The Great Lakes EpiCenter News

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

Vol.5, No.3 Summer 2004

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

Carol Wright
WI EPT Coordinator
cwright@glitc.org

Tessy Poupart
EPT Assistant
tpoupart@glitc.org

The Wisconsin Nutrition and Growth Study (WINGS), a Participatory Research Project with Three Wisconsin Tribes

A. Adams, R. Prince and H. Webert

Pediatric obesity is a problem of significant importance in the American Indian (AI) communities because of the relationship of obesity to the epidemics of cardiovascular disease and diabetes. AI communities are severely affected with prevalence rates of pediatric overweight or risk for overweight estimated from 11% in preschool children to 40% in 9-13 year old children. Little research has been done in the upper Midwest despite the fact that AI communities in Wisconsin have some of the highest rates of cardiovascular disease and diabetes in the United States. These communities are concerned at the increasingly earlier onset, and the financial and emotional burden these diseases place on AI families.

WINGS is a collaboration among academic researchers at the University of Wisconsin, three Wisconsin tribes and the Great Lakes Inter-Tribal Council (GLITC). Menominee, Bad River and Lac du Flambeau are involved in this community-based, participatory research study that is determining environmental and familial factors impacting on obesity. Modeling of these determinants will enable us to partner with the tribes to design appropriate early intervention strategies to prevent obesity and to reduce the disease burden in their communities. The project is funded by a four-year NARCH research grant through GLITC with additional funding from the Wisconsin Department of Health and Family Services and the National Heart, Lung, and Blood Institute.

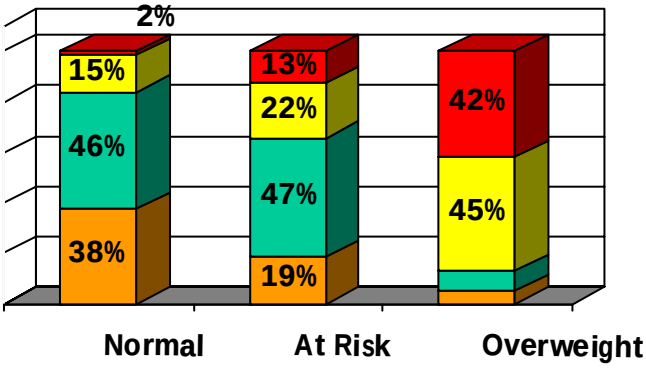
Direct physical measurements and parental surveys are providing necessary baseline prevalence data for children in grades K-2 (aged 5-7 years). Data on infant weights, maternal gestational diabetes, birthweight, length of breast feeding and family history for children aged 0-5 have been obtained from parental surveys and WIC, Head Start, and tribal clinic records.

Since beginning in 2000, WINGS has conducted 13 screenings and collected physical measures on 547 K --- 2^{nd} graders as well as 219 younger children included in Head Start health screenings. Surveys have been completed by 508 caregivers and over 2000 WIC records have been collected. Data have been entered into a secure database housed at the UW Department of Family Medicine and are undergoing cleaning and initial analysis. Data will be analyzed with logistic and linear regression modeling and growth curve analysis to explore predictive factors among parent characteristics, early child development and environmental influences.

Preliminary analyses of 366 children have revealed that 26% were overweight (BMI $\geq 95^{th}$ percentile) and an additional 19% were at risk for overweight (BMI $\geq 85^{th}$ percentile; Note: because children's body composition changes markedly with age, children's BMI's are standardized for age and gender based on a national sample collected in 1963 – 1970 and used as the CDC standard).

Continued on page 2

Relationship of child weight status to risk factors for chronic disease



Risk Factors:
B/P > 95th percentile
HDL < 40 mg/dl
Total cholesterol > 170
Waist-hip ratio > .90

Current national prevalence figures are approximately 20% overweight and 20% at risk among children from ethnic minorities. Children from lower income areas and from rural communities tend to be higher than national figures.

