

## PUBLIC HEALTH GIS NEWS AND INFORMATION

January 2005 (No. 62)

*Dedicated to CDC GIS Scientific Excellence and Advancement in  
Disease, Injury and Disability Control and Prevention, and Biologic, Chemical and Occupational Safety*

**Selected Contents:** Events Calendar (pp.1-2); (p.5-6); Public Health and GIS Literature 16); Website(s) of Interest (pp. 16-17); Final



News from GIS Users (pp.1-5); GIS Outreach (pp.6-10); DHHS and Federal Update (pp.10-16); Thoughts (pp.17-19); **MAP** Appendix (20-22)

### I. Public Health GIS (and related) Events: SPECIAL NCHS/CDC GIS LECTURES

**Please join us on February 9, 2005, at 2:00PM (EST), RM 1404, at NCHS! "Spatial Distribution of Obesity, Risk Factors, and Chronic Diseases, in the District of Columbia,"** John O. Davies-Cole, Ph.D., MPH, CPM, and Chief, Bureau of Epidemiology & Health Risk Assessment, District of Columbia Department of Health. The NCHS GIS Guest Lecture Series has been presented continuously at NCHS since 1988. Please note our regular time of **2:00PM** for this presentation. As with all live lectures, Envision will be available to offsite CDC locations. Web access will be available to our national and worldwide public health audience; please request URL for viewing, anytime between now and February, 2005, from the Editor. The cosponsors to the NCHS Cartography and GIS Guest Lecture Series include CDC's Behavioral and Social Science Working Group (BSSWG) and Statistical Advisory Group (SAG). Note: **NCHS Cartography and GIS lectures are open to all.** We look forward to having you join us. [Contact: Editor, [Public Health GIS News and Information](mailto:Public_Health_GIS_News_and_Information@cmc2.cdc.gov) at [cmc2@cdc.gov](mailto:cmc2@cdc.gov)]

[Note: Calendar events are posted as received; for a more complete listing see NCHS GIS website and calendar]

#### 2005

\* ESRI Federal User Conference, on February 1-3, 2005, Washington D.C. [See conference website for agenda and to register: <http://www.esri.com/events/feduc/registration.html>]

\* Annual American Association for the Advancement of Science (AAAS): "The Nexus: Where Science Meets Society," February 17-21, 2005, Washington D.C. [See: [http://www.aaas.org/meetings/Annual\\_Meeting](http://www.aaas.org/meetings/Annual_Meeting)]

\* 22nd Annual Behavioral Risk Factor Surveillance System Conference, theme "Data into Action: 22 Years of BRFSS," CDC, March 5-9, 2005, Atlanta GA [See: <http://www.cdc.gov/brfss/conference/index.htm>]

\*4th International Conference on Work Environment and Cardiovascular Diseases, from March 9-11, 2005, Newport Beach CA [See: <http://www.coeh.uci.edu/icoh>]

\* American Congress on Surveying and Mapping (ACSM), Conference and Technology Exhibition, March 18-23, 2005, Las Vegas NE [See: <http://www.acsm.net>]

\* 3rd UK National Crime Mapping Conference, April 12-13, 2005, London England [See: <http://www.jdi.ucl.ac.uk>]

\* 2<sup>nd</sup> Annual National Environmental Public Health Tracking Conference: "Vision to Reality", April 20-22, 2005, Atlanta GA [See: <http://www.cdc.gov/nceh/tracking>]

\* 2005 FDA Science Forum, "FDA Science: Advancing Public Health through Innovative Science," April 27-28, 2005, Washington DC [See FDA science forum website at: <http://www.fda.gov/scienceforum>]

\* 2005 Location Technology & Business Intelligence Conference, Directions Magazine, from May 2-4, 2005, Philadelphia PA [See: <http://www.locationintelligence.net>]

\* CDC Diabetes Translation Conference, May 2-5, 2005, Miami FL [See: <http://cdc.confex.com/cdc/cdt2005/index.epl>]

\* 2005 International Conference on Computational Science and its Applications (ICCSA), Suntec City, Singapore, May 9-12, 2005 [See: <http://cyberchair.iccsa.org>]

\* 1<sup>st</sup> Annual Critical Issues in eHealth Research Conference, National Institutes of Health and the Robert Wood Johnson Foundation, June 9-10, 2005, Bethesda MD [See: <http://www.scgcorp.com/ehealthconf2005/abstracts.asp>]

\* 2005 Fourth National HIV Prevention Conference, CDC, from June 12-15, 2005, place Atlanta GA [See site: [http://www.cdc.gov/hiv/PDF/save\\_the\\_date.pdf](http://www.cdc.gov/hiv/PDF/save_the_date.pdf)]

## PUBLIC HEALTH GIS NEWS AND INFORMATION

January 2005 (No. 62)--11<sup>th</sup> year of continuous reporting

2

\* 11th International Medical Geography Symposium (IMGS), from July 5-9, 2005, Fort Worth, TX [See site: <http://www.geog.unt.edu/medgeog symp.htm>]

\* 2005 Joint Statistical Meetings of the American Statistical Association: "Using Our Discipline to Enhance Human Welfare," August 7-11, 2005, Minneapolis MN [See: <http://www.amstat.org/meetings/jsm/2005/index.cfm>]

\* International Forum for Social Sciences and Health World Congress: theme "Health Challenges of the Third Millennium," August 21-26, 2005, Istanbul, Turkey [See: <http://www.ifssh.net>]

\* 8th Annual Crime Mapping Research Conference, National Inst of Justice, September 7-10, 2005, Savannah GA [<http://www.ojp.usdoj.gov/nij/maps/savannah2005>]

\* 43rd Annual Conference of the Urban and Regional Information Systems Association (URISA), October 9-12, 2005, Kansas City MO [See: <http://www.urisa.org>]

\* Research Conference, Federal Committee on Statistical Methodology, from November 14-16, 2005, Washington D.C. [See: <http://www.fcs.gov>]

### II. GIS News

[Public Health GIS Users are encouraged to communicate directly with colleagues referenced below on any items; note that the use of trade names and commercial sources that may appear in Public Health GIS News and Information is for identification only and does not imply endorsement by CDC]

#### A. General News and Training Opportunities

1. This is to announce a January 27, 2005, Bay Area Automated Mapping Association (BAAMA) "**GIS in Public Health and Medicine Program**", co-sponsored by the Goldman School of Public Policy and the School of Public Health, to be held at the University of California, Berkeley. BAAMA is the Northern California chapter of the Urban and Regional Information Systems Association. [See program details at <http://www.baama.org>]

2. Public Health Research Laboratories (PHRL) is pleased to announce an upcoming two-week **Spatial Epidemiology** training course. Participants will be provided an introduction to GIS, Spatial Analysis, Spatial Statistics, GPS, and Modeling within the context of epidemiology. This course was designed to provide a core competency in the field of spatial epidemiology.

This course will be held at the International Livestock Research Institute (ILRI) in Addis Ababa, Ethiopia, from April 4-15, 2005. [For details about PHRL courses, see <http://www.phrl.org>; Contact: William Hoffman at [whoffman@phrl.org](mailto:whoffman@phrl.org)]

3. The University of Albany, School of Public Health, is pleased to hold their first **GIS and Public Health Day**, April 19, 2005, at the School of Public Health. Plans are to have one day of presentations, followed by a morning of classes (ranging from an introduction to EPIMAP, to some advanced topics using ESRI and/or MAPINFO products). Speakers include Gerry Rushton (U Iowa), Martin Kulldorff (Harvard U), Peter Rogerson (U Buffalo), Dan Wartenberg (Robert Wood Johnson Medical School), Jay Nuckols (Colorado State U), and Mary Ward (National Cancer Institute). [Contact: Mike Zdeb at [msz03@albany.edu](mailto:msz03@albany.edu)]

#### B. Department of Health and Human Services

<http://www.hhs.gov>

4. **Diabetes: A National Plan for Action** is the latest initiative sponsored by HHS to address diabetes prevention, detection, and treatment. Currently, more than 18 million Americans have diabetes and are at risk for related complications like heart disease, stroke, blindness, amputations and kidney disease. On average, every 25 seconds, someone in the United States is diagnosed with diabetes. Diabetes rates are steadily increasing in America, and millions are unaware that they have the disease. Diabetes touches millions of Americans and their families and friends in ways that are difficult if not impossible to measure. Moreover, diabetes and its complications seriously diminish the quality of life for individuals suffering from this disease. [See full report at: <http://aspe.hhs.gov/health/NDAP/NDAP04.pdf>]

#### Administration for Children and Families

<http://www.acf.dhhs.gov>

5. The Administration for Native Americans (ANA) was established in 1974 through the **Native American Programs Act (NAPA)**. ANA is the only federal agency serving all Native Americans, including 562 federally recognized tribes, American Indian and Alaska Native organizations, Native Hawaiian organizations and Native populations throughout the Pacific basin (including American Samoa, Guam, and the Commonwealth of the Northern Mariana Islands). Also, the mission of ANA

## PUBLIC HEALTH GIS NEWS AND INFORMATION

January 2005 (No. 62)--11<sup>th</sup> year of continuous reporting

3

promotes the goal of self-sufficiency for Native Americans by providing social and economic development opportunities through financial assistance, training, and technical assistance to eligible Tribes and Native American organizations representing nearly 4.3 million individuals. More ANA information is available at this site.

### Administration on Aging

<http://www.aoa.gov>

#### 6. Older Americans 2004: Indicators of Well-Being.

Key findings of this new federal report include: In 2003, nearly 36 million people age 65 and over lived in the United States (just over 12 percent of the total population). During the 20th century, the older population grew from 3 million to 35 million and is projected to grow to almost 87 million by 2050. Women make up 58 percent of the population age 65 and over and 69 percent of the population age 85 and over. The increase in the prevalence of over-weight and obesity among older adults has been dramatic.

### Agency for Healthcare Research and Quality

<http://www.ahrq.gov>

7. Prehypertension -an elevation in blood pressure that is a risk factor for heart attack, heart failure, stroke, and kidney disease- is estimated to be responsible for 9.1 percent of U.S. deaths, 6.5 percent of nursing home stays, and 3.4 percent of hospital stays each year for people ages 25 to 74, according to new research funded by the Agency for Healthcare Research and Quality (HS07002 and HS11477). AHRQ's new study estimates that as many as two-thirds of people between the ages of 45 and 64 and 80 percent of people between the ages of 65 and 74 may have prehypertension or residual hypertension. The researchers found that, per 10,000 adults between the ages of 25 and 74, **prehypertension** and **residual hypertension** together account for almost 14 percent of deaths, nearly 10 percent of nursing home admissions, and 4.7 percent of hospital admissions.

### Centers for Disease Control and Prevention

[Includes the Agency for Toxic Substances and Disease Registry (ATSDR), in CDC's National Center for Environmental Health]

<http://www.cdc.gov>

8. CDC has published *Health, United States, 2004* with *Chartbook on Trends in the Health of Americans*, the 28th edition of the annual report on the nation's health. The report includes 153 trend tables organized around

four subject areas: health status and determinants, health-care use, health-care resources, and health-care expenditures. Information regarding racial, ethnic, and socioeconomic disparities in health is, as well, presented in several tables.

