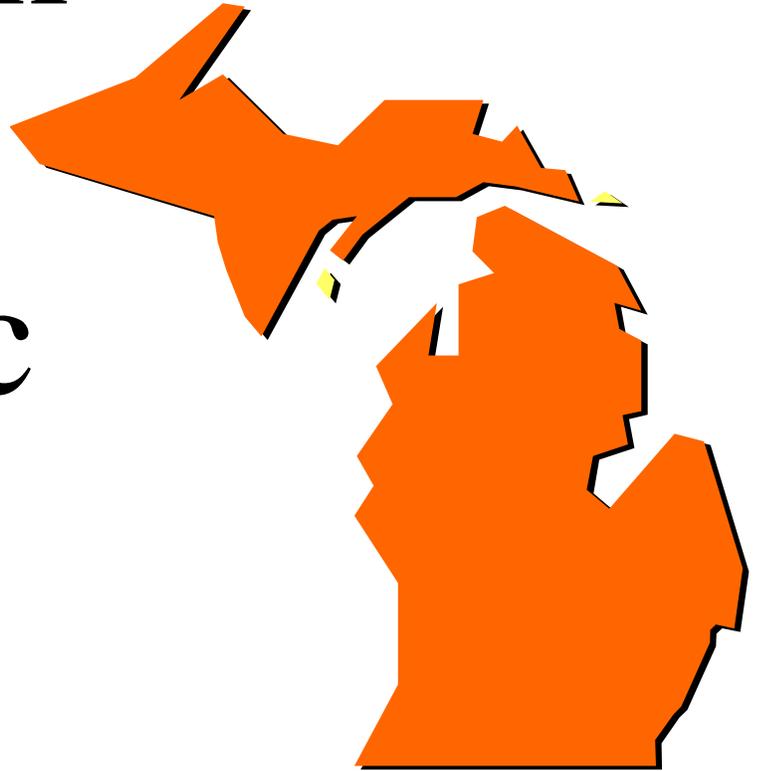


# Michigan Journal of Public Health



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## **Mission Statement**

The mission of the Michigan Journal of Public Health is to promote public health practice, research and policy with specific focus on Michigan and the Great Lakes Region. We encourage contributions from the field of practice, original research, opinion and commentary. It is the expressed interest of this Journal to encourage dissemination from the field of public health practice.

## **Statement of Affiliation with the Michigan Public Health Association**

The Michigan Public Health Association (MPHA) is the organizing entity of the Michigan Journal of Public Health (MJPH) and is responsible for the publicizing and publication of the journal. The members of the Editorial Board are solicited from among public health practitioners and researchers in Michigan, and approved by the Board of MPHA. MJPH Editorial Board members must also be members of MPHA. Members serve three year terms, but service may be terminated either through a letter of resignation to the Editorial Board or upon a majority vote of the Board of MPHA.



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## **Author Guidelines**

### **STYLE:**

APA, 12 point font, Times New Roman double spaced, and, 1” margin. We offer a variety of submission categories in order to welcome a varied audience within public health.

### **SUBMISSION CATEGORIES:**

**Research and Practice Articles** (up to 15 pages or 3500 excluding references, words in main text, a total of 4 standard digital photographs/tables/figures, and a structured abstract of 180 words) report the results of original quantitative or qualitative public health research. These may include, but are not limited to: evaluations/reports, demonstrations of innovative programs, best practice, exemplars/community-engaged scholarship, service learning, emerging problems, evidence-based practice and preliminary findings.

**Commentaries** (up to 10 pages or 2500 words in main text, 2 tables/figures, and an unstructured abstract of 120 words) include scholarly essays, critical analyses, and policy papers.

**Analytic Essays** (up to 15 pages or 3500 words excluding references, in main text, a total of 4 standard digital photographs/tables/figures, and an unstructured abstract of 120 words) provide a forum for critical analyses of public health issues from disciplines other than the biomedical sciences, including, but not limited to: the social sciences, human rights, and ethics.

**Briefs** (up to 4 pages or 500 words excluding references, in main text, 2 tables/figures, and an abstract of up to 80 words) provide preliminary or novel findings.

**Editorials** (may not exceed 1,200 words) are solicited based on recommendations from the Editorial Board, or members of MPHA. All recommendations require approval from the MJPH Editorial Board.

**Letters to MJPH** (must not exceed 400 words and contain no more than 10 references) are encouraged by our readers. Letters may include any public health topic.

### **SUBMISSION FORM:**

All authors must sign and submit via surface mail the submission form along with a draft article. The form is available at:

<http://www.mipha.org/PHJournal/MJPH%20MANUSCRIPT%20SUBMISSION%20FORM.pdf>



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## **EDITORIAL**

Welcome to the end of our second year of MJPH. As we close out this second year with our Summer 2008 issue, we remain focused on delivering to the membership of MPHA and the broader public health community in Michigan a journal that delivers practice-based experiences to a broad audience. To that end expect to see in the next few months a new call to the MPHA membership for Board membership, and a broader, less academic focused definition of Board membership. In addition, we intend to open the journal up to a new category of article submissions, entitled, "Notes from the Field." This new article submission will not undergo traditional academic peer review, but will instead be subject to a less strenuous Editor and board review process.

This month we welcome Robert Glandon as our Guest Editor. Bob is the new Executive Director of MPHA, and is a welcome addition to a newly revitalized membership organization.

We also bring you two practice articles, one on a early and successful midwifery program in Michigan, the other on human-animal contact in petting zoos.

Lastly, we have a response the authors from last issue's first installment of an invited series on the history of public health in Michigan. This response is written as a blanket response to several e-mails received by this editor regarding the extent of the literature review efforts of the authors, and the sources of their work.

As always you may send me your feedback, letters and e-mails regarding this issue at [clinegr@gvsu.edu](mailto:clinegr@gvsu.edu).

