



The Great Lakes EpiCenter News

Epidemiology Project of the Great Lakes Inter-Tribal Council, Inc.

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The EpiCenter provides epidemiological services to the Tribes in the Bemidji Area (Michigan, Wisconsin, and Minnesota). The services include training and technical assistance in many areas of public health, data management, program planning, and program evaluation.

EpiCenter Staff

Nancy Miller-Korth
Project Coordinator
nkorth@glitc.org

Chandra Reddy
Medical Epidemiologist
creddy@glitc.org

Greg Rachu
Epidemiologist
grachu@glitc.org

Kimmine Pierce
Epidemiologist
kpierce@glitc.org

Heather Vaughan
Epidemiologist
hvaughan@glitc.org

Dina Chapman
RPMS Specialist
dchapman@glitc.org

Jean Koranda
Epi Admin Asst
jkoranda@glitc.org

Faye Gohre
Diabetes Consultant
fgohre@glitc.org

Dwayne Jarman
MI EPT Coordinator
djarman@glitc.org

Derek Moore
EPT Epidemiologist
dmoore@glitc.org

Tessy Poupart
EPT Assistant
tpoupart@glitc.org



A Comparison of Reproductive Outcomes Between Native American and White Women and Their Infants in Wisconsin, 1990-2001

J. B. Hewitt PhD., RN, J. Mao M.S.

The Reproductive Health - Outcomes and Cost-Effectiveness Among Native Americans in Wisconsin study is a Great Lakes/Native American Research Centers for Health (GL/NARCH) project. Jeanne Hewitt, PhD, RN, the Project Principal Investigator, is an associate professor from the University of Wisconsin-Milwaukee's Institute of Environmental Health and College of Nursing. Jingnan Mao, M.S., consultant for the Great Lakes EpiCenter, completed the statistical analysis for the Phase One component of the study.

The research team examined a set of reproductive outcomes for 17 counties in Wisconsin, corresponding to tribal reservations or primary counties of residence for three tribes during a 12-year period (1990-2001). The data consisted of birth and death records obtained from the Wisconsin Bureau of Health Information (BHI). Approval for the study was obtained from the Indian Health Service and the University (UW-Milwaukee) Institutional Review Board for the Protection of Human Subjects, as well as from tribal leaders. The first aim of this project, which we report here, is to provide Native American Tribes in Wisconsin with baseline data on key reproductive health outcomes in comparison to those of white women and their infants from the same counties.

For birth outcomes, we examined prematurity, high and low birth weight, small for gestational age, sex ratio (percent males) at birth, multiple births (twins, triplets), and birth defects. These outcomes were examined in relation to the available 'risk factors' and 'protective factors.' Due to cost-factors for obtaining the electronic birth records, we obtained the full set of data on

Native American and White births for one county for the 12-year period, and all data on Native American infants, but a 5% random sample of white infants for the remaining 16 counties. Due to incomplete data on

the father's race, age, and education in our analyses, we were unable to report these data, and we had to base the race of infants from the mother's race as identified on the birth record. Gestational age at time of birth was estimated to be less than 20 weeks for 2 Native American and 9 white infants according to the birth records. Consequently, we excluded these records for the analyses. Birth outcomes are based on 3,584 Native American infants and 15,526 white infants and infant mortality on 43 Native American infants and 1296 white infants.

We also examined infant mortality from Native American and white infants born during the same time period who died before their first birthday using electronic linked birth-death records. No sampling was done. Finally, for the same years we requested select data from the BHI on all deaths of women ages 15-44, considered women's 'reproductive years.' Women's mortality data were provided to us by BHI as hardcopies of tabled data. We limit our reporting to Native American and white women's deaths as described. A BHI staff member also provided hand-searched information on 'maternal mortality,' defined as death within one year of pregnancy or live- or stillbirth, which is a small subset of mortality among women of reproductive age.

