

Congenital Anomalies and Childhood Mortality in Michigan, 1992-1998

Katherine Berger, M.P.H.

Congenital anomalies, which includes conditions such as anencephaly, spina bifida, limb reduction defects, gastroschisis, congenital heart defects, cleft lip/palate, and chromosomal defects occur in about 3% of all live births and are the leading cause of infant death in the United States. Children with congenital anomalies who survive the high-risk period during the first year of life still have low survival rates as children and adults. National vital statistics data indicates that congenital anomalies significantly contribute to the mortality of children, and nearly 11% and 6% of deaths in children ages 1 to 4 and 5 to 9, respectively, were attributable to congenital anomalies in 1999.¹ Few studies, however, have documented the risk faced by children with congenital anomalies past the infant period.

In this study, the risk of mortality for children born with congenital anomalies through the sixth year of life was examined. Additionally, we assessed whether the survival experience of these children differed by race and whether the magnitude of the difference was similar to the known disparity in mortality between black and white children born without congenital defects. For this study, the Michigan Birth Defects Registry, which is routinely merged with birth-death files, was used to conduct the retrospective cohort study. All singleton children born in Michigan to resident mothers between 1992 and 1998 with at least one congenital anomaly were included.

Between 1992 and 1998, 946,515 singleton live births that occurred in Michigan to Michigan residents were identified. 43,708 (4.6%) of these births were infants born with one or more congenital anomalies. During this time period, 2,182 deaths were recorded for children born with congenital anomalies and 14.3% of the deaths occurred after the first year and before the child's seventh birthday. Similarly, 14.4% of the 6,180 deaths

that occurred to children born without congenital anomalies were after the first year.

As expected, the mortality rates for children born with and without congenital anomalies were highest during the infant period and rapidly decreased throughout the following years. The overall infant mortality rate for children born with congenital anomalies was 197.5 per 100,000 live births. Stratum-specific infant mortality rates showed a rate of 42.8 per 1,000 live births with congenital anomalies, and a rate of 5.9 per 1,000 live births without congenital anomalies. Further age specific mortality rates for children with and without congenital anomalies are shown in Table 1, part A. The overall relative risk of mortality compared with all other children remained high throughout early childhood (Table 1, part B1).

In addition to our general analysis, the population was also stratified by race (black and white for statistical purposes). Comparison of the survival experiences between black and white children with congenital anomalies showed that black children had consistently lower survival rates through the end of the sixth year of life (Table 1, part B2). The overall seven-year hazard ratio comparing black children with congenital anomalies to white children with congenital anomalies was 1.5 (95% CI = 1.4, 1.6). The hazard ratio became statistically non-significant after adjusting for birth weight, sex, mother's age, mother's education, and number of organ systems affected (HR = 1.0; 95% CI = 0.9, 1.1). These results suggest that among children with congenital anomalies, the racial differences in mortality rates appear to be due to confounding by sociodemographic factors, rather than the direct result of race. *Continued on page 2....*

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TABLE 1. Mortality rates and relative risk of mortality by age at death, race, and presence of a congenital anomaly at birth for singleton children in Michigan, 1992-1998

| | Age of Child at Death | | | | | | |
|---|-----------------------|--------------|--------------|--------------|--------------|--------------|--------------|
| | <1 Year | 1-2 Years | 2-3 Years | 3-4 Years | 4-5 Years | 5-6 Years | 6-7 Years |
| A. Stratum Specific Mortality Rates (per 1000 live births) | | | | | | | |
| 1. Congenital Anomalies | 42.8 | 3.5 | 2.0 | 1.2 | 0.9 | 0.6 | 0.9 |
| 2. No Congenital Anomalies | 5.9 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 0.1 |
| B. Relative Risk of Mortality | | | | | | | |
| 1. Cong. Anomalies vs. No Cong. Anom. | 7.1* | 10.0* | 6.7* | 5.0* | 5.5* | 3.4* | 8.3* |
| 2. Congenital Anomalies: Black vs. White | 1.4* | 1.8* | 1.7 | 1.6 | 0.9 | 7.0* | 1.2 |
| 3. No Cong. Anomalies: Black vs. White | 3.4* | 2.3* | 2.1* | 1.9* | 1.6* | 1.4 | 3.9* |

* Significant at $\alpha=0.05$.

In order to assess whether the increase in risk for black children disappeared for all types of congenital anomalies, we stratified by twelve diagnostic categories based on organ system involved.

Crude analysis comparing black children to white children by diagnostic category showed that black children had worse survival outcomes for all diagnostic categories except congenital anomalies of the integument. After adjusting for birth weight, number of diagnostic categories, sex, mother's age, and mother's education, the racial disparity in mortality remained statistically significant only for congenital anomalies of the heart or circulatory system (HR = 1.2; 95% CI = 1.1, 1.3). Differences in survival rates between black and white infants born with congenital heart defects have been previously documented.² However, little is known about the cause of the racial difference in survival experiences for children with congenital heart defects.

When we compared children with congenital anomalies to those without congenital anomalies, we found that black children without congenital anomalies had higher mortality rates compared to white children without congenital anomalies for all age groups, as was seen for children with congenital anomalies (Table 1, part B3). However, in contrast to children born with congenital anomalies, the racial difference in mortality did not disappear for children without congenital anomalies after adjusting for other factors. This pattern has been documented in the infant period and was expected to occur in early childhood as well.³ These results suggest that the presence of congenital anomalies far outweigh any other factors as a cause of death and attention to the

care of all children should be the focus in order to reduce morbidity and mortality.

