major metropolitan areas. According to the Environmental Protection Agency (EPA), over 100 of these chemical facilities are located in the vicinity of one million or more residents. Addressing readiness to respond to a major chemical release may indeed be one of the upcoming "hot topics" for state and local public health jurisdictions.

The Chemical Terrorism and Emergencies Unit (CTE Unit) of the Michigan Department of Community Health follows a core competency based mission to reduce morbidity and mortality in case of an intentional or accidental chemical incident. We are working to improve response capability on the state level and to rapidly mobilize state and federal resources to support local response.

So what exactly does the CTE Unit do?

First and foremost, the CTE Unit offers timely and expert technical consultation in the areas of exposure analysis and risk assessment, toxicology and environmental chemistry, and epidemiology and surveillance. As such, we have been consulted in the past on a variety of topics – from assisting in the design of preparedness exercises to providing public education materials. In fact, education and outreach to the local public health jurisdictions, the general public, and regional preparedness coalitions (among others) were recently identified as some of our primary goals.

Here's a short list of some of our more important projects:

- Creation and maintenance of the MDCH chemical response plan
- Development of chemical-specific preparedness tools, including fact sheets for the public, a resource manual for state and local health departments, and a tabletop exercise involving intentional contamination of food with chemicals
- Pre-event syndromic surveillance using statewide Poison Control Center data and standardized post-event epidemiologic data collection forms

In order to further protect the citizens of Michigan from chemical threats, the CTE Unit is networking and partnering with other states, federal agencies, and other public and private groups. By applying the best practices and "lessons learned" from other jurisdictions, we can only improve our readiness for a chemical event.

For more information on the CTE Unit, please contact the coordinator, Martha Stanbury at stanburym@michigan.gov.

2004 Michigan-Ontario Border Health Conference

The Border Health Initiative is a program funded by the Centers for Disease Control and Prevention (CDC) and was begun in February of 2004. Its main purpose is to enhance early warning infectious disease surveillance at our international borders.

The Michigan Department of Community Health formalized a plan to improve this surveillance by hiring a Border Health Program Coordinator, Katherine Allen-Bridson who will lead a bi-national steering group in the compilation of assessment tools. This assessment process is being coordinated by Public Sector Consultants and will consist of on-site and/or telephone interviews of various public health stakeholders in Michigan and Ontario.

From this assessment process, a bi-national conference will be held on September 9-10, 2004 at the Detroit Marriott Hotel. 200 public health officials and workers will attend this conference from Michigan, Ontario, Health Canada, and the CDC. It will be simultaneously webcast for those interested but unable to attend.

The conference will afford opportunities to learn about neighboring public health systems and some hands-on work in the form of breakout groups. These groups will discuss system strengths and weaknesses as well as make recommendations for means for improving and integrating those systems. Specific information to be addressed will include public health structure in each county, current surveillance systems, data sharing opportunities, communication pathways, privacy regulations, international health law, and international lessons learned from SARS.

Boulton Chaired CSTE Workforce Summit

Matthew L. Boulton, M.D., M.P.H. was the chair of the Council of State and Territorial Epidemiologists (CSTE) epidemiology workforce summit January 26th and 27th in Amelia Island, Georgia. The summit brought together epidemiologists from state, governmental, and non-profit sectors to discuss workforce issues. Other participating agencies included the Epidemiology Program Office and the Public Health Practice Program Office from the Centers for Disease Control and Prevention, the American Public Health Association, the Association of State and Territorial Health Officials, and the American Schools of Public Health. Summit objectives related to recruiting and retaining the next generation of applied epidemiologists, training existing epidemiology staff, leadership development, and certification.

Regional Immunization Conferences To Be Held This Fall

The Michigan Department of Community Health (MDCH) will offer seven regional immunization conferences in October and November. The Cobo Conference Center has been added as a new venue this year, in an effort to reach more providers in Detroit. 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.

2004 Dates and Locations			
October 5	Gaylord	October 7	Marquette
October 19	East Lansing	October 21	Troy
October 22	Detroit	November 1	Ypsilanti
November 3	Kalamazoo		

Conference brochures were distributed in early June. Due to limited space, participants are encouraged to register as soon as possible. If you do not have a conference brochure, go to www.michigan.gov/imminize and look under "Provider Information."