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Comparison of Risk and Protective Factors

Native American women were significantly more likely to be younger, to not have completed high school, and to be single than their white counterparts (*Table on page 3*). Native American women also had a significantly higher prevalence of smoking during pregnancy, at least 3 previous births, and either preexisting diabetes or gestational diabetes than white women. A significantly smaller proportion of Native American women began receiving prenatal care during the first three months of pregnancy than white women. Despite a higher risk status, Native American women had similar risks for low birth weight or prematurely delivered (less than 37 weeks of gestation) infants as white women, and nearly identical outcomes for sex ratio, twins/triplets, and infants identified with birth defects on their birth records. However, Native American women were significantly more likely than white women to give birth to infants weighing 4000 grams or more (8.8 pounds), considered high birth weight. High birth weight was 70% more common among Native American infants compared to white infants (OR = 1.7; 95% CI = 1.5-1.9) when adjusted for smoking, maternal age 35 years or older, and high parity (> 3 previous children born; 95% Confidence Interval = 1.5-1.9).

Infant Mortality

The infant mortality rate was 12.0 per 1000 live births for Native American infants and 6.0 per 1000 live births for white infants. The manner of death was ruled 'natural' for 81.4% of Native American infants and 92.8% of white infants. Deaths attributed to accidents' or unintentional injuries were more prevalent (11.6%) among Native American infants compared to white infants (3.8%). There were no homicides listed as the manner of death among Native American infants,

whereas homicide was ruled for 1.1% of white infants. Autopsies were performed on 48.8% of Native American infants who died compared to 43.1% of white infants. Death during the first 6 days of life was more common for white infants (54.8%) than for Native American infants (27.8%). We are in the process of examining specific causes of death in infants, which has been hampered by a change in methods of classifying deaths that occurred in 1999.

Death of Women 15 to 44 Years of Age

The leading causes of death for women of reproductive age was attributed to unintentional injuries and cancer. According to the BHI, no Native American women died due to 'maternal mortality' related to pregnancy or birth (within one year) during the 12-year period. There were 8 maternal deaths among white women during the same time frame. Only 4 of the 8 women had autopsies performed to establish cause of death.

Discussion

With the exception of a greater prevalence of high birth weight infants, other birth outcomes for Native American women was very comparable to that of white women for the same counties in Wisconsin between 1990 and 2001. Good birth outcomes were achieved despite what would traditionally be considered 'high risk status' among Native American women. We are in the process of exploring reasons for this based on the limited information available on birth records.

In these 17 counties, the infant mortality rate was twice as high for Native American infants than for white infants. For white infants, the rate was comparable to the U.S. 2001 infant mortality rate, which was 6.8 infant deaths per 1,000 live births, an all time low (Centers for Disease

Control and Prevention [CDC], 2003). Native American infants were at twice the risk for dying during their first year of life, with the majority occurring after the first month.

Native American women and infants experienced good outcomes, overall, during the study period. The greater prevalence of preexisting and gestational diabetes, high birth weight, and a higher infant mortality rate are of concern. We will use more in-depth data that we are in the process of obtaining through health record reviews at several tribal clinics to gain a greater understanding of high birth weight, asthma, middle ear infections, birth defects, and infant mortality.

References

Centers for Disease Control and Prevention. (2003). Deaths: Final data for 2001. National Vital Statistics Reports, 52(3), 1-13.

Upcoming Diabetes Trainings

Beginners Diabetes Management Systems Training on July 27 and 28 in Michigan: place to be determined.

Advanced Diabetes Management Systems Training on August 10 and 11 in Rhinelander, WI. Contact Jean Koranda at 1-800-472-7207 or email jkoranda@glitc.org.

Table. A Comparison of the Prevalence of Risk and Protective Factors and Birth Outcomes Among Native American and White Infants, 17 Counties in Wisconsin, 1990-2001.