The 2004 chartbook, also included in the report, assesses the state of the nation's health and how it has changed over time, both positively and negatively, by presenting trends and current information on selected determinants and measures of health status. Determinants of health include demographic factors, health-insurance coverage, health behaviors, and preventive health care; measures of health status focus on trends in mortality and limitations of activity caused by chronic health conditions. Although the health of persons overall in the United States has improved, the health of certain populations has lagged behind. This year's chartbook also includes a special section on prescription drugs, which have become an increasingly important component of health care. [The report is available from the CDC's NCHS at <http://www.cdc.gov/nchs/hus.htm>]

9. Early release from the **2003 National Health Interview Survey (NHIS)**: From January through June 2004, 41.3 million persons of all ages (14.4%) were uninsured at the time of interview, 50.7 million (17.6%) had been uninsured for at least part of the year prior to interview, and 28.7 million (10.0%) had been uninsured for more than a year at the time of interview. [The 2003 NHIS public use data product has been released and is at <http://www.cdc.gov/nchs/data/nhis/earlyrelease/insur200412.pdf>. In addition to the standard core NHIS questions, the 2003 NHIS includes supplemental questions that assist in tracking the Healthy People 2010 Objectives. Contact: Anne Stratton at [AStratton@cdc.gov](mailto:AStratton@cdc.gov)]

### Centers for Medicare and Medicaid Services

<http://cms.hhs.gov>

10. The Centers for Medicare & Medicaid Services (CMS) announced December 2004 that Medicare will support **new demonstration projects** to improve the early detection and treatment of cancer and reduce health disparities among minority Medicare beneficiaries, including American Indians, Alaskan Natives, Eskimos, Aleuts, Asian Americans and Pacific Islanders, African Americans, and Hispanic Americans.

A notice placed on display at the Office of the Federal Register today provides details on submitting

## PUBLIC HEALTH GIS NEWS AND INFORMATION

January 2005 (No. 62)--11<sup>th</sup> year of continuous reporting

4

proposals to participate in the demonstration. **Medicare is inviting participation** from chronic care management organizations, health insurers, physician group practices, coordinated care services providers, provider-sponsored organizations, academic medical centers, comprehensive cancer centers, special population networks, community clinical oncology programs, community-based health organizations, community health centers, federally qualified health centers, and minority institutions.

### Food and Drug Administration

<http://www.fda.gov>

11. The publication (24th edition), **Approved Drug Products with Therapeutic Equivalence Evaluations (the List)**, identifies drug products approved on the basis of safety and effectiveness by the Food and Drug Administration (FDA) under the Federal Food, Drug, and Cosmetic Act (the Act) and is now online. The List is composed of four parts: (1) approved prescription drug products with therapeutic equivalence evaluations; (2) approved over-the-counter (OTC) drug products for those drugs that may not be marketed without NDAs (new drug applications) or ANDAs (termed abbreviated new drug applications) because they are not covered under existing OTC monographs; (3) drug products with approval under Section 505 of the Act administered by the Center for Biologics Evaluation and Research; and (4) a cumulative list of approved products that have never been marketed, are for exportation, are for military use, have been discontinued from marketing, or have had their approvals withdrawn for other than safety or efficacy reasons subsequent to being discontinued from marketing.

### Health Resources and Services Administration

<http://www.hrsa.gov>

12. HHS announced December 2004 more than \$21 million to **improve newborn screening systems, reduce racial and ethnic disparities in infant mortality and low birth weight, coordinate women's health services, and support research in pediatric and maternal preventive care**. The grants are to help state and local health agencies provide screening services and follow-up care for newborns that have or may develop heritable disorders and to offer education and genetic counseling to their parents. Heritable disorders are passed from parents to children and are treatable if detected early. [See News Release dated December 23, 2004]

### Indian Health Service

<http://www.ihs.gov>

13. **IHS Distributes \$23.7 Million to Address Diabetes Prevention and Complications among American Indians and Alaska Natives (AI/AN)**. Diabetes rates are significantly higher among American Indians and Alaska Natives than in the general U.S. population, as is the incidence of diabetes related complications. Thirty-six grant awards are for primary prevention and 30 are for cardiovascular disease risk factor reduction.

### National Institutes of Health

<http://www.nih.gov>

14. **Custom Extensions Available from Long Island GIS**. Four custom ArcGIS software extensions have been developed for users of the **Geographic Information System for Breast Cancer Studies on Long Island (LI GIS)** and may be freely downloaded from the LI GIS Web site [www.healthgis-li.com](http://www.healthgis-li.com). The extensions are tools for cluster analysis and applying the Empirical Bayes method, a disease rate calculator, and an areal interpolator. They are available for ArcView versions 3.x, 8 and 9. These extensions may also be used for applications beyond Long Island.

The LI GIS is an enterprise geographic information system developed for the National Cancer Institute (NCI), originally by AverStar, Inc., and now under contract to Titan Corporation. It is designed to study potential relationships between environmental exposures and breast cancer on Long Island. The system also may be used by researchers for studying other diseases.

The LI GIS warehouse has more than 80 datasets covering topographic data; demographic data; health outcome data, including relative breast cancer incidence; and environmental data. A full suite of GIS software and extensions related to the study of breast cancer is available to researchers with approved protocols. They may access the LI GIS remotely or work in its laboratory located in Reston, VA. No fee is charged to use the LI GIS or its laboratory. [Contacts: Debbie Winn at [winnde@mail.nih.gov](mailto:winnde@mail.nih.gov) or Linda Pickle at [picklel@mail.nih.gov](mailto:picklel@mail.nih.gov), Division of Cancer Control and Population Sciences]

15. Office of Behavioral & Social Sciences Research (OBSSR): The goal of this new PAR (Participatory Research, at <http://grants2.nih.gov/grants/guide/pa-files/PAR-05-026.html>) is to support **research on health promotion,**

**disease prevention, and health disparities that is jointly conducted by communities and researchers.**

This PAR invites NIH research project grant (R01) and exploratory and/or developmental grant (R21) award mechanisms. Community-based participatory research (CBPR) is defined as scientific inquiry conducted in communities and in partnership with researchers. The process of scientific inquiry is such that community members, persons affected by the health condition, disability or issue under study, or other key stakeholders in the community's health have the opportunity to be full participants in each phase of the work. CBPR is characterized by substantial community input in the development of the grant application. Release Date: December 2, 2004, and Letters of Intent Receipt Date (s): April 17, 2005, 2006, 2007. [Application instructions are at <http://grants.nih.gov/grants/funding/phs398/phs398.html> in an interactive format; for further assistance contact GrantsInfo at (301) 435-0714 or email [GrantsInfo@nih.gov](mailto:GrantsInfo@nih.gov)]

**Substance Abuse and Mental Health Services Administration**

<http://www.samhsa.gov>

**16. Youth Substance Use and Family Income Report.**

Based on SAMHSA's 2003 National Survey on Drug Use and Health, 18% of youths age 12 to 17 (4.6 million) lived in families with annual incomes of less than \$20,000 per year, 35% (8.8 million) in families with incomes between \$20,000 to \$49,999, 19% (4.8 million) in families with incomes between \$50,000 to \$74,999, and 27.6% in families with incomes of \$75,000 or more. The lower the family income, the more likely that the youths had used cigarettes or an illegal drug in their lifetime. Youths in families with annual incomes of less than \$20,000 were equally likely to have ever used alcohol or inhalants as those in families with incomes of \$75,000 or more.

**C. Historically Black Colleges and Universities (HBCUs) and Other Minority Health Activities**

[A listing of HBCUs may be found at the website:

<http://www.smart.net/~pope/hbcu/hbculist.htm>]

17. The rate of diabetes among blacks in the United States is twice that of the general population (13 vs. 6.2 percent). Deaths from diabetes and certain types of diabetes complications are more common among blacks than among whites. Previous studies with predominantly white subjects found a positive association between

diabetes and depression, but in a recent study involving only black subjects, no such association was found. The researchers did find that blacks who had both diabetes and depression used more acute care health services, such as emergency room visits and inpatient hospitalizations. This pattern of use may lead to higher health care costs among patients with diabetes who are depressed, regardless of race. The study was supported by the Agency for Healthcare Research and Quality (HS11131). [See "Diabetes, depression, and healthcare utilization among African Americans in primary care," by Dr. Husaini, Pamela C. Hull, M.A., Darren E. Sherkat, Ph.D., and others, in the April 2004 *J National Med Assoc* 96(4): 476-484]

**D. Other Related Agency or GIS News**

18. From Graham Moon, Editor, *Health & Place*: We are pleased to inform you of an exciting new development for *Health & Place*. As of December 2004, we will begin using the Elsevier Editorial System, an online submission and review system which is straight-forward and user-friendly. Using Elsevier Editorial System, the whole submission and review process will be handled electronically. We expect using this system will shorten publication times and have a very positive impact on the journal. [See: <http://ees.elsevier.com/jhap>]

**III. GIS Outreach**

[Editor: All requests for Public Health GIS User Group assistance are welcomed; readers are encouraged to respond directly to colleagues]

**Problem:** Data are available for Washington DC, on African American inequalities on the variables of overweight and obesity. I would like to compare these findings to the work I'm doing in a major city in the mid-west. The problem is that the DC data are at the ward level or ZIP code level. Several ZIP codes constitute a ward (though some ZIP codes cross wards). Is there any way to infer the DC data to census tracts?

**Guidance:** This is a classical disaggregation problem. There are several ways to disaggregate data, none, unfortunately, are perfect. Most are based on the first level assumption that the data are uniformly distributed within the larger area; in this case, the ward. This is rarely the case when disaggregating spatially. Since you have at least one data characteristic in both datasets, in this case 'African American', you can use it as a weighting factor to aid in the disaggregation process. The general procedure would proceed as follows:

1. Establish a relationship between wards and census

**PUBLIC HEALTH GIS NEWS AND INFORMATION**

January 2005 (No. 62)--11<sup>th</sup> year of continuous reporting

tracts. Fortunately, for the District this has been done. From the DC Office of Planning’s web site one can get a table and map showing this relationship (See: <http://planning.dc.gov/planning/cwp/view,a,3,q,570104.asp>). Otherwise, you would have to manually prepare such a relationship file. [Sidebar: For many political areas in the U.S., one can obtain from the U.S. Census Bureau web site the file of geographic headers for the statistical data. This file, along with the technical specifications file OSF3\_geo\_header.doc, i.e., the geographic header data dictionary, allows one to establish a relationship between census tracts and other recognized geographic units for that area.]