The early conference registration fee ($50) is available until August 12. After that date, the full conference registration fee ($75) goes into effect, and is available until September 17. Please note that registration began in early June, and some conferences may already be full.

For more information, contact the MDCH Division of Immunization at (517) 335-8159.

Recent Publications

Rafferty, A.P., McGee, H.B., Petersmarck, K.A., and **C.E. Miller.** Proportion of trips made by walking: estimating a state-level baseline for Healthy People 2010 objective 22-14. American Journal of Health Promotion 2004; 18: 387-391.

Renas, R., Bies, S., Bird, C., **Blostein, J.,** Boulton, M., Lopez, A., Jumaan, A., and **D. El Reda.** Outbreak of Varicella Among Vaccinated Children-Michigan 2003. Morbidity and Mortality Weekly 2004; 53(18): 389-392.

Ramani, R., Hall, W., Boulton, M., Johnson, D., and B. Zhu. Impact of PCV7 on Invasive Penumoccoal Disease Among Children Younger than 5 Years: A Population-Based Study. American Journal of Public Health 2004; 94(6): 958-959.

Linn County Public Health, Iowa Dept. of Public Heath, **Swanson, R., Boulton, M., Stobierski, M.,** Dayan, G., and C. LeBaron. Imported Measles Case Associated with Nonmedical Vaccine Exemption-Iowa, March 2004. Morbidity and Mortality Weekly 2004; 53(11): 244-246.

Wasilevich, E.A., and **S. Lyon-Callo.** Epidemiology of Asthma in Michigan: 2004 Surveillance Report. Bureau of Epidemiology, Michigan Department of Community Health. (pdf available at www.michigan.gov/mdch)

Rosenman, K.D., Hanna, E., and **S. Lyon-Callo**. 2002 Annual Report on Asthma Deaths Among Individuals Aged 2-34 Years in Michigan. Michigan State University Department of Medicine, March 2004. (pdf available at www.getasthmahelp.org.)

Employee Focus: Sally A. Bidol, M.P.H.

Her catchphrases are that influenza is not stomach flu, and the leading cause of foodborne illness is Norovirus, not the more commonly assumed Salmonella bacteria. Sally A. Bidol, M.P.H., is a Communicable Disease Epidemiologist in the Infectious Disease Epidemiology Section. She began her career with the Michigan Department of Community Health (MDCH) as an epidemiologist shortly after graduation from the University of Michigan School of Public Health and has held several positions in communicable disease surveillance. In 1999 she had the opportunity to join the MDCH staff in Lansing for her current position as a food/flu epidemiologist. While it meant relocating from her roots in Ann Arbor, "It was a position that seemed tailor-made for me" she says. Her main duties included outbreak detection and response for enteric and influenza-like illnesses throughout the state, and acting as liaison to the Centers for Disease Control and Prevention in these areas. Her responsibilities quickly expanded to include enhancing epidemiologic capacity at the state and local health department levels, and pandemic influenza planning.

Sally is inquisitive by nature and found that she has a true calling and instinct for detective-style work: knowing what information to seek, the best ways to obtain the facts and details, and figuring out connections. She has worked on hundreds of enteric illness investigations, some of which have taken a lot of time and the combined talents of multiple agencies to figure them out. She feels strongly that good teamwork is key, and team practice makes perfect. There have also been some quirky outbreaks along the way, which she thinks have had better storylines than one can find in the movies or on TV. "You can't make this stuff up!" she quips. She muses that she could make a second career out of writing outbreak plots for TV shows. She also finds it humorous that others are always wanting to know what food she is ordering when dining out, and they often follow her lead in hopes of selecting safe cuisine.

She views among her most significant accomplishments her work on foodborne training systems and working on emerging diseases such as SARS. Last year she served on teams to investigate unexplained pediatric deaths and possible cases of the newly emerged SARS virus. She's also had the opportunity to help mentor and coordinate training projects for students and federal assignees from various programs to provide a quality learning experience in outbreak investigations. The Bureau of Epidemiology is especially grateful to Bidol, as she came up with the original name for the Bureau newsletter, Epi Insight, in 2000.

