PUBLIC HEALTH GIS NEWS AND INFORMATION
September 2006 (No. 72)
Dedicated to CDC GIS Scientific Excellence and Advancement in
Disease, Injury and Disability Control and Prevention, and Biologic, Chemical and Occupational Safety

Selected Contents: Events Calendar (p.1); (pp. 7-8); Public Health and GIS Literature 16); Website(s) of Interest (pp. 17-18); Final

News from GIS Users (pp.1-7); GIS Outreach (pp.7-14); DHHS and Federal Update (pp.14- Thoughts (pp.18-19); **MAP** Appendix (20-24)

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

October 18, 2006: **"New Geographic Tools: An Urban-Rural County Classification and Mapping Options for the Compressed Mortality File,"** Debra Ingram and Sheila Franco, Statisticians, Office of Analysis and Epidemiology, NCHS. The lecture is 2:00PM (EDT) live at NCHS. The NCHS GIS Guest Lecture Series has been presented continuously at NCHS since 1988. As with all of our 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; Subscription to the CDC Public Health GIS Users Group is free- see: http://www.cdc.gov/subscribe.html]

[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)]

* AAPI Health Summit, Asian & Pacific Islander American Health Forum (APIAHF) and the Association of Asian Pacific Community Health Organizations (AAPCHO), September 14-16, 2006, San Jose CA [See: http://www.apiahf.org]

* NIH Conference on Understanding and Reducing Disparities in Health: Behavioral and Social Sciences Research Contributions, October 23-24, 2006, Bethesda MD [http://obssr.od.nih.gov/HealthDisparities/index.html]

* 9th International Conference for Global Spatial Data Infrastructure (GSDI): *Spatial Information: Tool for*

Reducing Poverty, November 6-10, Santiago, Chile [See: http://www.gsdi9.cl]

* 53rd Annual Meeting of the North American Regional Science Association, November 16-18, 2006, Toronto Canada [See: http://www.narsc.org]

* The Council of Professional Associations on Federal Statistics, Statistical Policy Seminar: *Keeping Current: What We Know, What We Need To Learn*, November 28-29, 2006, Washington D.C. [See: http://www.copafs.org]

2007 Meetings
* Second National Conference on USGS Health-Related Research, February 27-March 1, 2007, Reston VA [See: http://health.usgs.gov]

* Eleventh Biennial CDC & ATSDR Symposium on Statistical Methods, *Analyzing and Mapping Health Inequities to Impact Policies for Eliminating Disparities*, April 17-18, 2007, Atlanta GA [See conference information: and details at http://www.cdc.gov/od/ads/sag/index.htm, and Final Thoughts this edition]

* 2007 National Health Education Conference & SOPHE's 2007 Midyear Scientific Conference: The Changing Face of Health Education and Health Promotion, June 7-9, 2007, Seattle, WA [See conference site: http://www.sophe.org]

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. **U.S. Census Bureau Releases 2005 ACS Economic Estimates; data are first from full implementation of ACS**. The United States Census Bureau has released

2005 American Community Survey (ACS) data on economic characteristics for the nation, all 50 states and the District of Columbia, every congressional district and all counties and places with 65,000 population or more. These data were released in conjunction with the Census Bureau's annual release of income, poverty and health insurance data.
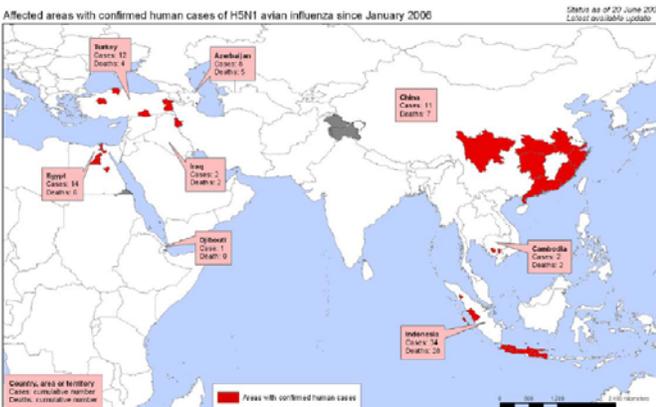
This release covers nearly 7,000 geographic entities and marks the first year that ACS data are available for areas with populations of less than 250,000. **It is part of the full implementation of the survey, which will provide updated data on an annual basis for all levels of geography (including census tracts and block groups) by 2010**. Reported characteristics include: Income; Poverty; Employment status; Occupation; Industry; and, Journey to work. [See full report and details: http://www.census.gov/acs/www]

2. The Washington Statistical Society (WSS), Washington, D.C., will sponsor the 16th Annual Morris Hansen Lecture, entitled **"Statistical Perspectives on Spatial Social Science,"** on November 6, 2006. Michael Goodchild, Professor of Geography, University of California Santa Barbara, will be guest speaker and the presentation is open to all. [See program details at website: http://www.scs.gmu.edu/~wss]

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

3. **"Will U.S. citizens in a foreign country be evacuated in the event of a pandemic?"** Current

Affected areas with confirmed human cases of H5N1 avian influenza since January 2006

medical thinking suggests that a "stay in place" response to a pandemic may be appropriate in certain countries or regions. In this scenario, people would be advised to exercise "social distancing" and avoid any form of public

gathering where transmission of the disease could occur. Crowding associated with travel is a concern for human-to-human transmission of viral infections due to proximity of travelers. People who are not comfortable with this scenario should consider these factors when making their plans. [See: *Pandemic Influenza Update*, CDC. July 2006 at http://intranet.cdc.gov/od/oec/publications]

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

4. **The Marriage Calculator: Financial Consequences of Marriage Decisions**. Marriage may influence couples' finances in a number of ways. For example, if a low-income single mother gets married, she may see changes in the amount of income tax she owes and in the amount of benefits she is eligible for through various transfer programs-benefits from **Temporary Assistance to Needy Families (TANF), food stamps, subsidized child care, subsidized housing, health insurance from Medicaid or the State Children's Health Insurance Program (SCHIP), and the Supplemental Feeding Program for Women, Infants, and Children (WIC)**.

A single parent's decision to cohabit may also affect a family's tax liability and amount of public assistance. The total financial resources of the woman and the man might be higher or lower depending on whether they live apart, cohabit and report it to government programs, cohabit and do not report it to government programs, or get married. The **Marriage Calculator** website provides a set of tools for assessing the financial consequences of marriage for low-income families and allows users to see how taxes and public assistance may change when a couple's living arrangement changes from living apart to cohabiting (both reported and not reported to government programs) to married.

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

5. **Hispanic Older Population in the U.S.** The Hispanic older population was 2.2 million in 2004 and is projected to grow to over 15 million by 2050. In 2004, Hispanic persons made up 6.0 percent of the older population. By 2050, the percentage of the older population that is Hispanic is projected to account for 17.5 percent of the older population. **By 2028, the Hispanic population aged 65 and older is projected to be the largest racial/ethnic minority in this age group**.

Population and Projections of Hispanic Persons
Aged 65+ -- 1980-2050 (numbers in millions)

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

6. **Anthrax in Children Difficult to Detect and Treat, New Report Finds**. Difficulties in diagnosing anthrax may lead to dangerous delays in caring for children infected with this often-deadly disease, according to a new report from HHS' Agency for Healthcare Research and Quality (AHRQ). Treating pediatric anthrax is also a special challenge because most currently recommended therapies have not been widely used to treat children with the disease.

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

7. **CDC/ATSDR GIS Grand Rounds: Geographic Information Science in Public Health: GIS 101 (Introduction to GIS)**. October 19, 2006, from 1:00-4:00PM, CDC Global Communications Center (GCC), Roybal Campus, Building 19, Conference Room A, Atlanta. Preliminary Agenda: 1:00PM; Introductions and CDC Enterprise GIS Update (Carl Kinkade, Moderator, NCPHI); 1:15-1:45PM, Introduction to GIS (Jerry Curtis, NCEH); 1:45-2:30PM , Introduction to Geocoding (Carl Kinkade, NCPHI); 2:30-3:15PM, Introduction to Spatial Modeling (Jim Tobias**,** NCPHI); 3:15-4:00PM, Introduction to Web-based GIS (Hua Lu, NCEH). [Envision available; Contact: Dabo Brantley at mdb4@cdc.gov]

8. **Deaths: Preliminary Data for 2004** (NCHS). The preliminary, estimated number of deaths in the United States for 2004 was 2,398,343. The estimated age-adjusted death rate, which accounts for changes in the age distribution of the population, reached a record low of 801.0 per 100,000 U.S. standard population. The preliminary crude death rate for 2004 was 816.7 per 100,000 population. The preliminary estimate of life expectancy at birth for the total population in 2004 reached a record high of 77.9 years).

The **15 leading causes of death** in 2004 were: (1)Diseases of heart (heart disease); (2) Malignant neoplasms (cancer); (3) Cerebrovascular diseases (stroke); (4) Chronic lower respiratory diseases; (5) Accidents (unintentional injuries); (6) Diabetes mellitus (diabetes); (7) Alzheimer's disease; (8) Influenza and pneumonia; (9) Nephritis, nephrotic syndrome and nephrosis (kidney disease; (10) Septicemia; (11) Intentional self-harm (suicide); (12) Chronic liver disease and cirrhosis; (13) Essential (primary) hypertension and hypertensive renal disease (hypertension); (14) Parkinson's disease; and (15) Pneumonitis due to solids and liquids.

The preliminary infant mortality rate for 2004 was 6.76 infant deaths per 1,000 live births). The **10 leading causes of infant mortality** for 2004) were: Congenital malformations, deformations and chromosomal abnormalities (congenital malformations); Disorders related to short gestation and low birth weight, not elsewhere classified (low birthweight); Sudden infant death syndrome (SIDS); Newborn affected by maternal complications of pregnancy (maternal complications); Newborn affected by complications of placenta, cord and membranes (cord and placental complications); Accidents (unintentional injuries); Respiratory distress of newborn; Bacterial sepsis of newborn; Neonatal hemorrhage; and Intrauterine hypoxia and birth asphyxia. [See full report and methods for leading causes at website: http://www.cdc.gov/nchs/products/pubs/pubd/hestats/prelimdeaths04/preliminarydeaths04.htm]

9. *Monitoring The Public's Health***: Using Data From The National Center For Health Statistics**. NCHS invites you to attend a pre-conference workshop at this year's annual American Public Health Association convention in Boston. The purpose of this workshop is to facilitate the use of the wealth of data and resources from NCHS. The workshop will be held on November 4, 2006. NCHS is the nation's principal health statistics agency, providing data to identify and address health issues. [Contact: Robert Weinzimer at email rweinzimer@cdc.gov; to register for the workshop; see details at http://www.apha.org/meetings]

10. **2006 NCHS Urban-Rural Classification Scheme for Counties**. Urbanization level has long been recognized as an important characteristic when studying health disparities among communities. NCHS has developed a six-level urban-rural classification scheme for counties. This classification scheme may be used to study the association between urbanization level of residence and health and to monitor the health of urban and rural residents. The most urban category consists of large metropolitan central counties and the most rural category consists of nonmetropolitan noncore counties. **This classification scheme, unlike others that have been developed since 2003, separates large metropolitan counties into two categories: large metro central and large metro fringe.** These two categories were created because of striking differences in several health measures between residents of these two types of counties.