2. There are two ways to proceed from here: a) The **whole tract method** (*Can be used in your case, but not necessary, since the DC government table provides knowledge of which tracts are split*). Assign whole tracts to wards based on ‘eye-balling’ the ‘best assignment’-whatever that means. Once a tract is assigned to a ward, it cannot be assigned to another. Then using the amount of the weighting factor in each tract, assign the ward data to the tracts. This is easily done via a spreadsheet. **Example:** Given Ward A with 4,000 units of data (data to be disaggregated) consisting of tracts 37, 54, 55, and 63 with 2,000, 1,500, 1,000, and 2,500 population respectively. Then one derives,

Ward A			
Tract ID	Weighting factor units*	Percent of total**	Allocated data units***
37	2000	28.6	1144
54	1500	21.4	856
55	1000	14.3	572
63	2500	35.7	1428
Totals	7000	100.0	4000

\* in this case, African Americans  
 \*\* this is weighting factor units/total weighting factor units, e.g., (2000\*100)/7000 = 28.6  
 \*\*\* the percent of data unit from the ward allocated to the tract, e.g., 4000\*28.6/100 = 1144

b) The **split-tract method**. This is similar to the whole tract method, except that split tracts are assigned to each ward containing all or part of the tract and a separate weighting factor is determined for each part. The difficulty is apportioning the weighting factor. If more characteristics of the population of interest are known at both the tract and ward level, they may aid in

apportioning the weighting factor. Also, a map showing the census tract and ward boundaries together may be used to estimate how much of each census tract’s area is within each ward. This latter also assumes a uniform distribution of the weighting factor data over the tract area. **Example:** Given Ward B with 4,000 units of data (data to be disaggregated) consisting of tracts 39, 53, 58, and 61 with 2,000, 1,500, 1,000, and 2,500 population respectively. Except that tract 39 only has 50% of its weighting factor in the ward. Then one derives,

Ward B					
Tract ID	Weighting factor units*	Percent in ward	Working weight units	Percent of total**	Allocated data units***
39	2000	50.0	1000	16.7	668
53	1500	100.0	1500	25.0	1000
58	1000	100.0	1000	16.7	668
61	2500	100.0	2500	41.6	1664
Total	7000		6000	100.0	4000

\* in this case, African Americans  
 \*\* this is working weight units/total working weight units, e.g., (2500\*100)/6000 = 41.6  
 \*\*\* the percent of data units from the ward allocated to the tract, e.g., 4000\*41.6 /100 = 1664

**Summary:** Disaggregations of this nature must be used with caution. While this is a valid and useful technique, errors introduced or propagated by application of the technique must be accounted for in any analysis based on the results. If either the larger area value, ward, or the smaller area weighting factor, census tract data, are based on sample data extrapolated to the whole, the results may be of even less validity than any error caused by the simple assumption of uniform distribution of variables over whole areas.

\*\*\*\*\*

**IV. Public Health GIS Presentations and Literature**  
**NCHS/CDC**

**Cartography and GIS Guest Lecture Series**

**“Spatial Distribution of Obesity, Risk Factors, and Chronic Diseases, in the District of Columbia,”** John O. Davies-Cole, Ph.D., MPH, CPM, Chief, Bureau of Epidemiology & Health Risk Assessment, District of Columbia Department of Health. Join us **February 9, 2005, starting 2:00PM (EST), RM 1404, at NCHS!** Abstract: Obesity has reached epidemic proportions in the United States and in the rest of the world. Being overweight or obese are among the most pressing new

health concerns faced in the United States and other parts of the world. There are multiple adverse conditions that appear to be associated with overweight and obesity. Among these conditions are diabetes, hypertension, cardiovascular disease, cancer, sleep apnea, and other diseases. Diabetes, hypertension, and cardiovascular diseases are among the leading cause of morbidity and mortality in the District of Columbia.

**Objective.** In order to properly plan, manage and monitor any public health program, it is vital that up-to-date, relevant information is available to decision-makers at all levels of the public health system. This study was therefore designed to use Geographical Information Systems (GIS) to determine the distribution of obesity and its various risk factors by ward, and correlate this with diabetes and hypertension.

**Methods.** Data were obtained from the District's Behavioral risk Factors Surveillance System (BRFSS) surveys from 1997 and 2002. Obesity was expressed as body-mass index (BMI), which is the weight in pounds divided by the square of the height in inches, multiplied by 703. A BMI < 25 is categorized as normal, BMI of 25.0-29.9 as overweight, and BMI > 30 as obesity. The distribution of obesity in the District was mapped using the ArcGIS software. Distribution of hypertension and diabetes were compared with wards in the District with high rates of obesity.

**Results.** The highest rates of obesity were found in wards 4, 5, 7, and 8. Increase in obesity was positively correlated with increase in hypertension and diabetes. Wards with high rates of obesity also had high rates of hypertension and diabetes.

**Conclusion.** Using GIS allows policy makers to easily visualize the problem of obesity in the District in relation to various diseases and risk factors. Intervention programs for obesity should be directed to wards with the highest rates, especially those with high rates of diabetes and hypertension. [Author: John at john.davies-cole@dc.gov]

\*\*\*\*\*

**CDC's Emerging Infectious Diseases, MMWR and Preventing Chronic Disease**

**(1) Emerging Infectious Diseases**

**Emerging Infectious Diseases (EID)** is indexed in Index Medicus/Medline, Current Contents, Exerpta Medica, and other databases. EID is part of CDC's plan for combating emerging infectious diseases; one of the main goals of CDC's plan is to enhance communication of

public health information about emerging diseases so that prevention measures can be implemented without delay.

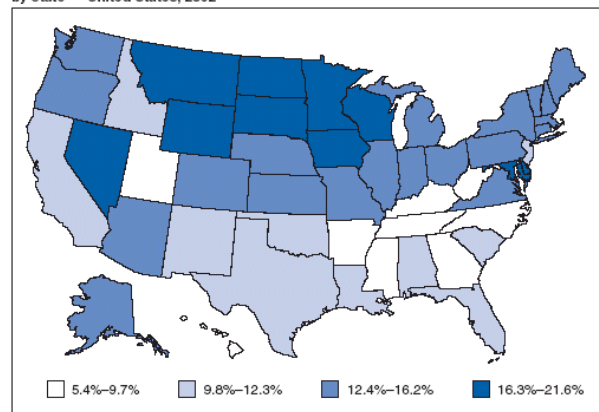
The January 2005 edition 11(1) of EID is online and includes articles on SARS, Lyme disease, dengue, and a review of Daniele Dionisio's "Textbook-Atlas of Intestinal Infection in AIDS." Note that the theme of the December 2004 edition 10(12) is Zoonotic Diseases and includes a summary of the conference on "Human Health Safety of Animal Feeds Workshop." Approximately 150 scientists attended the workshop at the CDC on January 23, 2004, to discuss issues pertaining to Salmonella-contaminated animal feed and their impact on public health. A compact disk, including all of the presentations, agenda, and list of participants from the workshop, is available from Heather Bair at hhb9@cdc.gov. [The contents of the compact disk are accessible to anyone at <http://www.cdc.gov/narms/mce/animalfeeds.htm>; Also, see EID site: <http://www.cdc.gov/ncidod/EID/index.htm>]

\*\*\*\*\*

**(2) Morbidity and Mortality Weekly Report**

**Selected articles from CDC's Morbidity and Mortality Weekly Report (MMWR):** [Readers may subscribe to MMWR and other CDC reports, without cost, at site <http://www.cdc.gov/subscribe.html> as well as access the MMWR online at website <http://www.cdc.gov/mmwr>]. Note: Efforts are made to include themes which may lend themselves

FIGURE. Prevalence\* of binge† drinking among childbearing-aged women (18–44 years), by state — United States, 2002



\* Estimated prevalence population weighted to represent U.S. women aged 18–44 years (U.S. average: 12.4%; state range: 5.4%–21.6%).  
† Five or more drinks on any one occasion.

to spatial distribution.] Vol. 53(50)- Alcohol Consumption Among Women Who Are Pregnant or Who Might Become Pregnant: United States, 2002; Vol. 53(49)- Estimated Influenza Vaccination Coverage Among Adults and Children, United States, September 1- November 30, 2004; Vol. 53(48)- Publication of Health,

United States, 2004 with Chartbook on Trends in the Health of Americans; Brief Report: Tuberculosis Outbreak in a Low-Incidence State, Indiana, 2001-2004; Vol. **53(47)**- Diagnoses of HIV/AIDS, 32 States, 2000-2003; Number of Persons Tested for HIV, United States, 2002; Vol **53(46)**- Epidemiology in Action: Intermediate Methods Course; Epi Info: A Course to Develop Public Health Software Applications; Vol. **53 (45)**- Prevalence of Overweight and Obesity Among Adults with Diagnosed Diabetes, United States, 1988-1994 and 1999-2002; Prevalence of Visual Impairment and Selected Eye Diseases Among persons Aged >50 Years, With and Without Diabetes, United States, 2002; Vol. **53(44)**- State-Specific Prevalence of Current Cigarette Smoking Among Adults, United States, 2003; Vaccination Coverage Among Children Entering School, United States, 2003-04 School Year; Awareness of Family Health History as a Risk Factor for Disease United States, 2004; Maps of National, State, and County Data Now Available on CDC WONDER; Vol. **53(43)**- Influenza and Pneumococcal Vaccination Coverage Among Persons Aged >65 Years and Persons Aged 18-64 Years with Diabetes or Asthma, United States, 2003; Acute Hepatitis B Among Children and Adolescents, United States, 1990-2002; Blood Mercury Levels in Young Children and Childbearing-Aged Women, United States, 1999-2002; Vol. **53 Supplement**- Syndromic Surveillance: Reports from a National Conference, 2003.

### ***(3) Preventing Chronic Disease***

The special focus for the January 2005 (vol. 2) issue is on the **Border Health Strategic Initiative** (*Border Health ¡SI!*) along the U.S.-Mexico border in Arizona. Related articles are indicated with the **¡SI!** icon. Selected articles and abstracts are available in both English and Spanish. Themes range from diabetes to depression to cancer. [See: <http://www.cdc.gov/pcd/issues/2005/jan/toc.htm>]

### ***Titles***

**The socioeconomic gradient and chronic illness and associated risk factors in Australia**, Glover JD, Hetzel DMS, Tennant SK, *Australia and N Zealand Health Pol* 2004 1(8) DEC 2004;

**A GIS toolkit for exploring geographies of household activity/travel behavior**, Buliung RN and Kanaroglou PS, *J Trans Geogr* 12(4) DEC 2004;

**Unpacking analyses relying on area-based data: are assumptions supportable?** Glover JD, Rosman D, Tennant SK, *Int J Health Geogr* 3(30) DEC 2004;

**GIS and genetic algorithms for HAZMAT route planning with security considerations**, Huang B, Cheu RL, Liew YS, *Int J Geogr Inf Sci* 18 (8): 769-787 DEC 2004;

**Small area mapping of prostate cancer incidence in New York State (USA) using fully Bayesian hierarchical modeling**, Johnson GD, *Inter J Health Geogr* 3(29) DEC 2004;

**Current practices in spatial analysis of cancer data: data characteristics and data sources for geographic studies of cancer**, Boscoe FP, Ward MH, Reynolds P, *Int J Health Geogr* 3(28) DEC 2004;

**Population estimation error and its impact on 1991-1999 cancer rates**, Boscoe FP and Miller BA, *Prof Geog* 56(4) NOV 2004;

**Vulnerability assessments of Colorado ground water to nitrate contamination**, Ceplecha ZL, Waskom RM, Bauder TA, Sharkoff JL, Khosla R, *Water Air Soil Poll* 159 (1): 373-394 NOV 2004;

**Spatial scale and population assignment choices in environmental justice analyses**, Most MT, Sengupta R, Burgener MA, *Prof Geogr* 56 (4): 574-586 NOV 2004;

