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

Please join us **April 19, 2006**, for **"Health Disparity Zones: A Small Area Analysis of Premature Mortality from Cardiovascular Disease**," by Gary Puckrein, PhD, Sean Cleary, PhD, MPH, Hala Nsouli, MPH, National Minority Health Month Foundation, George Washington School of Public Health & Health Services, Washington, D.C., **2:00P.M. (EST)**, and **live at NCHS** (RM 1404). An abstract of this presentation is included in this edition. The NCHS GIS Guest Lecture Series has been presented continuously at NCHS since 1988. As with all live lectures, Envision (live interactive) will be available to offsite CDC locations as well as IPTV. Web access will be available to our national and worldwide public health audience. 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 with us and other colleagues. [Questions: please contact Editor, *Public Health GIS News and Information*, at cmc2@cdc.gov]

[Notes: (1) Calendar events are posted as received; for a more complete listing see NCHS GIS website and calendar; (2) Disclaimer: The findings and conclusions in this report are those of the Editor and do not necessarily represent the views of the Centers for Disease Control and Prevention (CDC)]

* Annual Conference of the Southern California Public Health Association: "Health Disparities across the Life Span: Problems and Solutions," March 10, 2006, Alhambra CA [See: http://www.scpha.org/pdf/brochurePDF.pdf]

* The First Annual Health Disparities Conference: "The Decade of Health Disparity Reduction: Towards Evidence-Based Models," Teachers College Columbia University, NYC, March 10-11, 2006 [See conference website: http://www.tc.columbia.edu/ceoi/spring06/HealthDisparities/program.html]

* 5th Annual Forum for Improving Children's Health Care, National Initiative for Children's Healthcare Quality (NICHQ), March 16-18, 2006, Orlando FL [See: http://www.nichq.org/nichq]

* International Conference on Emerging Infectious Diseases 2006, CDC, March 19-22, 2006, Atlanta GA [See: http://www.iceid.org]

* First Annual Geospatial Integration for Public Safety Conference (GIPSC), Urban and Regional Information Systems Association URISA) and National Emergency Number Association (NENA), April 10-12, 2006, Nashville TN [See: http://www.urisa.org]

* Annual Leadership Summit on Health Disparities: "Bridging the Quality Gap," April 11-12, 2006, Washington D.C. [See: http://www.nmhmfsummit.org]

* 10th Biennial Symposium on Minorities, the Medically Underserved & Cancer, April 19-23, 2006, Washington D.C. [See: http://iccnetwork.org/symposium]

* Spatial Epidemiology Conference, CDC and Imperial College London, May 23-25, 2006 London UK [See URL: http://www.spatepiconf.org]

* 2006 Delaware GIS Conference: Patterns of Change, June 1, 2006, Newark DE [See: http://degis.org]

* 11th "Emerging and New Research in Geographies of Health and Impairment Conference (ENRGHI)," June 19-20, 2006, Queen Mary, University of London, England [See: http://www.geog.qmul.ac.uk/conference/registration.html]

* International Conference in GIS and Health: Geospatial Research and Application Frontiers in Environmental and Public Health Systems (GRAFEPHS 2006), June 27-29, 2006, Hong Kong [See: http://geog.hku.hk/HealthGIS2006]

* Translating Research Into Practice and Policy 2006, Agency for Healthcare Research and Quality (AHRQ)

and the National Cancer Institute (NCI), July 10-12, 2006, Washington D.C. [See: http://www.epc3.net/TRIPP06/abstract]

* 11th World Congress on Public Health and the 8th Brazilian Congress on Collective Health: "Public Health in a Globalized World: Breaking Down Social, Economic and Political Barriers," August 21-25, 2006, Rio de Janeiro, Brazil [See: http://www.saudecoletiva2006.com.br]

* 29th Applied Geography Conference, Association of American Geographers, October 11-14, 2006, Tampa, FL [See: http://www.appliedgeog.org]

* APHA 134th Annual Meeting and Exposition, "Public Health and Human Rights," November 4-8, 2006 in Boston, MA [See: http://www.apha.org/meetings]

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. **Hierarchical Modeling and Analysis of Spatial Data** (ASA LearnStat short course), April 27-28, 2006, Bradley Carlin, Mayo Professor of Public Health and Professor of Biostatistics at the University of Minnesota. This course will be held at George Mason University Professional Center, Arlington, Virginia and describe **hierarchical modeling** methods for spatial statistics. The instructor will begin by outlining and providing illustrative examples of the three types of spatial data: **point-level (geostatistical), areal (lattice), and spatial point process**. This is followed by a description of both exploratory data analysis tools and traditional modeling approaches for point-referenced data. Modeling approaches from traditional geostatistics (variogram fitting, kriging, and so forth) will be covered. A similar presentation will follow for areal data models, again starting with choropleth maps and other displays and progressing towards more formal statistical concepts, such as Brook's Lemma and the Markov random field topics that underlie the conditional, intrinsic, and simultaneous autoregressive (CAR, IAR, and SAR) models so often used in areal data settings.

The remainder of the presentation will cover hierarchical modeling for both univariate and multivariate spatial response data, including Bayesian

kriging and lattice modeling, as well as more advanced issues such as anisotropy and nonstationarity. Bayesian methods will also be suggested for modeling data that are spatially misaligned (say, with one variable measured by census tract but another by ZIP code), since they are particularly well-suited to sorting out complex interrelationships and constraints. Also included will be a discussion of spatially varying coefficient, spatio-temporal, and spatial survival models.

Both days of the class will comprise a mixture of lecture and laboratory sessions. The lab sessions will begin with instructor demonstrations of the **R, WinBUGS, and BRugs** programs for carrying out spatial analyses. While freely available, these packages are likely to remain the best software options in the coming years. The students will have an opportunity to apply this software either to sample problems, or to problems arising from their own work; indeed, students are encouraged to come to the course with geographically-indexed datasets that they feel may benefit from a hierarchical spatial approach. [See:http://www.amstat.org/education/learnstat/index.cfm?fuseaction=hmasd]

2. CDC and the SAHSU (Small Area Health Statistics Unit) at Imperial College London are pleased to announce the **Spatial Epidemiology Conference** in London, UK, May 23-25, 2006 with a pre-conference course in Spatial Statistics and a post-conference GIS workshop. This conference will bring together international expertise with a particular interest in geographical variations in environmental health. We welcome participants from all parts of the Public Health community (researchers, public health specialists, policy-makers etc).

The pre-conference course **"Bayesian Methods in Spatial Epidemiology using GeoBUGS"** is designed to be of interest to researchers in areas such as biostatistics, epidemiology, medical geography and environmental science, together with public health specialists, regulators and other health-care professionals with an interest in understanding and applying advanced quantitative methods. There is a large practical component to this course with time for hands-on data analysis. The course assumes a good grasp of basic statistics, including linear and generalised linear regression analysis, but no prior experience of Bayesian methods is assumed. The overall aim of the post-conference GIS workshop is to describe and demonstrate some ways in which geographical information systems

(GIS) can be used with epidemiology and health research. [See: http://www.spatepiconf.org]

3. The Loma Linda University School of Public Health (LLUSPH) is offering a Health **Geoinformatics Summer Institute** from June 19-September 1, 2006. The 10-week program is divided into two sessions. Students will receive instruction in the entire certificate program curriculum in health geoinformatics. A full description of the program is available at the geoinformatics website located at http://www.llu.edu/llu/sph/geoinformatics/chg06.html. Participants can take all courses or as many courses as desired. Interested faculty, staff and students who would like to learn about GIS applications in health and earn a Certificate in Health Geoinformatics (CHG) may apply. Students who successfully complete the CHG during the summer institute will receive a free copy of ArcView software with some extensions and free student licenses of the TerraSeer Space-Time Analysis Suite. [Apply now online at http://www.llu.edu/llu/sph/apply.htm; contact: Seth Wiafe at swiafe@llu.edu]

4. The Vespucci Initiative for the Advancement of Geographic Information Science announces the **4th Annual Summer Institute on Geographic Information Science**, near Florence, Italy, June 26-July 7, 2006 (two, one-week sessions). The Summer Institute is aimed at researchers from the university, commercial, and government sectors. It provides an inspiring and productive opportunity for peer-to-peer interaction with leading international experts in the field. Relatedly, The IGERT (Integrative Graduate Education and Research Training Program) Program in Geographic Information Science at the University at Buffalo invites applications from U.S. doctoral students. Funding will be available to support participation in Week 2, July 3-7, 2006, on the dual topic of Spatial Data Infrastructures (SDI): Research Challenges and Methods and International Collaboration in GIScience Research. [See program details and information: http://www.geospatialpartners.com/vespucci/school.html or contact David Mark, Director, Buffalo IGERT in GIScience, at dmark@geog.buffalo.edu]

B. Department of Health and Human Services
http://www.hhs.gov

5. HHS Secretary Leavitt released on March 2, 2006, a planning checklist for home health care service providers at the **Pandemic Planning Summit** in Columbia, South Carolina with state officials and community leaders. The new checklist identifies specific steps that home health care service providers can take now to prepare for a pandemic. CDC researchers and their colleagues have successfully reconstructed the influenza virus that caused the 1918-19 flu pandemic, which killed as many as 50 million people worldwide. A report of their work, **"*Characterization of the Reconstructed 1918 Spanish Influenza Pandemic Virus,*"** was published in the October 7 issue of *Science.*

Administration for Children and Families
http://www.acf.dhhs.gov

6. Nearly ten years after welfare reform became law and encouraged millions of American workers to rejoin the workforce, a new study examined how a model community college training program affected the earnings of welfare recipients currently in the workforce. The report, entitled **"College as a Job Advancement Strategy: Final Report on the New Visions Self-Sufficiency and Lifelong Learning Project,"** found that the program -which consisted of general education followed by career-directed courses- did not have positive impacts on earnings or help recipients to leave the welfare rolls.

Administration on Aging
http://www.aoa.gov

7. Every year, **hypothermia** kills about 600 Americans, half of whom are 65 and older, according to the Centers for Disease Control and Prevention. Hypothermia occurs when a person's body temperature drops below normal and stays low for a prolonged period of time. With advancing age, the body's ability to endure long periods of exposure to cold is lowered. Older people also are at risk for hypothermia because their body's response to cold can be diminished by certain illnesses such as diabetes and some medicines, including over-the-counter cold remedies. In addition, older people may be less active and generate less body heat. As a result, they can develop hypothermia even after exposure to relatively mild cold weather or a small drop in temperature.