Overall, our results reaffirmed the importance of congenital anomalies as a cause of death for infants and children. The risk of mortality for children with congenital anomalies remains significantly elevated throughout early childhood, and programmatic efforts need to be targeted towards children with congenital anomalies well past infancy. Our results also indicated that black children born with congenital anomalies of the heart and circulatory system had an increased risk of mortality. Additionally, it was found that although crude differences in overall childhood mortality were observed between black children and white children with congenital anomalies, the difference appeared to be due to confounding by other factors. While the sharp contrast between racial differences for all births compared to children with birth defects was not explained by this study, it is possible that the targeted public health and medical attention provided for children and families with special needs are affecting the survival of infants with congenital anomalies and nullifying the effects of such factors as being uninsured or underinsured, lacking adequate child care training, or simply poor access to medical care.

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Michigan Initiates Smallpox Vaccination Program

Nancy Fasano, M.A. and Gillian Stoltman Ph.D.

Smallpox eradication was one of the shining examples of the power of public health to eliminate threats to health and reduce the burden of disease. Unfortunately, the elimination of smallpox and the cessation of smallpox vaccination programs across the world have resulted in populations without adequate immunity to this deadly disease. This would not be a problem if it were not for the fact that deadly diseases can be used as weapons against civilian populations. With the suspicions that a few countries have facilities to produce smallpox virus and use it as a weapon, the United States and other countries have initiated steps to protect their citizens against smallpox. These protective strategies involve a combination of vaccination, surveillance, and rapid investigation of potential cases.



Vaccination with a bifurcated needle

The federal government has recommended that only certain groups receive smallpox vaccine in the absence of any

smallpox disease. The current vaccine, known as DryVax, is the same vaccine that many people received prior to the cessation of widespread vaccination in the early 1970s. It is a live vaccine, and can replicate in the body and also is transmitted quite easily to others. While for many this is not a problem, for those with certain skin conditions such as eczema or atopic dermatitis, or people who are immunocompromised (such as those with HIV/AIDS or who have cancer or an organ transplant) or women who are pregnant, vaccination could pose a significant threat to their health.

In Michigan, teams of public health and medical care staff have been identified in each of the eight public health preparedness regions in the state. These teams would be the first to investigate and care for any case of smallpox which may occur here. Given this role, it is therefore prudent to vaccinate them in advance of any potential cases, so that they can proceed with their duties without concern about becoming infected.

While it is recognized that a potential smallpox case could be seen by a health care provider who has not been vaccinated, studies have demonstrated clearly that vaccination within a few days of exposure to the smallpox virus will protect against the disease, and so any case of smallpox would be followed immediately by identification and vaccination of all people who had physical contact with the case.

The media has recently published many articles about the smallpox vaccination program and particularly about the associated risks. These risks should not be underestimated, but can be minimized by careful screening of individuals who would be eligible to receive the vaccine. As in many decisions that health care workers make, the risks and benefits should be carefully weighed before deciding to be vaccinated. This program is entirely voluntary and a person does not have to declare why they choose not to be vaccinated. The federal government advises us that they know of no specific smallpox threat, and so the risk from the vaccine for certain people may be considerably greater than a small and undetermined risk from a smallpox attack. It is anticipated that up to 4,000 to 6,000 people in Michigan will receive the vaccine in the first few months of 2003. However, many hospitals and individuals are still concerned about assurances for liability and health coverage for persons, including any people who acquire vaccinia from inadvertent transmission from a vaccinee or those who suffer any ill effects from the vaccine. State and federal agencies continue to seek clarifications and assurances on these issues.

Recent Presentations

Harry McGee and Susan Bohm, both of Chronic Disease Epidemiology, attended the Center for Disease Control's 20th Annual Conference of the Behavioral Risk Factor Surveillance System, February 10-13, 2003, in St. Louis, Missouri. This year's presentations focused on state problems in working with BRFSS data, lessons learned, innovative approaches to and uses of BRFSS data, and epidemiologic studies using BRFSS data. McGee gave an oral presentation titled "Colorectal Cancer Screening in Michigan."

Continued on page 4....

Dara Ganoczy, M.P.H. presented "What's Going On? Syphilis in Detroit" at the statewide HIV/STD Conference in Novi on November 21st and 22nd. She presented the demographic and behavioral characteristics of persons with syphilis in Detroit, describing trends for the past 5 years.

Garry Goza, M.S. presented "Western Michigan HCV Prevalence in Persons Entering Drug Treatment" at the National Hepatitis Coordinators' Conference in San Antonio, Texas on January 26 - 30, 2003. This presentation was developed in collaboration with the Michigan Hepatitis C Coordinator, Kim Kirkey, Ph.D., M.P.H. and compared the demographic and drug use behaviors of those diagnosed with Hepatitis C against those were not upon presentation to a Michigan drug treatment center.