Greg Cline, PhD  
MJPH Editor



## **GUEST EDITORIAL**

### **MPHA Matters**

Robert Glandon

Our Michigan Public Health Association is approaching ninety years of experience. Over the years MPHA has witnessed great changes in our society and a transformation in public health conditions that influence how long and how well we live. When MPHA was founded health in this state was still significantly limited by infectious disease and poor water quality. Advances in the areas of immunizations and sanitation, highpoints in public health history, are largely responsible for an increase in life expectancy of almost twenty years. The current limits to a longer and healthier life take the forms of chronic disease. These limits are more complex and difficult to resolve. The major health issues we face today require new thinking and new approaches on social, environmental, and intrapersonal levels. As MPHA looks forward and reenergizes its commitment to promote and protect the health of the public in Michigan, this is the challenge we face.

Sound scientific research and engaged public discussion over the past few years reveal several persistent and significant health issues in Michigan. Many relate to health of our aging population, healthy lifestyles, environmental quality and access to health care. It is more than useful, it is important, to look at issues like these in some detail. Evidence based assessments should influence policy, but over-simple descriptions of health status of our state and localities can hide the reality that status is typically an average, and includes people doing well and those doing less well, some much less well. Geographically, health of Michigan residents is not evenly distributed throughout the state or in our cities. The patterns are clear; people who are poor or left out are sicker and die earlier. Unmistakably, the progress we make in health improvement in Michigan will depend in large part on our success in reaching the poor and people left out, matters of health equity and social justice.

Even before the birth of MPHA public health has been keenly aware of the importance of "working upstream", working to relieve the underlying factors that influence health of people everywhere. For well over a hundred years public health leaders have stressed the need to work upstream, catching people before they go over the dam. Upstream often involves improving education, providing good jobs, and building healthy communities - all beyond the normal public health arena. Very important, but how do we practice "upstream" without abandoning our traditional responsibilities? To have a deep impact on public health, we, as an association, need to see ourselves in context of our larger society, expand our relationships, and become more adept at developing non-traditional partnerships to influence community attitudes and practices.

One of the biggest assets of MPHA is the diversity of its membership. Currently, there are approximately three hundred members interested in improving community health who are doctors, educators, political scientists, psychologists, public health practitioners, epidemiologists, social scientists, and others. Collectively, MPHA is poised to better communicate information, understand how to motivate people, recognize common interests that will support relationships



with other organizations. Our members are the primary source of new thinking needed to achieve a goal of healthy people in healthy communities.

Earlier this year, the MPHA Board of Directors clarified the mission of our association, “To enhance the ability of the association and its members to advocate, promote and protect community health and the environment.” To be clear, there is much work to be done to build our capacity. The Board identified the top four strategic actions, three relate to strengthening our relationships and communication with others outside the association. The fourth top priority involves strengthening the association by increasing the number of members and improving the capacity of members to be effective advocates for public health in Michigan.

MPHA offers members opportunities for education, professional improvement and engagement through this journal, association newsletters and conferences but probably the greatest opportunity for member enrichment and contribution is engagement in MPHA Sections. The association sections are important to carrying out the MPHA work of strengthening public health policy and improving public health practice. Committed members in active sections are necessary if MPHA is to maintain a strong, coherent and vital presence in MI.

Presently, there are ten sections in MPHA. Six are active (Public Health Nursing, Epidemiology, Vision, Laboratory, Podiatry and Oral Health) and four are inactive (Nutrition, Reproductive Health, Environment and Community Health). Sections connect members to professional interests and major public health issues. Sections offer members opportunities for professional development and a community of common interest. In order to develop a core of committed members each section should have its own mission, one that reflects service to members and service to improve health in Michigan.

MPHA plans to expand efforts to attract public health students and young professionals. The exposure should certainly help young members, and ever-new perspective youth bring will invigorate public health advocacy and practice of the association.

Underlying all this effort is a need to increase the impact of MPHA in Michigan. This is a big challenge, but not too big to take on. To be effective we should follow our clear mission, our practical strategies, and take actions that enable members to address the major barriers, and supports to good health in our state.



**RESEARCH AND PRACTICE ARTICLE**

**Nurse-Midwifery Practice at Hutzel Women's Hospital, Detroit, Michigan:  
A Quarter Century of Success**

Deborah S. Walker, DNSc, WHNP, CNM, FACNM

Janine Bieda, MS, CNM

Mary Lewis, MS, CNM

Janice Wery, MS, CNM

**ACKNOWLEDGMENTS:**

First and foremost we thank the women and families who chose nurse-midwifery care and the dedicated, hard-working Hutzel nurse-midwives who day after day compassionately and expertly care for women in this challenging urban environment. This article, in addition gives tribute to all of the staff nurse-midwives and nurse-midwifery students whose dedication to the women of our community has contributed to the positive practice outcomes.

**ABSTRACT:**

The Hutzel Women's Hospital/University Women's Care (HWH/UWC) nurse-midwife practice is not only the oldest in the state of Michigan but also one of the busiest. This article details this exemplary nurse-midwifery practice, education and research in an urban, inner city academic setting. The setting, practice characteristics, history and outcomes are described.

**Keywords:** midwifery, nurse-midwifery, health disparities, vulnerable and underserved populations, pregnancy, childbirth, urban health

**Biographies:**

Deborah S. Walker is an Associate Professor at Wayne State University (WSU) College of Nursing and School of Medicine, OB/GYN. She is the Graduate Program Director for Women, Neonates and Children and the Coordinator of the Nurse-Midwifery and Women's Health Nurse Practitioner programs in the WSU College of Nursing.

Janine Bieda is a certified nurse-midwife in the Wayne State University School of Medicine, OB/GYN's Nurse-Midwifery Division.

Mary Lewis is the Division Chief for Nurse-Midwifery in the Wayne State University School of Medicine's Department of OB/GYN and adjunct faculty in the Wayne State University College of Nursing.



Janice Wery holds the first state nurse-midwifery certificate issued in Michigan and was the first Certified Nurse-Midwife to practice at Hutzel Women's Hospital. She lives in Ann Arbor, MI.

## **INTRODUCTION:**

The certified nurse-midwives (CNMs) at Hutzel Women's Hospital/University Women's Care (HWH/UWC) celebrated twenty-five years of practice at the Detroit Medical Center (DMC) in Detroit, MI in 2005. During these twenty-five years, the HWH/UWC, most often referred to as the "Hutzel midwifery practice", made important contributions to the health of women and families amid the difficult and challenging urban environment in Detroit, MI.