**Snail density prediction for schistosomiasis control using ikonos and ASTER images**, Xu B, Gong P, Biging G, Liang S, Seto E, Spear R, *Photogramm Eng Rem Sens* 70 (11): 1285-1294 NOV 2004;

**Geographic Information Systems and Public Health: Accomplishments and Horizons**, Croner CM, Lenahan T, Salling MJ, Weiner GD, in *Proceedings GeoHealth 2004* [eds. Skelly C, White P], Institute of Environmental Science & Research, Porirua, New Zealand, NOV 2004, pps. 22-31;

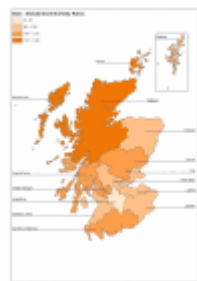
**Accuracy and repeatability of commercial geocoding**, Whitsel EA, Rose KM, Wood JL, Henley AC, Liao DP, Heiss G, *Am J Epidemiol* 160(10): 1023-1029 NOV 2004;



**Visualization And Exploratory Analysis Of Epidemiologic Data Using A Novel Space Time Information System**, Avruskin GA, Jacquez GM, Meliker JR, Slotnick MJ, Kaufmann AM, Nriagu JO, *Int J Health Geogr* 3:26 NOV 2004;

**An Ecologic Study of Prostate-specific Antigen Screening and Prostate Cancer Mortality in Nine Geographic Areas of the United States**, Shaw PA, Etzioni R, Zeliadt SB, Mariotto A, Karnofski K, Penson DF, Weiss NS, Feuer EJ, *Am J Epidemiol* 2004 160(11):1059-1069;

**A Spatially Disaggregate Analysis of Road Casualties in England**, Noland RB, Quddus MA, *Accident Anal Prev* 36 (6): 973-984 NOV 2004;



**Trends in suicide in Scotland 1981-1999: age, method and geography**, Stark C, Hopkins P, Gibbs D, Rapson T, Belbin A, Hay A, *BMC Public Health* 2004 4(49) OCT 2004; [Map shown- Male Standardised Mortality Ratios for Suicide and Undetermined Deaths in Scotland, 1981-1999. Standardised Mortality Ratios were

calculated for National Health Service (NHS) administrative areas, with 95% confidence intervals]

**Proximity of residence to trichloroethylene-emitting sites and increased risk of offspring congenital heart defects among older women**, Yauck JS, Malloy ME, Blair K, Simpson PM, McCarver DG, *Birth Defects Res A* 70(10): 808-814 OCT 2004;

**Spatial variation in nitrogen dioxide in three European areas**, Lewne M, Cyrus J, Meliefste K, Hoek G, Brauer M, Fischer P, Gehring U, Heinrich J, Brunekreef B, Bellander T, *Sci Total Environ* 332 (1-3): 217-230 OCT 1 2004;

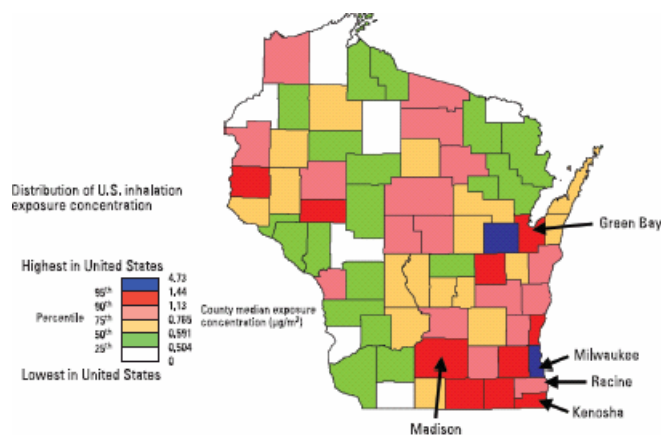
**Application of geographic information systems for mapping and cluster analysis of Babesia microti seroprevalence in CT blood donors**, Johnson ST, Cable RG, Trouern-Trend J, Gill JE, Leiby DA, Brownstein JS, Fish D, *Transfusion* 44 (9): 11A-11A Suppl. S SEP 2004;

**Lack of spatial autocorrelation in fine-scale**

**distributions of Ixodes scapularis (Acari:Ixodidae)**, Pardanani N, Mather TN, *J Med Entomol* 41 (5): 861-864 SEP 2004;

**Spatial accessibility and equity of playgrounds in Edmonton, Canada**, Smoyer-Tomic KE, Hewko JN, Hodgson MJ, *Can Geogr-Geogr Can* 48 (3): 287-302 FAL 2004;

**Wisconsin's Environmental Public Health Tracking Network: information systems design for childhood cancer surveillance**, Hanrahan LP, Anderson HA,



Busby B, Bekkedal M, Sieger T, Stephenson L, Knobloch L, Werner M, Imm P, and Olson J, *Envir Health Perspect (Mini-Monograph)* 112(14) OCT 2004;

**Evaluation of reporting timeliness of public health surveillance systems for infectious diseases**, Jajosky RA, Groseclose SL, *BMC Public Health* 2004 4(29) JUL 2004;

**Geographic correlation between deprivation and risk of meningococcal disease: an ecological study**, Williams CJ, Willocks LJ, Lake IR, Hunter PR, *BMC Pub Health* 2004 4(30) JUL 2004;

**Multilevel modelling and malaria: a new method for an old disease**, Mauny F, Viel JF, Handschumacher P, and Sellin B, *Int J Epidemiol* 33: 1337-1344 JUL 2004.

**Immune systems, geographic information systems (GIS), environment and health impacts**, Blanco GA, Cooper EL, *J Toxicol Env Heal* 7(6): 465-480 2004;

**Monitoring environmental indicators of vector-borne**

**disease from space: a new opportunity for RADARSAT-2**, Kaya S, Sokol J, Pultz TJ, *Can J Remote Sens* 30 (3): 560-565 JUN 2004.

#### ***New Journal***

***Australia and New Zealand Health Policy*** is a new journal which aims to promote debate and understanding about contemporary health policy developments in Australia and New Zealand. Health policy is regularly in the media and is a high profile issue at election times. In Australia the health system has been characterised by conflicts over values and policy choices over the decades. So pervasive is this conflict that Sax entitled his 1984 book about health services, "A Strife of Interests". Health policy in New Zealand has also had a turbulent time over the past decade. Health policy changes in Australia and New Zealand are thus ripe for analysis. *Australia and New Zealand Health Policy* aims to provide a prestigious venue for analysis and critique of health policy in the two countries. [See: Editorial, "Australia and New Zealand Health Policy: a new journal, Stephen J Duckett, *Australia and New Zealand Health Policy* 1(1) DEC 2004]

#### ***New Journal***

##### **Particle and Fibre Toxicology**

This Editorial is to announce *Particle and Fibre Toxicology*, a new Open Access, peer-reviewed, online journal published by BioMed Central. The field of particle and fibre toxicology has a long and famous history stretching from Agricola and Paracelsus in the 15th and 16th century to the challenges of the 21st century -nanoparticles, nanotubes and particulate matter (PM10) to name just three. Throughout this time there has been no single journal dedicated to the **toxicology of particles and fibres** and this is finally corrected by the launch of *Particle and Fibre Toxicology*. The rationale for *Particle and Fibre Toxicology* rests on this need for a single multi-disciplinary journal that can cover all research relevant to particle and fibre toxicology, from hygiene studies, through particle generation and characterisation, to animal, cell and human toxicology studies, dosimetry and modelling. The editorial also deals with the philosophy and practicalities of Open Access publishing, the journal's peer-review policy and conflict-of-interest. *Particle and Fibre Toxicology* is aimed at bringing together multi-disciplinary research findings towards a better understanding of how particles and fibres adversely affect the lungs and the body generally.

We hope that the launch of the new journal will aid in the advance of this important discipline to the greater benefit of occupational and public health and invite scientists working in this key discipline to submit their research. [Source: Particle and Fibre Toxicology, a new journal to meet a real need, Ken Donaldson and Paul JA Borm, *Particle and Fibre Toxicology* 1(1) DEC 2004]

#### **V. Related Census, HHS, FGDC and Other Federal/State Developments**

##### ***Report 9: Comparing Social Characteristics with Census 2000***

##### **American Community Survey, U.S. Census Bureau**

The American Community Survey (ACS) is one of three program components required to achieve the 2010 Census reengineering strategy goals. The ACS replaces the Census Sample, the once-a-decade collection of detailed social, economic, and housing characteristics for demographic groups, that occurs as part of the decennial census, with an ongoing survey that produces annual and multi-year estimates of these same characteristics.

This report is one in a series of reports designed to document the differences that exist between the C2SS and the Census 2000 estimates. The first report, Comparing General Demographic and Housing Characteristics, compared results for sex, age, relationship, Hispanic origin, race, tenure, and housing occupancy status (U.S. Census Bureau, 2004). The second report focused on the comparison of distributions for selected economic characteristics such as Employment status and Income for the C2SS and the Census 2000 Sample. This report focuses on the comparison of distributions for selected social characteristics This report contains tables comparing the C2SS and the Census 2000 Sample estimates for the following social characteristics that are included in the social characteristics profile table: • **School enrollment;** • **Educational attainment;** • **Marital status;** • **Grandparents as caregivers;** • **Veteran status;** • **Disability;** • **Place of birth, citizenship status, and region of birth;** • **Language spoken at home; and** • **Ancestry.**

The Census 2000 Supplementary Survey (C2SS) was conducted as part of Census 2000 to demonstrate the operational feasibility of ACS methods. C2SS and Census 2000 Sample distributions from selected sub-national areas had few substantive differences. We compared the distributions from C2SS and the Census

## PUBLIC HEALTH GIS NEWS AND INFORMATION

January 2005 (No. 62)--11<sup>th</sup> year of continuous reporting

11

2000 Sample for 18 diverse ACS test counties and found that 22 percent of the time, the differences were statistically different, but only eight percent of the time, the differences were two percentage points or greater. Forty of those differences were less than half of a percentage point, and only seven of them were one percentage point or more. Five of those seven differences greater than one percentage point were associated with the disability and ancestry tables—the other eight tables combined for only two differences of one percentage point or more.

This is important to understand as users of social characteristics data begin to move from Census 2000 Sample data to ACS data. **Data users would in general come to similar conclusions, implement similar programs, and allocate funds in a similar way regardless of which data set they used.** For example, for the 18 counties studied, if the Census 2000 Sample said a characteristic was high, generally so did the C2SS. However, more research comparing Census 2000 Sample and C2SS data at sub-national levels, such as states or metropolitan areas, would be useful to more fully understand ACS data and how it relates to decennial census data.