Agency for Healthcare Research and Quality
http://www.ahrq.gov

8. **The Ambulatory Care Quality Alliance (AQA)** today announced six sites for a pilot project that will, for

the first time, combine public and private information to measure and report on **physician practice** in a meaningful and transparent way for consumers and purchasers of health care. The pilot project will be supported with funding from the Centers for Medicare & Medicaid Services and the Agency for Healthcare Research and Quality. The pilot will not only measure care quality, but will identify those high quality providers who are able to deliver efficient care to patients, avoiding unnecessary complications and costs. It is expected that the results of this pilot will provide a national framework for performance measurement and public reporting.

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

9. An average of **1.7 million people were victims of violent crime while working or on duty in the United States**, according to a report published by the Bureau of Justice Statistics (BJS), each year from 1993 through 1999. An estimated 1.3 million (75%) of these incidents were simple assaults while an additional 19% were aggravated assaults. Of the occupations examined, police officers, corrections officers, and taxi drivers were victimized at the highest rates.

For the same time period, over 800 workplace homicides per year were recorded by the Bureau of Labor Statistics' Census of Fatal Occupational Injuries. As an integral part of a broad-based initiative to reduce the incidence of occupational violence in this country, NIOSH conducts, funds, and publishes research on risk factors and prevention strategies (see NIOSH website: http://www.cdc.gov/niosh/violrisk.html) related to workplace violence. This site contains information on **NIOSH research** as well as links to external research programs, statistical reports, and public and private initiatives to address the problems of workplace violence.

10. CDC's **55th Annual Epidemic Intelligence Service (EIS) Conference** will be held April 24-28, 2006, in Atlanta, Georgia. The primary purpose of the EIS Conference is to provide current EIS officers a training experience for making scientific presentations. Additional purposes include 1) providing an opportunity for scientific exchange regarding current epidemiologic topics; 2) highlighting the breadth of epidemiologic activities at CDC; 3) providing a setting for strengthening

the EIS professional network among new, current, and former EIS officers; and 4) providing a forum for CDC programs to recruit new EIS officers. Conference registration is free. [The preliminary program is now posted at http://www.cdc.gov/eis/conference/conference.htm]

11. **"Cartographic Conventions for Symbology and Color- Applications to Health Statistics Mapping**"- This February 27, 2006, presentation to CDC, by Robert Edsall, Department of Geography, Arizona State University, was sponsored by CDC's National Environmental Public Health Tracking Program.
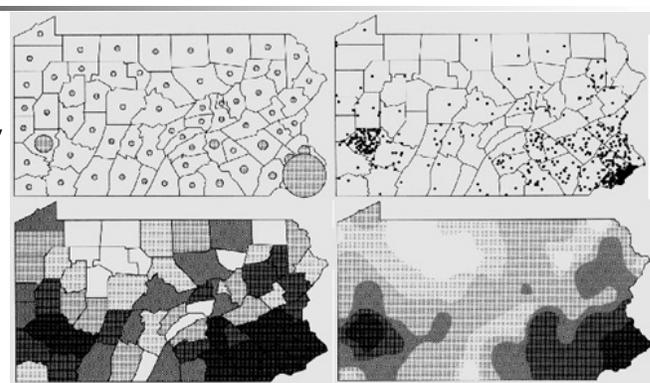
boundaries matter   boundaries irrelevant

[PowerPoint slides from Dr. Edsall's presentation are available at http://www.cdc.gov/nceh/tracking/default.htm or by contacting Denise Viator at viatord@orau.gov]

Centers for Medicare and Medicaid Services
http://www.cms.hhs.gov

12. The **Medicare Current Beneficiary Survey** (MCBS) is a continuous, multipurpose survey of a nationally representative sample of aged, disabled, and institutionalized Medicare beneficiaries. MCBS, sponsored by the Centers for Medicare & Medicaid Services (CMS), is the **only comprehensive source** of information on the health status, health care use and expenditures, health insurance coverage, and socioeconomic and demographic characteristics of the entire spectrum of Medicare beneficiaries.

Food and Drug Administration
http://www.fda.gov

13. There is a new, potential alternative for many of the more than **5 million Americans** who take insulin injections, with the Food and Drug Administration's approval of the first ever inhaled insulin. Exubera, an
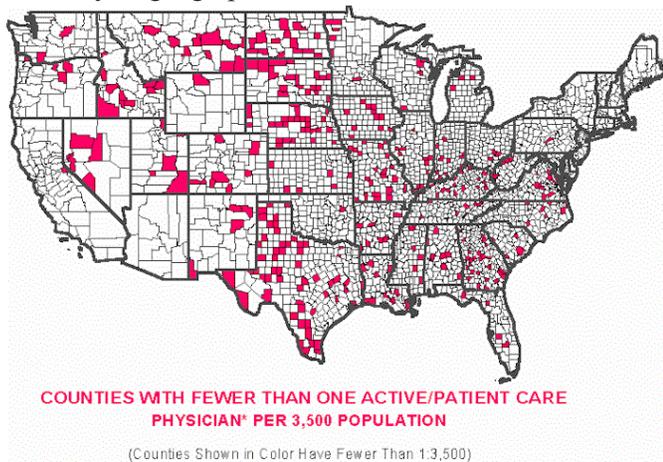
inhaled powder form of recombinant human insulin (rDNA) for the treatment of adult patients with type 1 and type 2 diabetes, is the first new insulin delivery option introduced since the discovery of insulin in the 1920s.

Health Resources and Services Administration
http://www.hrsa.gov

14. **2005 Area Resource File (ARF)** Now Available. The Bureau of Health Professions within the Health Resources and Services Administration sponsors this **county-level health information system**. The data can easily be aggregated into larger geographic units. Files can be linked to other geographic level files. The file is an important tool for researchers, planners, policy makers and other analysts needing information on health workforce and facility resources, health care utilization and expenditures, population demographics, and more, at a variety of geographic levels.

COUNTIES WITH FEWER THAN ONE ACTIVE/PATIENT CARE PHYSICIAN* PER 3,500 POPULATION

(Counties Shown in Color Have Fewer Than 1:3,500)

The newest release of the ARF contains updated data in many areas. Of particular note, the new release includes detailed physician data by specialty, major professional activity and age for three years- 2002, 2003 and 2004. Also included this year is newly released county-level health insurance information, including estimates on the number and percent of population lacking health insurance. Newly updated data include: • 2004, 2003 and 2002 AMA MD's; • 2004 and 2003 AOA DO's; • 2004 BEA Economic Codes; • 2004 and 2003 BLS Civilian Labor Force • 2004 CMS Medicare Managed Care Market Penetration Rates • 2004 and 2003 CMS Provider of Services Health Facilities • 2004 ERS Typology Codes • 2004 Health Professions Shortage Area Codes • 2004

HMO's and PPO's (by headquarter location) • 2004 Metropolitan/Micropolitan/Combined Area Codes • 2004 Population Estimates • 2004, 2003 and 2002 Veteran Population • 2003 CMS Medicare Enrollment • 2003 Hospital Facilities • 2003 HMO's (by headquarter location) • 2003 and 2002 Personal and Per Capita Income • 2003 Population by Race and Gender • 2002 and 2001 Poverty and Median Income • 2000-2002 Mortality 3-Year Averages • 2000-2002 Natality 3-Year Averages • 2000 Health Insurance • 1998-2002 5-Year Infant Mortality Rates. [See: http://www.arfsys.com]

Indian Health Service
http://www.ihs.gov

15. The main health challenges currently faced by American Indian and Alaska Native people are the increasing health conditions and chronic diseases that are related to lifestyles issues such as obesity, physical inactivity, poor diet, substance abuse, and injuries. To help meet these challenges, the Indian Health Service (IHS) has launched a **Health Promotion and Disease Prevention (HP/DP) Initiative** to develop a coordinated and systematic approach to enhance preventive health approaches at the local, regional, and national levels. This Initiative is aligned with the President's Healthier*US*, HHS Steps to a Healthier*US*, and Healthy People 2010.

National Institutes of Health
http://www.nih.gov

16. *Environmental Health Perspectives* (*EHP*) is a monthly journal of peer-reviewed research and news on the impact of the environment on human health. *EHP* is published by the National Institute of Environmental Health Sciences and its content is free online.

Substance Abuse and Mental Health Services Administration
http://www.samhsa.gov

17. **"The Road Home: National Conference on Returning Veterans' and Their Families' Behavioral Health,"** March 16-18, 2006, Washington, D.C. As the servicemen and servicewomen who have been engaged in combat return home to their families and communities, SAMHSA recognizes the many challenges they may face. This successful transition will be aided by the collaboration of many partners to identify, prevent, and

treat substance use and mental health disorders. This conference will give Federal, State, and local public and private service providers evidence-based information and approaches that can help veterans and their families build resiliency to prevent and to treat mental health disorders (including PTSD or Post-Traumatic Stress Disorders), substance abuse disorders, suicide, and/or co-occurring disorders.

C. Historically Black Colleges and Universities (HBCUs), Hispanic Association of Colleges and Universities (HACUs), and Other Minority Health News [A listing of HBCUs and HACUs may be found at the following websites http://www.smart.net/~pope/hbcu/hbculist.htm and https://www.hnip.net]

18. **Race, Ethnicity and Language of Patients: Hospital Practices Regarding Collection of Information to Address Disparities in Health Care**, by Marsha Regenstein and Donna Sickler, February 2006. *Report Findings*. Researchers at the National Public Health and Hospital Institute (NPHHI), with support from the Robert Wood Johnson Foundation, surveyed 500 non-federal acute care hospitals on their practices regarding the collection of race, ethnicity and preferred language data of their patients. **This study reveals that the majority of U.S. hospitals collect accurate information about their patients' race, ethnicity and language preference, but few are using the data to improve the quality of health care that is delivered to patients.**

Among the study's findings: Most hospitals are collecting data about the race, ethnicity and language preference of their patients. In fact, more than three-quarters (78.4 percent) of non-federal acute care hospitals in the United States collect information on the race of their patients, and half collect information on patient ethnicity (50.4 percent) and language (50.2 percent). Teaching hospitals are most likely to collect such data: 85.8 percent of teaching hospitals indicate that they collect information on race and 59.2 percent collect information on ethnicity.

Few hospitals are using collected data to improve the quality of health care their patients receive. NPHHI asked hospitals that collect race and ethnicity data whether they used the information to assess and compare quality of care, utilization of health services, health outcomes or patient satisfaction across their different patient populations. Overall, less than one in five (20

percent) hospitals that collect this information uses it for any of these purposes.

The most common barrier for those hospitals that do not collect racial, ethnic and/or language data is the sense that the data are not important. More than half of the hospitals that do not collect this information said they did not collect it because there was no need to. Hospitals that do not collect such data are more likely than those hospitals that do to view information technology, funding and legal limitations as barriers to data collection.