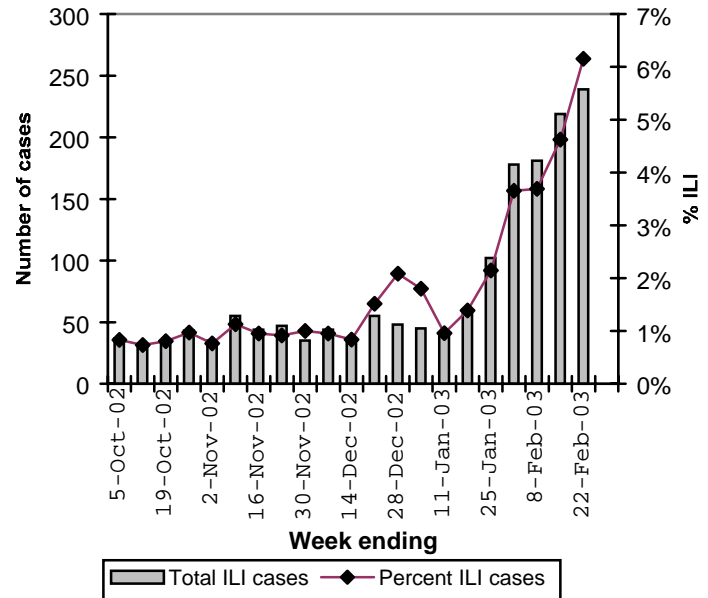
Update on Influenza Activity in Michigan

Kyle Enger, M.P.H.

Surveillance data as of February 22, 2003 indicate that the current influenza season was mild until the end of January, when sentinel reports of influenza-like illness (ILI) began to increase in Southeast Michigan. During February, moderately high levels of ILI have been seen throughout much of the state, except for the Upper Peninsula. ILI is defined as a fever $\geq 100^{\circ}\text{F}$ with cough, sore throat, or both.

MDCH has received 457 reports of laboratory-confirmed influenza so far this season (1). Of these, 60 viral isolates have been subtyped by the MDCH laboratories; 48 are influenza A (H1N1), 11 are influenza B, and 1 is influenza A (H3N2). All of them are antigenically similar to the current vaccine strains. This contrasts with the national data, in which the vaccine strain of influenza B (B/Hong Kong/330/01) accounts for 59% of the samples. However, 46% of those specimens came from Texas and Missouri (2), which have had particularly large influenza B outbreaks this season. In the East North Central region of the United States, which includes Michigan, Wisconsin, Illinois, Indiana, and Ohio, 38% of the 519 specimens reported have been influenza B and the remaining 62% were influenza A (2). According to Health Canada, 80% of their positive laboratory reports of influenza have been H1N2 strains of influenza A that are also covered by the vaccine (3). 49% of those reports are from Ontario (3). Although ILI appears to be decreasing in southeast Michigan as of this writing (March 7, 2003), we expect elevated levels of influenza and ILI to continue into subsequent weeks. Vaccination against influenza will provide protection from the currently circulating viral strains.

Number and % ILI cases in Michigan for the 2002-2003 season, as reported by the sentinel sites



Currently, about 40 health care providers from around the state are enrolled in this sentinel surveillance system, and we would like to recruit additional providers. Half of them are family practices, but internal medicine, pediatrics, infectious disease, emergency medicine, and student health practices are also represented. Providers interested in volunteering should contact Kyle Enger at engerk@michigan.gov or 517-335-9449.

1. MDCH. Influenza Activity in Michigan. http://www.michigan.gov/mdch/0,1607,7-132-2945_5103-15213-.00.html
2. CDC. Influenza Summary Update: Week ending February 22, 2003 – Week 8. <http://www.cdc.gov/ncidod/diseases/flu/weeklyarchives2002-2003/previousreports.htm>
3. Health Canada. FluWatch: February 16 to February 22, 2003 (Week 8). <http://www.hc-sc.gc.ca/pphb-dgspsp/fluwatch/index.html> the table below. Influenza A has been the predominant strain seen in Michigan to date, and this is similar to the situation in Canada and the East North Central Region, which includes Michigan, Wisconsin, Illinois, Indiana, and Ohio.

| | Michigan | E.N. Central region (2) | USA (2) | Canada (3) |
|-------------|----------|-------------------------|---------|------------|
| Influenza A | 49 | 323 | 2020 | 1298 |
| Influenza B | 11 | 196 | 2855 | 167 |
| Total | 60 | 519 | 4875 | 1465 |

The Contributions of Vital Records Data**Glenn Copeland, M.B.A.**

The Department of Community Health has developed and maintains an extensive database on vital events in Michigan. The vital statistics within these files are used widely by public health officials, epidemiologists and other health researchers. This database has been built within the Michigan vital records office over the past three decades. This extensive data file includes data since 1970 on Michigan live births, deaths, fetal deaths and linked birth and death files for infant deaths. These files are coming into increasing use in the study of trends, patterns, associations and issues that would not otherwise be possible to investigate.

The work to develop a high quality and uniform database began with the processing of events occurring in 1970. By 1973, Michigan was able to join in a cooperative process with the National Center for Health Statistics whereby the Michigan data would be developed by Michigan and shared with NCHS for inclusion in their files of national data. This effort required that Michigan follow data collection, editing and processing procedures that were compatible with the procedures adopted nationally. It was also 1973 when Michigan came to use the "ACME" system [the Automated Classification of Medical Entities system developed by NCHS] for cause of death classification, to ensure compatibility of cause of death coding and underlying cause determination. Also since 1973, the quality of the Michigan data has been continually reviewed by NCHS staff which has proven of significant value in monitoring, improving and assuring data quality. While Michigan and the nation have progressed considerably since 1973, this same cooperative association is not only still in place, it is now a nationwide cooperative.

The quality of vital records data are a topic of considerable interest and study and rightly so. There are a number of studies that have evaluated these data and found issues and problems with the information that any researcher must consider when using the data and when drawing conclusions from any findings. There are well-documented weaknesses in the data such as the accuracy of cause of death information, the reliability of reported alcohol use data and pregnancy complication reporting. There are, at the same time, things that these records measure extremely accurately. The numbers of events, key demographic facts concerning the events, the date and place of the events are very reliable. Things like age at death from a death record or birth weight and maternal age from a birth record are quite reliable, while other items, such as race and ancestry, prenatal care, or prior pregnancy information are known to have a margin of error but are useful for monitoring general trends and associations. The accuracy of identifier

information within vital records files, such as names, social security numbers and other facts are also an important research tool. These data are proving increasingly important and are opening the door to research involving the use of file linkage algorithms. This enables longitudinal cohort studies, merging of data sets and other similar investigations that can prove to be economical and powerful ways to examine questions which might otherwise be impractical.