Not only is the Hutzel midwifery practice the oldest in the state, it is also one of the busiest with the CNMs attending the births of almost 25% of all babies born at Hutzel Women's Hospital for a total over 25 years of over 40,000 births. From the inception, the Hutzel CNMs have used a holistic approach to pregnancy and childbirth in serving women and families from Detroit's most vulnerable groups: adolescents, members of diverse ethnic and racial groups, economically disadvantaged women and families, immigrants and/or persons living in medically underserved areas.

In this article, the history of the Hutzel midwifery practice is described and the future directions are discussed. Also note that 'midwifery' and 'nurse-midwifery' are used interchangeably to designate Certified Nurse-Midwife providers. It is hoped that this information may be useful to health care providers and policy makers in Michigan and other major urban centers. This description of the history and current practice of the Hutzel midwives makes an important contribution to the health care literature and joins reports of other U.S. midwifery practices (Greulich et al., 1994; Sedler et al., 1993; Haire & Elsbecoy, 1991)

## **Hutzel Midwifery Practice Setting**

Detroit, as a principal city, with just fewer than one million inhabitants and a territory of 139 square miles, is a northern industrial city that grew rapidly in the early 1900s as a center for economic development. The urban cycle of population exodus, business and industry relocation to the suburbs, and lost taxpayer revenue has meant years of declining resources for Detroit's citizens. Already distressed neighborhoods are further burdened by pollution and toxic waste hazards, the residue of previous industrial dominance in a more environmentally naïve time.

Like other large cities, Detroit has a high percentage of individuals and families with incomes below the federal poverty line. In 2000, the per capita income for the City of Detroit was \$14,717. In comparison, the 2000 per capita income for the county that houses Detroit (Wayne County) was \$20,058 (US Census, 2000).

On a more positive note, Detroit has long been a city of diverse ethnic neighborhoods with rich cultural traditions. From 1990 to 2000, Detroit experienced a 32% increase in its immigrant population (Brookings Institute, 2000). In the 2000 Census, African Americans represented 81.2% of Detroit's population (Brookings Institute, 2000). Recently, immigrants from the



Middle East, Asia, Africa, South and Central America, Russia and Eastern Europe have become part of the Detroit community.

Women in Detroit (Wayne County) experience a high percentage of preterm births, teen pregnancies, and often delay seeking prenatal care. Wayne County Natality statistics for 2004, as compared to the State of Michigan, revealed important differences in key characteristics such as a higher percentage of births to women under 20 (12.1 vs. 9.6), a higher percentage of women experiencing the birth of a low birth weight infant (10.7 vs. 8.4) and a lower percentage of women receiving care during their first trimester (76.4 vs. 82.7) (MDCH, 2004). Demographic and personal characteristics from the 2004 Natality statistics demonstrated that a higher percentage of women in Wayne County who gave birth in 2004 were more likely to have less than 12 years of education (23.6 vs. 16.8), and be unmarried (48.1 vs. 35.6) but were less likely to report smoking while pregnant (12.4 vs. 13.8) (MDCH, 2004). It is within this challenging setting, that the midwifery practice at Hutzel Women's Hospital provides care.

### **Hutzel Midwifery Practice History**

In 1978, after the Michigan Public Health Code legalized nurse-midwifery practice, Jan Wery, CNM approached the Chairman of the Obstetrics and Gynecology (OB/GYN) Department at Hutzel Women's Hospital with a request to support her application for practice privileges. In 1979 she joined the staff of the DMC to develop birthing rooms at Hutzel Women's Hospital but was also determined to see midwifery care provided in those birthing rooms.

Mary Conklin, RN, of the Maternal Child Division, Michigan Department of Public Health was a strong supporter and proponent for nurse-midwifery care within the Public Health Department, with physicians, legislators, hospital staff, and consumers. She was an eloquent spokesperson speaking tirelessly to those who were willing to listen about nurse-midwifery care. She helped clear obstacles to practice and convinced doubters of the high quality and efficacy of midwifery care. She guided Michigan's first nurse-midwives gently but clearly and supported them with her enthusiasm and her physical presence. She mentored with the greatest of patience. Michigan nurse-midwives are practicing today largely due to her tireless contributions.

On November 28, 1980, Janice Wery was notified that the hospital Board of Trustees had approved her application for privileges as a Certified Nurse-Midwife in the OB/GYN Department. She was appointed as the Coordinator of the Nurse-Midwifery Service which, by her request, was located in the Department of Nursing.

The first official Hutzel nurse-midwifery managed labor and birth occurred in a birthing room in October, 1980. Regular prenatal care had been given by the woman's physician until official transfer to nurse-midwifery care was possible. This woman and many to follow were very strong and determined women. They were, for the most part women, of low obstetrical risk. Many were nurses who were looking for a different care focus; one where they could have more input and decision making ability in their care. Many women did not tell their families until after their baby's birth that they were receiving care from a nurse-midwife because of the resistance they perceived they would face. Because prenatal care was provided in the Hutzel clinic setting, some of the clinic patients began requesting nurse-midwifery care too and the caseload diversified.



In 1987, Hutzel Women's Hospital administrators and the OB/GYN Department incorporated the private CNM practice into a hospital-based nurse-midwifery practice. By 1988, there were seven CNMs practicing at Hutzel Women's Hospital with multiple clinical sites around the Detroit metropolitan area.

It was the intent of the midwives who started the practice to provide the full range of midwifery care, including primary and prenatal care services, enabling increased access to care by the most vulnerable and underserved women in the community. With Hutzel Women's Hospital addition of nurse-midwives, the outreach to the community increased and this intent was more fully realized. In the early 1990's, there were twenty-three nurse-midwives in practice at Hutzel Hospital.

### **The Hutzel Midwifery Practice Today**

Since 1997, the nurse-midwifery practice has been a part of the Wayne State University (WSU) School of Medicine (SOM). At that time, the WSU SOM, Department of OB/GYN, incorporated the nurse-midwives and their practice into the Department as a separate Division. In 2007, there are seven full-time and seven contingent midwives on staff.