Patient data can be used to assess and compare a number of quality measures, including quality of care, patient utilization of health services, health outcomes and satisfaction with hospital services. In addition to recommending that hospital staff be educated about the importance of patient data, researchers also recommend that efforts be made to standardize race and ethnicity categories so that health care providers can accurately assess the quality of care being provided to all patients and to work to eliminate racial and ethnic disparities where they exist. [http://www.rwjf.org/files/research/RWJNPHHIreport-2-06.pdf]

19. **THE DHPE** (Directors of Health Promotion and Education)**/CDC Internship Program for Students of Minority-Serving Institutions**. The internship program offers students a unique experience to receive firsthand experience in health promotion and health education. The program has been designed to provide students with practical experiences in public health related to the core competencies of health education and to introduce the students to the essentials of public health. Students are eligible for the internship program if they: *Are enrolled in a health education or health promotion program in a four-year college or university designated as a minority-serving institution; *Are US citizens, non-citizen nationals, or foreign nationals possessing a visa permitting permanent residence in the US, and *Have decided or are considering a professional career in health education and health promotions or related public health field.

The following minority-serving institutions participate in this program. **HBCUs**: Bethune-Cookman College (Daytona Beach, FL); Central State University (Wilberforce, Ohio); Clark Atlanta University (Atlanta, GA); Florida A&M University (Tallahassee, FL); Hampton University, (Hampton, VA); Howard University (Washington DC); Jackson State University (Jackson. MS); Morehouse School of Medicine (Atlanta,

GA); Morgan State University (Baltimore, MD); North Carolina Central University (Durham, NC); Prairie View A&M University (Prairie View, TX); Spelman College, (Atlanta, GA); Tennessee State University (TN); Nashville, TN; Texas Southern University (Houston, TX); Virginia State University (Petersburg, VA); and West Virginia State College (Institute, WV).

HSIs: California State University at Fresno (Fresno, CA); California State University San Bernardino; City University of New York at Lehman College (Bronx, NY); Florida International University (North Miami, FL); University of Arizona, Tucson (AZ); University of Puerto Rico (San Juan, PR); and University of Texas at San Antonio Health Sciences Center. **TSI**: Oglala Lakota College (Kyle, SD). [Minority-serving institutions hold federal classifications as Historically Black Colleges and Universities (HBCU), Hispanic-Serving Institutions (HSI) or Tribal Serving Institutions (TSI); See program details: http://www.astdhpphe.org/program/index.htm]

20. **"Diabetes and Its Awful Toll Quietly Emerge as a Crisis"** (Article: *NY Times*, N.R. Kleinfeld, JAN 9, 2006): Rising diabetes rates in New York City (NYC), in the nation and around the world are alarming health


A Local, National and Worldwide Scourge

Rising diabetes rates in New York City, in the nation and around the world are alarming health officials. The World Health Organization estimates that 171 million people were living with diabetes in 2000, and that 266 million will have it in 2030.
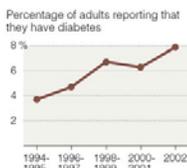
officials. Nationally diabetes is becoming more prevalent. The map shows the burden is not shared equally among
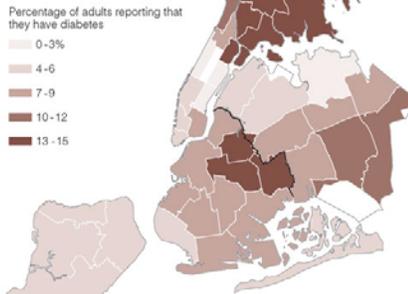
NYC neighborhoods. The legend show the percentage of adults reporting they have diabetes: 0-3 (lightest shade), 4-6, 7-9, 10-12 and 13-15 (darkest). [Data Sources: NY City Department of Health and Mental Hygiene, US Centers for Disease Control and Prevention, and the World Health Organization; *NY Times* online- use article to search Google]

21. **Indigenous Cartographies and Representational Politics**, an international conference dedicated to the critical examination of indigenous mapping and geographic information systems, March 3-5, 2006, Cornell University In recent decades, indigenous peoples, neighborhood groups, marginalized rural communities have begun to draw on the rhetorical power of maps and the empowering potentials of mapping projects for community building, participatory development and environmental conservation planning, and cultural survival. The conference, **"Indigenous Cartography and the Representational Politics,"** will explore ideas, practices, and ramifications of such counter-mapping among indigenous groups world-wide. Conference tracks include: "Local knowledge" and the power of science and technology; Indigenous mapping and developmental/ environmental politics; Gender, diversity and the limits of mapping; Indigenous representational politics, ethics, and the activist/academic; and Indigenous mapping and the histories/productions of space and place. [See: http://www.arts.cornell.edu/sochum/mapping/index.html]

22. The Black Young Professionals' Public Health Network, Inc. (BYPPHN) was conceptualized by four student members at the 128th Annual Meeting of the American Public Health Association (APHA) held in Boston, MA, November of 2000. It was established in recognition of an increased need for more deliberate and concerted opportunities for professional development of African Americans in the APHA and in the public health field. The BYPPHN actively seeks participation from public health professionals of all racial/ethnic groups. [See: http://www.bypphn.org]

D. Other Related Public Health GIS News

23. The Department of Family and Social Medicine at Montefiore Medical Center and Albert Einstein College of Medicine is very pleased to announce the inauguration of an open-access journal entitled *Social Medicine*. The first issue reprints a classic paper in social medicine: Rudolf Virchow's report on the 1848 typhus epidemic in Silesia. [See: http://journals.sfu.ca/socialmedicine/index.php/socialmedicine]

III. GIS Outreach

From Ron Wilson and Gerald Gaes, National Institute of Justice: We are doing a spatial econometric analysis of crime in Baltimore neighborhoods. We have different measures of crime such as the counts of aggravated assaults, robbery, and counts of different nonviolent categories such as motor vehicle theft, and fraud. We thought that it would make sense to analyze violent and non-violent crimes separately, but that it might also be appropriate to sum together only those crimes that have the same spatial distribution or the same relationship between their values and spatial lags with Local Indicators of Spatial Autocorrelation (LISA) statistics.

We have done LISA maps of the different crime categories, but we want to know if there is a parametric way of comparing two LISA maps. We have done a table which indicates how many aerial units have the same LISA result across any two crime categories, but this does not seem satisfactory because if there are only a few aerial units that have significant LISA results, it would seem this would produce an artificially high proportion of matches. Is there some pattern matching statistic that we could use? We have also done the multivariate Moran's I and multivariate LISA maps, but those compare a variable with the spatial lag of another variable and that does not seem to be the question of interest-namely whether two variables have the same spatial distribution. [Contact: Ron at Ronald.Wilson@usdoj.gov]
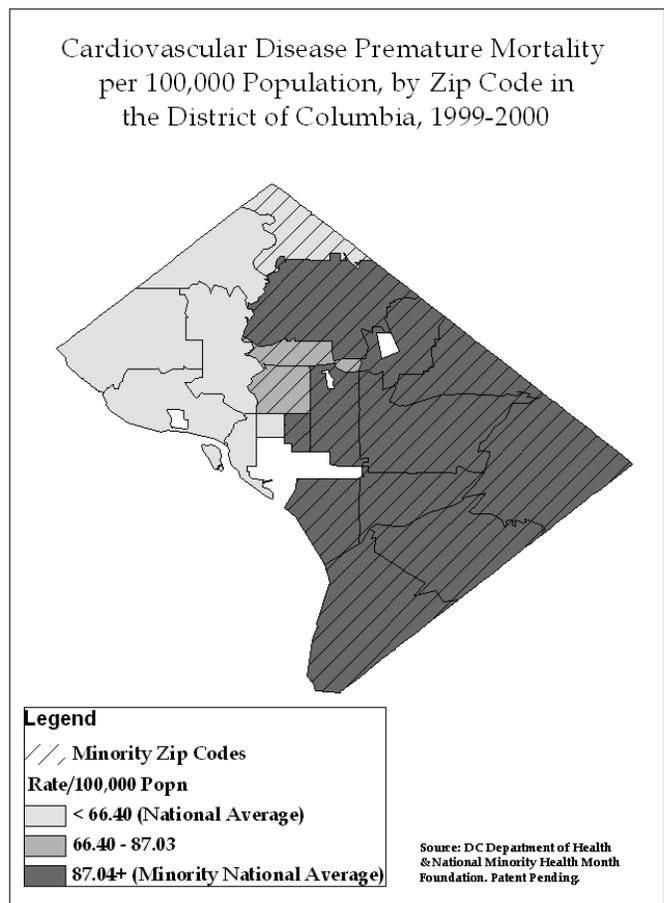
IV. Public Health GIS Presentations and Literature
NCHS/CDC Cartography and GIS Guest Lecture
Join us April 19, 2006, NCHS Hyattsville, MD

Health Disparity Zones: A Small Area Analysis of Premature Mortality from Cardiovascular Disease. Gary A. Puckrein, PhD, Sean D. Cleary, PhD, MPH, Hala Nsouli, MPH, National Minority Health Month Foundation, George Washington University School of Public Health & Health Services. Abstract: Objective: To describe methods used to examine the geographic distribution of premature mortality due to cardiovascular disease using small area analysis. Methods: Mortality data (1998-2001) obtained from state Vital Statistics offices for persons aged 5-64 years residing in the U.S and the District of Columbia were geocoded at the ZIP code level. Population estimates from the 2000 census were divided into 10-year age groups for each ZIP code.

Minority ZIP codes were defined as a ZIP code in which 50% or more of the population was African American, Native American, Hispanic, Asian or Pacific Islander. The direct standardization method using the 2000 standard population was used. To minimize unstable estimates due to few cases or to a small population within a ZIP code, premature death rates were only computed for ZIP codes in which the population was greater than 1000 persons and the number of premature deaths due to cardiovascular disease was greater than 1 per year.

Cardiovascular Disease Premature Mortality per 100,000 Population, by Zip Code in the District of Columbia, 1999-2000

Legend
Minority Zip Codes
Rate/100,000 Popn
< 66.40 (National Average)
66.40 - 87.03
87.04+ (Minority National Average)

Source: DC Department of Health & National Minority Health Month Foundation. Patent Pending.

Results: Age-adjusted premature mortality rates for cardiovascular disease were calculated for each ZIP code for which data was available. Age-adjusted mortality rates and minority ZIP codes were mapped using ArcView 9.1 (ESRI, 2001) software. Conclusions: Higher rates of premature mortality due to cardiovascular disease were observed in predominantly minority ZIP codes. Variation in rates within minority ZIP codes was also observed. Results can readily be utilized to inform community-based prevention and treatment programs

targeting high risk, underserved areas, thus illustrating the value of small area analysis for public health practice. [Contact: Gary at GPuckrein@americanvisions.com]

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Lecture Archive

Now Online: GIS Guest Lecture, February 15, 2006, **"An Overview of a Bayesian Approach to Disease Mapping,"** by Mary Louie, Ph.D., Associate Service Fellow, National Center for Health Statistics (NCHS), CDC at: http://video.cdc.gov/ramgen/gis/gis-02-15-2006.rm.