For inspiration, she keeps at her desk a beautiful silver starfish that had been given to her as a gift. It is a reminder of a story about a person walking along a beach where millions of starfish had washed up. Coming to their rescue, the person was throwing them back into the sea, one by one. Someone else came along and shrugged, "Why bother, that won't make any difference." To which the first person held up one of the helpless starfish and replied: "Not so, it makes ALL the difference in the world to THIS starfish."

Welcome Dr. Gary Kirk

Gary Kirk, M.D., M.P.H., M.H.S.A., has recently accepted the position of Director of the Immunization Division in the Bureau of Epidemiology and started working at MDCH on July 6th. Dr. Kirk attended MIT and McGill University and did his pediatric residency at University of Michigan Mott Hospital and Baylor College of Medicine in Texas. He is board certified in pediatrics and is a Fellow of the American College of Pediatricians. He previously served on the pediatrics faculty of the University of Chicago, the University of Illinois, and Michigan State University and is the previous program director of the pediatrics residency for Spectrum Health/Michigan State University. He has an active research interest in pediatric pulmonary disease with special focus on asthma and has worked with the public health community extensively in this area. He was named the 2000 Professional of the Year by the American Lung Association of Michigan and received the 2003 Outstanding New Professional Award for Western Michigan University. He comes to the Michigan Department of Community Health from his position as Director of Health Services for Western Michigan University where he directed a staff of 110 persons.

Farwell to Shelley Stonecipher

Shelley Stonecipher, D.V.M., M.P.H. recently ended her two-year assignment at the Michigan Department of Community Health as an Epidemic Intelligence Service Officer. Stonecipher worked in the Infectious Disease Epidemiology section and was significantly involved many projects, most notably, investigating pediatric-related influenza deaths. She has taken a position working as a Career Epi Field Officer (CEFO) in Dallas, Texas for the Texas Department of Health. Best Wishes Shelley!

Michigan's Head Lice Manual to be released summer 2004!!

By: Brenda M. Brennan, M.S.P.H.

It's been a long time, 15 years to be exact… but, finally, the Michigan Department of Community Health (MDCH) together with the Michigan Department of Education (MDE) will be releasing the updated Head Lice Manual in late summer 2004. The new Head Lice Manual will feature updated policy recommendations, supporting literature, chapters on biology, medical impact, identification, treatment, school assistance, and additional tools. The school assistance chapter will include prevention tips, cleaning tips, a screening procedure – including pictures for differential diagnosis and sample letters to be used at the school's discretion. The additional tools chapter includes easy-to-follow treatment and infestation management flowcharts and informational handouts that can

be copied and distributed to schools, healthcare facilities, and other group settings. All local health departments and Michigan Model Coordinators will be receiving the manual in binder and CD-rom form. Schools (public, private and charter) and academies will be receiving CD-roms only. The manual along with helpful links for parents and schools will also be available on the MDCH and MDE websites later this summer.

A special thanks goes to the Head Lice Workgroup: Vicki Bishop, Susan Boley, Brenda Brennan, John Dyke, Erik Foster, Jennifer Gray, Candice Jemison, Michael Kaufman, Patty Lawless, Joshua Meyerson, Ruth Anne Rye, Patricia Somsel, Mary Grace Stobierski and Elaine Tannenbaum. The group collectively represents MDCH – Bureau of Laboratories and Bureau of Epidemiology, MDE, Michigan State University, Michigan Society for Infection Control, Michigan Association of School Nurses and multiple county health officials. A lot of time and effort has gone into preparing this manual – all of which is greatly appreciated.

An Imported Measles Case

By: Joel Blostein, M.P.H.

On March 13, 2004, the Michigan Department of Community Health learned of a 19-year-old male college student with measles who had flown the previous day from New Delhi, India, to Cedar Rapids, Iowa, with a change of planes at the Detroit/Wayne County Metropolitan Airport. Because of a non-medical exemption, the student had not received measles vaccine previously. Additional detail on the exposure situation was published in the CDC Morbidity and Mortality Weekly Report (MMWR), and is available at: http://www.cdc.gov/mmwr/preview/mmwrhtml/mm53d319a1.htm

MDCH issued press releases to alert air passengers, travelers, and employees about the potential measles exposure. Health advisories were also distributed to alert physicians and enhance surveillance. In addition, MDCH and several Michigan local health departments attempted to contact Michigan residents on the flights to alert them to the potential for exposure and provide disease prevention and control recommendations. Similar efforts were undertaken in other states.