**Characteristics of Counties Used in Sub-National Comparisons.** These counties represent areas with populations that meet the 65,000 minimum required for yearly data-release. They are a diverse set of areas that were chosen to be test sites because they vary geographically and demographically. They reflect both urban and rural areas and range in household population size from 70,533 in Sevier, TN to over 1.6 million in Broward, FL. Population density also varies from 20 persons per square kilometer in Yakima, WA to nearly 12,000 persons per square kilometers in Bronx, NY. Demographically, the sites include areas with 30 percent or more of the population reporting as Hispanic (Yakima, Tulare, Pima, and Bronx). Several sites include high proportions of the foreign born (San Francisco, Bronx, and Broward) and many sites include high percentages of persons speaking a language other than English. [See: <http://www.census.gov/acs/www/AdvMeth/Reports.htm>; released June 2004]

\*\*\*\*\*

**Summary of Recent Congressional (108<sup>th</sup>) Activity on Issues of Interest to NCHS (and CDC and DHHS), December 2004...**...excerpts. Both the House and the

Senate Appropriations Committee reports contained items of interest, including the following: expressed concern with the adequacy and overall coordination of the various programs that collect, analyze, and report the health statistics necessary for policy development and public health interventions (Senate); urged CDC to reexamine the restrictions placed on external researchers who are independently validating CDC's internal vaccine safety research and directed CDC to make available original data sets to researchers assessing vaccine safety in a manner that assures compliance with the Privacy Rule (House); encouraged CDC to continue its efforts to collect national and local data on the incidence and prevalence of asthma (House and Senate); expressed support for the national violent death reporting system (House and Senate); encouraged CDC to expand research on the causes of preterm birth and prevention of preterm delivery for women at risk (House); encouraged CDC to expand the Pregnancy Risk Assessment Monitoring System to allow CDC to estimate risk factors for preterm birth (Senate); supported a demonstration project to link existing birth defects surveillance systems and fetal death registries (Senate); urged CDC to conduct an epidemiological study of the long-term impact of childhood and adolescent obesity (House); and supported the continuation of the epidemiologic study on inflammatory bowel disease (Senate).

Finally, the new CDC organizational structure was, in effect, ratified by the Congress, as funding was appropriated in accordance with the new coordinating center structure. However, explicit language was included in the conference report preventing CDC from changing the status of NIOSH, retaining its status as a direct report to the CDC Director.

**Welfare Law Reauthorization.** In late September the Congress cleared and the President signed into law yet another—the eighth—extension of the welfare reform law. This law (P.L. 108-308) temporarily extends the welfare law through March 31, 2005 without change. An attempt in the Senate to redirect funds that reward states for reductions in out-of-wedlock births (as called for in current law) to marriage promotion activities failed. The Congress has struggled since 2002, when the welfare reform act was originally set to expire, to come to consensus on how to reauthorize the welfare program, but disputes over work requirements and child care assistance continue to stymie these efforts.

## PUBLIC HEALTH GIS NEWS AND INFORMATION

January 2005 (No. 62)--11<sup>th</sup> year of continuous reporting

12

Meanwhile, a Senate bill (S. 2213) would require the Secretary to conduct research on the [well-being of children under the welfare program](#). Introduced by Senator Rockefeller (D-WV), this bill would require the Secretary, after consulting with the Federal Interagency Forum on Child and Family Statistics, to develop indicators to assess child well-being in each state, including indicators of health and safety and social and emotional development. Statistically representative national and state level data with respect to the indicators would be collected annually.

The bill endorses [telephone surveys](#), citing the National Immunization Survey and the National Survey of Children with Special Health Care Needs, as means to obtain state-specific data on children. No action has occurred on this bill.

**Nutrition and Physical Activity.** The Congress is acutely aware of the problem of [overweight](#). Hearings, statements on this issue, and proposals to address it abound. The President signed into law (P.L. 108-265) in June a bill to reauthorize school lunch and child nutrition programs as well as WIC. This law increases the emphasis on combating overweight in general and focuses specifically on [healthy eating and physical activity](#). The law establishes a grant program for states for improved nutrition education, including the collection, analysis, and dissemination of data on the extent to which children are overweight and physically inactive.

Bills were introduced in both chambers [S. 2551 (also sponsored by Senator Frist)/H.R. 4941] to establish a congressional council on [childhood obesity](#) to develop model plans that schools could adopt to reduce the level of childhood obesity. Another new bill (S. 2894), introduced by Senator Kennedy (D-MA), would have: established a federal commission to coordinate federal activities related to obesity prevention across federal agencies; mandated an Institute of Medicine study on the marketing of food to children; and provided grants to implement programs that prevent obesity, including programs that are school and community-based. The bill defined “obesity” and “overweight” as having the meaning that CDC gives to these terms. (This was a change from earlier bills which would have codified in law CDC’s current definitions of “overweight” and “obese.”)

**Other Health Promotion Activities.** In October,

a youth suicide bill was signed into law (P.L. 108-355). It authorizes additional SAMHSA activities to prevent [youth suicides](#) including grants to states, colleges, and universities for suicide intervention programs. Two health promotion resolutions of interest also were approved. The Senate endorsed a resolution (S. Res. 476) recognizing activities that promote awareness of the problem of [preterm birth](#) (bills introduced earlier in the session to address this problem were not acted on).

Companion bills were introduced to build on CDC-funded activities related to [environmental public health tracking of chronic diseases](#). These bills (S. 2953/H.R. 5335) called for the establishment of a coordinated environmental health network to collect and analyze data on disease relative to environmental factors and environmental exposures. In establishing the network, CDC would have been required to build onto a variety of existing data systems including NHANES and state vital statistics systems. No action occurred on these bills.

In spite of strong congressional interest in [health disparities](#), no action was taken on any of the bills introduced to address this problem. Bills introduced near the end of the session (S. 2594/H.R. 5338) would have required health-related programs receiving funding from HHS to collect data on race, ethnicity, education level, and primary language of program applicants using the 1997 OMB categories for race and ethnicity. The HHS Office of Minority Health would have been given responsibility for developing standards for data collection on written and spoken language.

**Birth Certificate Standards.** While primarily focused on intelligence issues, the 9-11 Commission addressed other related issues as well. Commission recommendations issued in July, for example, recommended that the federal government set standards for the issuance of birth certificates and sources of identification, such as driver’s licenses. A variety of bills incorporating some or all of the commission’s recommendations were subsequently introduced, most of which mandated [minimum birth certificate standards](#). The Senate and House both approved intelligence reform bills that included a mandate for minimum standards, but the language of the provisions was not the same.

In spite of an intense effort to wrap up the intelligence overhaul bill in the November lame-duck session, an apparent agreement among conferees

## PUBLIC HEALTH GIS NEWS AND INFORMATION

January 2005 (No. 62)--11<sup>th</sup> year of continuous reporting

13

unraveled at the last minute over how much power to give to a national intelligence director and how to deal with contentious House provisions related to immigration. Given the progress made during this session and ongoing pressure to resolve the unsettled issues however, the Congress returned in December to finish up the bill. The [compromise bill](#)-endorsed by the President and approved by both the House and Senate in early December-includes the Senate language on birth certificate standards.

Added to the Senate bill during floor debate, this language requires the Secretary of HHS, within one year of enactment, to issue regulations establishing minimum standards for birth certificates for use by federal agencies for official purposes. The minimum standards are required to include: [certification by the state or local issuing agency](#); [the use of safety paper, a seal, and other features to preclude tampering for fraudulent purposes](#); [the establishment of requirements for proof of identity for issuance of birth certificates](#); and [standards for the processing of birth certificates](#). The bill also requires the accommodation of differences between states in terms of record storage and birth certificate production. HHS is required to consult with the Secretary of Homeland Security, SSA, states, and appropriate federal agencies in developing the federal standards.

The final bill authorizes grants to states to assist them in meeting the federal standards in general, and in [computerizing their birth and death records, developing the capacity to match birth and death records, and noting the fact of death on birth certificates of the deceased](#).

**Other Data Issues.** A number of new bills addressing the interoperability of health care information technology were added to those already on the table. Neither new nor old bills were acted on. Senator Gregg (R-NH) introduced a bill (S. 2710) that would have established an Office of Health Information Technology in the HHS Office of the Secretary, charged with adopting health information technology standards. The Secretaries of HHS, DOD, and the VA would have been charged with establishing [uniform health care quality measures](#) to assess care delivered across federally-supported programs. The bill also would have required HHS to ensure that demographic data were collected for federal and state health delivery programs and that these data were included in the National Health Disparities Report.

A bill (S. 2907) by Senator Dodd would have created an Office of Health Information Technology in the White House to implement a strategy for expanding the use of information technology in health care and to develop technical standards for health information technology. The bill also would have called for the development of a standard set of health care quality measures. [Contact: Kathryn Moss, Program Analyst, Office of Planning, Budget and Legislation, NCHS at [kgm0@cdc.gov](mailto:kgm0@cdc.gov)]

\*\*\*\*\*

### **Federal Geographic Data Committee (FGDC)**

[The Federal Geographic Data Committee (FGDC) is an interagency committee, organized in 1990 under OMB Circular A-16, which promotes the coordinated use, sharing, and dissemination of geospatial data on a national basis. The FGDC is composed of representatives from seventeen Cabinet level and independent federal agencies. The FGDC coordinates the development of the National Spatial Data Infrastructure (NSDI). The NSDI encompasses policies, standards, and procedures for organizations to cooperatively produce and share geographic data. The 19 federal agencies that make up the FGDC, including HHS, are developing the NSDI in cooperation with organizations from state, local and tribal governments, the academic community, and the private sector. See <http://www.fgdc.gov>]

### **The Federal Geographic Data Committee: Historical Reflections-Future Directions**

[Written earlier in 2004, by now retired Bruce McKenzie, former Deputy Staff Director, FGDC]

In July 1973 the Report of the Federal Mapping Task Force on Mapping, Charting, Geodesy, and Surveying was published, representing the analyses and recommendations of representatives from the Office of Management and Budget (OMB), the Forest Service, the National Oceanic and Atmospheric Administration (NOAA), the Defense Mapping Agency (DMA), and the U.S. Geological Survey (USGS). They found that most of the major cartographic agencies were in the process of developing and implementing computer-assisted automated systems, although no complete system had been developed at that time.

The Task Force recognized that there were fast-growing cartographic requirements to relate points and areas on the ground to the social, economic, and ecological framework of our society and to present these relationships in digital form. The advent of the digital computer was ushering in a new revolution in mapping.

### **From Digital Evolution to Revolution**

Over the decade following the Task Force Report

## PUBLIC HEALTH GIS NEWS AND INFORMATION

January 2005 (No. 62)--11<sup>th</sup> year of continuous reporting

14

there was extensive research, development and application of computer-assisted cartography in government agencies. Fledgling digital mapping programs were initiated in the late 1970's in many government agencies. Within the Department of the Interior (DOI), the USGS started its "Digital Mapping Program" and the Bureau of Land Management (BLM) initiated their "Automated Land and Mineral Record System." Other (DOI) Bureaus, while not having major automated cartography programs, were using the technology for project specific purposes. Soon advances in the technology coupled with reduced computer costs fueled an explosion in digital cartographic programs government-wide.

To assess the magnitude and growth of digital cartographic activities in the Federal government the OMB initiated two studies. The first study, conducted in 1980 by the Office of Science and Technology Policy, identified the scope of Federal digital cartographic activities and assessed the next course of action in this evolving field. Recommendations from this study focused on establishing a centralized data base and a schema for building this data base.

The second study was conducted by the General Accounting Office (GAO) in 1982. Three major findings resulted from this study: 1) it showed that there was a substantial duplication of effort in the Federal community, which was expected to increase, 2) there was a lack of prescribed standards, and 3) there was inadequate interagency coordination. It was following the completion of this study that OMB issued a memorandum in 1983 establishing a formal committee with the specific charge of coordinating digital cartographic activities among Federal agencies.