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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 key 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 **March 2006 12(3)** edition of EID is now online. This edition is devoted mainly to articles on West Nile Virus and other emerging infectious diseases. [See EID website for this and other timely infectious disease reports at: 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 to spatial distribution] Vol. **55(8)** Deaths Associated with Hypocalcemia from Chelation Therapy, Texas, Pennsylvania, and Oregon, 2003-2005; Human Rabies, Mississippi, 2005; QuickStats: Infant, Neonatal, and Postneonatal Annual Mortality Rates, United States, 1940-2003; Vol. **55(7)**- Hypertension-Related Mortality Among Hispanic Subpopulations, United States, 1995-2002 [To compare age-standardized, hypertension-related death rates among Hispanic subpopulations, CDC analyzed death certificate data from 1995 and 2002. This report describes the results of that analysis, which indicated that Puerto Rican Americans had consistently higher hypertension-related mortality (HRM) rates than all other Hispanic subpopulations and non-Hispanic

whites. Comprehensive hypertension prevention and control programs are needed to target these Hispanic subpopulations]; QuickStats: Percentage of Children Aged <18 Years with Current Asthma, by Race/Ethnicity and Sex-United States, 2001-2004; Vol. **55(6)**- Assessing Capacity for Surveillance, Prevention, and Control of West Nile Virus Infection, United States, 1999 and 2004; QuickStats: Age-Adjusted Death Rates for Parkinson Disease, United States, 1973-2003; Draft of Applied Epidemiology Competencies; Vol. **55(5)**- Racial/Ethnic Disparities in Diagnoses of HIV/AIDS, 33 States, 2001-2004; **Vol. 55(2)**- Public Health Response to Hurricanes Katrina and Rita, Louisiana, 2005; Surveillance in Hurricane Evacuation Centers, Louisiana, September-October 2005; Injury and Illness Surveillance in Hospitals and Acute-Care Facilities After Hurricanes Katrina and Rita, New Orleans Area, Louisiana, September 25-October 15, 2005; Assessment of Health-Related Needs After Hurricanes Katrina and Rita, Orleans and Jefferson Parishes, New Orleans Area, Louisiana, October 17-22, 2005; Health Concerns Associated with Mold in Water-Damaged Homes After Hurricanes Katrina and Rita, New Orleans Area, Louisiana, October 2005; QuickStats: Percentage of Persons Aged 15-44 Years Overall Tested for Human Immunodeficiency Virus (HIV) During the Preceding Year and Percentage by Number of Sex Partners of the Opposite Sex, United States, 2002.

(3) Preventing Chronic Disease

The **January 2006 3(1)** issue of *Preventing Chronic Disease* (PCD) is online and contains selected articles on a variety of chronic disease and prevention topics, early detection of breast cancer using GIS, evaluation of diabetes HP2010, and other related health topics [See: http://www.cdc.gov/pcd/issues/2005/oct/toc.htm]

Titles

Geographic patterns of advanced breast cancer in Los Angeles: associations with biological and sociodemographic factors (United States), Gumpertz ML, Pickle LW, Miller BA, Bell BS, *Cancer Causes Control* 17(3):325-39 APR 2006;

Effects of study area size on geographic characterizations of health events: prostate cancer incidence in Southern New England, 1994-1998,

Gregorio DI, Samociuk H, Dechello L, Swede H, *Int J Health Geogr* 5(8) FEB 2006. We consider how representations of geographic variation in prostate cancer incidence across Southern New England, may be affected by selection of study area and/or properties of the statistical analysis. Method: A spatial scan statistic was used to monitor geographic variation among 35,167 incident prostate cancer cases diagnosed in Massachusetts, Connecticut and Rhode Island from 1994
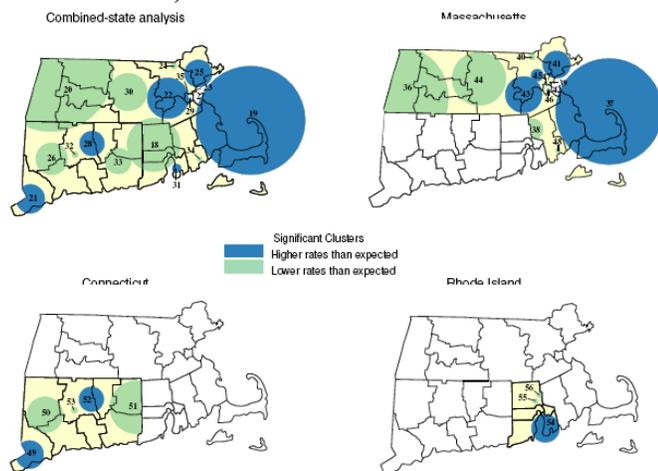
to 1998, in relation to the 1990 populations of men 20+ years of age living in that region. Results from the combined-states analysis were compared to those from single-states. Impact of scanning procedures set to examine up to 50% or no more than 10% of at-risk populations also was evaluated. Results: Using procedures to scan up to 50% of at-risk persons, 5 locations in the combined-states analysis were identified with markedly distinct incidence rates. Fewer than expected cases were estimated for nearly all Connecticut, Rhode Island and West Central Massachusetts, whereas census tracts on and around Cape Cod, and areas of South-western Connecticut and adjacent to greater Boston were estimated to have yielded more than expected incidence.

Results of single-state analyses exhibited several discrepancies from the combined-states analysis. Limits on scanning to no more than 10% of at-risk persons found many more locations with varying incidence, but discrepancies between the combined- and single-state analyses were fewer. Conclusion: It is important to acknowledge the conditional nature of spatial analyses and carefully consider whether a true cluster of events is identified or artifact stemming from selection of study area size and/or scanning properties.

Using Ontario's "Telehealth" health telephone helpline as an early-warning system: a study protocol, Rolland E, Moore KM, Robinson VA and McGuinness D, *BMC Health Services Research*, 6(10) FEB 2006. The purpose of our proposed study is to evaluate the effectiveness of Ontario's telephone nursing helpline system as a real-time syndromic surveillance system, and how its implementation, if successful, would have an impact on outbreak event detection in Ontario. Using data collected retrospectively, all "reasons for call" and assigned algorithms will be linked to a syndrome category. Using different analytic methods, normal thresholds for the different syndromes will be ascertained. This will allow for the evaluation of the system's sensitivity, specificity and positive predictive value. The next step will include the prospective monitoring of syndromic activity, both temporally and spatially.

Geostatistical analysis of disease data: visualization and propagation of spatial uncertainty in cancer mortality risk using Poisson kriging and p-field simulation, Goovaerts P, *Inter J Health Geogr* 5(7) FEB 2006;

Socioeconomic inequality of cancer mortality in the United States: a spatial data mining approach, Vinnakota S and Lam NS-N**,** *Inter J Health Geogr* 5(9) FEB 2006;

Relation between air pollution and allergic rhinitis in Taiwanese schoolchildren, Hwang B-F, Jaakkola JJK, Lee Y-L, Lin Y-C and Guo Yl, *Resp Res* 7(23) FEB 2006;

A dynamic spatial model for chronic wasting disease in Colorado, Johns CJ and Mehl CH, *J Data Sci* 4(1):21-37 JAN 2006;

GeoDa: An introduction to spatial data analysis, Anselin L, Syabri I, Kho Y, *Geogr Anal* 38 (1): 5-22 JAN 2006. This article presents an overview of GeoDa [TM], a free software program intended to serve as a user-friendly and graphical introduction to spatial analysis for

non-geographic information systems (GIS) specialists. It includes functionality ranging from simple mapping to exploratory data analysis, the visualization of global and local spatial autocorrelation, and spatial regression. A key feature of GeoDa is an interactive environment that combines maps with statistical graphics, using the technology of dynamically linked windows. A brief review of the software design is given, as well as some illustrative examples that highlight distinctive features of the program in applications dealing with public health, economic development, real estate analysis, and criminology.

Identifying geographic disparities in the early detection of breast cancer using a geographic information system, McElroy JA, Remington PL, Gangnon RE, Hariharan L, Andersen LD *Prev Chronic*

Dis 3(1) JAN 2006; **Map: Model-based estimates of age-adjusted percentage of breast cancer cases diagnosed in situ during four 5-year periods, by ZIP code, Dane County, Wisconsin, 1981–2000. BCIS indicates breast cancer in situ]**
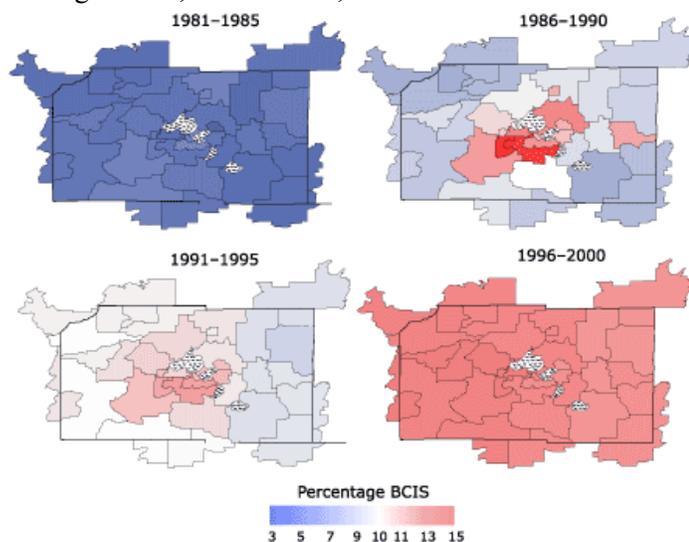
Crime mapping and the CrimeStat program, Levine N, *Geogr Anal* 38(1): 41-56 JAN 2006. CrimeStat is a spatial statistics program used in crime mapping. The program inputs incident or point locations and Outputs statistics that can be displayed graphically in a geographic information systems (GIS) program. Among the routines are those for summary spatial description, hot spot analysis, interpolation, space-time analysis, and journey-to-crime modeling. Version 3.0 has a crime travel demand module for analyzing travel patterns over a

metropolitan area. The program and documentation are distributed by the National Institute of Justice.

Spatial analysis of Campylobacter infection in the Canadian province of Manitoba, Green CG, Krause D and Wylie J, *Int J Health Geogr* 5(2) JAN 2006.