Priority was placed on contacting passengers considered at greatest risk of measles, i.e. those born after 1956, since virtually all persons born earlier have measles immunity as a result of having had the disease.

Over 280 passengers and crew were on the flight, residing in 30 different states. A total of 62 Michigan residents were passengers, of which 38 passengers were deemed at risk. Of the 38, 21 (55.3%) indicated they had either received measles immunization or had a history of the disease, six (15.8%) received prophylaxis (measles vaccine or immune globulin) following the exposure on the airliner, seven (18.4%) were provided information and advised to follow up with their medical provider, one (2.5%) was serologically evaluated and found to be immune, and three (7.9%) were lost to follow-up.

In Michigan, no secondary cases of measles were identified resulting from this exposure. However, in Iowa, the final destination of the index case, two secondary cases occurred in exposed persons.

This incident serves as a reminder of the fact that, while measles has become an extremely rare disease in the United States as the result of high immunization levels, the risk of importation of the measles virus is an ongoing threat due to the endemic levels of disease that exist elsewhere in the world.

MDCH would like to take this opportunity to thank the many local health department personnel involved in this effort for their hard work.

New Employees

Sue Manente, M.A. is the new Health Educator for the Division of Environmental and Occupational Epidemiology's Chemical Terrorism Unit. Manente has a B.A. in organizational development and a M.A. in organizational management from Spring Arbor University. She previously worked as an Emergency Preparedness Coordinator for the No. 4 District Health Department and was the Disaster Services Director for the American Red Cross Northern Lower Michigan Chapter.

Won Silva is the new Manager of the Population and Provider Data Unit within the Vital Records and Health Data Development Section. Silva comes to the Bureau of Epidemiology from the Department of Information Technology and has previously worked on systems for Substance Abuse Services. She has a master's degree in sociology from the University of Hawaii specializing in statistical analysis and demography. In her new position, she will be responsible for reviewing and overseeing revisions to the processing procedures and software systems used by the statewide cancer registry and the birth defects registry.

Kari Borden recently joined the Health Data and Development Section to work in the cancer registry area, specifically with the Detroit metropolitan area. She will handle cancer reporting in Wayne, Oakland, and Macomb counties and work towards improving the coordination of reporting and data collection issues between the state registry and the Detroit Metropolitan Cancer Surveillance Systems. Borden previously worked at St. Mary Mercy Hospital in Livonia where she had managed the tumor registry for three years. She has an associate's degree in Health Information Technology from Schoolcraft College and is an accredited Registered Health Information Technician and has been a certified tumor registrar since 2000.

Ann Annis, B.S.N, M.P.H. is the new Genomics Epidemiologist in the Division of Epidemiology Services, Adult Genetics/Genomics Program. Annis obtained her nursing degree from Northern Arizona University and has worked as a Registered Nurse in critical care for several years. She recently received her public health degree, with a concentration in genetics, from the University of Michigan. As a member of the MDCH Genomics Team, Annis will provide leadership in the examination and utilization of existing surveillance systems and databases for potential uses with respect to genomics. She will also oversee the conduct of epidemiologic studies related to genomics and chronic disease.

Mark S. Caulder, M.S., M.P.H. recently joined the Division of Epidemiology Services as the Environmental and Laboratory Genomics Analyst. Caulder has a B.S. in Biology from the University of South Carolina, an M.S. in Human Genetics from the University of Michigan, and an M.P.H. from the University of Michigan in epidemiology with a concentration in public health genetics. Previously, Caulder worked on a research project designed to assess and understand the genetic burden associated with sudden cardiac death in the young at the Michigan Center for Genomics and Public Health. Caulder will serve as a liaison to foster collaborations between the genomics program, state laboratory, and the environmental epidemiology section, and provide technical assistance in relation to emerging technologies and gene-environment interactions.

Debra Duquette, M.S., C.G.C. is the new Adult Genetics/Genomics Coordinator in the Division of Epidemiology Services. Duquette received a B.S. in Biology with an emphasis in Education from Michigan State University, and an M.S. in Genetic Counseling from Northwestern University. She has extensive clinical genetics experience with a focus on reproductive genetics, teratology and fetal surgery. Duquette will serve as the project manager for the CDC Genomics cooperative agreement, and is the lead staff person for the MDCH Genomics Team. She is responsible for planning, implementing and evaluating the various components of the genomics initiative. She will also develop outreach methods and implement educational programs related to genomics and chronic disease.