Important for the future health of the children seen in the study is the presence of risk factors for diabetes and cardiovascular disease. As shown in the figure, among children whose BMI was in the normal range (below the 85th percentile), only 17% had two or more risk factors whereas 35% of those at risk and 87% of those overweight had two or more risk factors.

Since the ultimate aim of WINGS is to work with communities to develop interventions it is important to understand communities' and especially parents' grasp of the health risks involved. Several questions in the surveys completed by caregivers addressed their attitudes toward their children's future health risks. The parental surveys showed that 68% of caregivers were not concerned at all or only a little concerned about their child's risk for overweight. Ninety percent responded that they were not concerned or a little concerned about their child's risk for heart disease and 57% were unconcerned or a little concerned about diabetes risk for their child. Similar to studies done among other populations, only 15% of overweight children were recognized as such by their caregivers. This is important information because in order for parents to take action on a child's health problem they must first recognize its presence. An interesting finding was that grandmothers were better at recognizing an overweight child than parents. Not surprisingly, mothers were better than fathers. Also, mothers who were overweight were better at recognizing an overweight child than were either normal or obese mothers.

Other survey questions addressed nutrition and physical activity habits among children. For example, 74% of children played outdoors one or more hours per day on the average weekday. Also, 72% of children watched less than 2 hours of television per day, but 28% watched 2 or more hours.

While 13% of children averaged less than one piece of candy per day (a piece was defined as an average candy bar), 60% averaged one piece per day and 27% had two or more per day. Fruit and vegetable consumption was adequate with most children having 2 or more servings of each per day. With beverages, consumption of soda and sweetened juice drinks was very high with only 9% of children having less than 12 ounces per day and 46% percent of children having 3 or more servings per day, which amounts to over 400 extra calories per day or one-quarter of their recommended calorie intake. Milk consumption showed that 88% of children consumed at least the recommended two servings per day.

In conclusion, we have found that overweight in children is a significant problem that begins early in life. It is a multi-factorial problem with early factors such as maternal BMI and child birthweight important and lifestyle issues such as high sugar intake and low levels of activity possibly contributing to the problem. Caregiver recognition of overweight children and concern for future risk of obesity-related disease is low overall but is higher among parents with diabetes. Community concern is increasing and many parents gave excellent suggestions on the surveys about possible interventions that they would like to see in their communities.

Members from health, education, child welfare and tribal government bodies of the three participating communities met with researchers in March, 2004, at GLITC to discuss preliminary results and discuss approaches to interventions. The group will reconvene in September after more extensive data analysis to further discuss findings and plan interventions.

Continued on page 3

Continued from page 2—WINGS

We are excited about our successful academic and community research partnership and feel that there is an increased community awareness of childhood obesity and its link to future diabetes and heart disease with an increased emphasis on prevention for children. Communities are actively mobilizing community resources and partnering with outside sources to create nutrition and physical activity teams. We have also been active in returning the data to communities via presentations to school boards, tribal councils, and community groups as well as nationally at IHS and other research meetings. We are currently in the second year of our NARCH grant and will be leading focus groups this summer to gauge community attitudes towards childhood overweight and risk of future disease. Improved understanding of these attitudes as well as the early determinants of overweight will enable the design of appropriate early intervention strategies for this important problem.

Congratulations Nancy Miller-Korth

Nancy Miller-Korth is recognized by the Bemidji Area Nurses Council (BANC) by presentation of a plaque and recognition gift. The "steadfast dedication and commitment to the nursing profession, leadership and dedication" in providing care to Native American communities in the Bemidji Area since 1990 is worth emulation. Your actions and words are the essence of nursing of the Bemidji Area Nurses Council. Many thanks for the excellent service you have
provided.

Greg Rachu Leaving EpiCenter To Attend Medical School

I have decided to accept an offer from the University of Wisconsin to attend their medical school beginning this fall. I will be leaving the Great Lakes EpiCenter with regret, but I am also very excited to begin this next step. It is possible that I will want to come back to my job and the comforts of the Northwoods of Wisconsin about a month into the intensive curriculum, but I will do my best to succeed.