Geographic prediction of human onset of West Nile virus using dead crow clusters: An evaluation of year 2002 data in New York State, Johnson GD, Eidson M, Schmit K, Ellis A, Kulldorff M, *Am J Epidemiol* 163 (2): 171-180 JAN 2006;

Maynard, N.G. 2006. **"Satellites, Settlements, and Human Health"**, In: Ridd, M.K. & J.D. Hipple, Editors. *Remote Sensing of Human Settlements: Manual of Remote Sensing*. 3rd Edition, Volume 5:379-399. American Society Photogr Remote Sens, Bethesda, MD;

Modeling infectious diseases using global stochastic cellular automata, Mikler AR, Venkatachalam S, Abbas K *J Biol Syst* 13 (4): 421-439 DEC 2005;

Factors Contributing to Unsuccessful Geocoding in a Population-based Cancer Registry, Lai SM, Shen Z, Rushton G, *J Registry Manage* 32(4):169-174 2005

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New Report

The State of Opportunity in America: a Report on the Nation's Progress toward Protecting and Expanding Opportunity for All. "…we find that opportunity is at risk for all Americans. For example, as a growing number of businesses reduce or eliminate health care benefits, more and more U.S. workers face serious health and financial risks. And high rates of uninsurance have broad effects on health care costs and access, even for the insured. Moreover, some groups of Americans are facing multiple barriers to opportunity. For example, people who live in high-poverty, predominantly minority communities are more likely to face poorly-funded schools, inadequate public transportation to jobs, environmental hazards, high crime rates, and a lack of representation on the public airwaves and in government. These obstacles build on one another and compound over time, combining to erode opportunity."

Among the noteworthy findings in this report: *The number of **uninsured Americans**- more than 45 million in the most recent U.S. Census estimate- has

reached a record high. Immigrants, minorities, and low-income families are more likely to be uninsured than their counterparts. Most of the uninsured are in working families, and all are at greater risk of health problems and financial ruin; ***Wage inequality** is now greater than it was three decades ago. Wages increased less than one percent in adjusted dollars between 1979 and 2003 for those in the bottom tenth of wage-earners, but increased by 27 percent among the top wage-earning decile during the same period. White men enjoyed the greatest income growth over the last three decades, while an increasing share of Hispanic men earned poverty-level and near-poverty-level wages; *The **gender wage gap** has narrowed over the last three decades, but women still earn 81 cents for every dollar that men earn. In addition, women with higher levels of education currently face a larger wage gap relative to comparably-educated men than that of less-educated women; *Although a growing share of Americans owns their home, **rates of homeownership** among most racial and ethnic minorities lag far behind that of whites. And homeownership has declined over the last thirty-five years for those in the lowest income quartile, in contrast to the modest increases seen among higher income groups. Barriers to opportunity for homeownership are exacerbated by persistent discrimination in mortgage lending and home sales; and, *Following at least three decades of increases, **concentrated poverty** has declined since the 1990s. But poor female-headed and minority households are increasingly more likely than poor white households to live in neighborhoods with high levels of poverty. [See: http://www.opportunityagenda.org/site/c.mwL5KkN0LvH/b.1405867/k.BF38/Home.htm]

V. Related Census, HHS, FGDC and Other Federal/State Developments
Special Report on CDC's new Director's Emergency Operations Center (DEOC)

[Excerpts] The **new Director's Emergency Operations Center (DEOC)** state-of-the-art facility is designed to enable the CDC to execute its national bio-terrorism crisis response plan or help the agency fulfill its mission for all other public health crises. Called **DEOC 21** to distinguish it from the older DEOC in Building 1, the new facility has been reorganized so that it can function within the National Incident Management System (NIMS). For example, the Incident Manager will have separate dedicated space along with an office for the

Director of CDC. The Duty Officer, Watch Staff and the majority of "functional" Action Officer desks face 16 large screens so that they can monitor nationwide activities.

DEOC 21 now will house more personnel, accommodating a total of around 250 versus 54 personnel housed in DEOC 1. Maintaining more workstations is critical to emergency response because there are many tasks that must be organized, and the ability to interface with the supporting teams is vital to ensure timeliness for rapid decision making and overall results. Some of the team rooms are thus dedicated to specific IMS functions such as Logistics, Planning, Finance, Emergency Communications, GIS and IT support. Information flow is vital during an event. DEOC 21 has integrated state-of-the-art technology and the infrastructure is in place to incorporate upgrades as they evolve.

Another improvement- seats are arrayed by functionality versus by CIO. "We have realigned ourselves functionally," explains Phil Navin, Director. "It really simplifies the management and reporting structure and provides stability. You always know where you will sit. The guiding principles are stability, consistency and familiarity in the day-to-day work environment with a transparent transition during an event. For example, during an event, if someone has an Epi-X [Note: Epi-X is CDC's secure, moderated, bi-directional web-based communications and alerting system. Using advanced encryption and verification technologies, the system can rapidly establish secure channels of communication between its users. This unique security feature gives public health officials a safe way to send and receive information. The system is designed to provide early warning of developing situations and a secure way to communicate response efforts. As health

threats develop, officials use Epi-X to communicate with each other and the command centers at CDC and HHS] question, they can call the *EpiX* seat in DEOC. There will always be someone from *EpiX* sitting there."

The first exercise took place February 10, 2006, following a day-long DEOC orientation. The excercise scenario unfolded--"THIS IS A TEST: an earthquake of 7.7 magnitude occurred along the New Madrid Seismic Zone, resulting in massive damage to airports, water and sewer systems, energy lines, roads, bridges, dams, locks on the Mississippi River, telecommunications and health

facilities. In the exercise, the President declared disasters in Arizona, Missouri, Illinois, Kentucky and Tennessee. In St. Louis, 43 people were exposed to nuclear waste. There was chlorine and sewage contamination in Memphis. A large gas pipeline exploded in Jackson, Tennessee. Levees fractured along the Mississippi and most major bridges are impassable. Rioting has broken out. More than 3700 people are dead and over 58,000 are injured. Cell phone service is out in many affected areas but is slowly being restored. CDC is still having difficulty contacting deployed personnel and directly assessing the situation. THIS IS A TEST."

During the exercise, the DEOC was bustling with activity: "The drill went surprisingly well," says Navin. "We have received lots of favorable comments. People want to do this on a regular basis to get more training and become more familiar with the DEOC set up. They need to have a thorough understanding of this system so as a team they can function in sync internally and with other agencies on the local, state and national levels." The Division Directors will get orientations this month. In May, there will be a pandemic flu and a hurricane

exercise. [Source: March 2, 2006, *CDC Connects*; Contact: Kathy Nellis at kgn0@cdc.gov]

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Report on Legislative Activities
National Center for Health Statistics, CDC
January 2006 [excerpts]

The 109th Congress worked well into December and managed to enact all 11 appropriations bills, among other things, before wrapping up its first session. There remains, however, a host of unfinished business for the second session which has just gotten underway.

Congressional interest in **vaccine safety** remains strong and this was reflected in language included in the conference report accompanying the Labor/HHS bill. The report expresses concern about the possibility that exposure to thimerosal in pediatric vaccines has contributed to an increase in autism. It urges the National Institute of Environmental Health Sciences (NIEHS) to work with CDC and independent researchers to conduct research on this issue, and cites CDC's Vaccine Safety Datalink as a source of data for this research. The language encourages NIEHS and CDC to organize a workshop by May 2006 to explore research possibilities and the scientific feasibility of a study.

In other news, the Congress approved and the President signed into law (P.L. 109-151) a health insurance bill that extends for one year a law that prohibits insurers from limiting **mental health benefits** unless other health benefits are similarly limited.

The House also passed the **"cheeseburger bill"** which would prohibit lawsuits against food companies based on an individual's weight gain. The House passed this same bill during the last session also but the Senate didn't take it up; it is unclear whether the Senate will do so this year.

In an effort to smooth its passage, reauthorization of the **Temporary Assistance for Needy Families (TANF)** law was incorporated into the House budget reconciliation bill discussed above. The Senate initially opposed including this perpetually controversial measure in its budget reconciliation bill, but it was included in the reconciliation conference report ultimately endorsed by both chambers. This reauthorization, which will go through 2010, has been in the works for three years. As part of the reauthorization, language providing for **bonuses to states for reductions in out of wedlock births is eliminated**; instead funding is authorized ($150M is authorized each year through 2010) for

activities to promote **healthy marriages and responsible fatherhood**. As a back-up measure, the Congress also approved the 12th temporary extension of the TANF program, keeping it running through March 31, 2006.

The Administration and Congress alike solidly support expanded use of health information technology. In November, the Senate -with bipartisan support- passed a bill (S. 1418) on this topic. It would establish in law an **Office of the National Coordinator of Health Information Technology within HHS** (such an office already exists, but without a congressional mandate), responsible for coordinating and overseeing activities to develop a nationwide interoperable health information technology infrastructure.

With the Administration and the Senate on board, there will be pressure for the House to act on this issue also. Rep. Nancy Johnson (R-CT) -an influential legislator on this topic- has introduced a bill (H.R. 4157) that would establish an Office of the National Coordinator of Health Information Technology in law in HHS, with an emphasis on improving quality, reducing medical errors, and promoting efficiency. The bill also would require the Secretary to study state and federal confidentiality and security laws and standards and report on whether the laws and standards should be conformed to create a single set of national standards and, if so, what those standards should be. Finally, the bill focuses on coding issues; it would require that ICD-9-CM be replaced with **ICD-10-CM** and **ICD-10-CPS** and would require the development of a strategic plan for coordination in implementation of health information technology standards and the revised coding requirements.

Document standards are addressed in a number of other bills as well, although none of them have been acted on. Several bills would shift the responsibility for developing minimum standards for **birth certificates** (an authority now assigned to HHS and being carried out by NCHS) from HHS to the Department of Homeland Security (DHS). Other bills would require SSA, in issuing SSNs, to independently verify birth records (other than for enumeration at birth) and would require DHS, in consultation with HHS and SSA, to work with states to establish **protocols for electronic birth and death registration systems** and to function as the lead agency in implementing electronic verification of births and deaths.

NCHS has provided information for several Government Accountability Office (GAO) studies in recent months: One study focused on data dissemination policies at the Census Bureau and examined practices at other statistical agencies as part of this study; An ongoing study on estimating immigration status is considering the **NHIS** and other large surveys as possible vehicles for obtaining data on the foreign-born; An ongoing study on duplication in federal surveys is examining NCHS data collection practices and activities to avoid duplication. It has focused specifically on NCHS activities with regard to NHIS/MEPS integration, disability data, dietary data, and data on the uninsured; An ongoing study on border deaths and safety is looking into the potential for **mortality data** to contribute to an understanding of this problem. NCHS also presented a briefing on NCHS data to members of GAO's Health Care Team in December.

International concern about the risk of **avian flu** has prompted congressional action on this issue. Funding for a variety of flu preparedness activities -improved state and local response capacity, disease surveillance, international activities, research, stockpiling of drugs, development of vaccines- was included as an emergency measure in the Defense Department appropriations law enacted in December (P.L. 109-148).

S. 2170, passed by the Senate, would establish an **international disease surveillance system** and authorize funding to assist developing countries in this effort. The bill would also establish a **fellowship program** to allow students from developing countries to study epidemiology and public health in the United States.