Marcus Wasilevich is a new staff member in the Health Survey Section of the Epidemiology Services Division. Wasilevich will be assisting asthma epidemiology staff with data requests and updates of asthma surveillance using hospitalization and mortality databases. He will also assist with the development of asthma coalition profiles and fact sheets on Medicaid and BRFSS data. He has a Ph.D. in biology from Tulane University and has previously worked with the Mid-Michigan Asthma Coalition. He also teaches at Lansing Community College.

Staff Changes

Teri Lee Dyke, R.N. has recently joined the Surveillance Systems Section as the new Infection Control Practioner working on antimicrobial resistance issues. Teri previously worked as a Regional Tuberculosis Nurse with the Infectious Disease Epidemiology Section and the American Lung Association.

Shannell McGoy, M.P.H. is the new HIV/AIDS Behavioral Surveillance Coordinator with the HIV, STD and Bloodborne Infections Surveillance Section. McGoy previously was the Supplement to HIV and AIDS Surveillance (SHAS) Project Coordinator in the same section. She will continue to be located at the Detroit Health Department.

Erin Crandell-Alden, M.P.H. is a new HIV/STD Epidemiologist in the HIV, STD and Bloodborne Infections Surveillance Section. She was previously a Respiratory Epidemiologist with the Infectious Disease Epidemiology Section.

Michigan Benefits from CDC Cooperative Agreement for Genomics and Chronic Disease Prevention

Michigan is one of four states, including Minnesota, Utah, and Oregon, that received five-year cooperative agreements in 2003 from the new Coordinating Center for Health Promotion within the Centers for Disease Control and Prevention to improve chronic disease prevention efforts and health outcomes through the use of genomics in core public health functions. Under the direction of Jean Chabut, Chief Administrative Officer/ Public Health Administration, and Janice Bach, State Genetics Coordinator, the objectives are to:

- enhance leadership capacity for integrating genomics into public health;
- strengthen organizational capacity for population-based assessments using existing surveillance and data systems;
- educate the health workforce, policy makers, and the public about the role of family history and genetic risk factors in chronic disease;
- expand the use of genomics in core public health activities across chronic disease, laboratory, and environmental health;
- coordinate the use of targeted risk assessment strategies based on genomic tools.

The Michigan program is multi-disciplinary, and relies on internal partnerships with multiple MDCH programs, advisory groups, stakeholders, and external programs providing technical assistance. The MDCH genomics team is working toward accomplishing these goals with a number of projects to integrate genomics into chronic disease programs, core public health specialties, and existing surveillance and data systems. Program staff will also be investigating opportunities for working with local public health to integrate genomics into community health initiatives. For additional information, please see the following website link, http://www.cdc.gov/genomics/activities/ogdp/2003/chap14.htm or contact Debra Duquette, Genomics Coordinator, at (517) 335-8286 or duquetted@michigan.gov.

University of Michigan Preventive Medicine Residents begin Practicum

Two University of Michigan (UM) Preventive Medicine Residents (PMRs) began their Michigan Department of Community Health (MDCH) practicum experience in May.

Albert H. Bonnema, M.D., is on assignment here from a Family Medicine position with the U.S. Air Force. He is a 1993 graduate of the Medical University of South Carolina and did his Family Practice Residency at Toledo Hospital. Dr. Bonnema plans to return to the Air Force on completion of his residency program next summer. His main focus is on chronic disease management and clinical preventative medicine. His main project at MDCH is to examine the relationship of Detroit Metro area air pollution data on chronic obstructive lung disease.

Michael Jhung, M.D., came to the UM PMR program directly out of his internship at Richland Memorial Hospital in Columbia, South Carolina. He received his medical degree from Case Western Reserve in Cleveland, Ohio. Dr. Jhung's educational focus is on communicable disease epidemiology and the epidemiology of bioterrorism-related events. His principle project at MDCH is to evaluate and analyze the Sentinel Physician Influenza Surveillance System.

Both residents will attend the UM Summer Epidemiology Sessions in July then return to MDCH to complete their MDCH practicum rotation.