The Nurse-Midwifery Division is one of six divisions each with a chair who reports directly to the OB/GYN Department Chair. The current Division Chair, Mary Lewis, MS, CNM, sits on various policy-making committees such as the Department Advisory Committee, Medical Staff Committee and Quality Assurance. She also participates in resident interviewing and evaluation. She divides her time between administrative duties and clinical responsibilities.

With the Hutzel CNMs' presence in various community settings, women have become aware of their services and the care they give. The nurse-midwife is the provider of choice for a large population of women in Detroit. Through guidelines for consultation and transfer, jointly written by the Nurse-Midwifery and Maternal-Fetal Medicine (MFM) Division directors, women are evaluated and effectively cared for according to their risk status by the CNMs, MFM physicians or co-managed collaboratively. The Hutzel nurse-midwifery care guidelines were published in 1994 and are available for purchase (WSU, 2004).

A full range of women's health services are provided by the CNMs at various sites in the Detroit metropolitan area. Today as in the practice's past, the majority of the clinics serve economically disadvantaged women who are ethnically diverse and of low and moderate risk status. A recent development is the addition of two CNM private practice sites, one in Detroit near Hutzel Women's Hospital and one in Southfield, Michigan. Clients attending prenatal care at any of the CNM clinic sites receive care during labor and birth at from the CNMs at Hutzel Women's Hospital. In the future, new clinical sites in the Metro area will be developed. The 2006 Hutzel midwifery practice statistics are presented in Table 1.



Table 1.  
*Hutzel Nurse-Midwifery Practice Statistics, 2006*

Histories and Physicals	1,241
Return OB Visits	6,182
Postpartum Visits	603
Gynecology/Family Planning	2,316
Total Out-patient Visits	10,189
CNM Managed Labors	1,041
C-Sections	85
Forceps	2
Vacuum Extractions	6
CNM Deliveries	949

### Linkages and Firsts

The Detroit Medical Center and Hutzel Women's Hospital are linked to Wayne State University School of Medicine and College of Nursing. The nurse- midwives are adjunct faculty in the WSU School of Medicine and some also hold joint appointments in the WSU College of Nursing. Additionally, linkages were quickly expanded through contracts for nurse-midwifery care with the Detroit Health Department now the Detroit Department of Health Promotion and Wellness. Hutzel midwives have led the way in several important areas in addition to being the first nurse midwifery practice in Michigan. They have provided leadership in the clinical education of nurse-midwifery and medical students and residents, providing care for incarcerated women, starting the local ACNM chapter, and offering innovative care delivery models such as CenteringPregnancy. These examples are just a few of their contributions. Table 2 presents a more complete list of the major linkages and firsts.



Table 2.  
*Hutzel Midwifery Practice Pioneering Firsts*

- ✓ Hutzel Women’s Hospital nurse-midwives were the first in the State of Michigan to obtain hospital practice privileges.
- ✓ The Hutzel nurse-midwifery practice was one of the first in the country to provide care for incarcerated women.
- ✓ The Division of Nurse-Midwifery, chaired by a Nurse-Midwife, within the Wayne State University School of Medicine Dept. of OB/GYN is one of the few Divisions of Nurse-Midwifery in U.S. Schools of Medicine.
- ✓ The Detroit Board of Education approached Hutzel Women’s Hospital administrators for nurse-midwifery care at two of their schools for pregnant and parenting teens –the implementation of midwifery care in these settings was a first in the State.
- ✓ Hutzel nurse-midwives were the primary clinical practice site and first clinical preceptors for the University of Michigan’s Nurse-Midwifery Education Program
- ✓ The first ACNM chapter in the state, Chapter 7, Region 4, was started in 1980 by Hutzel CNMs.
- ✓ Hutzel nurse-midwives provide care at a women’s shelter --a first for the Detroit area.
- ✓ The first Detroit CenteringPregnancy group was started by Hutzel CNMs at the DMC.
- ✓ A Hutzel CNM is the first nurse-midwife on the Michigan Department of Community Health’s Maternal Morbidity and Mortality Committee.
- ✓ Hutzel nurse-midwives are the primary clinical site for the first Detroit-based nurse-midwifery education program at Wayne State University College of Nursing.
- ✓ Publication of Hutzel nurse-midwifery clinical practice guidelines: *Hutzel nurse-midwifery Practice: Pathways to Clinical Practice*. To purchase, contact Tracey Carnes [tcarnes@med.wayne.edu](mailto:tcarnes@med.wayne.edu)

### **Educational Commitment**

Over the past twenty-five years, the midwifery practice at Hutzel Women’s Hospital has maintained a strong commitment to the education of students from a variety of health care disciplines. The midwives view the educational commitment equal in importance to that of clinical practice and imperative for nurse-midwifery care to continue for women and families in the Detroit metro area, in the State of Michigan and beyond.



The success of the midwifery practice's long tradition of educational activity can be attributed not only to the large population of ethnically diverse women it serves, but also to the CNMs' dedication to teaching holistic health care that equally values the physical, mental, emotional, social, cultural and spiritual needs of clients and their families. The wide variety of both community and hospital-based CNM practice settings provide students with unique clinical and research opportunities. While the majority of the educational activities occur in the clinical setting, the nurse- also participate by providing academic lectures and seminars, orientation lectures, student admission interviews, course content reviews and student evaluations.

Educating medical students on the Labor and Delivery unit continues to be one of the nurse-midwifery practice's major clinical and educational responsibilities. The overwhelmingly positive experiences reported by these students have led to the development of an elective clinical rotation in nurse-midwifery. Each rotation lasts one month and is offered to both third and fourth year medical students. The elective is designed to provide intense individual clinical opportunities to medical students interested in pursuing a residency in Obstetrics and Gynecology. The elective includes intrapartum experiences on Labor and Delivery at Hutzel Hospital as well as antepartum, postpartum and gynecological experiences at community-based nurse-midwife clinics. At the end of the rotation, each student is required to submit a three to five page evaluation of how the elective has impacted their future practice and perspective of midwifery care. Feedback from the students over the past year has been extremely positive. Students state that their ability to learn is significantly improved by the one-on-one time they are allowed to spend with each midwife. In addition, many students have observed that the good rapport between nurse-midwives and their clients that they've seen challenges them to do the same in their future careers.