The county classifications are based on: (1) the 2003 Office of Management and Budget (OMB) definitions of metropolitan and nonmetropolitan counties (with revisions through 2005); (2) the rural-urban continuum code classification developed by the Economic Research Service of the U.S. Department of Agriculture; and (3) county-level data on variables from Census 2000 and 2004 postcensal population estimates. [The data file with the classification codes for the 3,141 U.S. counties and county equivalents and the accompanying methodology report are available at the following website: http://www.cdc.gov/nchs/r&d/rdc_urbanrural.htm]

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Mapping capabilities for Compressed Mortality File 1999-2003 on CDC WONDER. The Compressed Mortality File (CMF) is a county-level mortality and population file developed by NCHS to facilitate calculation of national and sub-national death rates and examination of mortality trends for age-sex-race subgroups of interest. The CMF has been available as an interactive database on CDC WONDER for many years, providing custom cross tabulations and data extracts. This summer the CMF was updated to include 2003 mortality and population data and the 1999-2003 portion was published on a new platform at website: http://ist-cent-wondr/cmf-ICD10.html. The CMF 1999-2003 offers expanded data table and data extract capabilities and, more notably, **map** and chart generation. Users can quickly and easily obtain maps for the United States showing state or county death counts and rates, and maps

for individual states showing county-level data. The user controls the category breaks used for the maps. This fall the NCHS Urban-Rural Classification for counties will be added to the CMF 1999-2003 as one of the possible cross tabulation variables and International Classification of Diseases Tenth Revision (ICD-10) codes for the External Cause of Injury Matrix will be added to the ICD-10 lists. In addition, this fall, the 1979-98 portion of the CMF will be moved to the new platform and will therefore also offer map and chart options. [See: Upcoming October 18, 2006, NCHS Cartography and GIS Guest Lecture Series, **"New Geographic Tools: An Urban-Rural County Classification and Mapping Options for the Compressed Mortality File"**]

11. **Analyzing and Mapping Health Inequities to Impact Policies for Eliminating Disparities, Eleventh Biennial CDC & ATSDR Symposium on Statistical Methods, April 17-18, 2007, Atlanta GA**. Call for Abstracts. Statisticians, social and behavioral scientists, epidemiologists, economists, policy analysts, and others are invited to participate in CDC's Eleventh Biennial Symposium on Statistical Methods. The theme for the 2007 Symposium is **"Analyzing and Mapping Health Inequities to Impact Policies for Eliminating Disparities."**

Two short course on related topics will be offered on April 16, 2007 in conjunction with the Symposium. Two half-day short courses are offered on April 16, 2007: **"Bayesian Small Area Estimation"** by Don Malec, Census Bureau (morning); and, **"Statistical Analysis Using GIS Data (Measuring Disparities),"** by Andrew Curtis, Louisiana State University (afternoon).

Authors are encouraged to submit abstracts for contributed papers related to one of the following session topics: Racial and ethnic minorities; Statistical and cost methodologies, including systematic reviews; At risk populations with characteristics related to age, low income, sexual orientation, language barriers, disability and geographic locations; Underrepresented or "invisible" populations: institutionalized populations, the homeless, immigrants, and others; Disparities in occupational employment; Environmental justice: cancer clusters, location of brownfields, hazardous facilities and socioeconomic class; Access to and quality of care; Emergency and program planning; and, Health behavior and promotion. Abstracts must be submitted no later than November 20, 2006. Authors of accepted presentations

will be notified by January 5, 2007. [For more information and registration, please visit the Symposium website at http://www.cdc.gov/od/ads/sag/index.htm or contact rep Mark Stevens at (770) 488-5673]

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

12. **HPSA/PSA (Physician Bonuses) Overview**. Section 1833(m) of the Social Security Act provides bonus payments for physicians who furnish medical care services in geographic areas that are designated by the HRSA as **primary medical care HPSAs** under section 332 (a)(1)(A) of the Public Health Service (PHS) Act. Medicare will automatically pay this new bonus on the claim for services provided in **zip code areas** that: Fall fully within a county designated as a PSA; or Fall partially within a county designated as a PSA and are considered to be dominant for that county, based on a determination of the United States Postal Service; or Fall within a rural area of a metropolitan statistical area identified through the latest modification of the Goldsmith modification that is determined to be a PSA. In addition, psychiatrists (provider specialty 26) furnishing services in mental health HPSAs are also eligible to receive bonus payments. Dentists, chiropractors, podiatrists, and optometrists are not eligible for the physician scarcity bonus as either primary care or specialty physicians.

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

13. The FDA regulates mammography quality and maintains a database on mammography facilities and other capacity elements. GAO reviewed FDA data on facility closures and examined reasons for closures in recent years. **GAO analyzed changes in the nation's capacity for and use of mammography services using FDA capacity data and National Center for Health Statistics data on service use.** GAO also interviewed state and local officials about the effects of the loss or absence of mammography machines on access, including access for medically underserved women, such as those who are poor or uninsured. [See GAO report, **"Mammography: Current Nationwide Capacity Is Adequate, but Access Problems May Exist in Certain Locations,"** reference number GAO-06-724, July 25, 2006 at website http://www.gao.gov]

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

14. The Shortage Designation Branch in the HRSA Bureau of Health Professions, National Center for Health Workforce Analysis, develops shortage designation criteria and uses them to decide whether or not a geographic area or population group is a **Health Professional Shortage Area (HPSA)** or a **Medically Underserved Area or Population (MUA/P)**. HPSAs have shortages of primary medical care, dental or mental health providers and may be geographic (a county or service area), demographic (low income population) or institutional (comprehensive health center, federally qualified health center or other public facility). More than 34 federal programs depend on the shortage designation to determine eligibility or as a funding preference. About 20 percent of the U.S. population resides in primary medical care HPSAs. **Medically Underserved Areas (MUA)** may be a whole county or a group of contiguous counties, a group of county or civil divisions or a group of urban census tracts in which residents have a shortage of personal health services. **Medically Underserved Populations (MUPs)** may include groups of persons who face economic, cultural or linguistic barriers to health care.

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

15. **Director's Chronic Disease Management Initiative**. Chronic conditions such as diabetes, cardiovascular disease, asthma, renal disease, depression, and cancer have become increasingly prevalent in American Indian and Alaska Native communities and are placing growing demands on health care systems. Given the limited available resources, there is an urgent need for a strategic plan to address the treatment and prevention of chronic conditions in the Indian Health Service (IHS) health care system.

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

16. **"Understanding and Reducing Health Disparities: Contributions From The Behavioral And Social Sciences,"** October 23-24, 2006, Bethesda MD. You are invited to this special NIH Conference. This major conference will focus on three broad areas of action influencing health disparities: policy, prevention, and healthcare. It will emphasize basic research on the

behavioral, social, and biomedical pathways giving rise to disparities in health and applied research on the development, testing, and delivery of interventions to reduce disparities in these three action areas.

The conference will employ a multi-level analytic framework (i.e., ranging from individuals to societies. The conference will include research relevant to a wide range of population groups (e.g., variation by SES, race, ethnicity, gender) residing in the United States, while not attempting to provide detailed analyses of each and every group. Consideration will be given to multiple public health issues and their interactions (e.g., multiple morbidities rather than single illnesses) and to risk factors or causal processes common to various health conditions (e.g., smoking, diet, exercise, access to health care). [See: http://obssr.od.nih.gov/HealthDisparities/index.html]

17. **County attribute variables are now linked to SEER (Surveillance, Epidemiology and End Results) incidence, US mortality, and US population data**. This new feature allows SEER*Stat users to compute cancer rates and frequency distributions stratified by sociodemographic variables linked to the county of residence for each cancer case record. The county attribute variables are calculated from data available from the 1990 and 2000 decennial censuses. [See: http://seer.cancer.gov/publicdata/data_changes.html]

18. **Development of Automated Methods to Identify Environmental Exposure Patterns in Satellite Imagery Data**. The NCI seeks to develop an automated process to apply existing pattern recognition algorithms to satellite image data and present the results to the researcher that employs a user-friendly, interactive geovisualization tool. Useful features of the automated process include options to use smoothing techniques, cluster identification, change detection, isopleth map production and animation to clearly illustrate the pattern-identified images of health- (preferably cancer) related environmental measures over time. It would also be important to include, if possible, any existing algorithms to convert raw image values to categorized factors, such as crop maps, soil content or water quality to permit the geovisualization tool to operate on these derived, as well as, original values. [See: Solicitation of the Public Health Service for Small Business Innovation Research Contract Proposals at http://grants.nih.gov/grants/funding/sbir.htm]

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

19. **Substate Estimates from the 2002-2004 National Surveys on Drug Use and Health**. This report presents estimates of the prevalence of substance use or mental health problems in substate areas during 2002-2004 based on the National Survey on Drug Use and Health (NSDUH). NSDUH is an annual survey of the civilian, noninstitutionalized population aged 12 or older. The report marks a second time that detailed data for substate areas have been presented. Estimates are provided here for each of the **357 substate areas** representing collectively the 50 States and the District of Columbia. These areas were defined by officials from each State and were typically based on the substance abuse treatment planning areas specified by the States in their applications for the Substance Abuse Prevention and Treatment (SAPT) Block Grant administered by SAMHSA.

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

20. **Racial Disparities in Childhood Immunization Coverage Rates Closing- Overall rates remain high for all children**. CDC announced September 14, 2006, that 2005 childhood immunization rates for vaccines routinely recommended for children between 19 and 35 months of age remain at or near record highs. For the first time in the past ten years, rates for the full series of recommended vaccines did not vary significantly by race and ethnicity. According to CDC's annual National Immunization Survey (NIS) released today, estimated immunization coverage rates for the 4:3:1:3:3:1 series ranged from 79.5 percent for children of multiple race, 77.1 percent for Asian; 76.3 percent for black; 76 percent for white, and 75.6 percent for Hispanic children. Coverage for the previous series that excluded varicella vaccine (4:3:1:3:3) was 10 percent lower for black children in 2002, compared to 3 percent in 2005. For Hispanic children coverage for the 4:3:1:3:3 series was 7.5 percent lower in 2000, compared to 3 percent in 2005. The 4:3:1:3:3:1 series includes four doses of Diphtheria, Tetanus and Pertussis (DTaP), three doses of

polio vaccine, one dose of measles-containing vaccine, three doses of Hib vaccine, three doses of hepatitis B vaccine, and one dose of varicella vaccine.

21. QuickStats: **Diabetes Death Rate for Hispanics Compared with Non-Hispanic Whites-United States Versus Counties Along the U.S.-Mexico Border, 2000-2002**. During 2000-2002, the age-adjusted diabetes death rate for Hispanics was 64.5% higher than for non-Hispanic whites in the United States. The difference was even greater in counties near the U.S.-Mexico border, where the age-adjusted rate for Hispanics was nearly three times the rate for non-Hispanic whites. [See: *MMWR* from which this ref was cited: 55(32);882 AUG 18, 2006 at http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5532a7.htm?s_cid=mm5532a7_e and National Vital Statistics System. Mortality data at http://www.cdc.gov/nchs/deaths.htm].