The Bureau of Epidemiology would also like to extend their best wishes to our departing PMR Residents who recently completed their one year rotations at MDCH: **Eden Wells, M.D., Talat Danish, M.D. F.A.A.P.,** and **Amy Schultz, M.D., M.P.H.**

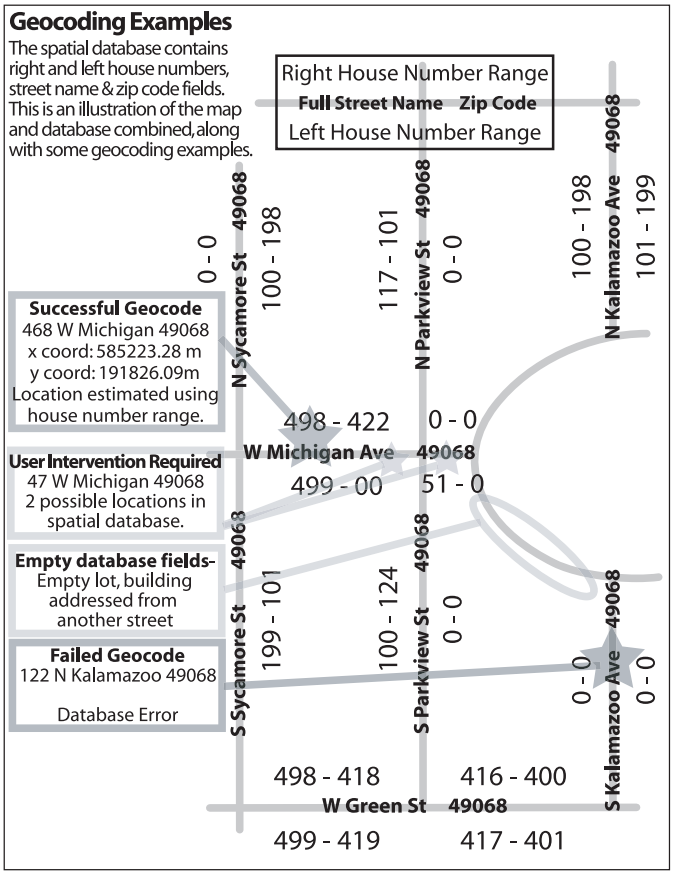
Putting Place in Patient Cases: Geocoding at MDCH

Michael D. Hass, M.S.

With the inclusion of web mapping in the Michigan Disease Surveillance System (MDSS), patient location has gone beyond a static field to dynamic representation on a map. The process of locating a patient in space or giving an address an x and y coordinate so that it can be plotted on a map is called geocoding or address matching. At its simplest, geocoding can be a way to instantaneously determine local health jurisdiction. At more complex levels, we can use geocoding in conjunction with a geographic information system (GIS) to examine the data for patterns over space and time.

Geocoding involves comparing the address components, such as house number, street name or zip code to the same fields in a spatial/GIS database. GIS software calculates the likelihood of an address match by calculating the probability that the fields match versus the probability that the fields do not match and then summing the results for a geocode score. Fields that are critical for a good match, such as zip code or house number, are weighted so that slight differences severely impact the final score. Street names carry less weight so that a misspelling may lower the final score, but won't prevent a successful match.

Of course, it's the unmatched addresses that garner most of our attention and time. Typical reasons for unmatched or mismatched records are poor, incomplete, out of date or inaccurate



spatial databases, unmappable addressing schemes, inaccurate patient addresses and post office box addresses. Most of these problems can be resolved either by checking the data beforehand or by examining each problem address in a GIS. However, the time spent to resolve each address can increase radically. Research initiatives such as the Public Health Disparities Geocoding Project at Harvard have done an excellent job of dissembling some of these problems, as well as uncovering hidden errors in the address matching process. For more information visit: http://www.hsph.harvard.edu/thegeocodingproject/.

One of the benefits of spatially locating patient addresses is that good maps can transfer information faster and more completely than a database or report. However, the downside is that these maps can remove patient confidentiality just as quickly. In addition to withholding low count data, confidentiality can be maintained by removing location-revealing information, such as roads or water bodies, using symbol size and scale ratios to generalize location or by aggregating cases by a polygon unit.

