

# UPDATES FROM US HEALTH AGENCIES

---

Recent activity in government and non-government agencies may affect readers of *Ethnicity & Disease* and other healthcare professionals working with ethnic minority and under-served populations. Below are some current items of interest.

---

## FROM THE NATIONAL INSTITUTES OF HEALTH (NIH)

### New Study Seeks to Lower Diabetes Risk in Youth

When schools across the United States reopened their doors this fall, hundreds of sixth graders in 42 middle schools began taking part in a study sponsored by NIH. The HEALTHY study will determine if changes in school food services and physical education classes, along with activities that encourage healthy behaviors, lower risk factors for type 2 diabetes, an increasingly common disease in youth.

Participating schools were randomly assigned to a program group, which implements the changes, or to a comparison group, which continues to offer food choices and physical education programs typically seen in middle schools across the country. Students in the program group will have 1) healthier choices from the cafeteria and vending machines (eg, lower fat foods, more fruits and vegetables, and drinks with no added sugar); 2) longer, more intense

periods of physical activity; and 3) activities and awareness campaigns that promote long-term healthy behaviors.

After 2.5 years, all students will be tested for diabetes risk factors, including blood levels of glucose, insulin, and lipids. They will also be measured for fitness level, blood pressure, height, weight, and waist circumference.

“The school environment can have a profound effect on the behavior and health of young people. From this study we hope to learn if better food options, improvements in physical activity programs, and education about eating better and moving more result in healthier kids and a lower risk of type 2 diabetes,” said study chair Gary Foster, PhD, of Temple University.

In planning the HEALTHY study, researchers relied on the results of six pilot studies. In one such study, approximately half of eighth graders in 12 schools were overweight or at risk for

overweight. Few had diabetes, but  $\approx 41\%$  had abnormally high readings of fasting blood glucose, which points to a much higher risk of developing type 2 diabetes.

Type 2 diabetes is closely linked to being overweight and inactive and having a family history of diabetes. Nearly two thirds of US adults are overweight or obese, with a body mass index (BMI)  $\geq 25$  kg/m<sup>2</sup>. Among youth 2–19 years old, 17% are overweight (BMI at the  $\geq 95$ th percentile for their age and sex)—triple the rate in 1980. Approximately the same percentage of youth have a BMI between the 85th and 95th percentile for their age and sex, which puts them at risk for becoming overweight.

Once seen only in adults, type 2 diabetes has been rising steadily in youth. While no national data exist on the prevalence of type 2 diabetes in youth, clinics around the country are reporting that more young people, especially from minority groups, are

developing the disease. Studies in Cincinnati, Los Angeles, San Antonio, and other cities conclude that cases of type 2 diabetes in youth have risen dramatically since 1994, when  $< 5\%$  of new childhood diabetes cases were type 2. By 1999, type 2 diabetes accounted for 8%–45% of new childhood diabetes cases, varying by geographic location.

Results from the HEALTHY study are expected in 2009. Sponsored by the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), the study is part of a broad research initiative, called STOPP T2D (Studies to Treat or Prevent Pediatric Type 2 Diabetes), which seeks to improve the treatment and prevention of type 2 diabetes in youth. The American Diabetes Association (ADA) cosponsors the HEALTHY study, and the Institute for Public Health and Water Research supports the study through a grant to the ADA.

---

## FROM THE NATIONAL INSTITUTE ON AGING

### Study Finds “Gradient of Disability” Linked to Household Income of Older Adults

Low-income Americans ages 55–84 years are far more likely

than their wealthier peers to feel limited in doing basic physical

activities, such as climbing stairs and lifting objects, according to a study. The research, published in the August 17, 2006, issue of *The New England Journal of*

*Medicine*, shows, for example, that people ages 55–64 who are living below the poverty line are six times more likely than the wealthiest group to say they have

functional limitations. The study was conducted by NIA, part of the National Institutes of Health in collaboration with the University of California, Berkeley, and the University of Toronto.

Researchers report that those living below the poverty line are the most likely to say they have functional limitations, and up to age 84, the odds of having such limitations drop with each incremental increase in income. They also note that older people are less likely to report functional limitations with each increase in educational level, a measure

that is closely tied to income. "We found that a 'gradient of disability' exists across the full socioeconomic spectrum, as functional limitations proved inversely related to household income," says senior author Jack M. Guralnik, MD, PhD, chief of NIA's Laboratory of Epidemiology, Demography, and Biometry.

Guralnik and coauthors analyzed data for >335,000 community-dwelling people  $\geq 55$  years of age who participated in the Census 2000 Supplementary Survey. Nearly one in four

respondents reported having a functional limitation, defined as a long-lasting condition that substantially limits one or more basic physical activities, such as walking, climbing stairs, reaching, lifting, or carrying.