	Native American (n = 3584)	White (n = 15,526)
	(%)	(%)
Risk Factors*		
Age < 18 (young age)	7.9	2.0
Age < 20 or 35+ (high risk age group)	19.6	16.3
Age 35+ (older age)	6.9	10.9
Education < hs graduation	33.1	10.7
Education < hs graduation restricted to women > 18 years old	27.7	9.1
Single	63.5	19.2
Smoked cigarettes during pregnancy	39.8	19.4
Four or more infants born prior to this birth	8.6	3.9
Preexisting diabetes	1.0	0.4
Gestational diabetes	5.5	3.0
Chronic hypertension	0.6	0.7
Pregnancy associated hypertension	4.4	4.3
Genital herpes infection	1.8	1.4
Previous premature infant	2.6	2.4
Premature rupture of membranes	5.5	4.8
Precipitous labor	5.3	4.9
Labor stimulated	15.1	12.3
Moderate to heavy meconium	5.7	4.8
Protective Factor		
Began prenatal care in first trimester	68.5	85.1
Birth Outcomes		
Prematurity	7.5	7.1
Low birth weight (< 2500 grams or 5.5 pounds)	5.6	5.2
High birth weight (\geq 4000 grams or 8.8 pounds)	19.0**	14.1
Sex ratio (% male) at birth	50.72	51.09
Plural births (twins, triplets)	2.7	2.6
Birth defects	1.0	0.9
* Maternal characteristics		
** Unadjusted odds ratio = 1.4 (95% Confidence Interval = 1.3 – 1.6).		

Resource Patient Management System Training Agenda

Third Party Billing/AR 7/13-15/2004
PCC Data Entry I & II 7/19-23/2004
Patient Registration 9/7-8/2004

These trainings will be held at the Bemidji Area Office. Please contact Michael Belgarde, MIS Bemidji Area Office at 218/444-0536 to register /hotel arrangements.

If you would like to receive an electronic copy of this newsletter, instead of the mailed copy, please send an email with your request to jkoranda@glitc.org.

Community Based Research Trainings

Becoming Equal Partners: Developing Research Capacity in American Indian Tribes

Greg Rachu, Great Lakes epidemiologist, recently attended and presented at the Intercultural Cancer Council's 9th Biennial Symposium on Minorities, the Medically Underserved, & Cancer, in Washington D.C. As part of a panel focusing on data, Rachu discussed the Great Lakes EpiCenter's recent Community Based Research (CBR) trainings conducted for tribal health personnel across the Bemidji Indian Health Service Area. CBR is defined as research conducted by, with, and for a specific community.

Numerous historical cases of misunderstandings and abuse have resulted in distrust of the research process within American Indian communities (1) (2). The EpiCenter, with funding from Spirit of EAGLES, a Special Populations Network of the National Cancer Institute (NCI), sought to restore trust in research by increasing American Indian health research capacity at the local level and with potential research partners. The Great Lakes Epidemiology Center collaborated with the Tribal Nations of MI, MN, WI; Mayo Clinic; University of Wisconsin; NCI's Cancer Information Service; and Indian Health Service.

Tribal health personnel (e.g. RNs, health directors) were invited, actively participated in the sessions, and completed action plans for local implementation. Continuing education credits were available from the IHS Clinical Support Center. The trainings included topics such as qualitative/quantitative research design, research ethics, internal review board (IRB) processes, epidemiological concepts, Epi Info software, and evaluation methodology.

Experts from diverse backgrounds (researchers, physicians, epidemiologists) and with American Indian community experience served as presenters. Representatives from NCI's North Central Cancer Information Service organized and conducted ongoing and post-session evaluations of the trainings.

End-of-session questionnaires produced very high scores on the Likert scale regarding met objectives and increased knowledge & skills. Positive verbal and written feedback was obtained from the participants:

- "I feel I can be an equal player with academic institutions in the research process..."
- "This information can be used to help tribal communities understand the purpose and results of the research that is taking place."
- "It was very inspiring to see a Native woman Ph.D. with her expertise."
- "I will use the concepts in developing and planning future programs."
- "The trainings increased the value of personal time and resources invested in evaluation components of my work."

A six-month follow-up indicated that a majority of the participants were applying take-away tools & acquired skills towards completion of their action plans, such as:

- Focused Internet searches for grant proposals, e.g. substance abuse in AI/AN population
- Discussions with research-

ers regarding the importance of IRB development

- Shared IRB resources with local Tribal & Community College planning coordinator
- Use of evaluation materials when completing grants, e.g. parenting program
- Introduction of logic models to Tribal Cancer Control team
- Developed a work plan and logic model for a diabetes grant
- Epi Info has been used with their Diabetes Registry and for grant writing statistics
- Statistics tools have been used in program planning and grant proposals

Based on participant feedback, we believe the workshops motivated the participants to become involved in community-based research and evaluation, provided practical research and evaluation tools that could be realistically implemented at the local level, and assisted participants in becoming equal partners with academic institutions in the research process.