### From Revolution to Coordination

This newly established committee was called the Federal Interagency Coordinating Committee on Digital Cartography (FICCDC). The DOI was identified as chair of this committee that included representatives from the Departments of Agriculture, Commerce, Defense, Energy, Housing and Urban Development, State, Transportation, Federal Emergency Management Agency, and National Aeronautics and Space Administration. The FICCDC was specifically charged to "improve the use of digital cartographic base data within the Federal government and to provide a framework for its proper management." Within this context the

committee addressed the key issues of data base development, standards, and duplicative effort.

By the late 1980's the distinction between the fields of automated cartography and Geographic Information Systems (GIS) was becoming blurred. The use of this automated technology was now omnipresent. New and growing administrative and regulatory responsibilities assigned to agencies were placing tremendous pressure on existing information delivery systems. Many new computerized spatial data handling technologies, such as GIS had emerged as cost-effective tools for solving complex geographical problems and assisting decision-makers in finding solutions to real-world management challenges.

In recognition of these changes taking place, the OMB in 1989, renewed the charter of the FICCDC and tasked the committee to look at the future of spatial data coordination in the Federal Government. Specifically, 1) to prepare an analysis evaluating the FICCDC mission as it related to an expanded role in coordinating Federal use of digital spatial data, 2) to provide recommendations for appropriate FICCDC activities beyond its current charter, and, additionally 3) to conduct a review of and prepare recommendations for potential revisions to OMB Circular A-16, Coordination of Surveying and Mapping Activities, to incorporate Federal activities relating to digital spatial data.

In December 1989, the FICCDC held a two-day "Forum on Spatial Data Coordination" bringing together representatives from 60 organizations/agencies to discuss, debate, and formulate recommendations to affect the future shape and character of coordination. Specific recommendations from this Forum were to 1) increase the breadth of coordination of Circular A-16 from 3 categories of spatial data to 10 categories, 2) change the committee name to reflect this broader coordination responsibility, and 3) incorporate the new committee and its expanded responsibilities within a revised OMB Circular A-16.

### From FICCDC to FGDC

OMB issued a revised Circular A-16 on October 19, 1990 formally establishing the FGDC, and chaired by the Secretary of the Interior, to look at the broader national landscape (with involvement of Federal, State, and local governments, and the private sector) of spatial activities, and called for the "development of a national digital spatial information resource, linked by criteria and

## PUBLIC HEALTH GIS NEWS AND INFORMATION

January 2005 (No. 62)--11<sup>th</sup> year of continuous reporting

15

standards, that will enable sharing and efficient transfer of spatial data between producers and users.” This ‘resource’ has come to be known as the National Spatial Data Infrastructure (NSDI). The NSDI is viewed as a series of actions to bring about improved collection, sharing, and use of geographic information. It provides a base or structure of relationships among data producers and users, and a foundation for data applications, services, and products.

The FGDC has grown into a 19 member interagency committee composed of representatives from the Executive Office of the President, Cabinet-level and independent agencies. In addition, the Committee has involvement from 32 State Geographic Information Councils, and 9 non-Federal organizations representing broad sector interests. Since its inception the FGDC has worked to put in place the 6 basic building blocks or ‘common’ elements of the NSDI: Metadata, Clearinghouse, Standards, Framework, Geospatial data, and Partnerships. Each of the component parts are the keystones of establishing consistency and structure in documenting spatial data for everyday applications, and in building a distributed network of producers and users that facilitates the sharing of these data. While the NSDI serves as the supporting infrastructure, it will be further developed and maintained as a growing resource by new users who will contribute their data for access and use by others.

In 1994, Presidential Executive Order 12906 specifically called for the establishment of the NSDI for the Nation and set forth specific actions to be achieved. Presidential attention to the NSDI served as a catalyst to galvanize the nation’s interest and served as a springboard to launch numerous committee initiatives to engage both Federal and non-federal organizations. One of the major initiatives was the establishment of the NSDI Cooperative Agreements Program.

This merit-based funding assistance program provides seed money to encourage collaborative NSDI resource sharing projects between and among the public and private sector. Since its inception, this grant program has provided funding for over 200 projects involving more than 1000 organizations. Many of those organizations have institutionalized NSDI practices and have become anchor tenants on the NSDI, and thereby attracted others to use and become a part of the infrastructure.

### Future Directions

Today, this Presidential Administration’s awareness and heightened interest in geography and geospatial data in the decision-making process has cast an intense spotlight on the FGDC and the NSDI, and has led the OMB to again revise, reissue (July 2001), and rename Circular A-16 “Coordination of Geographic Information and Related Spatial Data Activities,” by 1) adding the OMB as co-chair of the FGDC, 2) increasing the breadth of coordination to 34 data categories, 3) more clearly articulating and strengthening Federal agency roles and responsibilities for the NSDI, and 4) stressing the importance and requirement of interagency/inter-sector collaboration.

In addition, Presidential E-Gov initiative “Geospatial One-Stop” was launched in 2003 to make it easier, faster, and cheaper for all national sectors to locate and access geospatial information. It is intended to build upon existing capabilities and ongoing agency programs to accelerate the implementation of the NSDI. Current and expected future national and international priorities such as security, environmental and economic issues make the basic tenets of the NSDI more relevant now than ever before. To reap the benefits of the vast data resources being generated today and expected in the future, it is important that agencies make the investment in and the commitment to those same basic tenets—common standards, data partnerships and accessible data.

In its first decade, the FGDC had great success in introducing the concepts of data sharing, putting in place the building blocks to facilitate the sharing, and promoting the tenets of the NSDI. In fact, the basic tenets of the NSDI are embraced by many foreign countries as they develop their own spatial data infrastructures in the growing ‘global spatial data infrastructure’.

In the next decade the goal of the FGDC will be enabling widespread implementation through data sharing and data integration, to move us all closer to the kind of spatial data infrastructure that will truly enable reaching the vision of the NSDI: “Current and accurate geospatial data will be readily available to contribute locally, nationally, and globally to economic growth, environmental quality and stability, and social progress.” [Source: Alan R. Stevens, International Program Coordinator, FGDC, Global Spatial Data Infrastructure (GSDI) Secretariat at [asteve1@usgs.gov](mailto:asteve1@usgs.gov)]

\*\*\*\*\*

## Recent (selected) Government Accountability Office (GAO) Reports, 2004

[<http://www.gao.gov/docsearch/repandtest.html>]

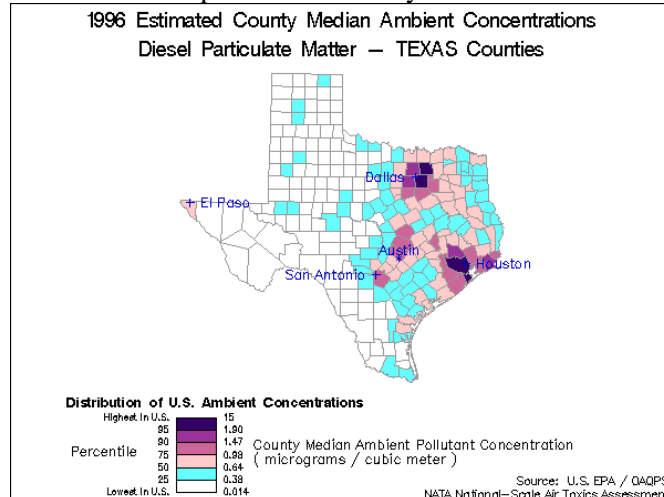
**No Child Left Behind Act: Education Needs to Provide Additional Technical Assistance and Conduct Implementation Studies for School Choice Provision**, GAO-05-7, December 10, 2004; **Environmental Indicators: Better Coordination Is Needed to Develop Environmental Indicator Sets That Inform Decisions**, GAO-05-52, November 17, 2004; **Survey on Environmental Indicator Sets**, GAO-05-56SP, November 17, 2004; **Data Quality: Census Bureau Needs to Accelerate Efforts to Develop and Implement Data Quality Review Standards**, GAO-05-86, November 17, 2004; **Medicaid Managed Care: Access and Quality Requirements Specific to Low-Income and Other Special Needs Enrollees**, GAO-05-44R, December 8, 2004; **Electronic Government: Federal Agencies Have Made Progress Implementing the E-Government Act of 2002**, GAO-05-12, December 10, 2004; **Defense Health Care: Force Health Protection and Surveillance Policy Compliance Was Mixed, but Appears Better for Recent Deployments**, GAO-05-120, November 12, 2004; **Highway Safety: Improved Monitoring and Oversight of Traffic Safety Data Program Are Needed**, GAO-05-24, November 4, 2004; **VA Long-Term Care: Oversight of Nursing Home Program Impeded by Data Gaps**, GAO-05-65, November 10, 2004.

### Web Site(s) of Interest for this Edition

<http://www.pphtc.org/resources/ViewListserv.htm> **The Pacific Public Health Training Center (PPHTC)** is a combined effort of the four accredited Schools of Public Health in California and the University of Hawaii's School of Nursing and Dental Hygiene. The Center's goal is to develop and support public health training opportunities that are consistent with Healthy People 2010 objectives. The November 2004 edition of the Pacific Public Health Training Center (PPHTC) Listserv is available.

<http://www.epa.gov/ttn/atw/nata> **The National-Scale Air Toxics Assessment**. As part of the EPA's National Air Toxics Assessment activities, EPA conducted a national-scale assessment of 33 air pollutants (a subset of 32 air toxics on the Clean Air Act's list of 188 air toxics plus

diesel particulate matter (diesel PM)). The assessment includes four steps that look at the year 1996. Note: As of



May 2002, the results posted for all four steps include revisions based on input from scientific peer review. See website for map extraction of geographic area and modeled air pollutant.

<http://www.geodata.gov/gos> GeoData.gov was developed as part of the **Geospatial One-Stop** project, one of the President's E-Gov initiatives. The Geospatial One-Stop initiative is making it easier, faster and less expensive to find, share and access geospatial information across all levels of government, reducing wasteful spending and redundant investments, and providing the tools for greater intergovernmental collaboration and partnership for decision making on key policy issues such as emergency response, homeland security, environmental protection and economic development. Geospatial information allows first responders to quickly analyze an incident and coordinate their response, whether it is the tragedy of September 11 in New York City or following real time information in order to respond to hurricanes along the Atlantic Coast or wildfires in the West.

<http://risk.lsd.ornl.gov/index.shtml> **Risk Assessment Information System (RAIS)**. The RAIS contains Risk Assessment Tools and Information. The Risk Assessment Tools include: Risk-Based Preliminary Remediation Goal (PRG) calculations, and a Toxicity data base, Risk Calculations, and Ecological Benchmarks. The Tools are designed for use at all DOE sites and can be customized for site-specific conditions. The RAIS also includes information, guidance, and risk results applicable to the



Oak Ridge Reservation.

<http://www.csc.unc.edu> The **Atherosclerosis Risk in Communities Study (ARIC)** is a prospective epidemiologic study conducted in four U.S. communities. ARIC is designed to investigate the etiology and natural history of atherosclerosis, the etiology of clinical atherosclerotic diseases, and variation in cardiovascular risk factors, medical care and disease by race, gender, location, and date.