The vital statistics data are available for a variety of purposes through the Vital Records and Health Data Development Section. Public use files are available for general statistical use while more detailed data files can be made available for use in approved research or for authorized public health planning or intervention activities. Over the course of a typical year, the data will also be made available to from 6 to 10 researchers investigating health related questions for which vital records data can play a roll. The ability to provide up to 30 consecutive years of information presents researchers with a considerable range of study approaches and topics.

The greatest attention and activity is invariably focused on the most recent information available. Most local public health agencies subscribe to these data for programmatic use and for a variety of statistical, program monitoring and intervention activities. Death data is routinely screened for deaths of special interest and distributed on a monthly basis to a range of agencies conducting surveillance on specific conditions. As important as timely data are, the ready availability of historical data enables gaining perspective on current issues and problems.

Information on vital events has a long history of use in epidemiological studies and has been the source of many discoveries that have lead to the long-term betterment of the public health. The need for sanitation, the discovery of certain occupational diseases such as black lung disease and determining the health effects of tobacco use are each examples of epidemiological findings that were uncovered through the use of vital statistics data before the actual mechanisms that caused these diseases was clearly understood. While the health questions and concerns of today may seem more complex than in the past, it is important to reflect on the recent progress with sudden infant death syndrome or the preventative value of folic acid relative to neural tube birth defects prevention as a reminder that some answers to long standing problems simply need careful study to be understood and acted upon.

If you have an interest in these data and want to know more, please contact either Kathy Humphrys at (517) 335-8714 (HumphrysK@Michigan.gov) or Glenn Copeland at (517) 335-8677 (Copelandg@Michigan.gov) for more information.

Thank You ELC Workgroup Members

Mark Schmidt, M.P.H.

If you have attended the annual Communicable Disease Conference, received clarification on communicable disease reporting requirements, or have had an accreditation review of your communicable disease program, you are aware of some of the contributions of the Epidemiology and Laboratory Capacity (ELC) building workgroup. However, you may not have even been aware that such a group exists or that this group aims to provide useful resources for all local health department communicable disease programs.

The ELC workgroup is one aspect of a larger federally funded grant designed to boost epidemiologic capacity at state and local health departments. The workgroup is a partnership of local health department representatives and MDCH staff, meeting on a quarterly basis to discuss issues facing local communicable disease programs. Such topics include:

- Reviewing minimum program requirements for the Health Protection and Communicable Disease Control sections of the accreditation tool to assure objective and accurate standards for review
- Identifying needs and helping to plan the annual Communicable Disease conferences held in May of each year
- Voicing concerns over the effect of HIPAA on communicable disease reporting from health care providers
- Developing guidance documents to help local health departments investigate and report food-borne outbreaks
- Providing input from a local public health perspective on a variety of resources being developed or identifying needs for new resources

As group members come from geographically diverse areas of the state, the goal is to provide resources that can be applicable in every health department across the state.

We would like to thank the local health department representatives who have committed their time and energy to serving on this committee, without whom this active partnership could not exist. In addition, we would like to encourage staff at all local health departments in Michigan to use members of this group as resources or advocates for issues facing their communicable disease programs, to assist in

identifying needs for training, or to promote what works well for them and what could help others. Current local public health members of the ELC Workgroup:

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50 Years of DNA: From Double Helix to Health

April of 2003 will mark the completion of one of the most important scientific projects in history: the sequencing of the human genome. April also commemorates the 50th anniversary of the description of the DNA double helix by Watson and Crick. The National Human Genome Institute is planning a month-long series of events across the country to celebrate these historic events, including publication of a landmark scientific report describing the future of the field of genomics, a 2-day scientific symposium to be webcast worldwide, a public symposium at the Smithsonian Museum of Natural History, a national "DNA Day" for high school classrooms, as well as special activities for science museums. In conjunction with these national events, the MDCH Genetics and Newborn Screening staff are planning to host an open house reception that will highlight the traditional role of genetics as well as the emerging role of genomics in public health, and provide colleagues a chance to learn more about the state genetics plan and current program activities. For more information on the national *Celebration of The Genome*, send an e-mail to Apr2003@mail.nih.gov or visit www.genome.gov. For more information on the open house at MDCH, please call (517) 335-8110 or e-mail beener@michigan.gov.

Upcoming Conferences

The 2003 Communicable Disease Conferences have been scheduled:

May 16th - Treetops Resort and Conference Center, Gaylord, MI

June 3rd - Holiday Inn - Express, Okemos, MI

For more information contact Mark Schmidt at (517)-335-8186. Registration materials will be available at a later date.

Planning for the 2003 regional immunization conferences is underway. The locations and dates for the 2003 conferences have been scheduled as follows:

September 25th -Marquette

October 14th -Gaylord

October 20th -Kalamazoo

October 22nd -Ypsilanti

October 28th -Troy

October 30th -East Lansing

Conference brochures will be mailed by the end of May. All recipients of the Michigan Immunization Update newsletter will receive a conference brochure, and they will also be available by request. Registration will not be accepted until the conference brochures are mailed out. If you have not received a brochure by June 2nd, you may call the Division of Communicable

Disease and Immunization at (517) 335-8159 to request a brochure.