Using lessons learned from feedback and experience, Great Lakes has slightly revised the curriculum for the next round of trainings, planned for Fall, 2004.

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Patient Registry for Heart Disease and Diabetes Management in a Tribal Clinic

Chandra Reddy, Great Lakes Medical Epidemiologist, presented at the third Canadian National Aboriginal Peoples Conference on Diabetes, which was a collaborated effort of a number of First Nation Bands Diabetes Programs in Canada. The conference is meant to give basic and practical information about how to live well with diabetes, as well as give prevention strategies and promote healthy lifestyles for their “at risk” family members and the community at large. The diabetic lifestyle is good for everyone. Workshops and plenary sessions reflected the conference theme: “Creating a vision for our future”. The title of his presentation was “*Patient Registry for Heart Disease and Diabetes Management in a Tribal Clinic*”. This was a collaborative project between the Great Lakes Epicenter and the Peter Christensen Health Center funded through the Robert Wood Johnson Foundation. The primary objective of this project was to improve the management of cardiovascular disease (CVD) for the diabetic (DM) patients at the Peter Christensen Health Center. We created a registry, allowing us to monitor follow up & treatment status. We used a computer-based coding system to record CVD & DM risk factors, diagnostic & therapeutic procedures, current vital signs, lab studies & drug treatment. The results of our project are as follows: 144 patient charts were reviewed and 54% were also diabetic. Pertinent therapeutic goals for CVD+DM were: HbA1c <7%=76%; LDL <100=67%; Systolic BP <130=26%; Diastolic BP<80=55%; Aspirin use= 63%; Post-MI Beta Blocker use=35%; ACE inhibitor use =61%; Statin use=78%; In addition, results from cardiac function studies were used to determine need for additional follow-up. In summary, a patient registry can provide: 1) Automated scheduling for follow-up.2) Up to date clinical summaries for providers. 3) Evaluation for treatment patterns & outcomes for combined cardiovascular disease and diabetes.

For further information about this project please contact Dr. Chandra S Reddy, MD, MPH, Medical Epidemiologist, P O Box 9, 2392 Hwy 47 North, Lac du Flambeau, WI 54538-0009, Phone: 715-588-3324, ext.129, Fax: 715-588-3607, Email:creddy@glitc.org

Community Based Research Trainings

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For further information: Gregory Rachu, MPH, Epidemiologist, Great Lakes Inter-Tribal Council’s Epidemiology Center, P.O. Box 9, Lac du Flambeau, WI, 54538. (715)588-3324 ext. 169, fax (715)588-3607, or email grachu@glitc.org

References:

1. Roundtable Conference on: “American Indian Research Training Needs” Final Report, National Institutes of Health, Bethesda, Maryland, August 23-24, 1999
2. Model Tribal Research Code, Third Edition, American Indian Law Center, Albuquerque, New Mexico, 1999

GLITC Welcomes a Summer Intern

My Name is Sauron Sanchez and I am working in a four hundred hour internship over the summer. I went to McFarland High School, and I currently go to MATC-Madison. I will be attending Edgewood College in the fall as a Math Major. Math is something that I have enjoyed since middle school. I am a Math tutor and the Vice President of the Native American Student Association at MATC. Recently I produced the first annual MATC Pow-Wow CD of last year’s Pow-Wow. Volunteering at the 2004 MATC Pow-Wow was a lot of fun.

In my spare time I like to listen to music very loudly, and play computer games. I have been in bowling leagues since I was in high school. I also sing in a rock band. I am looking forward to the opportunity to work with the GLITC staff, Epidemiology department, and on research projects.

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The Great Lakes EpiCenter
 Great Lakes Inter-Tribal Council, Inc.
 P.O. Box 9
 2932 Hwy. 47, North
 Lac du Flambeau, WI 54538