<http://www.lifecoursepi.info/lifecourse2/census> **Lifecourse SES (LcSES)** is an ancillary study to the **Atherosclerosis Risk in Communities (ARIC)** study. Participants were interviewed and examined at baseline, beginning with Visit 1 (1987-89), and again at three triennial examinations: Visit 2 (1990-1992), Visit 3 (1993-1995), and lastly with Visit 4 (1996-1998). Additionally, participants are contacted annually by phone so that their vital and health status can be updated.

<http://www.fcw.com/fcw/articles/2004/1227/web-dhsstds-12-27-04.asp> Homeland Security Department officials have decided to join the International Committee for Information Technology Standards (INCITS) to try to influence standards being developed for technology that supports homeland security. DHS officials recently adopted a biometric facial recognition standard developed by INCITS for use in passports and other travel documents.

<http://www.epa.gov/Networkg> The Environmental Protection Agency (EPA) expects to award 70 to 80 grants or cooperative agreements to states, state agencies, the District of Columbia, territories, and tribes (not universities or local or regional governments) of up to \$750,000 to help further develop a nationwide **Environmental Information Exchange Network (EIEN)**. The deadline to apply is January 15, 2005. The grant solicitation program is available at this site.

[http://www.fema.gov/fhm/mh\\_main.shtm](http://www.fema.gov/fhm/mh_main.shtm) FEMA, and its flood mapping partners, have prepared a **Multi-Year Flood Hazard Identification Plan (MHIP)**, the first-ever national look at how FEMA and its partners will move forward with updating flood maps. Developed in cooperation with states, locals, regional entities, and other partners, MHIP outlines a national five-year schedule and budget for conducting flood studies and providing reliable digital flood hazard data and maps to support the National Flood Insurance Program (NFIP).

<http://www.ilo.org/encyclopaedia> Thanks to the International Occupational Safety and Health Information Centre (CIS), the International Labor Organization's **Encyclopaedia of Occupational Health and Safety** is now available for free on the web. The encyclopedia is intended to "present a panoramic view of the basic available information in the field" of occupational health and safety.

## Final Thoughts

### GeoHealth: New Zealand's Emerging Contribution to GIS and Public Health

I felt honored to participate (initially 2002, currently 2004) in what soon should be viewed as one of the world's premier GIS and public health conferences, New Zealand's GeoHealth. My hope is that GeoHealth will become a traditional biennial GIS and public health event. It has the makings of a dynamic Eastern Hemispheric locus for GIS and public health scientific exchange. My purpose here is to share with you some personal observations about this special GeoHealth development.

By way of background, GeoHealth 2002: ("Supporting Decision Making in Health"), was New Zealand's groundbreaking national GIS and public health conference. I wrote about it in the November 2002 (49) edition, *Public Health GIS News and Information*, and stated "GIS public health conferences, for audiences especially at national and international scales, are important to public health. They are an integral part of the greater public health landscape. In that moment of time and space, public health GIS conferences assure communication that transcends from an individual to our collective geospatial intelligence. We attend with anticipation and depart with a renewed sense of purpose and inspiration." GeoHealth 2002 had that same profound effect on the audience that was evidenced at the USA's 1998

CDC/ATSDR “GIS in Public Health” conference in San Diego.

The recently-convened GeoHealth 2004 (three themes: Surveillance, GeoHealth Infrastructure and Policy & Planning) was a successful followup to 2002. The **surveillance** sessions covered the broad picture of public health, including communicable disease, environmental health and specialist applications of technology such as disease transmission modeling. Presentations were provided on such topics as “Geo-informatics within the New Zealand animal biosecurity surveillance and response programmes” (M Stone, Ministry of Agriculture and Forestry, NZ), “Investigating the landscape epidemiology of West Nile Virus in Southern Ontario” (R Meyers et al, Health Canada); “Evaluating ‘Hotspots’ in decision making for vector-borne disease risk management policy and practice in New Zealand: a case study of *Ochlerotatus camptorhynchus*” (N de Wet et al, U Waikato, NZ); “A SEIR meta-population model-informing the surveillance processes-Situation ESP” (N Bacchus, Institute of Environmental Science and Research (IESR), Kenepuru Science Centre (KSC), NZ); “Predicting when and where Foot and Mouth disease will occur-model performance during the 2001 British outbreak” (MA Stevenson et al, Massey U, NZ); “Application of mathematical modeling and GIS to public health planning in the UK” (R Gani et al, Centre for Emergency Preparedness and Response, Health Protection Agency, UK); “Pathogen survival trajectories: an eco-environmental approach to the modeling of human campylobacteriosis ecology” (C Skelly, IESR, KSC, NZ); “Two issues in dose-response relationships” (G McBride, National Institute of Water and Atmospheric Research, NZ); “Transmission of pathogens across a landscape” (P Whigham, U Otago, NZ); “Modelling long-term exposure assessment for long-latency disease” (CE Sabel et al, U Canterbury, NZ); “A spatial model for predicting individual exposures to Dioxin emanating from a point source” (J Fowles et al, IESR, KSC, NZ); “Health and air pollution in NZ: The HAPiNZ project update” (J Wilson, U Canterbury, NZ); “Environmental health indicators: the way forward” (D Phillips, IESR, KSC, NZ); “Health surveillance and intervention: The Philippine experience” (C Balucan, Lourdes College); “Risk profile of emerging infectious diseases and other agents of concern” (B Adlam, formerly Singapore Ministry of Health); “Mapping falls in the elderly: A GIS application” (H Robertson, Prince of Wales Hospital, Australia); “Building an operational surveillance system: Lessons learned from building West Nile Virus surveillance systems in Pennsylvania, New York City, and New Jersey” (A Agung, Keynote speaker, ESRI, USA); and, “From BSE to Bird Flu- Application of spatial methods in surveillance and control of disease epidemics” (R Morris et al, Keynote speaker, Massey U, NZ).

The **infrastructure** theme covered tools, technologies, and methods used to make geographic technologies more accessible to staff within the health sector. Presentations were given on “Exploring spatial public health data with GeoDa” (J Koschinsky, Keynote speaker, Spatial Analysis Lab, U Illinois, USA); “A strategy for analyzing population health impacts from the Ministry of Agriculture and Forestry’s airborne spray eradication program” (P White, Ministry of Health, Wellington); “Overload or underload? Issues in visualizing cancer mortality rates with panache and impact” (P Forer et al, U Auckland); “Exploring the population mixing hypothesis in the US” (D Wartenberg, Robert Wood Johnson Medical School, USA); “A probabilistic fuzzy geocoding system based on a national address file: applications for Health” (A Willmore et al, New South Wales Department of Health, Australia); “Geocoding improvement of disease rate uncertainty” (N Boxall, IESR, KSC, NZ); “GeoStan-a New Zealand geocoding solution” (Critchlow Associates Limited, NZ); “Fire service online geospatial updating tool” (M MacFarlane, NZ Fire Service); “The C & PH Map Machine: Developing a low cost online map browser for visualization of regional demographic, health and spatial data” (C Ambrose, Canterbury District Health Board, NZ); “ArcGIS 9- Providing the platform for building a complete GIS” (Eagle Technology, NZ); “Terralink International” (J Gulson, NZ); “The New Zealand Public Health Observatory Project” (R Pirie, IESR, KSC, NZ); and, “Disseminating health information geographically over the World Wide Web” (D Thomas, Ministry of Health, NZ); and, “LymFil- A new tool for managing parasite control programmes” (E Michael, Imperial College School of Medicine, UK).

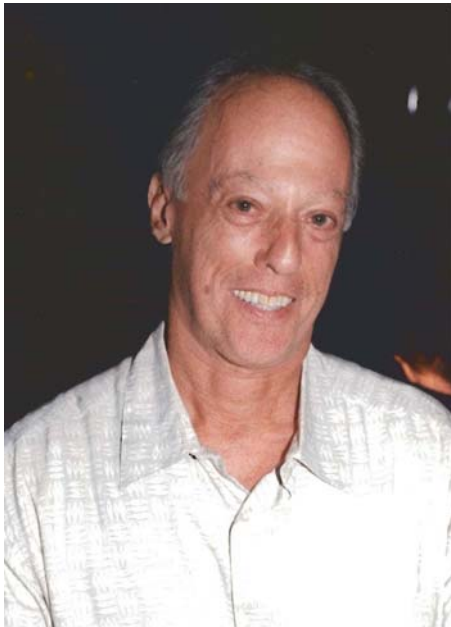
The **planning & policy** theme covered applications directly relevant to most government health organizations, ranging from the evaluation of health service delivery, assessing issues of inequity, to risk and health outcome measurement.

## PUBLIC HEALTH GIS NEWS AND INFORMATION

January 2005 (No. 62)—11<sup>th</sup> year of continuous reporting  
19

Presentations included “The use of Geographic Information Systems to provide an evidence-based perspective on the provision of rural health services” (R Thompson, Otago District Health Board, NZ); “‘From here to Maternity’: visualizing accessibility data in Aotearoa NZ” (P Beere et al, U Waikato, NZ); “Adding value with GIS: The Sydney Older Persons Case Study” (GA Broe et al, U New South Wales, Australia); “Targeting the MeNZB vaccine campaign in Auckland 2004” (T Tupou et al, Auckland Regional Public Health Service, NZ); “Scaleable areal rate smoothing in NZ” (R King et al, U Auckland, NZ); “Social inequality and health inequality: The common ground” (J Glover, U Adelaide, Australia); “Does social inequality matter? Changing ethnic socioeconomic disparities and Maori smoking in NZ, 1981-96” (J Pearce et al, U Canterbury, NZ); and, “Geographic Information Systems and public health: Accomplishments and horizons” (C Croner et al, Keynote speaker, Centers for Disease Control and Prevention, USA).

As with any conference undertaking of magnitude it requires the support of many parties. At the top, GeoHealth has the full support of the New Zealand Ministry of Health. This is an enthusiastic leadership. To the delight of all, they once again set the tone for the conference. We were welcomed in the Maori language to GeoHealth 2004 by the Honorable Annette King, Minister of Health, who also announced the launching of a new GeoHealth Research Laboratory that will have an emphasis on the training of personnel. Dr. Karen Poutasi, Director General of Health, spoke and emphasized the interest in health needs assessment, and growing challenge of health inequalities. Dr. Don Matheson, Deputy Director-General of Health, stressed the importance of geoinformation and getting it into the hands of people. Dr. Barry Borman, Public Health Intelligence, Business Unit of the Ministry of Health, echoed the theme of evidence-based approaches to geospatial research and encouraged all to grow the field of GIS and public health to improve the daily lives of citizens.



Finally, and on behalf of all attendees, I want to thank the outstanding efforts of those with vision who organized GeoHealth 2002: Jan Rigby, Victoria University at Wellington (now at Sheffield University); Chris Skelly, then Ministry of Health, NZ; and Peter Whigham, Spatial Information Research Centre, University of Otago. From their efforts a timely and much needed GIS and public health tradition may well be in the making in New Zealand. The successful implementation of successor GeoHealth 2004 is due, in large part, to both Chris, now at the Institute of Environmental Science & Research, Kenepuru Science Centre and Paul White, Public Health Directorate, Ministry of Health. As I told Chris, Paul and Peter, I will keep hope alive for a GeoHealth 2006. Cheers!