For registration details, see the conference brochures or, for more information, contact Rosemary Franklin (franklinr@michigan.gov) at (517) 335-9485 or Darcy Wildt (wildtd@michigan.gov) at (517) 335-9486.

Special Training Opportunities

The Graduate Summer Session in Epidemiology will take place July 6-25, 2003 at the University of Michigan School of Public Health in Ann Arbor, Michigan. The summer program offers instruction in the principles, methods and applications of epidemiology. Distinguished faculty from academic centers and governmental agencies throughout the United States and other countries will be responsible for introductory and advanced courses in epidemiology, biostatistics and data management. Curriculum options include one-week, three-week and weekend courses. Special evening lectures by guest speakers, and weekly social events, complement the classroom sessions. Applications are available on the web at www.sph.umich.edu/epid/GSS and are due by June 1, 2003.

The Department of Epidemiology at Michigan State University sponsors a biweekly seminar series during the academic year on topics of epidemiologic interest. Speakers include Michigan State University faculty, Michigan Department of Community Health public health professionals or invited guests from around the nation or, occasionally, overseas. The seminar is open to all members of the MSU community, and unless otherwise noted, takes place at 4:30 p.m. on alternate Thursdays. Please see their website at <http://www.msu.edu/unit/epi/seminars.html> for scheduled speakers and locations.

The Michigan Public Health Training Center is a collaborative organization that strives to improve the competence of the public health workforce by strengthening organizational capacity and individual knowledge and skills. The center is currently offering six courses in subjects ranging from policy advocacy to survey design to program evaluation. The spring courses will be held in Detroit and registration will be available in mid-February. For more information check their website at <http://www.sph.umich.edu/mphtc/courses/f/> or email mphtc@umich.edu.

Trends in Current Smoking in Michigan 1992–2001

Susan Bohm M.S.

Recent events may have lulled us into thinking that smoking prevalence has declined in the last decade. One might have expected that increased public awareness of the health hazards of smoking, Michigan's share of the \$206 billion master settlement with the tobacco industry, increases in tobacco taxes, anti-smoking campaigns, and tobacco control programs would have had an impact on smoking prevalence rates. In fact, smoking prevalence has remained fairly level in Michigan over the past decade.

According to the results of the 2001 Michigan Behavioral Risk Factor Survey (BRFS), an estimated 26.1±1.6% of Michigan adults are current smokers compared with 25.5±2.0% in 1992. The BRFS is a random digit-dialed telephone survey of noninstitutionalized U.S. adults 18 years and older, which is conducted independently by all states, the District of Columbia, and U.S. territories. It provides state-specific, population-based estimates of the prevalence of numerous behaviors, medical conditions, and preventive health care practices among American adults.

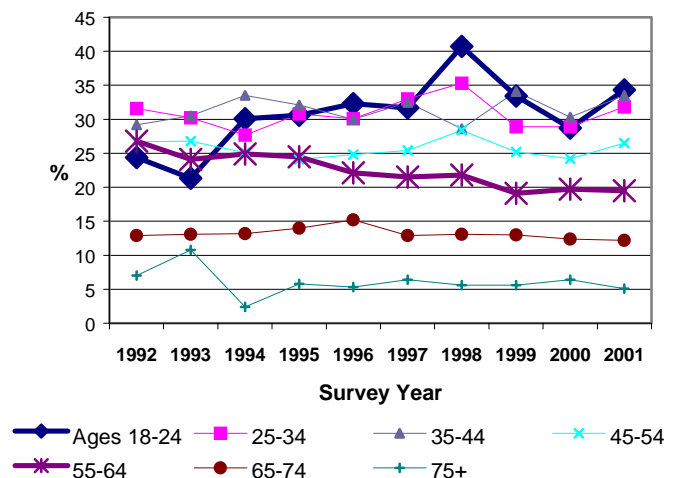
The proportion of Michiganders who were current smokers has remained above the U.S. national median for the last decade. Historically, smoking prevalence has been higher among men than among women, and the 2001 Michigan BRFS estimates continue to show a slight gender gap. A more substantial change during this period becomes apparent when we look at smoking prevalence by age group: the proportion of current smokers among the 18–24 age group rose from 24.4±5.7% in 1992 to 34.3±5.6% in 2001, while this figure dropped among those 55–64 years from 26.8±5.5% in 1992 to 19.5±3.8% in 2001 (Fig. 2).

The incidence of lung cancer, one of a number of diseases associated with smoking, has declined from 1993 to 1999 in Michigan. Male lung cancer rates decreased in the 1990s, while rates for women have remained essentially unchanged.¹ There has also been a drop in deaths due to smoking: the 1990–1994 smoking-attributable mortality (SAM) rate in Michigan was 368/100,000 population (men, 508/100,000; women, 246/100,000); by 1999 the SAM rate was 299/100,000 (men, 385/100,000; women, 225/100,000).² The reduction in these health outcomes of smoking may reflect the lower prevalence of smoking in the older age groups, but smoking-attributable morbidities and mortality may start to rise again as the younger group with the higher smoking prevalence ages.