Resident physicians are able to dedicate more time to their academic pursuits, research requirements and clinical opportunities because of the Hutzel midwives' support on Labor and Delivery as well as in the University Health Center clinics. The midwives and residents work as a team in a collaborative relationship to help cover clinical commitments and improve the overall quality of care provided to clients. For example, one morning each week the midwives cover Labor and Delivery with attending physicians to allow the residents to attend grand rounds. Nurse-midwives also teach first and second year OB residents as well as family practice and ER residents how to manage normal births and consider alternative management plans in Labor and Delivery.

The Hutzel nurse-midwifery practice provides clinical experiences for undergraduate nursing students from several colleges and universities in the Detroit Metropolitan area. Students from Wayne State University, Wayne Community College, Henry Ford Community College, Madonna University and the University of Detroit-Mercy have observed midwifery practice and learned about the unique professional opportunities available to them after graduation. Graduate women's health nurse practitioner students from Wayne State University have also participated in well-woman gynecology and antenatal clinical rotations within the midwifery practices.

One of the practice's strongest commitments is to nurse-midwifery education. Nurse-midwife students have come to Hutzel from the following education programs: CNEP, Philadelphia University, University of Illinois, University of Michigan and now Wayne State University. All



clinical placements are arranged by the educational coordinator according to each student's individual needs and the availability of clinical sites. The practice provides full-scope clinical experiences in well-woman gynecology, antepartum, intrapartum and postpartum care as well as integration rotations. Newborn care experiences are available with the pediatric nurse practitioners at the DMC. A Nurse-Midwifery Fellowship Program has been designed to provide clinical experience for CNMs who have graduated but have not able to gain employment or for experienced CNMs who have been out-of-practice and would like to refresh their skills. Additionally, work has begun on the development of a nurse-midwifery student scholarship.

### **Wayne State University Nurse-Midwifery Education Program**

The Hutzel midwives are committed to participating in the development of and close integration with the new Wayne State University College of Nursing (CON) nurse-midwifery education program, the first in Detroit. Mary Lewis, CNM and Janine Bieda, CNM and current OB/GYN Department Chair, Dr. John Malone, were most instrumental in supporting and assisting the Division of Nurse-Midwifery's collaborative efforts with the Wayne State University College of Nursing in developing a nurse-midwifery education program.

The nurse-midwifery education program was approved by the College of Nursing on May 15, 2002 and the WSU Graduate Council on January 22, 2003. Dr. Deborah Walker joined the faculty as Coordinator of the Nurse-Midwifery specialty in August, 2003 and preaccreditation status was granted by the American College of Nurse-Midwives (ACNM) in March, 2004. In July, 2005, a training grant aimed at supporting the program's mission to educate midwives for practice in the urban environment was received from the Health Resources and Services Administration, Division of Nursing.

The new nurse-midwifery education program fits well with the urban mission of Wayne State University and its commitment of service to Detroit's underserved populations. In order to prepare the future nurse-midwife for practice in the urban setting, the curriculum places strong emphasis on providing culturally sensitive care and incorporates content on urban health care issues such as violence, substance abuse and mental health. The majority of student clinical experiences are with the Hutzel nurse-midwives in the urban setting caring for underserved and vulnerable women and families.

Students may choose from full-time or part-time programs of study or a post-master's certificate. The first group of 5 nurse-midwifery students started the clinical courses in the Fall, 2005 semester and graduated in May, 2007.

### **Research Activities**

The Hutzel midwives have participated in research projects since the inception of the practice. Hutzel Women's Hospital is home to the Perinatal Research Branch, the only branch of the NIH outside of the Maryland campus. An extensive perinatal database at Hutzel Women's Hospital contains consecutive births from 1984 to the present and encompasses data on over 120,000 pregnancies. It has been a challenge to the midwives to ensure that the births they attended were recorded accurately under their names in the perinatal database. However, beginning in 2003, the



perinatal database was updated and converted to a web-based Electronic Medical Record (EMR). This Perinatal EMR is designed to acquire research-quality data which feeds this longitudinal perinatal dataset. This new combined perinatal database-EMR, Women, Infant and Neonatal Database (WIND), will more accurately record CNM births.

As the practice has grown and developed, the midwives have also become more interested in conducting their own research. A Research Committee was formed in 2005 with the mission of supporting and facilitating research within the Nurse-Midwifery Division. Currently three funded projects are underway with Dr. Deborah Walker as Principal Investigator; one evaluating the translation of the CenteringPregnancy group prenatal care model into practice at the DMC, a revision of the ACNM Antepartum and Intrapartum Minimum Datasets and an exploration of women's experiences of In Vitro fertilization using an innovative participatory action research method, PhotoVoice. In 2004, Mary Lewis, MS, CNM along with Sean Blackwell, MD and Jeanne Raisler, DrPH, CNM from the University of Michigan, analyzed 5 years of the Hutzel births attended by CNMs and MDs to answer the question "Cesarean section, operative vaginal delivery, and associated complications: Do the birth attendant and maternal characteristics make a difference?" (Raisler & Blackwell, 2004).

The Hutzel midwives have excelled at the practice and teaching components and in the future the research component will be strengthened as well. With the development of the new Research Committee, the research agenda will grow. Future goals for the research program include adding to the body of evidence-based practice through midwifery specific research, participating in multi-site midwifery research and forming a collaborative coalition with like midwifery practices to share research data and information.

### **SUMMARY:**

With over 25 years of practice, the Hutzel midwives have taken this chance to reflect on the evolution and accomplishments and also to look forward to growing and continuing to provide care in partnership with the women and families of Detroit. The longevity of the Hutzel midwifery practice in a setting with multiple challenges is a testament to its ability to bend and grow yet, still hold strong the value of midwifery care.

The midwives continue to have the full support of the WSU College of Medicine OB/GYN Department and with the new WSU nurse-midwifery education program, have forged even stronger ties with the College of Nursing resulting in a renewed commitment to education and midwifery research. As part of an academic setting, the nurse-midwives are moving forward with strengthening their commitment to the three-part mission of practice, teaching and research. The future is bright as the midwives begin their second quarter century of practice at Hutzel Women's Hospital.