Charles M. Croner, PhD, Geographer and Survey Statistician, and Editor, *Public Health GIS News and Information*, Office of Research and Methodology, National Center for Health Statistics, and DHHS Representative, Federal Geographic Data Committee, at [cmc2@cdc.gov](mailto:cmc2@cdc.gov). Celebrating our 62<sup>nd</sup> edition with continuous reporting since 1994.

The NCHS GIS home page contains current GIS events, archived GIS reports and other GIS links  
<http://www.cdc.gov/nchs/gis.htm>—and please join us February 9, 2005 for another in our GIS lecture series

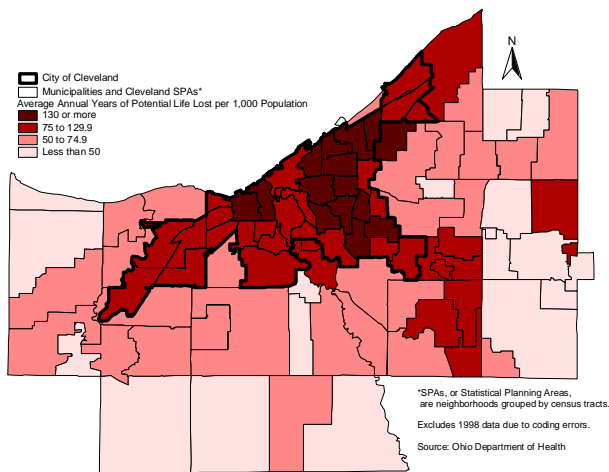
APPENDIX: MAPPING HEALTH INEQUALITIES

[Fifth in Series: See also May, July, September and November 2004 editions]

Years of Potential Life Lost

Terry Lenahan<sup>1</sup> and George D. Weiner, Ph.D.<sup>1,2</sup>, <sup>1</sup>The Center for Community Solutions and <sup>2</sup>Maxine Goodman Levin College of Urban Affairs, Cleveland State University, Cleveland OH

Years of potential life lost (YPLL) measures premature mortality. It represents the number of years people would have lived had they not died from heart disease, cancer, motor vehicle accidents, etc before age 75, which is roughly the same

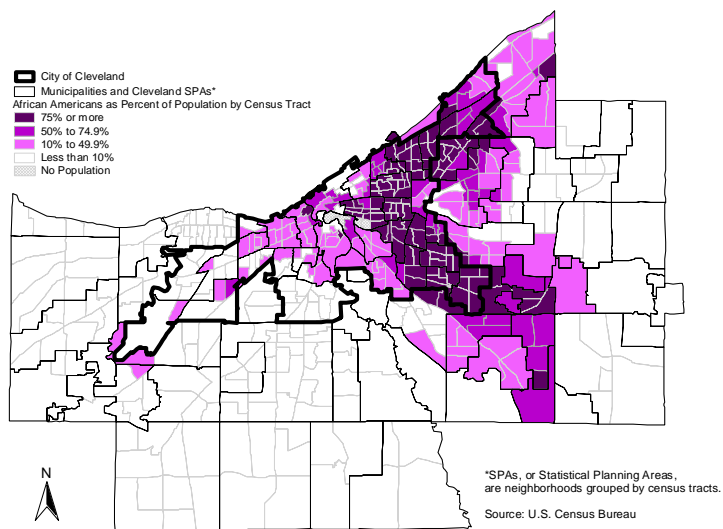


Years of Potential Life Lost Cuyahoga County, Ohio, 1997 to 2001 (Map to Left)

equivalent to the average life expectancy for all Americans.<sup>1</sup> YPLL is calculated by subtracting the age at death from age 75. For example, the death of an infant less than one year old counts as 74 years of potential life lost, but the death of a 70-year-old counts as five years. The death of an 85-year-old, however, does not decrease the YPLL. The YPLL rate per 1000 is calculated by dividing the total years of potential life lost by the number of people under 75 years of age in a defined population or geography, and then multiplying by 1,000. We present an average annual rate for a four-year period. The data were from Ohio Department of Health death certificates for 1997, and 1999 through 2001. Deaths from 1998 were

excluded due to an unusually high number of incomplete addresses.

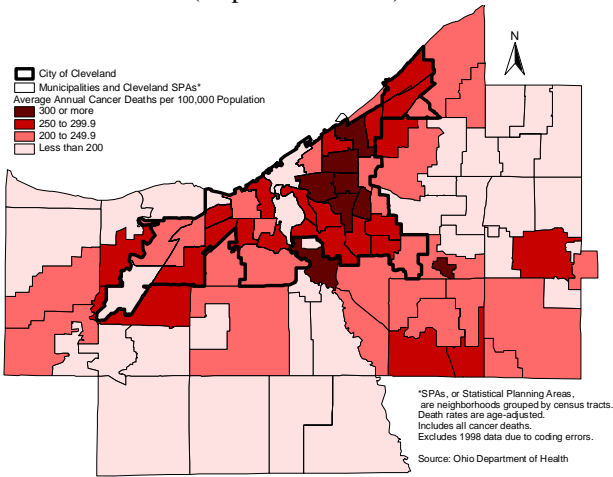
In 2002, about 21 million years of potential life were lost in the United States.<sup>2</sup> Cancer accounted for the largest proportion of YPLL at 21.7 percent followed by heart disease (16.2 percent), accidental deaths (14.3 percent), and infant deaths (10.0 percent).<sup>3,4</sup> The calculation of YPLL gives more weight to deaths at a younger age, so cancer accounted for the largest portion of YPLL even though it was the second leading cause of death in the United States. Roughly 75.6 years of potential life were lost for every 1,000 people under 75 years in the United States, but the rates varied considerably by race and Hispanic origin. Non-Hispanic Whites lost 73.9 years per 1000, while Blacks lost 116.4 years and Hispanics lost 52.6 years. American Indians and Alaska Natives lost 75.3 years per 1000, while Asians and Pacific Islanders lost 34.6 years. Among states, Minnesota (89.4 percent White) had the lowest rate at 56.0 per 1000, while Mississippi (36.3 percent African American, and where 19.9 percent of all residents live in poverty) experienced the highest rate at 107.1 per 1000.<sup>5</sup>



Percent African-American Population, Cuyahoga County, Ohio, 2000

Annually in the eight-county Northeast Ohio region, an average of 200,000 years of potential life was lost from 1997 to 2001, for a YPLL rate of 73.0 per 1,000 persons under 75. Almost 25 percent of YPLL was due to cancer. Heart disease was responsible for 19.8 percent, 11.4 percent was due to infant death, and 9.4 percent from accidental deaths.

**Cancer Death Rate, Cuyahoga County, Ohio, 1997 to 2001**  
 (map shown below)



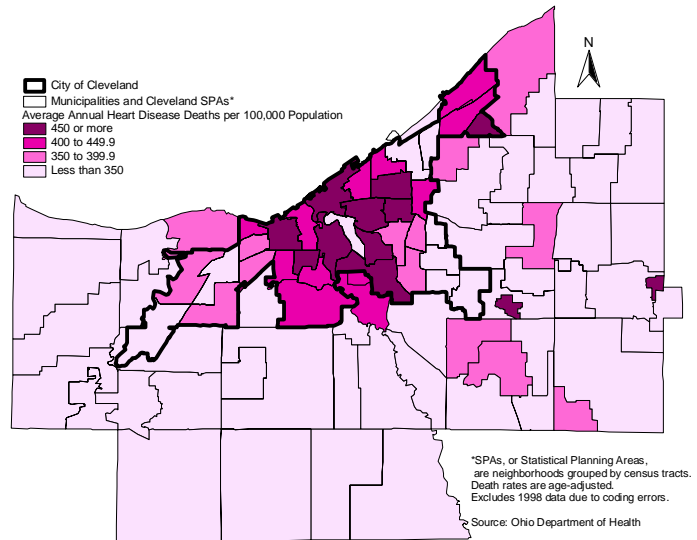
Cuyahoga County lost an annual average of 107,340 years of potential life during the study period, and had the highest rate in Northeast Ohio, with a rate of 83.6 YPLL per 1,000 persons under 75. Cancer was responsible for the largest proportion (22.6 percent), followed by heart disease (20.8 percent), infant deaths (12.5 percent), and accidents (8.7 percent).

An average of 54,000 years of potential life was lost each year in the Cleveland, for a rate of 121 years per 1,000 population. Although Cleveland accounts for only one-third of Cuyahoga County’s population, it accounted for half of the years of potential life lost in the county. The YPLL rate in Cleveland was 66 percent higher than the regional rate, 45 percent higher than Cuyahoga County’s rate, and almost twice the suburban rate. Unlike the nation, state, and county, heart

disease accounted for the most years of potential life lost in Cleveland at 21.0 percent, compared to 17.7 percent due to cancer. Almost 15 percent of YPLL were due to infant deaths and 9.2 percent were due to accidental deaths.

**Heart Disease Death Rate, Cuyahoga County, Ohio, 1997 to 2001**  
 (map shown below)

It was not possible to analyze death certificates by race at the neighborhood level, but due to the segregated nature of the Cleveland and its suburbs, a geographic examination of the YPLL rate clearly shows that Clevelanders in general, and African-Americans in particular, lost more years of potential life. Of the 14 Cleveland neighborhoods with the highest YPLL rates, nine had African-American populations of 93 percent or more in 2000. East Cleveland, the only Cuyahoga County suburb included in the highest YPLL rate category, was 93 percent African-American.



Maps were created by Ms. Terry Lenahan, Policy and Planning Associate in Research, The Center for Community Solutions. Death and YPLL rates were calculated by Lucy Malakar and George Weiner. Data were geocoded to the census tract level by Brian McNamara, GIS specialist. Ellen Cyran, systems programmer/analyst, provided programming for the death rate data. Brian and Ellen are with the Northern Ohio Data and Information Service at the Maxine Goodman Levin College of Urban Affairs, Cleveland State University. “Years of Potential Life Lost” was one of 37 indicators from *Social Indicators 2003: Community Health*, produced by The Center for Community Solutions and United Way Services of Greater Cleveland. The complete report may be seen at Community Solutions’ website ([www.communitysolutions.com](http://www.communitysolutions.com)). Contact: Terry at [tlenahan@communitysolutions.com](mailto:tlenahan@communitysolutions.com).

**PUBLIC HEALTH GIS NEWS AND INFORMATION**

January 2005 (No. 62)—11<sup>th</sup> year of continuous reporting

22

---

<sup>1</sup> According to the National Center for Health Statistics, average life expectancy was 76.9 years for both genders in 2000.

<sup>2</sup> National Center for Health Statistics. *Health, United States, 2004*. Hyattsville, MD: 2004

<sup>3</sup> Infant deaths within one year of birth divided by the number of live births.

<sup>4</sup> See “Infant Mortality Rates by Maternal Race,” T. Lenahan and G. Weiner, Ph.D., *Public Health GIS News and Information*, November 2004 (No. 61), Appendix, pp. 16-17.

<sup>5</sup> 2001 age-adjusted rates compiled by Center for Disease Control and Prevention, as cited in United Health Foundation. *America’s Health: State Health Rankings*. St. Paul, MN: 2004.