How much lower can smoking prevalence go? The Healthy People 2010 objective aims to reduce cigarette smoking in U.S. adults to a prevalence of 12%.³ There is growing evidence that tobacco control programs can

reduce smoking prevalence.⁴ The first four states to initiate extensive adult tobacco control programs were California in 1989, Massachusetts in 1992, Arizona in 1994, and Oregon in 1996. Over the duration of the programs, the average rate of decline in adult smoking prevalence was 1% a year, in contrast with a decline of 0.3% in the rest of the country.⁵ The most recent current smoking prevalence figures from the 2001 BRFS show 17.2% for California, 21.5% for Arizona, 19.5% for Massachusetts, and 20.5% for Oregon,⁶ all below the U.S. national median of 22.8%. Per capita funding for tobacco control in 2001 for these four states ranged from \$2.71 to \$10.22.⁷ Despite Michigan's ranking of eighth in the U.S. for the highest tobacco tax in 2001, the per capita tobacco control funding in Michigan stood at \$0.66 (ranking 40/51 states). To date, none of the tobacco settlement funds in Michigan has been designated directly for tobacco control programs.⁷

Current Smoking in Michigan:
Age Group Comparison, 1992–2001



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Occupational Pesticide Poisoning Surveillance in Michigan

Jill Granger, M.P.H.

The Michigan Occupational Pesticide Illness and Injury Surveillance System began in 2001 and monitors acute work-related pesticide poisonings. Michigan is one of ten states funded by the federal government to track and prevent occupational pesticide poisonings. This is important in Michigan because agriculture is the second largest industry in the state, with 50 crops produced and over 18 million pounds of restricted pesticides used each year.

The surveillance system receives information from healthcare professionals, healthcare facilities, and employers reporting confirmed or suspected cases of work-related pesticide poisonings as mandated by the Michigan Public Health Code. Michigan's two poison control centers submit case reports of related calls. Reports are also provided by the Michigan Department of Agriculture (MDA), which receives complaints about pesticide misuse. Complaints that include adverse human health effects are investigated. Confidential information is collected through follow-up with individuals who became ill or injured on the job while using pesticides. The information is entered into the surveillance database and analyzed to identify risk factors for poisonings or over-exposure to pesticides, both for Michigan and nationally.

The surveillance system classifies reports in a number of ways. First, reported exposures are defined as cases or non-cases. Cases are classified as definite, probable, possible, or suspicious, based on the evidence regarding exposure, health effects, and the cause-effect relationship. Non-cases are classified as unlikely (exposed but not poisoned), asymptomatic (patient does not exhibit symptoms), unrelated (health effects seen are not related to exposure), or insufficient information. As of the end of 2002, the database contained 55 reported exposures: 11 definite cases, 9 probable, 23 possible, 2 suspicious, and 10 non-cases. The severity of each case is also assessed as low, medium, high, and fatal. Nine cases were of moderate severity, with the rest being of low severity. Organophosphates, carbamates, and herbicides were the most common pesticide exposures reported. The following table groups the 55 work-related exposures by occupation.

| Occupational Pesticide Exposures by Occupation | |
|---|-------------------|
| Occupation | Cases |
| Commercial Pest Control | 16 (29%) |
| Farming | 7 (13%) |
| Non-commercial pesticide application¹ | 8 (14.5%) |
| Bystander exposure² | 24 (43.5%) |

¹Includes individuals who used pesticides at work, but were not licensed applicators; e.g. veterinarians, maintenance workers.

²Exposed at work as a result of a pesticide application.

The Michigan Department of Consumer and Industry Services (CIS) and MDA are collaborating with the Bureau of Epidemiology in this surveillance program and may follow up on case reports to determine if there were violations of pesticide laws. MDA enforces the Worker Protection Standard (WPS), which protects farm workers by requiring safety training, the use of personal protective equipment for handlers, and the posting of a waiting period before reentry to treated fields. MDA also enforces state and federal legal requirements for the sale and use of pesticides, including licensing of pesticide applicators. CIS enforces Michigan Occupational Safety and Health Act (MIOSHA) standards, some of which apply to work-related pesticide exposures.

For more information on the Occupational Pesticide Illness and Injury Surveillance Project, phone 1-800-MI-TOXIC and ask for Jill Granger. To report cases of known or suspected work-related pesticide illness or injury, call 1-800-446-7805 or report electronically at <http://web2.chm.msu.edu/oem/howto.htm>. For educational materials about pesticides and their use, contact Michigan State University's Pesticide Education program at (517) 353-8811 or www.pested.msu.edu.

Recent Publications

Lee, E., Burnett, C.A., Lalich, N., **Cameron, L.**, and J.P. Sestito. Proportionate mortality of crops and livestock farmers in the United States, 1984-1993. *American Journal of Industrial Medicine*. 2002; 42: 410-420.

Gonik, B., **Fasano, N.**, and Foster, S. The Obstetrician-Gynecologist's Role in Adult Immunization. *Obstetrics and Gynecology*. 2002; 187(4): 984-988.

Reeves MJ, **Hogan JG, Rafferty AP**. Knowledge of stroke risk factors and warning signs among Michigan adults. *Neurology*, 2002; 59:1547-1552.

Parting Thoughts from an "Early Outer"

William Hall, M.D., M.P.H.

After retiring on October 31, 2002 I was asked to write a reflective piece about how Public Health here in Michigan has changed since I came on board in the summer of 1980. My gut reaction was that in spite of all the bluster, political changes, leadership changes, the inevitable reorganizations, technologic advances, and hard work that each of us has put into our jobs every day, things have changed amazingly little in Public Health over the past 22 years.

The continuing lack of implementation of a national single payer health insurance system has forced public health, particularly local public health, to continue to be a stop-gap provider of basic health care for communities. It's greatly slowed the implementation of the classic 1986 Institute of Medicine Report "The Future of Public Health" vision of public health breaking away from being a health care provider for the indigent and uninsured and moving toward a focus of community health assessment, assurance, and policy development.