D. Other Related Public Health GIS News

22. The Open Geospatial Consortium, Inc. ® (OGC), announces an Interoperability Day Seminar on October 4, 2006 to be held in conjunction with its Technical and Planning Committee Meetings in Vienna, Virginia. The event is open to all and will focus on the state of geospatial and information technology interoperability. The seminar will include a keynote address, multi-vendor demonstration, and panel discussions. [Topics will include the value of interoperability and standards, and the challenges , at http://www.opengeospatial.org/event/0610interop]

III. GIS Outreach

[Editor: All requests for Public Health GIS User Group assistance are welcomed; readers are encouraged to respond directly to colleagues]
[Editor: I try to monitor a variety of lists on the use of GIS. The following is taken from the CrimeMap list discussion, sponsored by the Crime Mapping Research Center, which illustrates how GIS maps e.g., mapping incidents such as alcohol-related accidents, can become part of a societal solution] From Marcus Felson, Rutgers University. 'For your crime mapping, have you obtained a list of the "bad bars," namely, the ones that serve people already drunk? That information can be obtained somewhat independently (see below). With that information, you can insert the BAD bars onto the same map as the alcohol-related accidents. (Much better than putting ALL bars on.) The analysis can be helpful for policy. Have your police heard of the LAST DRINK SURVEY they do in New Zealand? Police simply ask people with alcohol on their breath (or perhaps with real violations)

WHERE they had their last drink. If it's a bar, the police NEXT ask the name of the bar. Then they tally up which bars send more people out causing problems for the community. This information can be used for liquor control. It can also be used to close down some bars and can be put in the newspaper. It's easier to work on one bar owner or manager using civil law, than to work on 50 customers using criminal law. This is an example of how crime maps can lead to policy and public service that non-specialists can understand.' [You can subscribe to CrimeMap at velottal@ojp.usdoj.gov]

IV. Public Health GIS Presentations and Literature
NCHS/CDC Cartography and GIS Guest Lecture

"New Geographic Tools: An Urban-Rural County Classification and Mapping Options for the Compressed Mortality File," by Debra D. Ingram and Sheila Franco, Statisticians, Office of Analysis and Epidemiology, NCHS, **October 18, 2006**, 2-3:30PM (EDT), Hyattsville, MD. Abstract. Urbanization level has long been recognized as an important characteristic when studying health disparities among communities. In the United States, residents in "rural" areas tend to have poorer health based on a number of measures than those in more urbanized areas. In addition, residents of central cities in metropolitan areas of 1 million or more population fare worse on many health measures than do residents of the suburban areas surrounding the central cities. The National Center for Health Statistics has developed a six-level urban- rural classification scheme for counties, for use in studying the association between urbanization level of residence and health and in monitoring the health of urban and rural residents. The derivation of this new classification will be explicated and several health measures will be shown by urbanization level to illustrate use of the classification scheme and differences in these measures by urbanization level.

The **Compressed Mortality File (CMF)** is a county-level mortality and population file developed by NCHS to facilitate calculation of national and sub-national death rates and examination of mortality trends for age-sex-race subgroups of interest. Now, users of the CMF 1999-2003 on CDC WONDER can quickly and easily obtain maps and charts of death counts and rates. The new map and chart options available for the CMF will be demonstrated at this presentation. [Contact: Dedun at DDIngram@cdc.gov]

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

(1)Emerging Infectious Diseases

Emerging Infectious Diseases (EID) is indexed in Index Medicus/Medline, Current Contents, Exerpta Medica, and other databases. EID is part of CDC's 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 **October 2006 12(10)** edition of EID is now online. This edition includes articles on avian influenza, spatial epidemiology of *Plasmodium vivax*, and other viral transmission topics. [See EID website for this and other very timely infectious disease reporting at the CDC website: http://www.cdc.gov/ncidod/EID/index.htm]

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(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 website http://www.cdc.gov/subscribe.html as well as access the MMWR online at CDC website http://www.cdc.gov/mmwr. Note: Efforts are made to include themes which may lend themselves to spatial distribution] Vol. **55(36)**- State-Specific Prevalence of Obesity Among Adults, United States, 2005: Obesity, one of the 10 leading U.S. health indicators, is associated with increased risk for hypertension, dyslipidemia, type 2 diabetes, coronary heart disease, stroke, and certain cancers. A *Healthy People 2010* objective is to reduce to 15% the prevalence of obesity among adults in the United States (objective 19-2). Both national-level data from the National Health and Nutrition Examination Survey (NHANES) and state-level data from the Behavioral Risk Factor Surveillance System (BRFSS) indicate that the prevalence of obesity among adults continued to increase during the past decade. In 2003, one study estimated that state-specific, obesity-attributable medical expenditures ranged from $87 million in Wyoming to $7.7 billion in California.

To assess the prevalence of obesity among adults by state and demographic characteristics since 1995, data were analyzed from the 1995, 2000, and 2005 BRFSS surveys. The results of these analyses indicated that 23.9% of U.S. adults were obese in 2005, and the prevalence of obesity increased during 1995-2005 in all states. To reverse this trend, a sustained and effective public health response is needed, including surveillance,

FIGURE. Percentage of adults aged ≥18 years who were obese,* by state — Behavioral Risk Factor Surveillance System, United States, 1995, 2000, and 2005

1995

2000

2005

10–14
15–19
20–24
25–29
≥30
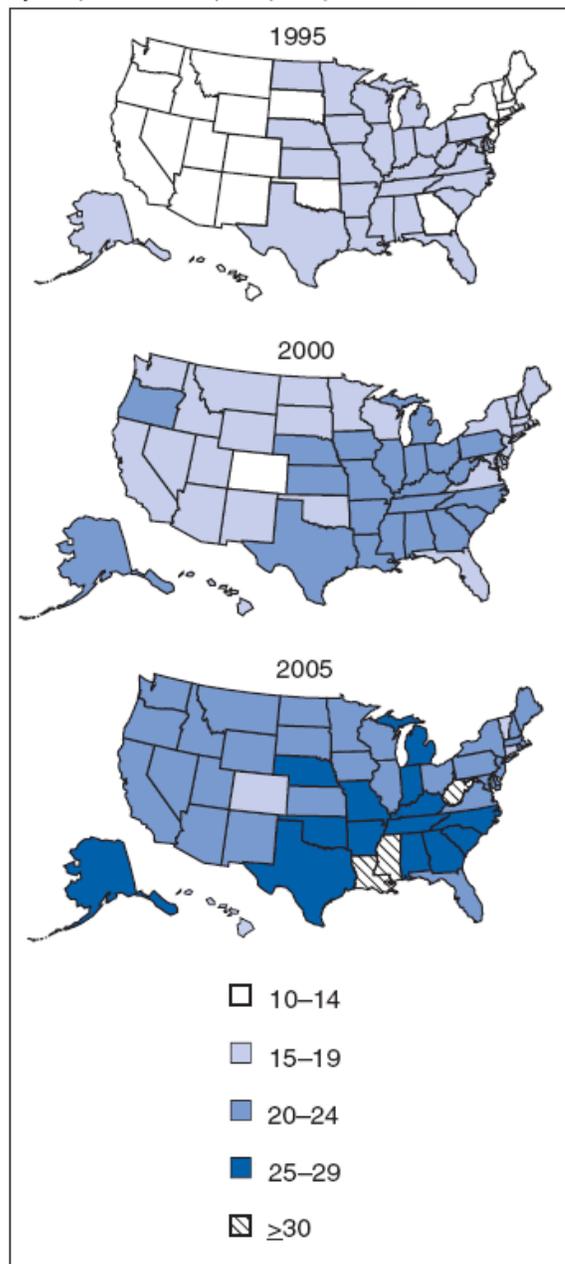
* Persons with a body mass index (BMI) of ≥30.0; self-reported weight and height were used to calculate BMI (weight [kg] / height [m^2]).

research, policies, and programs directed at improving environmental factors, increasing awareness, and changing behaviors to increase physical activity and decrease calorie intake.

Among states in 2005, obesity prevalences ranged from 17.4% to 30.3%, and prevalence of extreme

obesity ranged from 1.8% to 5.3%. During 1995-2005, obesity prevalence increased significantly (p<0.01) in all states. During 1995-2000, the number of states with obesity prevalence <20% declined from 50 states to 28 states (see **Map**). In 2005, four states (Colorado, Connecticut, Hawaii, and Vermont) still had obesity prevalences <20%, but 17 states had prevalences >25%, including three (Louisiana, Mississippi, and West Virginia) with prevalences >30%; Vol. **55(35)**-QuickStats: Percentage of Adults Who Engaged in Any Leisure-Time Strengthening Activity, by Sex and Age Group, United States, 2005; National, State, and Urban Area Vaccination Coverage Among Children Aged 19-35 Months, United States, 2005; Vol. **55(34)**- QuickStats: Adolescent Death Rates, by Race/Ethnicity and Sex, United States, 2001-2003; Vol. **55(32)**- Adult Blood Lead Epidemiology and Surveillance, United States, 2003-2004; QuickStats: Diabetes Death Rate for Hispanics Compared with Non-Hispanic Whites, United States Versus Counties Along the U.S.-Mexico Border, 2000-2002; Vol. **55(29)**- Heat-Related Deaths, United States, 1999-2003.

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(3) Preventing Chronic Disease

The October **2006 3(4)** issue of *Preventing Chronic Disease* (PCD) is online and contains editorials and articles on a wide variety of topics and themes. In this issue, prevention of risk factors for chronic disease in Appalachia, health disparities in Appalachia, colorectal cancer screening, and other health and behavioral studies are among those topics included. **Much of this edition is devoted to the public health needs of Appalachia** [See: http://www.cdc.gov/pcd]

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

Scales of environmental justice: Combining GIS and spatial analysis for air toxics in West Oakland, California, Fisher JB, Kelly M, Romm J, *Health Place* 12 (4): 701-714 DEC 2006;

Optimal siting of fire stations using GIS and ANT algorithm, Liu N, Huang B, Chandramouli M, *J Comput Civil Eng* 20 (5): 361-369 SEP-OCT 2006;

Using GIS in a first national mapping of functional disability among older American Indians and Alaska natives from the 2000 census, MP Moss , MC Schell

and RT Goins, *Int J Health Geogr* (5)37 SEP 2006;
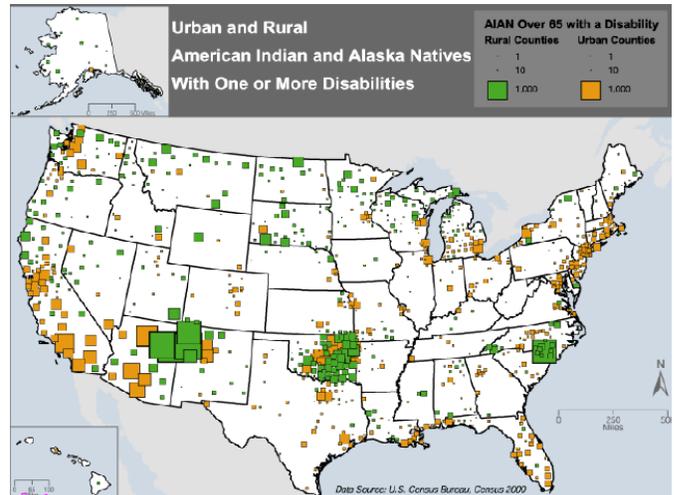
Invited commentary: On the road to improved exposure assessment using geographic information systems, Ward MH, Wartenberg D, *Am J Epidemiol* 164 (3): 208-211 AUG 1 2006;

A land use regression model for predicting ambient concentrations of nitrogen dioxide in Hamilton, Ontario, Canada, Sahsuvaroglu T, Arain A, Kanaroglou P, Finkelstein N, Newbold B, Jerrett M, Beckerman B, Brook J, Finkelstein M, Gilbert NL, *J Air Waste Manage* 56 (8): 1059-1069 AUG 2006;

Spatial mapping of temporal risk characteristics to improve environmental health risk identification: A case study of a dengue epidemic in Taiwan, Wen TH, Lin NH, Lin CH, King CC, Su MD, *Sci Total Environ* 367 (2-3): 631-640 AUG 31 2006;