Major bills (S. 1580/H.R. 3561) on **minority health** have been introduced in both chambers. Neither bill has been acted on. These bills would reauthorize NCHS through 2012. They also include a strong focus on data and would require: the Secretary to develop a national plan to improve collection of racial, ethnic, and primary language data based on recommendations of the Data Council (consulting with NCVHS and others); the Office of Minority Health to develop **standards for data on written and spoken language**; HHS programs to use OMB standards to obtain data on program recipients and would require the Secretary to protect these data consistent with the Privacy Rule; the Secretary, through AHRQ and in coordination with CMS, to provide technical assistance to HHS agencies in meeting **race, ethnicity, and primary language data collection**

standards; and the collection of expanded data on **asthma and overweight and obesity in minority populations,** and the establishment of epidemiology centers in Indian service areas.

Another Senate minority health bill (S. 1929) also includes a strong focus on data. It calls for collection of data on **race, ethnicity, highest level of education, and primary language** for recipients of federally supported health programs and would modify HIPAA claims standards to incorporate the requirements for data collection. The bill also would create an **Office of Healthcare Disparities and Quality in AHRQ** to develop the annual Disparities and Quality reports.

S. 2047, a comprehensive environmental health bill, would require CDC and EPA to issue **environmental report cards** for the Nation and for states, if possible, every 2 years. The report card would include the measures included in the **National Report on Human Exposure to Environmental Chemicals** as well as other measures. The bill also would require the expansion of research regarding the health effects of environmental toxins including expanded biomonitoring of exposure levels and would establish a grant program to assist states in conducting biomonitoring of environmental toxins. **Data conducted by states would be integrated with existing data including data from NHANES, NHDS, NAMCS, NHIS, and other surveys**.

Bills (S.1930/H.R. 3616) to address **inflammatory bowel disease**, would require CDC to develop a plan for assessing the burden of inflammatory bowel disease, including determining its prevalence. A House bill (H.R. 4033) would require CDC to develop a system to collect national data on **amyotrophic lateral sclerosis** (ALS), including incidence and prevalence, as well as establish a national registry. Coordination with existing data collection mechanisms including the NVSS, among others, would be required in establishing the registry. A House bill (H.R. 4137) would authorize additional funds to conduct research and collect data regarding the relationship between **early detection of breast cancer** and reduction of mortality rates for this disease. A bill (H.R. 3550) to improve research on **Parkinson's disease** would require an NIH/CDC report on the incidence of Parkinson's including age, occupation, geography, and related environmental factors.

An **asthma** bill (H.R. 4166) includes language similar to language seen in previous bills on this issue. It would require asthma surveillance activities including the collection of sample household data on the local burden of asthma and surveillance of sample health care facilities. The bill would require CDC to publish annually a wide range of data for children and adults- prevalence and incidence data and hospital admissions and ED visit data- nationally, by state, and by county (to the extent practicable). This bill also would require CDC to coordinate data collection efforts with state and local health departments. [Source and contact: Kathy Moss, Office of Planning, Budget, and Legislation, CDC/NCHS, at kmoss@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]

Imagery for the Nation

Resolution: The Imagery for the Nation Task Force recommends that the FGDC Steering Committee adopt and support implementation of the current Imagery for the Nation proposal as an innovative program that will provide **orthoimagery** to meet the Geospatial Information System needs of local, state, regional, tribal and federal agencies. The program will limit overall costs, provide consistent product quality and standards, and reduce duplication of effort. It requires two separate, but well coordinated acquisition initiatives that include a one-meter resolution imagery program for the entire country, and a higher resolution program over densely populated areas. The proposal advocates new federal funding with fiscal year 2008 line-item budget allocations.

The National States Geographic Information Council (NSGIC) is working with the National Digital Orthophoto Program Committee (NDOP) and the Federal Geographic Data Committee (FGDC) to create a new

nationwide aerial imagery program that will collect and

[This 1-foot resolution image was taken shortly after an F4 Tornado struck Charles County in Southern Maryland. It was used to document damage and help emergency managers during recovery operations]

disseminate standardized multi-resolution products on "set" schedules. Local, state, regional, tribal, and federal partners will be able to exercise "buyup" options for enhancements that are required by their organizations. The imagery acquired through this program will remain in the public domain and archived to secure its availability for posterity.

Aerial and satellite imagery, in the form of **digital orthoimagery**, is the foundation for most public and private Geographic Information Systems (GIS). It is an essential commodity that is being developed by hundreds of different entities across the Nation leading to higher costs, varying quality, duplication of effort and a patchwork of products. Large area contracting methods will keep the cost to the taxpayer as low as possible and improve the availability of standardized, high-quality products.

Orthoimagery provides the visual content of an aerial photograph while being as accurate as a map for measurements. These qualities allow users to easily: Measure Distance; Calculate Areas; Determine Shapes of Features; Calculate Directions; Determine Accurate Coordinates (Locations); Determine Land Cover and Use; Perform Change Detection. Orthoimagery is displayed in E-911 response centers to dispatch first responders to exact locations and for tracking incoming calls from mobile phones. Local governments rely on orthoimagery to map land property boundaries and to manage their streets and other infrastructure assets.

Orthoimagery serves as a seamless base map layer to which many other layers are registered. It provides visual information for the following partial list of applications- Homeland Security, Homeland Defense and Emergency Management; Public Safety Planning, Response and Mitigation; Tax Parcel Mapping; Transportation Management, Operations and Planning; Economic Development; Utilities Management, Operations and Planning; Land Planning and Zoning; Drainage Planning & Management; Code and Permit Enforcement; Agriculture; Insurance; Surveying & Mapping; Environmental Management, Planning and Regulation; Education; and Natural Resource Inventories and Assessments. [See full NSGIC report, January 16, 2006 at website http://www.fgdc.gov/participation/steering-committee/meeting-minutes/january-2006/index_html or http://www.nsgic.org; Contact: Bill Burgess, NSGIC Washington Liaison to the FGDC, at email william.burgess@comcast.net]

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**Recent Government Accountability Office
(GAO) Reports, 2005**
[See: http://www.gao.gov]

Web Site(s) of Interest This Edition
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http://www.r-project.org R is a free software environment for statistical computing and graphics. R provides a
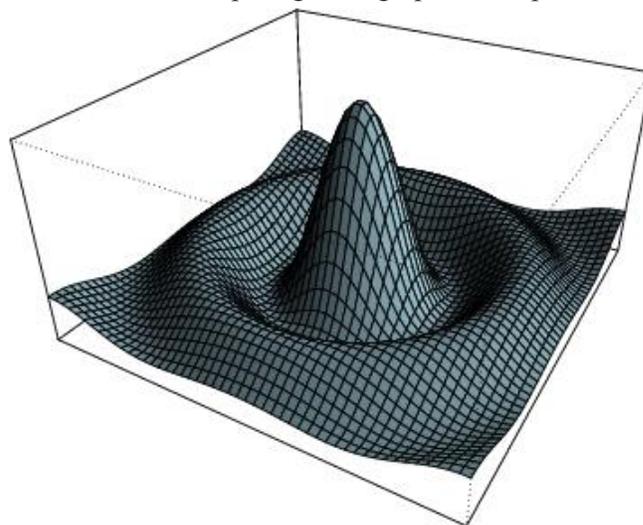
language and environment for statistical computing and graphics which provides a wide variety of statistical

(linear and nonlinear modeling, classical statistical tests, time-series analysis, classification, clustering, 3-D surface plot ([C] R Foundation, above, and others) and graphical techniques. One of R's strengths is the ease with which well-designed publication-quality plots can be produced, including mathematical symbols and formulae where needed. Great care has been taken over the defaults for the minor design choices in graphics, but the user retains full control.

http://www.uic.edu/cuppa/uicued **ON THE CORNER: Day Labor in the United States** [JAN 2006]. This report profiles, for the first time, the national phenomenon of day labor in the United States. Men and women looking for employment in open-air markets by the side of the road, at busy intersections, in front of home improvement stores and in other public spaces are ubiquitous in cities across the nation. The circumstances that give rise to this labor market are complex and poorly understood. In this report, we analyze data from the National Day Labor Survey, the first systematic and scientific study of the day-labor sector and its workforce in the United States.

http://secure.cihi.ca/cihiweb/dispPage.jsp?cw_page=media_11jan2006_e
Geographic Distribution of Physicians in Canada: Beyond How Many and Where. A new report published today by the **Canadian Institute for Health Information** (CIHI) shows that, in 2004, 9% of all physicians were located in rural and small-town Canada, where just over one-fifth of the population lives. The report also shows that family physicians are in greater supply in rural areas than are specialists. When broken down by category, nearly 16% of family physicians and slightly more than 2% of specialists worked in rural areas. However, the study also shows that rural family doctors offer a broad range of clinical procedures to meet the needs of rural populations.

http://katrina.house.gov **A Failure of Initiative**, Select Bipartisan Committee to Investigate the Preparation for and Response to Hurricane Katrina, Final Report, Tom Davis, Chairman (February 15, 2006). When Hurricane Katrina made landfall near the Louisiana-Mississippi border on the morning of August 29, 2005, it set in motion a series of events that exposed vast numbers of Americans to extraordinary suffering. Not only would Katrina become the most expensive natural disaster in U.S. history, it would also prove to be one of the

deadliest. At least 1,100 Louisianans died as a result of Katrina. This report is the result of a five-month journey by the Select Committee to gather information from all those who learned painful lessons during Katrina. It

Final Report of the Select Bipartisan Committee to Investigate the Preparation for and Response to Hurricane Katrina

examines how well local, state, and federal officials worked with each other and with private entities to alleviate the suffering of so many of our fellow citizens.

http://www.whitehouse.gov/reports/katrina-lessons-learned.pdf **The Federal Response To Hurricane Katrina: Lessons Learned** (February 2006). Excerpt: Hurricane Katrina severely stressed our current national response capabilities. However, as depicted in Figure 6.2, three other National Planning Scenarios- an act of nuclear terrorism (Scenario 1), an outbreak of pandemic influenza (Scenario 3), and a 7.5 magnitude earthquake striking a major city (Scenario 9)- are more daunting still. Compared with the deaths and economic chaos a nuclear detonation or influenza outbreak could unleash, Hurricane Katrina was small. But even these scenarios do not go far enough to challenge us to improve our level of preparedness. Until we can meet the standard set by the most demanding scenarios, we should not consider ourselves adequately prepared.