Public health and preventive services continue to be neglected. Nearly all of an incredibly large health care budget (something like 15% of the United States Gross Domestic Product!) continues to be spent on health care. An amazing proportion of this money continues to be expended for clinical services during the last several months of life. The public, and therefore the politicians, remain firmly supportive of a health care system directed at serving the very visible pain and suffering of ill individuals. They take for granted the relatively invisible public health services that prevent illness and suffering and increase the quality of life. Furthermore, most of the money not budgeted for individual patient care health services, but for "public health," goes to the National Institute of Health (which is thought of by some as "the country club of science"). From the NIH it gets funneled to academic institutions and spent primarily on basic research. The Centers for Disease Control and Prevention which focuses its efforts upon detection, investigation, control and prevention of existing community and national health problems, and provides much of this money to support state and local public health programs targeted at real community problems, still gets the dregs.

Health care professional education and training still almost completely ignores the community public health system. It is my impression that most practicing physicians still have virtually no concept of what their state or local public health department does and how it can and does help them, their patients, and their communities. In fact, many physicians may assume that if the public health

department contacts them it is likely to be to question their medical judgement and threaten their licensure!

More locally, in Michigan, the promise of the ground breaking 1978 consolidation and revision of the Public Health Code has not been fully realized. This was a great step forward and provides a firm foundation for building a very strong locally oriented public health system in Michigan. However, great disparities remain in the funding provided to local health jurisdictions relative to the burden of preventable disease. I am personally hoping that state support for local public health may someday be based upon an epidemiologically derived formula that considers each jurisdiction's preventable disease burden and population. It seems illogical and counterproductive to me that state funding is based upon how much cash a local jurisdiction can match to state funding. We have known for centuries that the highest burden of disease always occurs in the poorest communities. We are learning more and more every day that disease does not respect city, county, or state boundaries.

There are other things, perhaps less important, that remain annoyingly unchanged.

Computer software, hardware, and communication technology is available at an amazingly low cost. Michigan has two well recognized graduate schools of Epidemiology and a Preventive Medicine Residency program to train physicians. Yet only a minority of local health departments employ even a part time Masters Degree level epidemiologist, and some of our Medical Directors do not have formal academic training in preventive medicine or public health. How can a local health department do assessment, assurance, and policy development without a single professional skilled in the collection, analysis, and dissemination of data? How are public health decisions being made? How are our programs being evaluated? How are we demonstrating to our communities and funding agencies that what we do has value?

Health officers seem to be more and more oriented, trained, and experienced in fiscal management and less and less trained or experienced in public health. Medical Directors continue to complain that they get no respect; yet fail to do much to demonstrate why they should have it.

All of this is not to say that we haven't made some progress. We are generally moving in the right direction. However, in my view, the progress is painfully slow. Managed care has relocated some of public health's primary and stop-gap care services out of the public health system and into the private sector. *Continued on page 11....*

AIDS, the resurgence of tuberculosis in the 1980's, emerging infectious diseases, and bioterrorism threats have help raised the funding levels and consciousness of care providers and citizens a bit. More and more epidemiologists are being employed at MDCH and at local health jurisdictions. Community health assessment initiatives are trying to focus upon data, not pet projects. Most of us have computers at our desks, at least for word processing and e-mail. But will we be ready in time to meet the potentially overwhelming challenges ahead of us?

World population is forecasted to reach 9 billion in the middle of this century. The Four Horsemen of the Apocalypse will eventually ride. War, famine, pestilence, and disease are "nature's ways" of controlling population. Personally, I think that what we've been asked to react to is nothing compared to what our grandchildren and great grandchildren will be up against.

On a more positive note, given some respect and support public health has the tools to lead the struggle for better health and real quality of life. Will we be able to raise the consciousness of the public and politicians about this? Will we someday be able to stop reacting to the likely growing number of public health crises and begin leading this more uplifting and satisfying struggle?

What do you think?

Employee Focus: Nancy Fasano

Nancy Fasano, M.A., joined the former Michigan Department of Public Health in 1989 as a coordinator for the Medicare Influenza Demonstration Project in the Immunization Program, after obtaining a master's degree in health education from Michigan State University (MSU). When the Medicare Influenza Project ended, she initiated the Perinatal Hepatitis B Prevention Program. In addition, as Coordinator of the Immunization Action Plan, Fasano has worked with local health departments that received new funding to build additional immunization infrastructure. Since 1997, she has been the manager of the Immunization Education and Outreach Section, where she supervises 12 employees.

Since the middle of last October, Fasano has been working on developing clinic operations guidelines for Michigan's Smallpox Response Plan and for the pre-event smallpox clinics. She and other staff presented a teleconference on January 3 to describe smallpox clinic operations, and she is working with four nurses who will provide training sessions on smallpox vaccine administration for each of the eight bioterrorism regions.

In addition to her role in developing the smallpox plans, Fasano spends a large amount time working with the Physician Peer Education Program and the office-based Immunization Update Program. The Physician Peer Education Program, which is coordinated by staff at MSU, provides updated immunization information and continuing medical education credits to physicians through Grand Rounds presentations by a team of statewide physician trainers. Fasano also worked with several immunization nurse educators to develop a program in which nurses from the Michigan Department of Community Health (MDCH) and local health departments travel to physicians' offices to present updated immunization information to office staff. Fasano has been instrumental in developing a provider tool kit, which is updated annually and has been given to physicians statewide since 1995. The number of kits printed has increased over the years, and 8,500 copies of the tool kit will be printed and distributed in 2003. All of these education programs have customized modules, depending on the type of medical practice, and all programs are updated yearly. Fasano and her staff spend a significant amount of time ensuring that the information received by health care workers is current and accurate.