The Silent Epidemic-The Health Effects of Illiteracy, Marcus EN, *NEJM* 4(355):339-341 JUL 2006;

Early cancer detection among rural and urban Californians, Blair SL, Sadler GR, Bristol RL, Summers C, Tahar Z, Saltzstein S, *BMC Pub Health* 6:194 JUL 2006;

From Text to Geographic Coordinates: The Current State of Geocoding, DW. Goldberg, JP Wilson, CA Knoblock, URISA J [July online version at http://www.urisa.org/goldberg]

Measuring the influence of built neighborhood environments on walking in older adults, Michael Y, Beard T, Choi DS, Farquhar S, Carlson N, *J Aging Phys Activ* 14 (3): 302-312 JUL 2006;

Method for mapping population-based case-control studies: an application using generalized additive models, T Webster, V Vieira1, J Weinberg and A
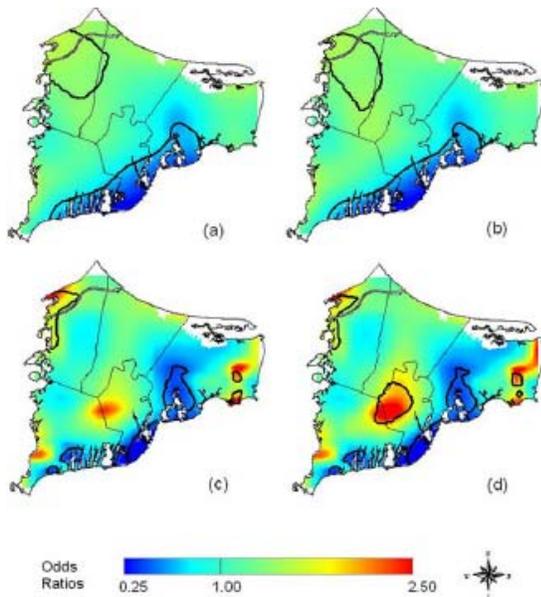
Aschengrau, *Int J Health Geogr* 5:26 JUN 2006;

New Report
**Monitoring Health Equity in the MDGs:
A Practical Guide**

[M Wirth, E Delamonica, E Sacks, D Balk, A Storeygard, A Minujin, Center for International Earth Science Information Network (CIESIN). a division of the Earth Institute at Columbia University, and UNICEF.2006] Excerpts. The **Millennium Development Goals (MDGs)** are a set of eight poverty alleviation goals set forth by the United Nations at the Millennium Summit in 2000. **Goal Four is to reduce child mortality by two thirds and Goal Five is to reduce maternal mortality by three-fourths.** All of the goals have a target date of 2015, using a 1990 baseline. Other goals are also relevant to maternal and child health. For example, 'proportion of underweight children' is the indicator used in Goal One ('to halve extreme poverty and hunger').

Geographic data. The critical geographic data required to map the health data presented here are the

administrative boundaries associated with survey strata. These permit visualization of the spatial distribution of single indicators and the difference in distribution between different indicators or different populations within regions. Boundary data are generally not distributed with surveys, but they are increasingly available through independent and publicly available sources. Increasingly in the last decade, surveys collect and distribute more precisely geocoded information about every survey cluster, or in rare circumstances, every household.

One of the most powerful features of a geographic information system is its ability to relate data sets on the basis of common geographic attributes. For example, climatic zones, population density, and relationships to roads can be assigned to each survey cluster, and therefore every household in it.
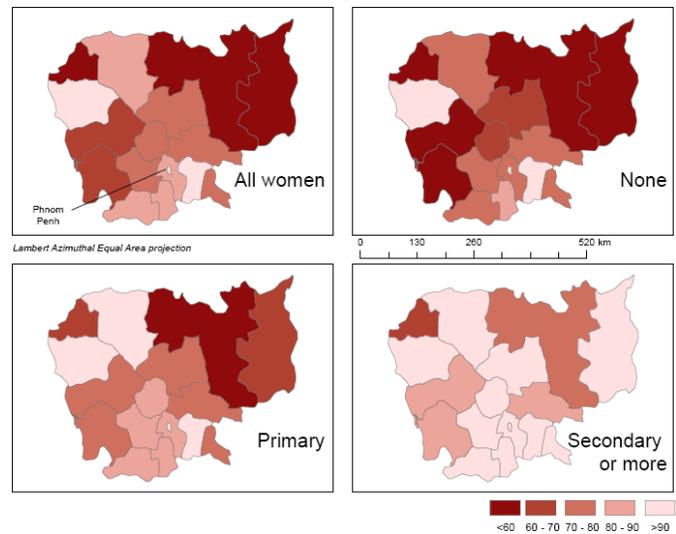
Map of AIDS Knowledge (percentage of women who know that using a condom can prevent AIDS), by level of education, Cambodia

These geographically derived attributes can then be treated like any other stratifier. For example, prevalence of immunization(s) can be stratified by classes of population density or proximity to road networks. In some countries, the locations of all public (and in less common cases, nearly all private) health facilities have been recorded in surveys or routine health management information systems, so proximity to health facilities can be measured. In all cases, data integration should be made with care, and considerable attention should be made to the spatial scales of the variables being combined so that the resulting data are meaningful for use as stratifiers.

How to Define Health Equity and Inequity. Health equity is based on simple notions of fairness and distributive justice. The nuances of this field and the distinction between the definition of disparity and inequity are briefly discussed here. Certainly, some individuals experience challenges to survival while others do not. Unfortunately, some children will have stunted growth, or even die, while other children will grow up without any serious health issues. Some of these differences between individuals are unavoidable- the result of random variation. These may be termed disparities or inequalities, but may not necessarily be *inequities*.

However, when disparities are strongly and systematically associated with certain social group characteristics such as level of wealth or education, whether one lives in a city or rural area, they are termed inequities. Put another way, disparities or inequalities are differences in health status between groups *independent of an assessment of fairness.* Inequities, however, are a subset of disparities *judged to be avoidable and unfair;* and thus require some sort of ameliorating policy intervention. *Health inequity* implies a failure to avoid or overcome inequalities in health that infringe on human rights or are otherwise deemed unfair. The concept of health inequity is a moral category deeply embedded in political reality and the negotiation of social power relations. [http://www.ciesin.columbia.edu/povmap/downloads/data/analysis/Health_equity_Guidelines.pdf]

New Report
UK Health Watch 2005
The Experience of Health in an Unequal Society
Community Led- Supporting and Developing Healthy Communities, Kate Burton. Excerpts (pp. 133-136): Communities are extremely powerful, they have expert knowledge, gained through years of experience, about the issues that effect them. When empowered and encouraged, through a community development approach, communities can collectively articulate their needs and what they require to meet those needs. The power of a community led approach can be illustrated by using the example of **Our Health Matters!** The North Edinburgh SIP is an area of high levels of deprivation and unemployment, many of those in employment are in low paid semi-skilled or unskilled work and there is a high incidence of chronic ill health and premature mortality with people living in the area three times more

likely, than the Edinburgh average, to suffer from cancer, coronary heart disease or ischemic heart disease.

The group undertook a wide scale community consultation exercise involving both focus group discussion and questionnaires. Through this process the community identified seven major issues which were having a negative impact on their health: Stress; Life circumstances e.g. lack of money, poor housing etc.; Access to services; Lifestyle issues e.g. alcohol, violence, physical activity; Loss and bereavement; Isolation and loneliness experienced by older people; and, Food poverty e.g. access to cheap, healthy food.

The monitoring of Our Health Matters! has demonstrated that participation, in the initiatives established to meet the plans' priorities, has exceeded original expectations. Participants report that the activities have had a positive impact on their health and well-being, increasing their levels of confidence, skills and abilities and enabling them to become more active in their community.

What is required, to significantly address inequalities in health and complement a community led approach- which strengthens individuals and communities, is macro-economic and cultural change, which tackles the root cause of inequality along with improving access to essential facilities and services. In addition, Scottish and UK government policies should be assessed for their impact on tackling health inequalities and improving health and a Scottish strategy, demonstrating a long-term commitment to tackling poverty and disadvantage should be established. Such recommendations for tackling health inequalities aren't new; they have been around for many years for example in 1987 in The Health Divide (Benzeval et al 2005), Sir

Donald Acheson is quoted as saying

… to specialists in public health the most attractive points of initial attack (for reducing inequalities in health) are health promotion initiatives to reduce risk factors such as smoking, poor diet and physical inactivity, there is a limit to the extent to which some improvements are likely to occur in the absence of a strategy to change the circumstances in which these risks arise, by reducing deprivation and improving the physical environment. [See full UK Health Watch report at http://www.pohg.org.uk]

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New Report

"Silence is Death: The Crisis of HIV/AIDS in Florida's Black Communities"

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The Florida Department of Health (DOH), Division of Disease Control, Bureau of HIV/AIDS, SEP 2006

*"Perhaps the single most important preventive measure is for people to know their own HIV status. If they are uninfected, this knowledge helps them protect themselves; if they are infected, the information helps them to protect their partners and to seek care and treatment for themselves"…*Thomas Liberti, Chief of the Bureau of HIV/AIDS, Florida Department of Health. Excerpts. More blacks in Florida are living with HIV or are already dead from AIDS than any other racial or ethnic group. In Florida in 2005, 1 in 58 non-Hispanic black males and 1 in 83 non Hispanic black females were living with a diagnosed case of HIV/AIDS. This compares with 1 in 310 non-Hispanic white males, 1 in 1,625 non-Hispanic white females, 1 in 148 Hispanic males, and 1 in 553 Hispanic females. There are HIV/AIDS gaps between blacks and whites and gaps between Hispanics and whites, but the black-white gap is the widest by far.

The analysis in this report focuses on persons living with a diagnosed, reported case of HIV/AIDS (PLWHAs or persons living with HIV/AIDS) in the 20 Florida counties with a total of at least 600 PLWHAs through 2005. Racial/ethnic HIV/AIDS disparities are present in each of the counties, though more extreme in some than in others. The recommendations in the report, if followed, will reduce HIV/AIDS cases and deaths in all counties. [See: http://www.doh.state.fl.us/disease_ctrl/aids/index.html]

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Special Edition

**Geographical Analysis 38(1) January 2006
Recent Advances in Software for Spatial Analysis in**

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the Social Sciences, Rey SJ, Anselin L, pp.1-4; **GeoDa: An Introduction to Spatial Data Analysis**, Anselin L, Syabri I, Kho Y. pp. 5-22. This article presents an overview of GeoDa™, 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.

Implementing Spatial Data Analysis Software Tools in R, Bivand R, pp. 23-40. This article reports on work in progress on the implementation of functions for spatial statistical analysis, in particular of lattice/area data in the R language environment. The underlying spatial weights matrix classes, as well as methods for deriving them from data from commonly used geographical information systems are presented, handled using other contributed R packages. Since the initial release of some functions in 2001, and the release of the spdep package in 2002, experience has been gained in the use of various functions. The topics covered are the ingestion of positional data, exploratory data analysis of positional, attribute, and neighborhood data, and hypothesis testing of autocorrelation for univariate data. It also provides information about community building in using R for analyzing spatial data.

Crime Mapping and the CrimeStat Program, Levine N, pp. 41-56. 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.

A Toolbox for Spatial Analysis on a Network,

Okabe A, Okunuki K, Shiode S. Sanet, pp. 57-66; This article shows a geographical information systems (GIS)-based toolbox for analyzing spatial phenomena that occur on a network (e.g., traffic accidents) or almost along a network (e.g., fast-food stores in a downtown). The toolbox contains 13 tools: random point generation on a network, the Voronoi diagram, the K-function and cross K-function methods, the unconditional and conditional nearest-neighbor distance methods, the Hull model, and preprocessing tools. The article also shows a few actual analyses carried out with these tools.