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**RESEARCH AND PRACTICE ARTICLE**

**Compliance with Hygiene Recommendations for Human-animal Contact at Petting Zoos**

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**ABSTRACT:**

**Background:** Most children at petting zoos are at least somewhat naïve with respect to animal contact, which is probably why they are being taken to a petting zoo. Unfortunately, their immune systems may be equally naïve, thereby putting these children at high risk of contracting one of several enteric zoonotic diseases. A cross-sectional study was conducted to determine public and organizational compliance with current recommendations for hygiene and public safety for human-animal contact at permanent and temporary petting zoos.

**Methods:** A single investigator visited 17 petting zoos across Michigan to evaluate both facility-related and visitor-related risk factors for zoonotic enteric disease transmission. We observed 246 children at 6 permanent Michigan petting zoos and 11 temporary Michigan petting zoos associated with agricultural fairs. No contact was made with any petting zoo visitors, and factors such as age and gender were subjectively accessed by visual observation.

**Results:** Permanent zoos were more likely to have signs regarding hand hygiene and sanitizing facilities than did temporary or “traveling” petting zoos. Zoo personnel reminded 1.2% of visitors to wash their hands, and less than a third of all children were observed to have washed their hands following animal contact. Of the 246 children observed, about 50% (122) touched their own face, eyes, nose or mouth and 42% (104) touched the animals’ mouth. In addition, one child was seen ingesting goat feces, three were seen drinking out of the animals’ water trough, and one child was seen sucking on a fence rail; all in the presence of exhibit personnel who did not intervene. No association was observed between rates of hand washing and the degree of parental supervision.

**Conclusions:** We concluded that the current CDC hygiene recommendations for visits to petting zoos are generally not being followed by visitors or by exhibitors. Most parental and exhibitor supervision appeared to be focused on preventing physical trauma to the animals and to the children. Further educational outreach and/or regulation may be indicated to prevent enteric disease transmission from animal contact at petting zoos. However, it may be difficult for young children to understand that animal contact is safe and desirable only if proper hygiene practices are followed.



## INTRODUCTION:

In recent years, there have been many outbreaks of enteric disease in children following direct fecal-oral contact with animals at petting zoos, fairs and other similar facilities or events<sup>1-17</sup>. *Escherichia coli*, *Salmonella*, and *Campylobacter* are the most common agents, all of which are usually sub-clinical in farm animal species. While the majority of enteric infections with these agents are food-borne, transmission from direct animal contact is the second most common route of transmission, which can best be prevented by common enteric precautions to prevent feces from entering the nose, eyes and mouth.

It has been shown that many farmers and their families carry antibodies as a result of exposure to enteric organisms from the animals they raise<sup>20-25</sup>. In addition, farmers and their families seem less likely to develop clinical signs of infection, possibly due to frequent repeated antigenic stimulation. In contrast, because most of the general urban and suburban population has not been exposed to common animal-associated enteric pathogens, they are more likely to develop severe disease when they encounter animals carrying *E. coli*, *Salmonella*, and *Campylobacter*<sup>24</sup>. Most children at petting zoos are at least somewhat naïve with respect to animal contact, which is why their parents are taking them to a petting zoo. Unfortunately, their immune systems may be equally naïve, putting these children at high risk of contracting one of several enteric zoonotic diseases.

Due to its virulence, *E. coli* might be the most often reported illness associated with petting zoos. One study suggests that the summer peak in enterohemorrhagic *E. coli* (EHEC) infections is at least partially due to animal contact related to agricultural fairs<sup>6</sup>. In the fall of 2004, there were 108 reported cases of EHEC infections in visitors to the North Carolina State Fair, 15 of which resulted in cases of hemolytic-uremic syndrome (HUS)<sup>26,27</sup>. Similarly, in April of 2005, there was an outbreak of EHEC related to petting zoos in Florida with 63 cases, and 7 reports of HUS<sup>26, 28</sup>.

*Salmonella* is also commonly transmitted from chicks and reptiles. In 1999, a 60-person multi-state outbreak of Salmonellosis was reportedly linked to handling chickens<sup>13</sup>. Cryptosporidiosis has also been linked to farm visits<sup>15-19</sup>. A recent study at petting zoos in Tennessee demonstrated the sub-clinical presence of *Salmonella spp.* and *E. coli* O157 in petting zoo animals<sup>39</sup>.

The CDC and other governmental organizations have issued guidelines for safer practices for petting zoos and other animal exhibits<sup>29-33</sup>. First, and most importantly, CDC guidelines recommend that the public wash their hands immediately after animal exposure, and again prior to eating. Hand washing should be soap and water, and should include drying with a disposable towel or air dryer. Various studies have looked at the most effective ways to cleanse hands and prevent disease transmission<sup>30, 34-37</sup>. Washing with soap and water followed by drying with a paper towel has been shown to be effective even on visibly soiled hands. In a petting zoo situation, sinks with soap and water that are operated by hand or foot pedal are preferred to the use of sanitizing gel<sup>29</sup>. Sanitizing gel may be used instead, but has been shown to be ineffective when hands are visibly soiled, and is most effective when used in combination with soap and water<sup>30, 34-37</sup>. It is the responsibility of the facility to provide adequate hand washing stations to



promote public compliance. The exhibitors should provide facilities for hand washing that are easily accessible to people of all ages and handicaps.

It must be remembered that hand washing does not remove all potential pathogens from a person's hands<sup>40</sup>. The effectiveness of hand washing in removing pathogens would certainly be improved by repeated washes, and by repetition immediately before eating.

According to the CDC guidelines, it is also the responsibility of the exhibit to educate their staff and their patrons about preventing hand-mouth contact while in the exhibit area. This means advising visitors from eating, drinking, or using items such as pacifiers. The exhibitors should also discourage patrons from handling animal waste and should discourage public contact with the animal's sources of food and water. The exhibitors should always have at least one properly educated staff member to supervise the human-animal contact. Their role should be to help ensure that safe practices are being followed and that each child and parent is aware of the need to wash their hands and to prevent physical injury to both animal and visitor. Finally, areas for animal contact and areas for eating should be separated from each other, preferably with hand washing stations located between them.