Functional limitation differences by income level were evident among those age 55–64 years, 65–74 years, and 75–84 years but differed more dramatically in the younger age groups. Among all respondents under age 85, even those whose incomes were at six times the poverty threshold had signifi-

cantly higher odds of reporting functional limitations, compared with the wealthiest group.

The poverty threshold in 2000, the year the data were collected, was \$8,259 for a person age  $\geq 65$  years who lived alone and \$17,761 for a four-person household. The highest income category used in the analysis— $\geq 700\%$  of the poverty line—began at \$57,813 for an older adult living alone and \$124,327 for a four-person household.

## FROM THE NATIONAL HEART, LUNG, AND BLOOD INSTITUTE (NHLBI)

### Blood Test Predicts Common and Severe Complication of Sickle Cell Disease

A team of scientists with NHLBI of the National Institutes of Health (NIH) has found that a hormone detected in a simple blood test can identify patients with sickle cell disease who have developed a life-threatening complication called pulmonary hypertension. The team has also found that the same hormone is a clear predictor of death in adult sickle cell patients.

The hormone, called brain natriuretic peptide (BNP), is released by the heart's ventricles and helps predict death in heart failure patients. The new study was published in the July 19 issue of the *Journal of the American Medical Association*.

Sickle cell anemia is one of the most common genetic blood disorders in the United States. Approximately 30% of sickle cell patients have pulmonary hypertension. In this condition, blood pressure in the pulmonary ar-

teries that supply the lungs is constantly high. This pressure leads to narrowed arteries, which causes the heart to work harder to pump blood. Pulmonary hypertension often leads to heart failure, and it is a major risk factor for death in adults with sickle cell disease. Currently, echocardiograms and other heart tests are used to diagnose pulmonary hypertension, but no blood test has been available to help detect the condition.

Previous research has found that in patients with pulmonary hypertension, higher levels of BNP are associated with greater pressure in the pulmonary arteries. NHLBI researchers theorized that BNP levels might also correlate with the severity of pulmonary hypertension and risk of death in sickle cell patients.

Lead scientist Roberto Machado, MD, an investigator with

NHLBI's Vascular Medicine Branch, and colleagues measured BNP levels in 230 patients with sickle cell disease enrolled in the NIH Pulmonary Hypertension Screening Study between 2001 and 2005. To confirm a diagnosis of pulmonary hypertension, the patients were given echocardiograms and other measurements of heart function. BNP levels were also measured in 45 healthy Black controls, since the disease is more prevalent in Blacks.

Researchers found that high blood levels of BNP ( $>160$  pg/mL) in these patients independently predicted mortality, increasing the risk of death by as high as fivefold. The team also found that BNP levels could help identify the patients with pulmonary hypertension. NIH study patients who had a BNP  $\geq 160$  pg/mL had a 78% chance of having pulmonary hypertension identified by echocardiogram.

To validate and confirm the findings, the team then mea-

sured BNP levels in 121 stored blood samples from patients who had been enrolled in a sickle cell drug treatment study, the Multicenter Study of Hydroxyurea in Sickle Cell Anemia (MSH) Follow-up Study, which began in 1996. These patients came from major sickle cell centers around the United States, and at the time of enrollment, pulmonary hypertension was not known to be a common complication of sickle cell disease.

Thirty percent of patients in the MSH study had a BNP level  $>160$  pg/mL, consistent with a diagnosis of pulmonary hypertension. Most importantly, these patients had a threefold increased risk of death compared with patients without pulmonary hypertension.

Sickle cell disease affects approximately 1 in 600 blacks and 1 in 1000–1400 Hispanic newborns every year. Patients with this disease have abnormal hemoglobin molecules in their red

## UPDATES FROM US HEALTH AGENCIES

blood cells. The molecules damage the red cells, causing them to stick to blood vessel walls, resulting in pain, organ damage, and anemia. With the development of new treatments for the symptoms and complications of sickle cell disease, patient survival has improved in recent years.

Machado is optimistic regarding the future outlook for sickle

cell disease. "Based on these findings and other studies showing that pulmonary hypertension is a major risk factor for death in adult patients with sickle cell disease, there is great benefit to screening sickle cell patients with both echocardiography and blood BNP. By combining these tests, we hope to identify patients who can be treated more

intensely to improve the management of their disease and hopefully their survival," he said.

Machado added that identifying these patients will bring them to the attention of scientists engaged in clinical trials of new treatments for the disease. He noted that NHLBI is currently participating in a multicenter study to test the safety

and effectiveness of the drug bosentan in patients with sickle cell disease and pulmonary hypertension. An NHLBI-sponsored clinical trial studying the effects of sildenafil as a treatment for pulmonary hypertension in sickle cell disease is expected to begin recruiting patients early in 2007.