I would like to thank everyone at GLITC for making my time here very enjoyable and educational. I am grateful for the opportunity to work in the field of epidemiology and public health for such an important population. My experience with the Minnesota tribal health directors, public health personnel, diabetes coordinators, Minnesota state health officials, and all others working for the improvement of health in AI/AN communities has been most positive and rewarding. I can only hope my assistance will contribute to the betterment of American Indian health in Minnesota.

My last day at GLITC will be August 5, but our staff epidemiologists and Nancy Miller-Korth will be available to assist with any data needs in my absence. Great Lakes hopes to have a new Minnesota epidemiologist on board soon and there has already been great interest in the position according to the number of resumes already received.

Thanks again everybody and please continue your good work.

EMERGENCY PREPAREDNESS CONFERENCE

At the direction of the Michigan and Wisconsin tribes, the Great Lakes Inter-Tribal Council Emergency Preparedness Team is coordinating the **Regional Emergency Preparedness Conference: "*Promoting tribal, federal, state, and local alliances,*"** to be conducted in Green Bay, WI August 23 to August 27, 2004. This conference provides an opportunity for us to help enhance tribal, local, state, and federal relationships and inform tribal leaders of current and critical issues that affect tribes in the region and across the nation.

An agenda, more specific conference information, and registration is available on the Emergency Preparedness website (http://www.glitc.org/~ept). Tessy Poupart is the staff contact for this conference and can be reached at tpoupart@glitc.org or 715/588-3324 ext. 230

Great Lakes NARCH Summer Intern Experience

My Name is Sauron Sanchez and I am a phase three intern in the Native American Research Center for Heath (NARCH) Student development program. I am working on the Michigan Youth Tobacco Survey (YTS). I started with data entry. For the first week or so the work was rather slow. I decide to throw some music in and it nearly doubled my productivity.

Three days later I was ready for data cleaning. The cleaning involved merging two databases and comparing them in SAS. The data cleaning sometimes seemed like it was taking a long time, but when I calculated the percent error we had for the database, it was a mere 1.5%.

It was then time to build tables. This for me was pretty exciting because I was finally going to see an output of what I had entered. As I had read the reports for the Wisconsin Youth Tobacco Survey, something had stuck in my mind as missing from the reports. None of the reports compared how many kids had tried smoking that lived in smoking households to those that tried smoking and live in non smoking households. I went to the CDC web site and skimmed several country's YTS and found that none of the surveys made any of these comparisons. Most reports gave the statistics on how many children live in smoking households, but still didn't attempt to stratify the "ever smokers" by those who live in smoking house holds and those who don't. This was puzzling because it seemed like a very logical way to look at this data. Something that I would like to see is these numbers on a national and global level because our parents are our first role models.

I am now at the beginning stages of analysis and I am looking forward to seeing the end result of a summer's worth of hard work. I have had an amazing experience working for the Great Lakes Inter-Tribal Council, and I would jump at the chance to work with a group of people as nice as the people here.

Resource Patient Management System Training

Patient Registration 9/7-8/2004

Contact Michael Belgard, MIS Bemidji Area Office at 218/444-0536 to register and hotel arrangements.

FUTURE TRAINING SCHEDULE

Great Lakes Inter-Tribal Council, Inc. in conjunction with the Bemidji Area Offices, has created an annual training schedule. Each newsletter will contain the scheduled quarterly trainings. Information and registration brochures will be available on our website:

http://www.glitc.org/epicenter

Upcoming Trainings:

PCC Data Entry I
October 19-22, 2004
Sault Ste. Marie, MI

Advanced Diabetes Management System
November 16-17, 2004
Rhinelander, WI

Look for new trainings in future issues of the newsletter.