http://www.geovista.psu.edu/grants/CDC. **Pennsylvania Cancer Atlas Web Site**. Under development as part of:Association of American Medical Colleges (AAMC)/CDC Cooperative Agreement MM-0718- "A Model GIS/Atlas for State Comprehensive Cancer Control." Despite the fact that GIS and atlases are widespread and have provided initial successes at portraying and analyzing geographic variation in cancer burden, there exists a substantial gap in best methods to visually and statistically analyze and interpret geographic variation in cancer burden. Best practice methods that are

widely disseminated would assist state agencies to make and utilize accurate and timely interpretations of their cancer data. [For additional details on mapping and visualization, see: http://www.hmc.psu.edu/gisatlas/index.htm; Editor: Appreciation is extended to Eugene Lengerich]
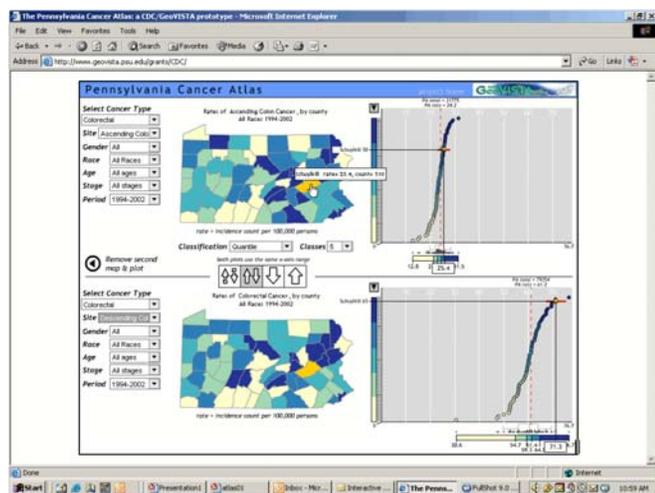
http://www.johnpickering.co.uk/news/mesotheliomaactionday.html
Asbestos- the World's Worst Industrial Killer. According to new research by the British Lung Foundation, only 6% of people in the UK know what the disease is yet the deadly cancer kills one person every five hours in the UK. Here are the statistics: 1,900 people die from mesothelioma each year in the UK; 95,000 people will die from mesothelioma by 2050 in the UK; and 250,000 people will die from mesothelioma in Western Europe by 2035. Research shows that the peak

in mortality will come between 2011 and 2015, the highest number of deaths per year being between 1,950-2,450.

http://www.who.int/social_determinants/mediacentre/CSDH_newsletter_issue_6.pdf **Commission on Social Determinants of Health** (CSDH), World Health Organization (WHO). The massive and growing inequities of wealth, income, life expectancy and resource use are increasingly acknowledged. Their existence has led to global campaigns to "Make Poverty History", calls for re-distribution of wealth and income and the provision of effective health services, drug therapies and basic public health infrastructures including water, sanitation and housing. One of WHO's responses has been to establish the CSDH to consider how action on the upstream causes of illness and inequity can be implemented by governments and international agencies. Their latest newsletter is now online.

http://www.familiesusa.org/about **Families USA** is a national nonprofit, non-partisan organization dedicated to the achievement of high-quality, affordable health care for all Americans. Working at the national, state, and community levels, we have earned a national reputation as an effective voice for health care consumers for over 20 years. Their **Making Public Programs Work for Communities of Color: An Action Kit for Community Leaders**, is informative and educational. The kit contains fact sheets, case studies, a power point presentation, and a checklist designed to decrease racial and ethnic disparities in health.

Final Thoughts
GIS and Public Health 2006: Starting the Year with Research Momentum

I am pleased to herald the opening of GIS and public health 2006 with promising research developments. These activities signal the continuation of a steady research momentum, involving many players and topics. GIS research now embraces a widening and increasingly knowledgeable multidisciplinary cross section of investigators, from nearly all sciences and the public sector. The growing availability and expansion of the geospatial toolkit, at attainable costs, also is contributing to the accessibility of investigation and exploration, by just about anyone with scientific curiosity or purpose. These opportunities, and their challenges, are sharable and now crisscross and permeate all nations and nearly all health activities. We are moving towards a new level of scientific endeavor, all of which concerns the key element of location. It is a highly valued societal commodity. As a professional geographer, I have to remind myself that the long-awaited defining of a robust science centered on georeferenced events –and their time and space attributes- has materialized. The following 2006 developments provide evidence that research will continue to lead this exciting chapter in the life of GIS and public health science.

"Developments in Disease Cluster Detection"

Statistics in Medicine, Special Issue 25(5) MAR 2006: Edited by Andrew Lawson, Ronald Gangnon, Dan Wartenberg

Topics and Authors

Developments in disease cluster detection, AB Lawson, RE Gangnon, D Wartenberg; **Fast detection of arbitrarily shaped disease clusters**, R Assunção, M Costa, A Tavares, S Ferreira; **A workflow spatial scan statistic**, L Duczmal, DL Buckeridge; **Evaluating spatial surveillance: detection of known outbreaks in real data**, K Kleinman, A Abrams, WK Yih, R Platt, M Kulldorff; **Cluster detection diagnostics for small area health data: with reference to evaluation of local likelihood models**, M Hossain, AB Lawson; **Multiscale detection of localized anomalous structure in aggregate disease incidence data**, MM Louie, ED Kolaczyk; **Statistical methods for the detection of spatial clustering in case-control data**, PA Rogerson; **Likelihood based tests for spatial randomness**, C Song, M Kulldorff; **An extended power of cluster detection tests**, K Takahashi, T Tango; **The geography of power: statistical performance of tests of clusters and clustering in heterogeneous populations**, LA Waller, EG Hill, RA Rudd; **A cluster model for space-time disease counts**, P Yan, MK Clayton; **Impact of prior choice on local Bayes factors for cluster detection**, RE Gangnon **Disease cluster detection: a critique and a Bayesian proposal**, AB Lawson.

<div align="center">***</div>

"Prostate Cancer and Geographic Information Systems (GIS)"

American Journal of Preventive Medicine 30(2) Supplement S FEB 2006
Edited by Thomas Richards, Linda Pickle, Gerard Rushton
[Articles online at: http://www.ajpm-online.net/issues/contents?issue_key=TOC@@JOURNALS@AMEPRE@0030@0002s0

Topics and Authors

An Introduction to Prostate Cancer and Geographic Information Systems, Seidman CS; **How (Not) to Lie with Spatial Statistics**, Anselin L; **What Can Geography Tell Us About Prostate Cancer?**, Klassen AC, Platz EA; **Geocoding in Cancer Research: A Review**, Rushton G, Armstrong MP, Gittler J, Greene BR, Pavlik CE, West MM, Zimmerman DL; **Basic Mapping Principles for Visualizing Cancer Data Using Geographic Information Systems (GIS)**, Brewer CA [Map: A bivariate map showing both number of deaths and death rates. Size is used for the count variable (rows; larger symbols for more deaths) and hue and lightness are used for the rate data (columns; light yellow to dark red). For example, the large dark square represents counties with many deaths and high rates (upper right in legend). The combination of small size and color reduces the visual prominence of counties with few deaths and thus less reliable rates. Size and color are separable visual variables. The 2-D legend (not shown here) reads much like a cross-tabulation table] **Cancer Map Patterns: Are They Random or Not?**, Kulldorff M, Song C, Gregorio D, Samociuk H, DeChello L; **Recent Changes in the Spatial Pattern of Prostate Cancer in the U.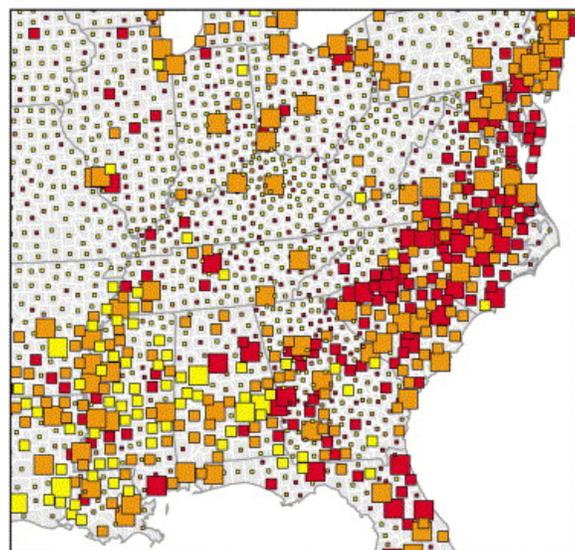S.**, Rogerson PA, Sinha G, Han D; **Clusters of Census Tracts with High Proportions of Men with Distant-Stage Prostate Cancer Incidence in New Jersey, 1995 to 1999**, Abe T, Martin IB, Roche LM; **Spatial Analysis of Prostate Cancer Incidence and Race in Virginia, 1990-1999**, Oliver MN, Smith E, Siadaty M, Hauck FR, Pickle LW; **Missing Stage and Grade in Maryland Prostate Cancer Surveillance Data, 1992-1997**, Klassen AC, Curriero F, Kulldorff M, Alberg AJ, Platz EA, Neloms ST; **Hierarchical Modeling and Other Spatial Analyses in Prostate Cancer Incidence Data**, Mather FJ, Chen VW, Morgan LH, Correa CN, Shaffer JG, Srivastav SK, Rice JC, Blount G, Swalm CM, Wu X, Scribner RA; **Geographically Based Investigation of Prostate Cancer Mortality in Four U.S. Northern Plain States**, Rusiecki JA, Kulldorff M, Nuckols JR, Song C, Ward MH; **Control Selection and Pesticide Exposure Assessment Via GIS in Prostate Cancer Studies**, Marusek JC, Cockburn MG, Mills PK, Ritz BR.

Black male prostate cancer deaths, all ages by county

GIS Research- New Book
Geographic Information Systems and Public Health: Eliminating Perinatal Disparity
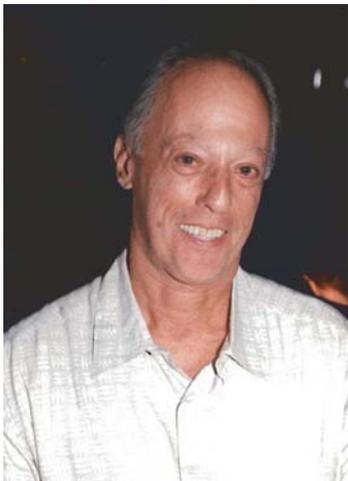Andrew Curtis and Michael Leitner, HRM Press (Idea Group, Inc.), Hershey 2006
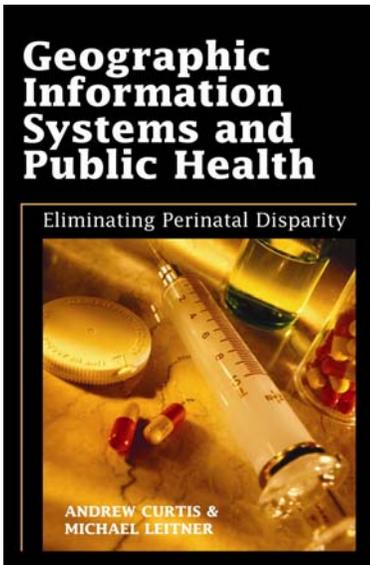
This book frames a consistent theme as to why geography and location are key elements to the investigation of maternal and child health risks and outcomes, especially in a neighborhood contest. Study examples are drawn heavily from the Baton Rouge Healthy Start program and a variety of parishes from which the studied populations originate. Topics covered include: **Explaining the Geography of Infant Health; An Introduction to GIS (All Things Data); An Introduction to GIS (All Things Spatial); The Geography of Health Risks; GIS and Spatial Analysis- Keeping it Simple; Advanced Spatial Analysis; Spatial/Temporal Stability in Neighborhoods of Risk- The Mobility of Mothers; Patient Confidentiality; Creating the Baton Rouge Healthy Start GIS; Bioterrorism, Pregnancy and Old White Men; and, Rural Health Issues and Their Investigation in a GIS**.