STARS: Space–Time Analysis of Regional Systems, Rey SJ, Janikas MV, pp. 67-86; Space-Time Analysis of Regional Systems (STARS) is an open-source package designed for the dynamic exploratory analysis of data measured for areal units at multiple points in time. STARS consists of four core analytical modules: Anselin (1995) exploratory spatial data analysis; Anselin (2003) inequality measures; Carlino and Mills (1993) mobility metrics; and Christakos, Bogaert, and Serre (2001) spatial Markov. Developed using the Python object-oriented scripting language, STARS lends itself to three main modes of use. Within the context of a command line interface (CLI), STARS can be treated as a package which can be called from within customized scripts for batch-oriented analyses and simulation.

Alternatively, a graphical user interface (GUI) integrates most of the analytical modules with a series of dynamic graphical views containing brushing and linking functionality to support the interactive exploration of the spatial, temporal, and distributional dimensions of socioeconomic and physical processes. Finally, the GUI and CLI modes can be combined for use from the Python shell to facilitate interactive programming and access to the many libraries contained within Python. This article provides an overview of the design of STARS, its implementation, functionality, and future plans. A selection of its analytical capabilities are also illustrated that highlights the power and flexibility of the package.

Extending the SAND Spatial Database System for the Visualization of Three-Dimensional Scientific Data, Samet H, Webber RE, pp. 87-101. The three-dimensional extension of the SAND (Spatial and Nonspatial Data) spatial database system is described as is its use for data found in scientific visualization applications. The focus is on surface data. Some of the principal operations supported by SAND involve locating spatial objects in the order of their distance from other spatial objects in an incremental manner so that the number of objects that are needed is not known a priori. These techniques are shown to be useful in enabling users to visualize the results of certain proximity queries without having to execute algorithms to completion as is the case when performing a nearest-neighbor query where a Voronoi diagram (i.e., Thiessen polygon) would be computed as a preprocessing step before any attempt to respond to the query could be made. This is achieved by making use of operations such as the spatial join and the distance semijoin. Examples of the utility of such operations is demonstrated in the context of posing meteorological queries to a spatial database with a visualization component.

ChoroWare: A Software Toolkit for Choropleth Map Classification, Xiao N, Armstrong
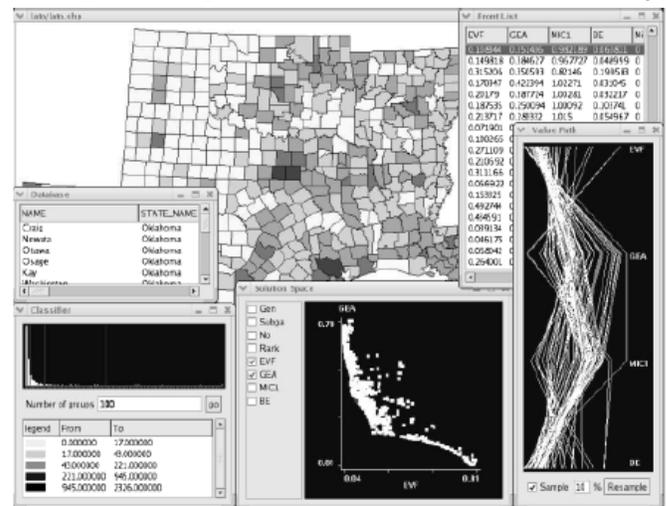
MP, pp. 102-121. Choropleth mapping plays an important role in exploratory spatial data analysis. Several objectives have been suggested to guide choropleth map construction. These objectives, however, often conflict and, consequently, a choropleth map that is best for one objective may not be best for others. Choosing a set of choropleth class intervals is thus a multiobjective problem. This article describes an open-source software toolkit, called ChoroWare that is designed to help cartographers identify class intervals that are suitable for a specific application. The software uses a genetic algorithm to generate a set of nondominated solutions to the multiobjective choropleth class interval problem and uses an interactive

visualization tool to display members of this classification set. Using ChoroWare, cartographers can examine trade-offs between alternatives and find desirable choropleth classifications that meet their objectives. [See: http://www.blackwell-synergy.com]

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

### Federal Geographic Data Committee 2005 Annual Report [excerpts]

How do you find an address when there are no street signs to guide you and other buildings and house numbers are gone? How do you locate survivors and navigate to their location when you and other rescue workers are using different maps and systems?

In the days and weeks of rescue and recovery that followed Hurricane Katrina (and the two storms that followed--Rita and Wilma), local governments and the general public came to understand the value of readily available geospatial data collected to national standards. They realized how standardized data would enable rescue workers from multiple agencies and various parts of the country to converge on the same place using the same mapping coordinates. They learned first hand how the rescue response depended extensively on sharing data from geographic information systems (GISs).

In the electronic age, geography and paper maps have transformed into spatial data in a digital environment. As a national capital asset, spatial data, through the National Spatial Data Infrastructure, facilitates the efficient collection, sharing, and dissemination of spatial data among all levels of government institutions and the
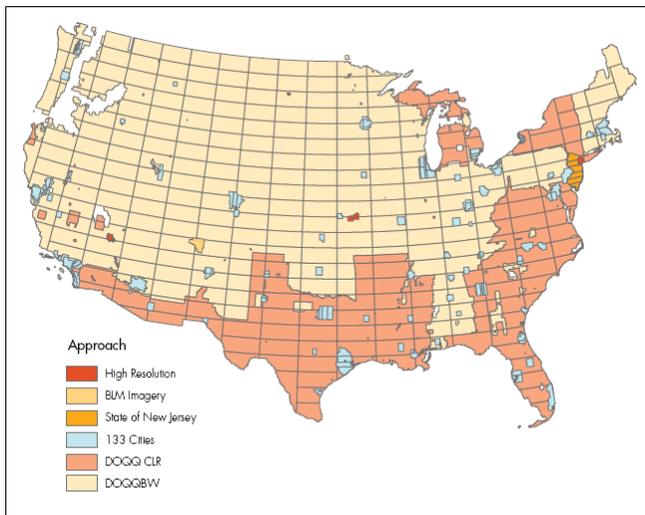
public and private sectors to address issues of the Nation's physical, economic, and social well-being. The FGDC coordinates the sharing of geographic data, maps, and online services through an online portal-www.geodata.gov or GOS-that searches metadata held within the NSDI Clearinghouse Network.

In 2005, Federal agencies and other public safety and security organizations used high-resolution imagery data [see map of 2005 National Orthoimagery Dataset where DOQQ CLR= Digital orthophoto quarter-quadrangle color and DOQQBW= Digital orthophoto quarter-quadrangle black and white] to plan public security measures for large sporting events, rallies, and demonstrations in major cities and to provide current prehurricane imagery for Hurricanes Katrina and Rita that was critical for search and rescue operations. During responses to such emergencies,

Metadata Records in Geospatial One-Stop as of 2005
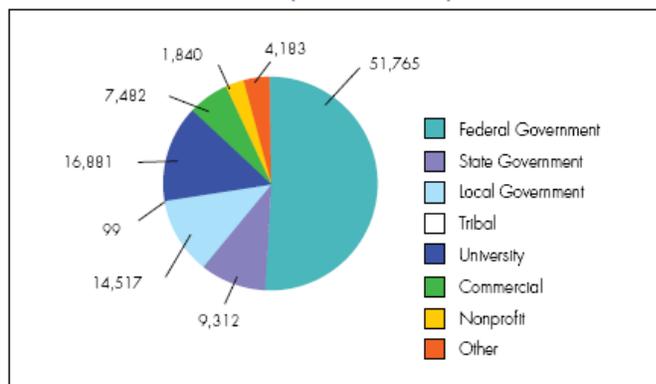
difficult-to-access, incompatible, and out-of-date base geospatial data hamper and degrade communications among organizations that respond to emergencies. Ineffective means of communication endanger lives and property. To help ensure that Federal responders and support personnel have quick and easy access to the same detailed and current data as do local first responders, USGS is working with State and local governments and other Federal agencies to integrate data for America's urban areas into *The National Map*.

FGDC will continue working with the NSGIC and the National Digital Orthophoto Program (NDOP) Committee in their Digital Imagery for the Nation effort to create a new nationwide aerial imagery program that will collect and disseminate standardized multi-resolution products on "set" schedules. NSGIC estimates a cost savings of $159,641,000 over 3 years through coordination and adherence to national standards. [For the full report and FGDC activities and accomplishments, see

Approach
- High Resolution
- BLM Imagery
- State of New Jersey
- 133 Cities
- DOQQ CLR
- DOQQBW

http://www.fgdc.gov/fgdc-news/2005-annual-report]

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NASA Science Mission Directorate: *Earth Sciences Division, Applied Sciences Program, Public Health Program Element FY2007-2011 Plan* [Draft], Version 1.5, SEP 14, 2006. **Excerpts**. The NASA Applied Sciences Program collaborates with partner organizations to enhance the application of NASA Earth science research results to serve issues of national priority. The desired outcome is for partner organizations to use project results, such as prototypes and benchmark reports, to enable the sustained, operational use of Earth science products and enhance their decision support capabilities.

NASA's Public Health Program Element extends products derived from science information, models, technology, and other capabilities into partners' decision support tools for public health, medical, and environmental health issues. The Public Health Program foci of partnerships with the public health practice community are their decision support systems known as Epidemiologic Surveillance Systems in the areas of: infectious disease, public health tracking and information networks, environmental health, and emergency response and preparedness.

The following represent priority Decision Support Tools the program focuses on in the near-term. **Environmental Public Health Tracking Network, and High Energy Laser Iodine Extraction Code and Linked Information Exchange System (EPHTN/HELIX)**: CDC has statutory responsibility for developing and managing EPHTN/HELIX. The system is designed to establish a national network of local, state, and federal public health agencies that tracks trends in priority chronic diseases. Around 2009, when fully functional, the EPHTN will be a national early warning system for the rapid identification of health threats, such as toxic chemical releases, including long-term data collection on harmful exposures to be used in future studies of new environment-disease correlations.

ArboNET/Plague Surveillance System (PSS): Plague is an infectious disease caused by the bacteria, Yersinia pestis. Plague surveillance is a CDC priority because it is a Class A disease and, by law, all occurrence of cases or suspected cases must be reported. Plague is also monitored for its potential as a bioterrorist agent. Plague prevention and response efforts are underway at regional, state and local levels through the CDC-sponsored Arbonet/Plague Surveillance System. Arbonet is a passive surveillance system managed by the CDC to collect and archive data to study and operationally monitor regional and national arthropod-borne viral disease trends.

The CDC, participating health departments, Department of Defense (DOD) and the US Geological Survey (USGS) are primary users of ArboNET. Earth-Sun System science models (e.g., the GHCN, the GMAO, and the GSFC Plague Algorithm) have the potential to provide information on plague vector habitats that enhance ArboNET forecasts of outbreak conditions.

Malaria Modeling and Surveillance/GSAT: The CDC and DOD are interested in utilizing new technologies and in developing methodologies for monitoring and modeling infectious diseases. Malaria is a high priority infectious disease target for domestic agencies, such as CDC and DOD, as well as international health entities, such as the World Health Organization and the Pan American Health Organization. Malaria affects nearly 1,600 Americans each year and kills an estimated 3 million people worldwide, many of whom are children. In addition, malaria costs African nations approximately $12 billion in economic productivity losses. The health and economic consequences of malaria make it a destabilizing phenomenon.