In Michigan, accurate, precise and efficient geocoding relies on a strong state and local partnership in the same sense that our successes in public health are based on mutual cooperation. Several state and local initiatives are underway to strengthen the GIS connection and improve the geocode spatial databases because of the value of having instant and accurate access to patient location through systems like the MDSS.

The Retirement of LHDSURV

On June 14th, 2004, over 400 public health users transitioned from using LHDSURV to the Michigan Disease Surveillance System (MDSS) for communicable disease reporting. In the coming months, the user registry will expand to include infection control, health care providers, and medical laboratory communities. Fourteen years of archived surveillance data has been successfully imported into the MDSS assuring that no LHDSURV data was lost. The current system will maintain all variables associated with communicable disease reporting and follow-up in an electronic data warehouse. That data is available for analysis as soon as it is entered. The incorporation of electronic laboratory reports is designed to provide timely access to the referral information necessary to initiate public health responses. GIS and reporting enhancements to the MDSS provide for a better public health tool in communicable disease surveillance.

Recent Presentations

The following presentations were done by Environmental and Occupational Epidemiology Division, Epidemiology and Surveillance section staff at the Sixteenth Conference of the International Society for Environmental Epidemiology in New York City, August 1-4th.

A poster presentation by **Oana Vasiliu, Lorri Cameron, Peter DeGuire** and colleagues titled "Polybrominated Biphenyls, Body Weight, and Incidence of Type 2 Diabetes Mellitus."

An oral presentation by **Lorri Cameron** and colleagues titled, "Menstrual Function Among Women Exposed to Polybrominated Biphenyls."

Two poster presentations by **Bob Wahl** and **Julie Wirth** and colleagues titled, "Speciation of PM2.5 Collected in Two Areas of Michigan" and "Investigating Adverse Birth Outcomes and Air Pollution in Michigan."

The following presentations were done by Bureau of Epidemiology staff at the Annual Conference of the Council of State and Territorial Epidemiologists in Boise, Idaho, June 7th-10th.

Katie Macomber presented, "Locally-Acquired Fluoroquinolone Resistant Neisseria Gonorrhea in Michigan" and "Syphilis and HIV Co-Morbidity in Michigan."

Sarah Lyon-Callo and **Betsy Wasilevich** presented, "Michigan Statewide Asthma Surveillance Using Medicaid Claims."

Corinne Miller and **TaTisha McCainey** presented, "Evaluation of the Michigan Department of Community Health Asthma Surveillance System."

Matthew Boulton and **Melinda Wilkins** presented, "National Electronic Disease Surveillance System/Public Health Information Network Breakout: A Demo of MDSS."

Tom Largo presented, "Occupational Injury Surveillance."

Robbie Madera and **Mary Grace Stobierski** presented, "Evaluation of Shigella Surveillance."

Matthew Boulton presented, "Future Workforce Directions."

Martha Stanbury presented, "Building a Core Occupational Health Surveillance Program in Michigan: Some Successes and Challenges."

Sarah Lyon-Callo and collaborators presented "The Proportion of Self-reported Asthma Associated with Work in Three States-California, Massachusetts, and Michigan, 2001."

The following presentations were done by Division of Communicable Disease, HIV/STD and Bloodborne Infections Surveillance Section staff, at the National HIV/AIDS Surveillance Workshop in Atlanta, GA June 21st-25th.

Elizabeth Hamilton presented, "Use of Sub-categories for HIV Transmission Risk: Trends and Profiles," and "Estimate of the Prevalence of HIV Infection in Michigan."

Mike Kucab presented "Michigan Department of Community Health's Confidentiality Training Session."

Yolande Moore presented, "Use of HIV Surveillance Data to Prevent Perinatal HIV Transmission."

The following presentations were done by staff from the Epidemiology Services Division during the 2004 National Asthma Meeting, at the Centers for Disease Control and Prevention in Atlanta, Georgia on April 15, 2004.

Sarah Lyon-Callo and colleagues presented, "Asthma Mortality."

Sarah Lyon-Callo and **Betsy Wasilevich** and colleagues presented, "Statewide Asthma Surveillance Using Medicaid Claims."

Betsy Wasilevich, Sarah Lyon-Callo and colleagues presented, "Establishing Population-Based Emergency Department Surveillance for Asthma in Local Communities-A Grassroots Approach."

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