Connection of Stress and Trauma to Diabetes and the Metabolic Syndrome

For celebrating the Spirit of Indian Health Diabetes Programs and Building the Strengths for the Future, the Indian Health Service regional meeting was held in Bloomington, MN, from May 25-26, 2004. About 200 Indian Health Service, Tribal and Urban: Diabetes program coordinators, diabetes team members and staff Tribal leaders and health administrators, Health professionals and wellness team members from the Bemidji Area, and Aberdeen Area participated. Overall the conference was a success. Dr. Ann Bullock did an excellent plenary presentation discussing the Stress and Trauma connection to Diabetes and Metabolic Syndrome.

Dr. Ann Bullock talked about the increasing burden of diabetes in Native American populations and about the overwhelming evidence to confirm that prolonged stress can adversely affect physical and behavioral parameters relevant to survival. A wide variety of stressors can activate the hypothalamic-pituitary-adrenal (HPA) axis and glucocorticoids are the end product of HPA axis activation. Neuro-endocrine data provide evidence of insufficient glucocorticoid signaling may contribute to stress-related pathological changes on the human body such as alterations in behavior, insulin sensitivity, bone metabolism, and acquired immune responses. Given the well-known capacity of glucocorticoids to influence glucose metabolism, a link between stress-related disorders, glucocorticoids, and insulin resistance (with its attendant hyperglycemia, dyslipidemia, hypertension, and abdominal obesity) has been proposed, although not established. As a result of insufficient glucocorticoid signaling, release of inflammatory elements from glucocorticoid-mediated inhibitory control may contribute to altered glucose metabolism in stress-related disorders. A number of studies have demonstrated that proinflammatory cytokines, including TNF-alpha and IL-6, are associated with insulin resistance, diabetes, and obesity. Moreover, patients with inflammatory disorders, including rheumatoid arthritis, exhibit increased rates of insulin resistance. The mechanism of these effects is believed to be related, in part, to TNF-alpha-mediated inhibition of insulin receptor tyrosine kinase activity, as well as inhibition of genes required for insulin signaling and glucose transport. In summary, there is literature evidence to support the direct relationship between chronic stress and trauma to Metabolic Syndrome and Type 2 diabetes through the hypothalamic-pituitary-adrenal axis.

For more information, contact Dr. Chandra Reddy at 715-588-3324 or email creddy@glitc.org

Reference: Raison et. al., "When Not Enough Is Too Much: The Role of Insufficient Glucocorticoid Signaling in the Pathophysiology of Stress-Related Disorders" American J Psychiatry 2003;160:1554-1565.

National Data Warehouse

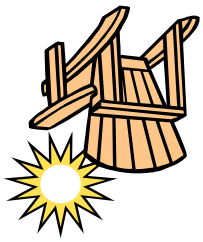
The Indian Health National Data Warehouse (NDW) gathers, stores, reports and allows easy access to accurate historical data. It is custom designed to meet the administrative and clinical needs of Indian health end users nationwide. NDW includes a national enterprise-level database, where complete, accurate and detailed information is stored. It also accommodates individual DataMarts: highly focused databases where end users can quickly and efficiently access targeted information, often via a Web interface. DataMarts meet individual program search and reporting needs that the complete NDW Database is too lrge to efficiently support. Also, information in the NDW Database remains the same, while DataMart Databases are created by importing *only* the data required to fulfill the custom requirements of specific end users. More importantly, DataMarts can be purged and the data re-imported from the NDW Database whenever necessary.

Compared to the existing ORYX and NPIRS databases, NDW data quality and reporting improvements include:

- A single, more-complete, verified and well-maintained data source
- Reports that are less likely to count the same patient more than once
- More accurate user-population and patient-outcomes reports
- Reduced reporting burden on local sites

To create the NDW Database, Information Technology Service Center (ITSC) personnel are working with key Area staff to import data from Resource and Patient Management System (RPMS) and other sources. Data import and testing is ongoing. Initially NDW will run in parallel with the ORYX and NPIRS databases to avoid disruption in data processing and production capability. Once the data import is complete and the NDW system is deemed ready to meet national requirements, it will be used as the primary source of patient and encounter data.

The above article is an excerpt from the National Data Warehouse brochure. For more information, visit www.ndw.ihs.gov



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

In This Issue

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