Both CDC and DOD currently are developing decision support tools to better predict and respond to malaria. Earth science data and modeling have the potential to enhance these tools by providing new information on vector habitats and environmental

conditions that precede malaria outbreaks. The **Global Situational Awareness Tool (GSAT)** is an environmental planning tool owned and operated by the U.S. Air Force Strategic Operations Command (AFSOC). It is designed to assist military decision makers with global troop deployments by reducing time and coordination burdens. It provides environmental safety and health information to AFSOC planners and decision makers. Malaria is a disease of significant interest to the GSAT operators specifically, and military decision makers in general.

Department of Health and Human Services Secretary's Command Center (DHHS/SCC): The Department of Health and Human Services' Secretary's Command Center was created to provide a focal point for public health information and intelligence to the Secretary of the Department of Health and Human Services (DHHS). Located in Washington, DC, the **Secretary's Command Center (SCC)** coordinates the activities of the DHHS with international, local, state, and federal public health authorities. Since its establishment in December 2002, the SCC's innovative design, information architecture, and business plan have become the benchmarks for similar operations centers being developed for international and federal agencies. The SCC has workstations dedicated for the Secretary, Deputy Secretary, and Assistant Secretary for Public Health Preparedness; for the Surgeon General; and for other division leaders and liaisons from other agencies.

The use of the Internet protocol system creates an interoperable system of computers, radios, and telephones. Geospatial systems allow tracking and plotting of events and incidents and their relay to DHHS preparedness and response activity managers/ coordinators. Through the SCC, the DHHS monitors developing public health emergencies through as many as 4,000 news media outlets across North, Central, and South America; Europe; and the Middle East. The SCC can monitor local television stations from up to 10 cities at a time to observe how breaking events are being reported across the country.

Discussions with the DHHS suggest that benefits would result from the integration of NASA Earth science satellite observations and model predictive capabilities into the SCC. The DHHS and NASA are in the initial stages of formulating a Memorandum of Understanding between the two agencies to formalize this relationship.

[For the full draft report, including other public health related activities and your opportunity to comment, contact John Haynes, at jhaynes@nasa.gov]

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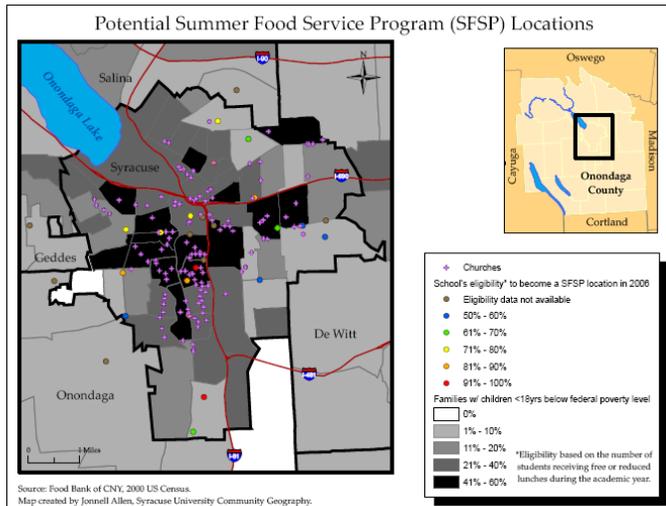[See: http://www.gao.gov]

Pandemic Influenza: Applying Lessons Learned from the 2004-05 Influenza Vaccine Shortage, GAO-06-221T, November 4, 2005.

September 11: HHS Has Screened Additional Federal Responders for World Trade Center Health Effects, but Plans for Awarding Funds for Treatment Are Incomplete, GAO-06-1092T, September 8, 2006: Responders to the World Trade Center (WTC) attack-individuals involved in rescue, recovery, or cleanup-included New York City Fire Department (FDNY) personnel, federal government workers, and others from New York and elsewhere. They were exposed to numerous hazards, and concerns remain about the long-term effects on their physical and mental health. In February 2006, GAO testified that four of the five key federally funded programs that were monitoring health effects in responders had made progress but that the Department of Health and Human Services' (HHS) WTC Federal Responder Screening Program, implemented by the Office of Public Health Emergency Preparedness (OPHEP), lagged behind (GAO-06-481T). GAO also reported that the Congress appropriated $75 million in December 2005 to HHS's Centers for Disease Control and Prevention (CDC) for monitoring and treatment for responders and that CDC was deciding how to allocate the funds.

Health Information Technology: HHS is Continuing Efforts to Define Its National Strategy, GAO-06-1071T, September 1, 2006: In late 2005, to help define the future direction of a national strategy, HHS awarded several health IT contracts and formed the American Health Information Community, a federal advisory committee made up of health care stakeholders from both the public and private sectors. Through the work of the these contracts and the community, HHS and its Office of the National Coordinator for Health IT have made progress in five major areas associated with the President's goal of nationwide implementation of health IT.

Web Site(s) of Interest This Edition

http://www.hungeractionnys.org/index.htm **Hunger Action Network of New York State**. A statewide anti-

Potential Summer Food Service Program (SFSP) Locations

Source: Food Bank of CNY, 2000 US Census.
Map created by Jonnell Allen, Syracuse University Community Geography.

hunger coalition that combines grassroots organizing at the local level with state level research, education and advocacy to address the root causes of hunger, including poverty. This site contains GIS map projects that help identify areas where hunger is likely to be a problem and to target areas for program development or outreach. There are findings on usage of the Summer Food Service Program for school age children and the accessibility of farmer's markets in relation to areas of high levels of poverty. Also, Hunger Action has created some maps showing poverty data overlaid with Food Stamp caseload and Emergency Food Program sites statewide and regionally.

In New York, Women and people of color are over represented at Emergency Food Programs (EFPs). Approximately half of those utilizing EFPs are women. 27% of those utilizing EFPs are white, while 45% are African American and 24% are Hispanic, and 5% are American Indian, Alaskan Native, Pacific Islander or Asian. More than 11% of EFP clients are elderly. The number of New Yorkers suffering from hunger or food insecurity jumped by nearly 200,000 people over the past six years, rising to 10.5 percent in the period 2002-2004 from 9.6 percent in the period 1999-2001. While 25% of New York State's children lived in high poverty neighborhoods in 1990, 30% lived in high-poverty neighborhoods in 2000.

http://www.ordnancesurvey.co.uk/oswebsite/products/osmastermap/l

ayers/addresslayer2 **OS MasterMap Address Layer 2.** A new powerful series of enhancements to Great Britain's Ordnance Survey's most detailed digital address data was launched May 2006, offering significant benefits to customers across commercial and government sectors. To build and maintain OS MasterMap Address Layer 2, Ordnance Survey field surveyors across the country add high-resolution spatial references to more than 27 million postal addresses contained in the Royal Mail Postcode Address File (PAF). A new Royal Mail dataset of multiple residences, which provides complete address details of flats and apartments without individual postal delivery points, has been incorporated. These are supplied with the reference details of their parent delivery address, enabling easy identification of all properties receiving utility and other non-postal services. Each address contains a classification as either residential or commercial and these are then further analyzed where the trading or brand name provides details; for example, Barclays Bank- Bank and WH Smith- Retail. These geocodes are not only lat/long coordinates of addresses
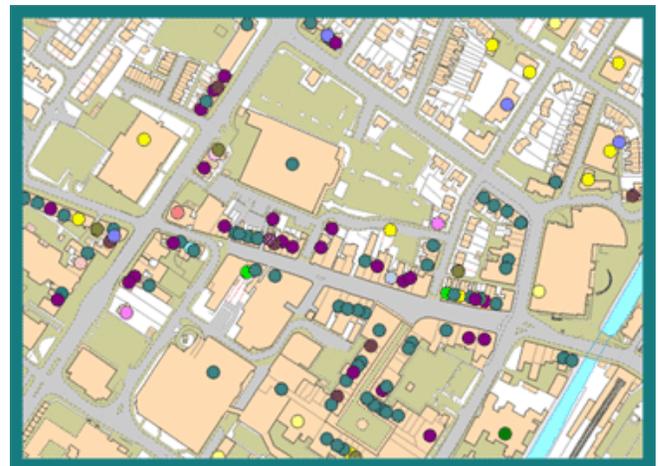
but also exist in a linkage table with geographic alternatives such as localities and alias name-number combinations.

http://www.dchunger.org **Plan to End Childhood Hunger in the Nation's Capital** (A project of the Food Research and Action Center). In Washington, DC, today, there are more than 35,000 young people living in homes where they don't always know where their next meal will come from. They start their day without breakfast, go hungry when school is closed, or lack the good nutrition they need to learn, grow and thrive. The Partnership has

produced a comprehensive 10-point plan that will: Provide all D.C. children a healthy breakfast; Encourage healthy food choices; Help families meet needs at home with food stamps; Improve working families' economic security; Increase families' access to fresh, affordable produce in their neighborhoods; Help after-school programs provide healthy meals and snacks; Expand the reach of summer food programs; Ensure access to balanced, nutritious diets for all pregnant women and pre-school children; Ensure access to nutritious food in shelters and food pantries; and Provide comprehensive public education about available assistance

http://www.gps.gov/index.html **New US Government (USG) website for information on GPS**. This website about GPS has been in the works for a year or so as a USG initiative and public relations effort for domestic and international consumption. The GPS is made up of three parts: satellites orbiting the Earth; control and monitoring stations on Earth; and the GPS receivers owned by users. GPS satellites broadcast signals from space that are picked up and identified by GPS receivers. Each GPS receiver then provides three-dimensional location (latitude, longitude, and altitude) plus the time. The application and benefits of GPS to many societal sectors is documented at this site.

http://www.gapminder.org/index.html The **World Health Chart** is developed in collaboration between WHO and Swedish institutions. The aim is to visualize world health development and thereby enable better use of international health data for learning, advocacy and hypothesis generation. A first beta-version called WHC 2001 Public Beta 0.1 is now free to download for testing. OUR VISION: Making sense of the world by having fun with statistics! [Editor: See the visualization software and demonstrations]

http://www.healthpolicyalliance.org The **National Health Policy Training Alliance for Communities of Color** was created to make clear the link between efforts to reduce racial and ethnic health disparities and the role of health policymaking, as well as to ensure that community leaders have the tools, information, and resources they need to address these issues. This initiative is a unique partnership between Families USA, the Joint Center Health Policy Institute (HPI), the National Association of Latino Elected and Appointed Officials (NALEO) Educational Fund, and the National Medical Association (NMA). It is generously funded by the W.K. Kellogg Foundation. The new Alliance Web site serves as a one-stop shop for up-to-date information and tools on health, health policy, and health disparities information from the four partner organizations.

Final Thoughts
Looking Ahead: CDC's Eleventh Biennial Symposium on Statistical Methods, April 16-18, 2007
### "Analyzing and Mapping Health Inequities to Impact Policies for Eliminating Disparities"

There are signs of excitement beginning to show here at the CDC campus as planning takes place for the forthcoming 11th Biennial CDC Statistical Methods Symposium. As many of you know, this is one of the showcase events at CDC. It is especially welcome to so many of us because the 2007 theme will focus on health disparities and the use of Geographic Information Systems (GIS) and other analytic tools to help advance what well may be one of the most critical and long-standing public health challenges we face as a society.