Fasano believes that all of these efforts have made Michigan a leader among state immunization programs in terms of communication between MDCH and Michigan's health care professionals. Fasano's section also orchestrates six fall conferences each year statewide, where important and current issues relating to immunizations are presented. Each year, these conferences reach over 1,200 participants and attract high-profile keynote speakers.

In her spare time, Fasano is an avid traveler. Her past trips have included hiking the Inca Trail to Machu Picchu and climbing Kilimanjaro. She has her first trip to New Zealand already planned and would like to plan a trip to see the Three Gorges in China. Fasano has two children, a son in Denver and a daughter in Battle Creek.

Awards

At the December 16, 2002 Bureau of Epidemiology biannual staff meeting, the Director's Award was presented to the team of division directors: Dave Wade, Ph.D., Division of Environmental and Occupational Epidemiology; Gillian Stoltman, Ph.D., M.P.H., Division of Communicable Disease and Immunization; and Corinne Miller, D.D.S., Ph.D., Division of Epidemiology Services. They were honored for their hard work and dedication not only to their respective divisions but also to the bureau as a whole.

New Employees and Staff Changes

Carla Merritt, M.P.H. is the new City of Detroit Syphilis Epidemiologist. She received her MPH in Epidemiology this past spring from University of Michigan School of Public Health. She did her graduate internship at MDCH working with the Immunizations Department analyzing parental vaccination waivers from around the state. In Detroit, she maintains the syphilis morbidity database tracking reported syphilis cases from the city and close surrounding areas. Aside from managing the database, she also uses the available data to create an ongoing epidemiologic profile of syphilis in the city.

Christi Downing recently joined the Perinatal Hepatitis B Prevention Program in the Division of Communicable Disease & Immunization. She will be assisting in case management of hepatitis B surface antigen positive women and their infants, household and sexual contacts. Downing previously worked at the Michigan Public Health Institute where she was the project coordinator for a high-risk Adolescent Hepatitis B Vaccination Project. She has a degree in Administration from Central Michigan University and is currently a Masters of Social Work student.

Marcia Mettert is the new executive secretary to Corinne Miller, D.D.S., Ph.D., in the Epidemiology Services Division. She has over 30 years of experience with the State of Michigan. She has worked within the former Department of Public Health, Personal Health Care Services Division, and the Department of Mental Health with 9 years in prevention services and 8 years in budget. In 1999, she transferred to the Community Living, Children and Families administration, which was abolished in the February 2002 departmental reorganization.

Nancy Tate has accepted a new position as Executive Secretary for the Division of Communicable Disease and Immunization. Tate has worked since 1999 as the Administrative Assistant for the Infectious Disease Epidemiology Section.

Melinda Wilkins, D.V.M., M.P.H., is the new Surveillance Systems Section Manager as of December, 2001. Wilkins has been working for MDCH for 3 and a half years, first as an EIS officer, then as a USDA Epidemiologist detailed to the Infectious Disease Epidemiology Section, focusing on bovine tuberculosis issues.

Dawn Sievert, M.S., has taken a new position within the Surveillance Systems Section as the Antimicrobial Resistance Epidemiologist. She has been working within the Bureau for three and a half years and will now be responsible for development and implementation of statewide antimicrobial

surveillance, investigating any cases of antimicrobial resistance, and developing a strategic plan to combat antimicrobial resistance.

Jim Collins, M.P.H., R.S., has accepted a new position as an Epi Specialist-2. Collins will be the Michigan Disease Surveillance Coordinator within the Surveillance Systems Section. Collins spent 12 years with the Macomb County Health Department before starting with MDCH in January of 2000 under the Bioterrorism grant in the Surveillance Systems Section.

Nelda Mercer, M.S., R.D., F.A.D.A., has joined the Birth Defects Prevention and Follow-up Program in the Epidemiology Services Division in the capacity of State Folic Acid Outreach Coordinator. Mercer is a registered dietician with extensive experience in nutrition communication. She is a past president of the Michigan Dietetic Association and current spokesperson for the American Dietetic Association. She is a graduate of North Texas State University and received her Master's degree in food and nutrition from Case Western Reserve University.

Valerie Ewald is the new administrative assistant for the Genetics and Newborn Screening Program in the Epidemiology Services Division. Her primary role is to support the project activities of a four-year grant from the Health Resources and Services Administration, "Improving Genetic Health Outcomes in Michigan through Education, Early Identification, and Enhanced Integration of Newborn Screening Information Systems." She has previous experience in public health training along with various business ventures.

Sandy LaPrad, R.N. recently joined the Newborn Screening Program as a parent consultant. As the mother of a 2-year-old daughter with PKU, she helps to assure consumer representation as policy and program decisions are being made. She also provides reassurance and support for families of children with metabolic disorders detected by newborn screening. She has experience as a hospital newborn nursery nurse and an occupational nurse.

Jay Fiedler, M.S., is the new Chemical Epidemiologist in the Division of Environmental and Occupational Epidemiology. He will be working to develop pre-event chemical terrorism surveillance systems for the State of Michigan. Fiedler received his B.S. in Biology from Alma College and his M.S. in Epidemiology and Biostatistics from Case Western Reserve University. His previous work has included the Michigan Emergency Department Community Injury Information Network (MEDCIIN) and also, the Michigan assessment of Public Health Preparedness and Response Capacity.