A recently published study by Weese et al<sup>38</sup> showed that the overall rate of hand washing after animal contact was increased in part by strategic placement of washing facilities in exit routes, adequate signage regarding hand washing, and the presence of running water. The percentage of patrons who washed their hands was very low, indicating that the mere presence of hand washing facilities does not promote hand washing in all patrons. Another study showed that patrons to petting zoos participated in a number of risk behaviors, including eating and drinking in the exhibit and touching their face with their hands during or after animal contact<sup>39</sup>.

The goal of this study was to measure compliance with CDC guidelines regarding animal contact at petting zoos among visitors and exhibitors at permanent and temporary or traveling Michigan petting zoos.

## **MATERIALS AND METHODS:**

The study was conducted at 6 permanent and 11 temporary petting zoos throughout the state of Michigan during June and July of 2005. These zoos represented a cluster sample of almost all the petting zoos that were operating in Central Michigan during these two months. Each zoo was visited once.

Risk factors recorded relating to the zoo included: The average number of adults present to supervise the exhibit, the number of signs regarding hand washing, the availability of hand washing facilities within 20 feet of the encounter area, and the number of times the employees were seen reminding patrons to wash their hands.

Factors pertaining to the visitors included the presence or absence of adult supervision with each child, the gender and estimated age of each child observed, the number of times the child was seen touching his or her own face, eyes, nose, and/or mouth, the number of times the child touched the body or mouth of an animal, the number of times the child touched the ground, and



whether the child was eating or drinking while in the exhibit. Finally, it was noted whether or not each child washed or sanitized their hands before he or she left the exhibit area. Collected hand washing data included any attempt to wash his or her hands and how it was done. For example, washing may have been with a sanitizing gel or foam, with sanitizing wipes, with soap and water, or just with just water. Note was made if paper towels were used at any point.

Up to 15 children under the age of 15 were selected for observation at each of the petting zoos. Study subjects did not know that they were being observed from a distance. We observed each child upon his or her entry into the exhibit area, and would continue our observation of this child until the child left the petting zoo area. Only one child was observed at a time, and only one child was observed from any given group or family. In general, the youngest child was selected for observation when a family or group entered the petting zoo area. When the selected study subject left the petting zoo area, the next child for observation would be selected from the next family or group that entered the exhibit area.

Statistical analysis: Zoo-specific and child-specific risk factors were calculated for both permanent and temporary zoos. The Mantel-Haenszel Chi square test was employed to compare permanent zoos to temporary zoos on the basis of each risk factor.

## **RESULTS:**

### **Facilities**

As seen in Table 1, permanent facilities were more likely to have sanitizer and signs present and more likely to offer children the opportunity to feed animals, although these differences were not statistically significant ( $P > .05$ ). No facilities had sinks with soap and water, but a single temporary facility had a sink with running water. In zoos that offered sanitizing stations, 34% of children sanitized their hands. The greatest percentage of children (40%) made an effort to wash their hands in the zoo that had a sink with running water. In the 4 zoos without sanitizing or rinsing facilities, only 8% of children washed their hands with sanitizer their parents supplied. The amount of supervision present was similar between temporary and permanent zoos. In spite of the fact that over half of the facilities (59%) had at least 1 adult present at all times, only 1.2% of children observed were reminded by the staff to wash their hands. In addition, permanent facilities were nearly twice as likely to offer the opportunity to feed animals.



**Table 1:***Summary of facility risk factors*

	Permanent Zoos	Temporary Zoos	Total
Total Facilities:	6	11	17
Available hand washing sinks	0	1 (9%)	1 (5.9%)
Soap available for hand washing	0	0	0
Sanitizer available for hand washing	6 (100%)	6 (55%)	12 (71%)
Signs recommending hand washing	5 (83%)	6 (55%)	11 (65%)
At least 1 adult supervising at all times	3 (50%)	6 (55%)	9 (53%)
No adult supervision	2 (33%)	2 (18%)	4 (24%)
Provided visitors with animal feed	5 (83%)	3 (27%)	8 (47%)

\* Chi-square analysis comparing permanent zoos to temporary zoos on the basis of each dichotomous risk factor showed a  $P > .05$  in each instance.

## Behavior

Risk behaviors for enteric transmission compared between permanent and temporary zoos are shown in Table 2. A higher percentage of children were seen touching an animal's mouth at permanent zoos, but more permanent zoos offered children the opportunity to feed the animals. Over twice as many children sanitized their hands at permanent zoos than at temporary zoos. In addition, 3 children (1.2%) were seen drinking water from the animals' water trough at 2 different zoos. Single children were also seen using a pacifier and picking up goat feces and eating them or throwing them at other children, both at permanent facilities. Another child was seen sucking on a lower handrail of a goat pen while next to their parent. Overall, less than a third of all children observed (28%) washed or sanitized their hands in some manner. The analysis in table 3 indicates that hand washing was significantly associated with type of zoo (permanent vs. temporary) at  $P = .002$  after adjusting for the level of supervision by Mantel-Haenszel Chi square test.



**Table 2:**  
*Summary of observed risk behaviors of children*

	Permanent Zoos	Temporary Zoos	Total	P value
Children observed (number)	81	165	246	
Observed eating	5 (6.2%)	12 (7.3%)	17 (6.9%)	> .05
Touched their face	29 (36%)	50 (30%)	79 (32%)	> .05
Touched their nose	5 (6.2%)	17 (10%)	22 (8.9%)	> .05
Touched their eyes	4 (4.9%)	8 (4.8%)	12 (4.9%)	> .05
Touched their mouth	11 (14%)	40 (24%)	51 (21%)	= .05
Touched the mouth of an animal	44 (54%)	60 (36%)	104 (42%)	= .007
Touched the body of an animal	69 (85%)	164 (99%)	233 (95%)	<.0001
Touched ground	11 (14%)	22 (13%)	33 (13%)	> .05
Washed their hands in any way	34 (42%)	36 (22%)	70 (28%)	= .001
Used waterless hand sanitizer	34 (42%)	30 (18%)	64 (26%)	= .006
Reminded by employees to wash hands	2 (0.8%)	1 (0.4%)	3 (1.2%)	> .05

\* P values shown are for Mantel-Haenszel chi-square analysis comparing permanent zoos to temporary zoos on the basis of each dichotomous risk factor

**Table 3:**  
*Summary of parental supervision relative to hand washing*

Parental supervision	Number of children that washed hands		Average estimated age of child within group	
	Temporary Zoo	Permanent Zoo	Temporary Zoo	Permanent Zoo
Adequate*	21% (23/111)	44% (24/54)	5.6 years	6.1 years
Inadequate**	24% (13/54)	37% (10/27)	7.4 years	7.2 years

\*Adequate: Within 5 feet or less of the child for 50% or greater of the time spent in the exhibit

\*\*Inadequate: Greater than 5 feet or more away from the child for more than 50% of the time spent in the exhibit, or absent

\*\*\* Hand washing was significantly associated with type of zoo (permanent vs temporary) at P = .002 after adjusting for the level of supervision by Mantel-Haenszel Chi square test.