One of the developments that gives this program high energy is its careful planning, including a one-day pre-conference short course (April 16, 2006) to be taught by two colleagues I have known over the years- Don Malec, Ph.D., Census Bureau and Andrew Curtis, Ph.D., Department of Geography, Louisiana State University. Don will instruct in the morning on **"Bayesian Small Area Estimation"** and Andrew will provide afternoon instruction on **"Statistical Analysis Using GIS Data (Measuring Disparities)."** Both Don and Andrew are well versed in small area analysis. This symposium pre-event is something I recommend as it is both educational and sets the tone for the many symposium presentations that follow this theme. I fondly recall more than a decade ago having the honor, with Fred Broome (Census) and Jon Sperling (HUD), to teach the first-ever CDC GIS short course at this important symposium.

As a means of acquainting you with some of the work from Andrew's recent book (Curtis and Leitner, *Geographic Information Systems and Public Health: Eliminating Perinatal Disparity*, IRM Press, 2006), I have invited Andrew to present several issues timely to the discussion of small area health disparities in *Public Health GIS News and Information*. His first article will appear in the next edition, and provide insight into the mobility of mothers and neighborhood risk in New Orleans among Head Start program enrollees. I hope the combination of Andrew's work, continuing articles from Terry Lenahan and The Center for Community Solutions (Appendix), and a new addition from Joseph Oppong and Curtis Denton, on HIV/AIDs (Appendix), will help stimulate more small area research initiatives to better address this national dilemma. I believe GIS science will provide a major contribution to an improved understanding of the challenges associated with public health inequalities and, importantly, help support policymakers to better invest in the elimination of disparities.

As we go to press, CDC's 11th Biennial Symposium Planning Committee remains focused on all the tasks that need attention to make this event special. I am pleased to recognize all members of this committee. They include: Timothy Green, NCHSTP (Statistical Advisory Group Chair); Betsy Gunnels, NCCDPHP (Symposium Co-Chair); Kathy O'Connor, NCHS (Symposium Co-Chair); Members: Andrew Autry, NCBDDD; Zahava Berkowitz, NCCDPHP; Jieru Chen, NCIP; Karen E. Davis, NCHS; Shahul Ebrahim, NCBDDD; Nelda Y. Godfrey, ATSDR; Carolyn B. Harris, ATSDR; Tzesan Lee, NCEH; Harvey Lipman, NCID; Linda J. McWilliams, NIOSH; Laszlo L Pallos, ATSDR; Gladys Reynolds, OD (OSI); Ramses Sadek, NCHSTP; William [Karl] K. Sieber, NIOSH; Theresa Sipe, NCHM; Mark R. Stevens, NCCDPHP; Janet L Valluzzi, NCBDDD; and Jennifer Wu, ATSDR.
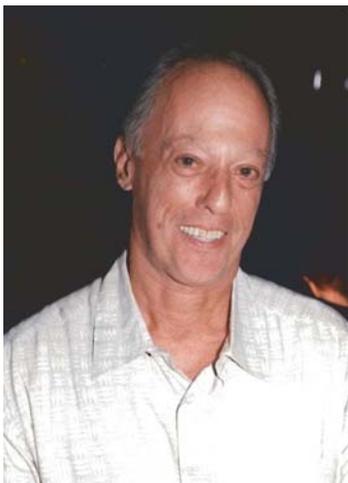
CDC – Celebrating our First 60 Years!

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 first DHHS Representative, Federal Geographic Data Committee, at cmc2@cdc.gov. Celebrating our **72nd** edition with continuous reporting since **1994.**

The NCHS GIS home page contains current GIS events, archived GIS reports and other GIS links
Please join us for our October 18, 2006, NCHS Cartography and GIS Guest Lecture
http://www.cdc.gov/nchs/gis.htm
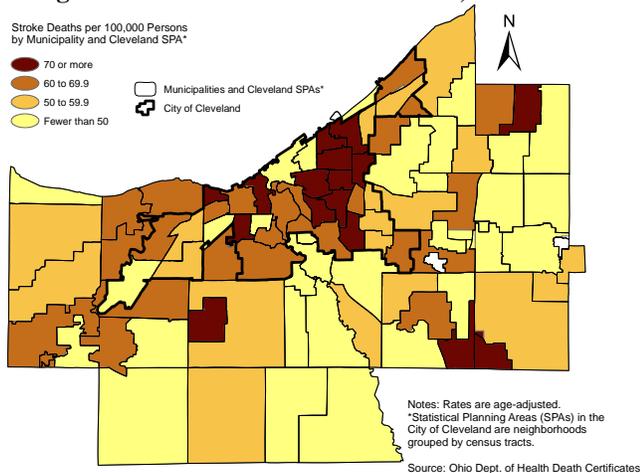
APPENDIX: MAPPING HEALTH INEQUALITIES
[Fifteenth in Collaborative Series: See May, July, September, November 2004, January, March, May,
July, September, November 2005; and January, March, May and July 2006 editions at NCHS GIS website; also, see the
complete archive at http://communitysolutions.com/store/index.asp?DEPARTMENT_ID=121]

Stroke Deaths by Race, Cuyahoga County, Ohio, 1997 to 2001
Terry Lenahan, The Center for Community Solutions, Cleveland, Ohio

Stroke accounted for about one of every 15 deaths in the United States in 2003. When considered separately from other cardiovascular diseases, stroke ranks third among all causes of death, behind heart disease and cancer, and is a leading cause of long-term disability. Stroke, or cerebrovascular disease, is a loss of brain function caused by a lack of blood circulation to areas of the brain. In 2003, stroke was an underlying or contributing cause of death for about 273,000 Americans. About 50 percent of these deaths occurred outside of a hospital.[1]

Average Annual Death Rates from Stroke, 1997 to 2001

Stroke Deaths per 100,000 Persons
by Municipality and Cleveland SPA*

- 70 or more
- 60 to 69.9
- 50 to 59.9
- Fewer than 50

Municipalities and Cleveland SPAs*
City of Cleveland

N

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 Death Certificates

The 2003 overall age-adjusted death rate per 100,000 for stroke was 54.3 in the United States. Stroke death rates are substantially higher for African Americans than for whites. Death rates were 51.9 for white males and 78.8 for black males; for white females it was 50.5 and for black females it was 69.1.[2]

The primary risk factors for stroke are the same as those for heart disease, including hypertension, high blood cholesterol, cigarette smoking, and being overweight. Reduction of these risk factors through lifestyle modifications will help prevent stroke as well as heart disease.

The stroke death rate is defined as the number of deaths from stroke per 100,000 persons. The rates have been age-adjusted to account for differences in age distributions over time and between racial categories. To provide more stable rates, we use a four-year average (1997 to 2001, excluding 1998 due to an unusually large number of incomplete addresses on the death certificates that could not be geocoded).
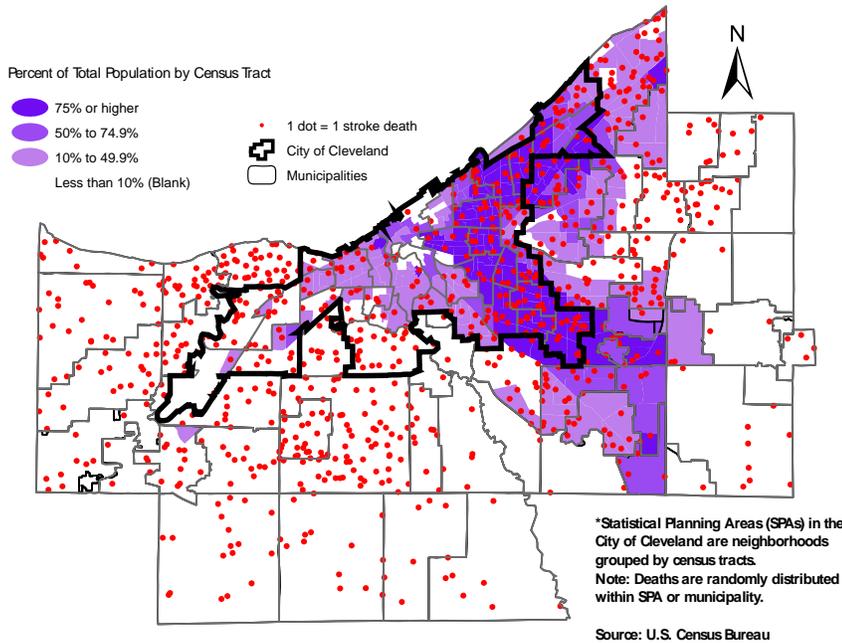
For larger geographic areas, the rates are reported for Whites, African Americans, and all races combined. Due to few cases in some areas, we do not calculate rates for individual municipalities or statistical planning areas *by race*. Population by race for the years used here is estimated using the 1990 and 2000 census data.

In the United States from 1997 to 2000, the average age-adjusted stroke death rate was 63 deaths. Racial disparities existed in rates between Whites and African Americans. The average rate among Whites was 61 deaths, compared to 84 deaths per 100,000 African Americans. Stroke death rates have been decreasing by about 2 percent each year in all racial categories (all races, White, and African American).

Between 1997 and 2001, there was an average of 957 deaths annually from stroke in Cuyahoga County. At 57 stroke deaths, the average age-adjusted rate in Cuyahoga County was similar to the Northeast Ohio rate, but roughly 10 percent lower than the state and national averages. The rate for African Americans was 62 deaths, compared to 56 deaths per 100,000 Whites. From 1997 to 2001, the rate decreased more than 3 percent per year among all races and Whites and by almost two percent per year among African Americans. However, rates for African Americans are increasing in

Cuyahoga County suburbs. The stroke death rate varied by geographic area within the county; Cleveland generally had the highest rates, and the lowest rates were in the outer Cuyahoga County suburbs.

Percent African American, 2000 and
Average Annual Deaths from Stroke, 1997 to 2001

Percent of Total Population by Census Tract

- 75% or higher
- 50% to 74.9%
- 10% to 49.9%
- Less than 10% (Blank)

• 1 dot = 1 stroke death
City of Cleveland
Municipalities

*Statistical Planning Areas (SPAs) in the City of Cleveland are neighborhoods grouped by census tracts.
Note: Deaths are randomly distributed within SPA or municipality.

Source: U.S. Census Bureau

At an average of 65 stroke deaths, the overall rate in Cleveland was 12 percent higher than the Northeast Ohio rate but only 3 percent higher than the national rate. Unlike other geographic areas, the rate of 65 deaths for African Americans in Cleveland was slightly lower than the rate of 67 deaths for Whites. However, this is an average; the rate was 70 or more deaths in nine predominantly African American neighborhoods on Cleveland's east side.

The overall age-adjusted stroke death rate of 52 in the Cuyahoga County suburbs was lower than the Northeast Ohio and Ohio rates. As seen elsewhere, the rate was higher among African Americans compared to Whites (57 and 53, respectively).

The overall age-adjusted stroke death rate was lowest in the suburbs furthest from the city of Cleveland (52 deaths) compared to the suburbs closer to Cleveland (55 deaths). Racial disparities persist in the suburbs where rates among African Americans were higher than among Whites. At 71 deaths, the rate among African Americans in the outer suburbs was quite high, although the actual number of deaths was small.

Maps created by: Terry Lenahan, Policy and Planning Associate in Research, The Center for Community Solutions. Stroke death rates were calculated by Lucy Malakar. Data were geocoded to census tract level by Brian McNamara, GIS specialist. Ellen Cyran, systems programmer/analyst, provided programming for the stroke 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. "Stroke 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.

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[1] American Heart Association. Heart Disease and Stroke Statistics—2006 Update www.americanheart.org.   Accessed September 2006.

[1] Ibid.