The authors want us to know that the disparities of health, often viewed simplistically as a racial phenomenon, are more a result of the mix of economic, environmental and social deprivations associated with the mainly inner city neighborhoods in which many minority citizens, especially African Americans, reside. To get at these complexities, the authors help us to understand the overwhelming impact of poverty and its social and psychological triggers underlying early childhood development and poor health outcomes.

The book explores a range of topics, some of which are important reminders of considerations useful in the study of GIS and maternal and child health e.g., the importance of linked birth-death certificates to construct pregnancy histories related to risks and outcomes; the use of multilevel data for modeling risks based on those of the individual, their household and their neighborhood influences (contextual data); the fundamental importance of access to care; and the indirect health problems for children living in stressful, unsafe, criminal and often violent neighborhoods, communities without recreational space, single parent homes, and with inordinate exposures to pediatric traffic injuries and pollution, to name a few. **[Map: (a) Results of nearest neighbor hierarchical cluster (NNHC) analysis; (b) Results of single kernel density method; (c) Results of both NNHC and single kernel density method overlaid in the same map; and (d) Results of dual kernel density method**; Courtesy Idea Group Inc**.]**
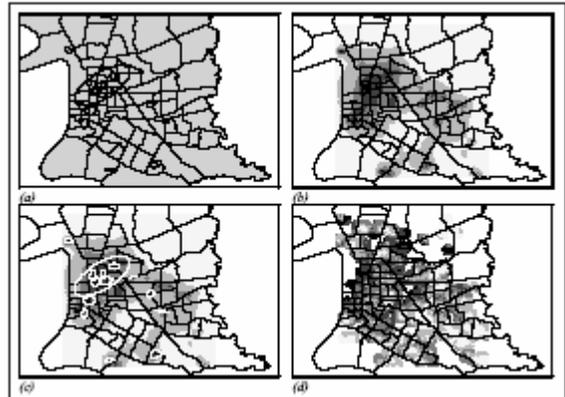
I believe this book has something useful to offer to most GIS and public health users. Overall, it provides many meaningful lessons of what we need to consider for our own work. It is a welcome addition to resources on GIS and community health research.

Charles M. Croner, Ph.D., 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. Celebrating our **69th** 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 - please join us April 19, 2006, for our next GIS Guest Lecture

APPENDIX: MAPPING HEALTH INEQUALITIES
[Twelfth in Collaborative Series: See May, July, September, November 2004, January, March, May,
July, September, November 2005; and January 2006 editions at NCHS GIS website; also, see the complete archive at
http://communitysolutions.com/store/index.asp?DEPARTMENT_ID=121]
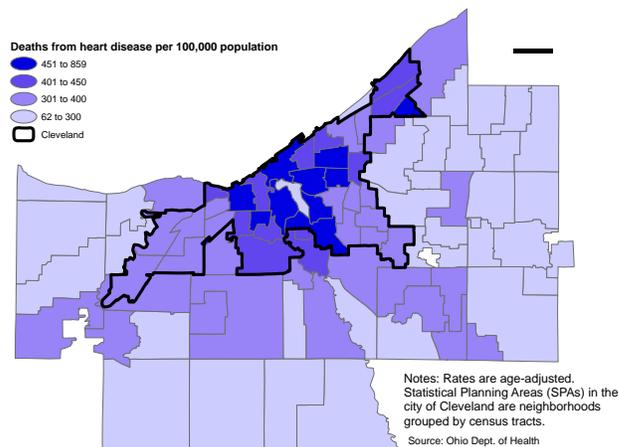
Heart Disease Deaths, Cuyahoga County, Ohio, 1997 to 2001

Terry Lenahan, The Center for Community Solutions, Cleveland, Ohio

Heart disease is the leading cause of death in the United States, accounting for 30 percent of all deaths. In 2002, nearly 697,000 deaths, over 1,900 deaths per day, were due to heart disease. Historically, heart disease death rates are higher among African Americans than among Whites. Major risk factors for heart disease include increasing age, high blood pressure, cigarette smoking, elevated blood cholesterol, and being overweight. Physical inactivity and diabetes further increase the risk of heart disease. A variety of lifestyle interventions can help prevent heart disease by reducing risk factors. High blood pressure can be prevented or controlled by increasing aerobic activity, maintaining a healthy weight, moderating the use of alcohol, reducing sodium intake, and eating a reduced-fat diet. A low-fat diet may also lower cholesterol levels. Balancing caloric intake with physical activity can reduce weight-related problems and obesity, and smoking cessation is critical to the prevention of heart disease.

Map: Average Annual Death Rates from Heart Disease

The heart disease death rate is defined as the number of deaths from heart disease per 100,000 persons. In the following analysis of deaths in Cuyahoga County, Ohio, the rates were age-adjusted to account for differences in age distributions over time and between racial categories.[1] To provide more stable rates, we use a four-year average. For larger geographic areas, the rates are reported for Whites, African Americans, and All Races combined in *Social Indicators 2003: Community Health*,[2] but we do not show rates for individual municipalities or statistical planning areas *by race*.

Deaths from heart disease per 100,000 population
451 to 859
401 to 450
301 to 400
62 to 300
Cleveland

Notes: Rates are age-adjusted. Statistical Planning Areas (SPAs) in the city of Cleveland are neighborhoods grouped by census tracts.
Source: Ohio Dept. of Health

The data are from the Ohio Department of Health for 1997, and 1999 through 2001. Due to an unusually high number of incomplete addresses on the death certificates, data from 1998 were excluded. To recognize the trend over time, we have calculated the average annual percentage change by determining the slope of the trend line from 1997 to 2001, and then dividing the slope by the mean of the values over the same period. This method removes some of the effects of any annual changes that are inconsistent with the general trend over time.

From 1997 to 2000, the average U.S. age-adjusted heart disease death rate was 268 deaths per 100,000. Racial disparities existed in heart disease mortality rates between Whites and African Americans. The average heart disease death rate among Whites was 263 deaths per 100,000 compared to 335 deaths per 100,000 African Americans. Heart disease death rates have been decreasing each year among both groups.

At 322.4 heart disease deaths per 100,000, the average age-adjusted death rate in Cuyahoga County was about 14 percent higher than the regional and state averages, and 20 percent higher than the national average. The rate for African Americans was 341 deaths per 100,000, compared to 321.9 deaths per 100,000 Whites. During the study period, the heart disease death rate remained stable among African Americans and increased by about 1 percent among Whites.
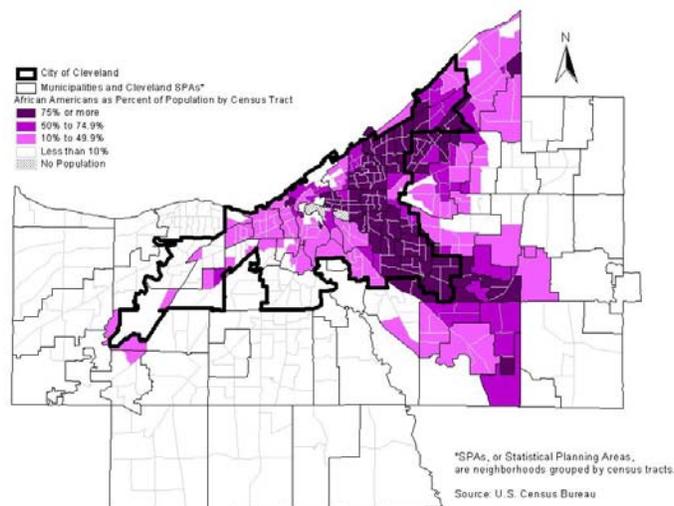
The heart disease death rate varied by geographic area within the county; Cleveland had the highest death rates - at an average of 395 deaths per 100,000, the overall rate in Cleveland was 36 percent higher than the regional rate and 47 percent higher than the national rate. Unlike larger geographic areas, the heart disease death rate for African Americans in Cleveland (369 per 100,000) was lower than the death rate for Whites (443 per 100,000). However, the heart disease death rates in Cleveland for both groups were higher than national, state, regional, and county levels. The rates remained fairly stable over the time period, increasing for Whites and decreasing slightly for African Americans.

Map: Percent African American, Cuyahoga County, 2000

The overall age-adjusted heart disease death rate in the suburbs (289 per 100,000) was lower than the regional and state rates, but still above the national rate of 268 deaths per 100,000. The rate was slightly lower among African Americans (286 per 100,000) compared to Whites (291 per 100,000), and increased by roughly 1.5 percent in each racial category.

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[1] For more information on age adjustment and for the clinical definition of heart disease, go to Community Solutions' Website to the technical notes in Appendix C, in *Social Indicators 2003: Community Health* Appendices B-E.

[2] See analysis at Community Solutions Website in *Social Indicators 2003: Community Health* on Mortality Rates.

Maps created by: Terry Lenahan, Policy and Planning Associate in Research, The Center for Community Solutions. Heart disease death rates were calculated by Lucy Malakar. Data was geocoded to census tract level by Brian McNamara, GIS specialist. Ellen Cyran, systems programmer/analyst, provided programming for the heart disease 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. "Heart Disease Deaths, 1997 and 1999 to 2001" 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). Contact: Terry at tlenahan@communitysolutions.com.

[Editor's Note: Postnote- Announcement: "Today, CDC celebrates our newest division- The Division for Cardiovascular Disease and Stroke Prevention in the National Center for Chronic Disease Prevention and Health Promotion. Cardiovascular disease remains the major preventable cause of mortality in this country, and CDC is committed to doing all we can do prevent the burden of morbidity and mortality this entails. Creating a new division provides leadership, research, and intervention programs that target heart attacks, strokes, and related complications. This is a way to help focus our efforts and strengthen our ability to make a difference." *Julie Louise Gerberding* M.D., M.P.H., Director, Centers for Disease Control and Prevention Administrator, Agency for Toxic Substances and Disease Registry, February 14, 2006]