## DISCUSSION:

Although more than half of facilities had supervision available in the exhibit areas, the zoo personnel and the parents/guardians appeared to primarily focus on the physical safety of the children and animals, and on teaching the children be respectful of the animals. Supervision for personal hygiene was rarely observed. Given that zoo personnel were already present, it would seemingly take a minimum amount of re-training to have the supervisors also become involved in preventing fecal oral transmission of enteric zoonotic pathogens. The Michigan Department of Agriculture has supplied information regarding sanitation and hygiene to petting zoo manager<sup>41</sup>.

Because permanent facilities were more likely to have signs and hand sanitizing facilities, it is reasonable that more children at permanent zoos washed or sanitized their hands at these facilities. The degree of supervision was similar between permanent and temporary facilities, but the degree of supervision was not associated with hand washing behavior. This supports the explanation that the supervision was focused on matters other than hygiene. Data from our single zoo with running water for hand washing supports the findings of Weese in that the availability of hand washing facilities seemed to encourage hand washing behavior<sup>38</sup>. Signs regarding hand washing were present most of the time in both permanent and temporary petting zoos, but appeared to be minimally effective in inducing zoo visitors to wash their hands.

While parents appeared to be attentive to their children and were usually within close proximity of their child, children were still permitted to eat and drink within the exhibit, touch their own face or mouth, and often did not wash or sanitize their hands before leaving the facility. Adult supervision was present, but it was not directed at preventing fecal oral transmission. Our observations correspond with the earlier study by McMillian et al showing that risky behaviors are frequently seen, and that hand washing is uncommon<sup>39</sup>. These findings suggest that both petting zoo exhibitors and parents should be the target of educational outreach programs and possible regulatory action aimed at minimizing the risks associated with animal contact. Given that adults are already present, a few simple actions may possibly help prevent the zoonotic transmission of enteric disease when children visit petting zoos.

The motivation of parents and the petting zoo supervisors in encouraging children to have an animal contact experience at a petting zoo may conflict to some extent with public health recommendations regarding sanitation and hygiene. If the educational mission at the petting zoo is to encourage children to lose their fear of touching animals, then this lesson may be obscured when parents and zoo supervisors must simultaneously teach children that animals are “dirty” and that touching animals may make you ill if you do not keep your hands out of your eyes, nose and mouth before they are washed. These somewhat conflicting messages may be difficult for parents and other adult supervisors to convey to young children, who need to understanding that animal contact is safe and desirable only if proper hygiene practices are followed.



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## **LETTERS TO THE EDITOR**

### **Response to Reader Comments on *The Beginning of Public Health in Michigan*<sup>1</sup>**

Robert Mosher & G. Elaine Beane

The authors acknowledge that this series of articles is not going to be comparable to *The First 100 Years*, a publication of the Michigan Department of Public Health. *The First 100 Years* is a very valuable book, and the authors (Robert E. Mosher, PhD and G. Elaine Beane, PhD) each have a copy. Our approach is different from that of a government agency, that of historical researchers working from the original documents of the Michigan State Board of Health. Those documents include the annual reports, supplemental reports, segments written by MSBH members and their correspondents, reminiscences of MSBH clerks and assistants, memorials and eulogies on the deaths of MSBH members, autobiographies and biographies.

The authors have a strong interest in the “why” of MSBH decision-making, as well as the “how” of their actions. What were the external and internal factors that impinged on the assumptions, goals, and decision-making of the MSBH members? The original documents are interpreted in terms of the health environment as well as the cultural, economic, and political forces of the time period. In addition, the individual histories and personalities of the MSBH members are considered relevant to their involvement and decision-making while on the Board.

This series has an approach that attempts to show the circumstances, strengths, and challenges that surrounded the choices made by MSBH members, individually and collectively. They were trying to find solutions to horrendous public health problems but had few resources at their disposal. At times, their assumptions were incorrect -- according to our knowledge today -- and their reasoning led them to wrong conclusions. In another hundred years, the same may be said of our public health decisions. The cultural, economic, and political forces of our time influence public health no less than they did in the 1870's, but we do not always perceive their effects because they are built into our assumptions.

The need to tackle the problems of human health is no less today than it was in the last quarter of the 19<sup>th</sup> century. The framework within which these problems are manifested has changed to some degree, but the basic needs -- clean water, clean air, clean nutritious food, and effective prevention of disease -- are the same. As populations increase worldwide and resources become scarce, our ability to keep our environment clean and improve human health becomes impaired. There are many lessons to be found in the history of the MSBH and its members. Perhaps by understanding them and their rationales a bit better, we can see some of our current dilemmas in a new light.

For example, the safe disposal of waste -- human, animal, and industrial -- is a permanent problem for human societies. The waste processing approaches that worked for the dispersed farms of the 1840's were insufficient for the growing towns and cities of 1875. Likewise the human and animal waste processing systems that worked for 1950s Michigan are inadequate for

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the populations and industries of the 21<sup>st</sup> century. If we are not willing to invest in waste processing infrastructure, we will have an opportunity to reprise some of the diseases of the 19<sup>th</sup> century and invent some new ones.



## **MJPH Feedback Survey**

**I work for:**

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- State Government
- Federal Government
- Local Government
- Other

**I am a:**

- Nurse
- Physician
- Researcher
- Manager/Administrator
- Mental Health Provider
- Nutritionist
- Public Health Educator
- Faculty
- Student

**What is your opinion of the journal?**

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**Suggestions for future editions:**

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