HIV/AIDS Among Teens and Young Adults (13-24) in Dallas County, TX 1999-2002

Joseph R. Oppong and Curtis Denton, Department of Geography, University of North Texas

The Centers for Disease Control and Prevention (CDC) estimates that between 1,039,000 and 1,185,000 Americans were living with HIV/AIDS in the U.S. in 2003 (CDC, 2005). However, the disease has a distinct geography, is clearly gendered, and varies in severity between ethnic/racial groups. By region, the Northeast centered on New York, had the highest rate per 100,000 in 2004 (20.4) followed by the South with 18.7, the West with 9.0 and the Midwest with 6.8 (CDC 2005). Also, large metropolitan areas with populations exceeding 500,000 carried the weight of the HIV/AIDS problem.

Racial and ethnic minorities have been disproportionately affected by the disease. For example, blacks account for about 13% of the US population but 50% of the HIV/AIDS cases. Latinos and Whites, representing 14% and 69% of the population, account for 20% and 28% of the HIV/AIDS cases, respectively. Furthermore HIV/AIDS impacts the genders differently. It is the third leading cause of death among African Americans aged 25-34, but the leading cause of death for African American females in that same age group.

HIV/AIDS Incidence Rate Among Teens and Youth (13-24) Dallas County 1999-2003
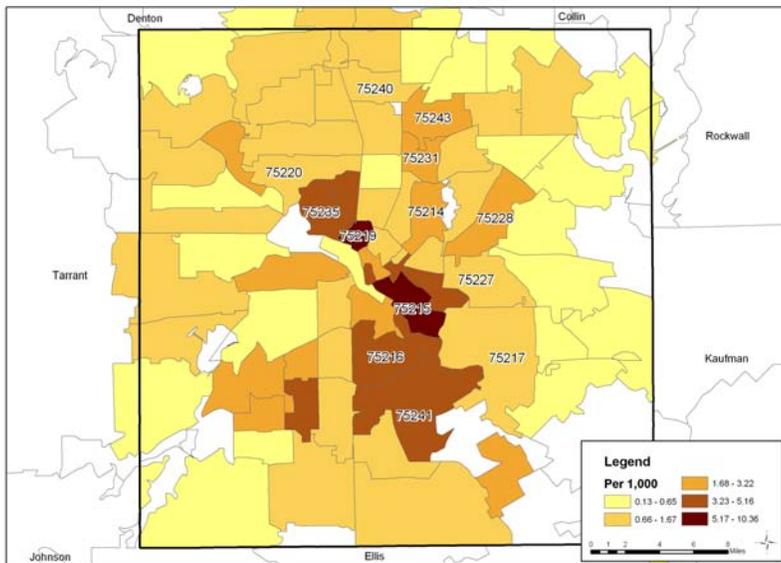
This characterization of HIV/AIDS suggests that spatial, ethnic/racial, gender, and other differences can be expected within the regions with high HIV rates such as the Northeast or the South. This brief study reports on the characteristics of teens and young adults ages 13-24 living with HIV/AIDS in Dallas County, TX. It focuses on the distribution of HIV/AIDS by gender, and race/ethnicity.

Methodology and Data

Data for the study were obtained from the Texas State Department for Health Services and includes the cumulative number of HIV/AIDS cases reported to the Texas HIV/AIDS Surveillance system for 1999-2003. A subset of the population aged 13-24 at the time of HIV/AIDS diagnosis was extracted for this analysis. Because the 2003 data are only partial (cases reported through July 2003), they are excluded from some of the analysis. The total number of cases that met these criteria was 2,485. Although there are problems with using ZIP codes for GIS-based health analysis (Cromley and McLafferty, 2002), ZIP codes are used in this study because they are convenient geographical units for reporting certain kinds of health data and the State Department of Health Services provided the information at this level of spatial resolution, as a means of protecting confidentiality. HIV/AIDS rates used in this paper are computed using the cumulative number of HIV/AIDS cases reported in 1999-2002, and the population aged 13-24 from the 2000 U.S. Census. To compensate for the small numbers of cases, the HIV/AIDS rate is presented using both a choropleth and a kernel density map. For the latter, a radius of 15,000 is used with a cell size of 25 by 25. In this paper, HIV/AIDS rate refers to the cumulative number of HIV/AIDS cases reported for 1999-2002, with the requisite 2000 census population as a denominator for each spatial unit.

Teen and Young Adult HIV/AIDS Cases in Texas by Race/Ethnicity and Sex 1999-2003
Males comprised 60% of the total number of teen and young adult HIV/AIDS cases (1,489) and females comprised 40% (996). The racial/ethnic breakdown was quite uneven. Blacks accounted for 51% of all cases while Whites accounted for

about 23% of the cases and Hispanics contributed 25%. Black females accounted for 62% of the female cases, compared to 19% for Whites and 18% for Hispanics. Thus, race is a significant risk marker $(\chi^2(3) = 87.3, p<.01)$ for teen and young adult HIV/AIDS in Texas. Black teens and young adults have a higher proportion of HIV/AIDS cases than other ethnic/racial groups.

HIV/AIDS Incidence Density Among Teens and Youth (13-24) Dallas County 1999-2003
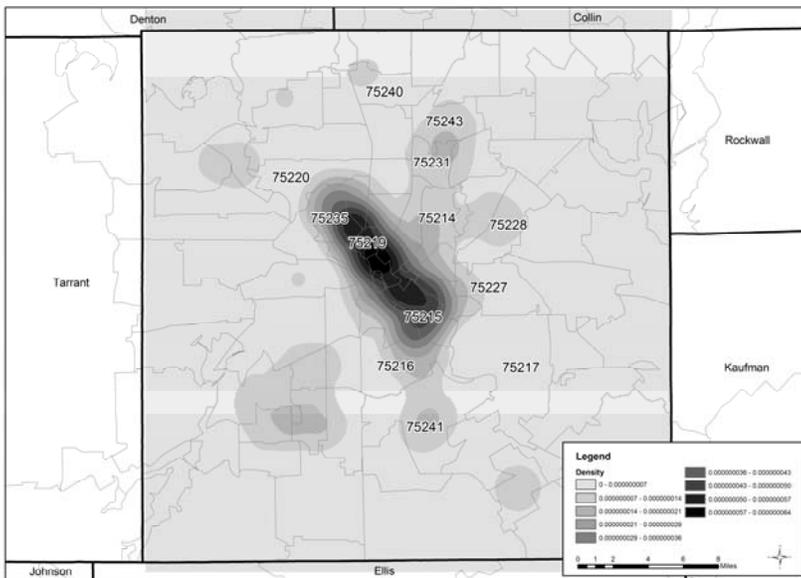
HIV/AIDS AMONG TEENS AND YOUNG ADULTS 13-24 IN DALLAS COUNTY

Out of the Texas HIV cases, all those in Dallas County (FIPS 113) were selected for this analysis. Between 1999 and 2002, 477 cases of HIV/AIDS were diagnosed among teens and young adults in Dallas County. Out of this number, 101 were recorded among teens aged 13-19 (21%), and 376 (79%) were recorded among those aged 20-24 years.

For the years, 1999-2002, the number of HIV cases reported among teens and young adults in Dallas County averaged around 115 and peaked in 2002 at 129. More than half of the cases (55%) occurred among Blacks, although they comprise less than 20% of the teen and young adult population of Dallas County. Whites, comprising about 36% of the population, accounted for 24% of the HIV/AIDS cases while Hispanics, about 39% of the population, contributed 20%.

Gender, Race/Ethnicity and HIV/AIDS
Black Males accounted for 46% of HIV/AIDS cases, while Whites and Hispanics had 30% and 21% respectively. However the distribution of the female cases is quite different. More than two-thirds of the female cases were Black females (68%) compared to 14% for Whites and 17% for Hispanics. Clearly, Black females have a higher risk than females from other races. The gender distribution of HIV/AIDS cases varied significantly between the races, $(\chi^2(3) = 26.5, p<.01)$.

HIV/AIDS Rate among Teens and Young Adults in Dallas County 1999-2002
For the period 1999-2002, the HIV/AIDS rate among teens and young adults in Dallas County was 1.1 per 1000. The male rate was slightly higher 1.3 per 1000 compared to 0.9 per 1000 for females. Among males, Black males had the highest rate, 3.3 per 1000. This was 3 times the rate for White males (1.1 per 1,000). Hispanics had 0.7 per 1000. With 2.8 per 1000, the Black female HIV/AIDS rate was 7 times the rate for White or Hispanic females (0.4 per 1000).

Geography of Teen and Young Adult HIV/AIDS Cases in Dallas County
The geography of HIV/AIDS in Dallas County by ZIP codes is shown in a series of maps. Due to the small numbers in some ZIP codes, their HIV/AIDS rates have been omitted. The State Department of Health Services does not compute rates with fewer than 5 cases.

Percentage African American Density Among Teens and Youth (13-24) Dallas County 1999-2003
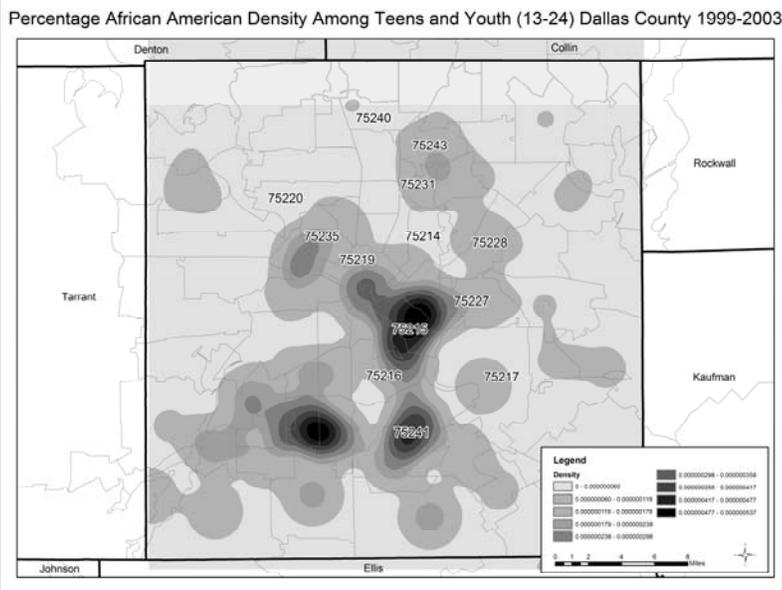
Northeast Dallas and central Dallas County have the highest concentrations of HIV/AIDS cases (Figure 1). The same information is presented as a kernel density map (Figure 2) due to the fact that small population sizes in some ZIP codes can produce unreliable rates. The percentage of Blacks in the population aged 13-24 in each ZIP code (Figure 3) is also presented as a kernel density map. The relationship between HIV/AIDS rates and concentration of African American teens can be visualized by the maps. The data show that ZIP codes in Dallas County with a higher percentage of African-American teens and young adults have higher HIV/AIDS rates. Data analysis at the census tract or block group level may be useful to further distinguish neighborhood patterns and prioritize interventions.

References. CDC. 2002. Young People at Risk: HIV/AIDS Among America's Youth. [See CDC website at URL: http://www.cdc.gov/hiv/pubs/facts/youth.htm]; Census Bureau. American Fact Finder; Cromley EK and SL McLafferty. 2002. GIS and Public Health. New York: Guilford; Ellen JM. 2002. Adolescents and HIV. The Hopkins HIV Report. http://www.hopkins-aids.edu/publications/report/may02_6.html; and, Rosenberg PS, RJ Biggar and JJ Goedert, 1994. Declining age at HIV infection in the United States. *New England Journal of Medicine* 333:789-90.