PUBLIC HEALTH GIS NEWS AND INFORMATION

July 2004 (No. 59)

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

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

Our next NCHS GIS Guest Lecture will be announced in the **September 2004 edition**. The NCHS GIS Guest Lecture Series has been presented continuously at NCHS since 1988. For your information, we are in the process of bringing archived presentations to you through web-enabled video streaming technology. As with all live lectures, Envision will be available to offsite CDC locations and Web access will be available on the Internet. 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). [NCHS Cartography and GIS lectures are open to all. Contact: Editor, *Public Health GIS News and Information* at cmc2@cdc.gov]

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

*21st Annual Historical Black Colleges and Universities (HBCU) Summer Faculty GIS Workshop, July 19-22, 2004, Washington D.C. [Contact: Pamela Bingham at environmentally1@aol.com or 301-585-2295]

* Head Start's 7th National Research Conference: "Promoting Positive Development in Young Children, Designing Strategies That Work," June 28-July 1, 2004, Washington D.C. [See Head Start's conference website at: http://www.acf.hhs.gov/programs/hsb/research/conference.htm]

* The 11th International Symposium on Spatial Data Handling, August 23-25, 2004, University of Leicester UK [See: http://www.geog.le.ac.uk/sdh2004]

* IHS Information Technology Conference: "Information Technology Innovations in Indian Health," August 23-27, 2004, Scottsdale AZ [See IHS conference website at: http://www.ihs.gov/AdminMngrResources/techconf/index.cfm]

* URISA's 2004 Caribbean GIS Conference, September 13-17, 2004, Barbados W. Indies [See site at: http://www.urisa.org/Caribbean/caribbeancall.htm]

* Conference on Race/Ethnicity and Place, September 16-18, 2004, Howard University, Washington D.C. [See: http://www.aag.org/meetings/place.html]

* Scientific Symposium on Children's Health as Impacted by Environmental Contaminants, September 24-25, 2004, Austin TX [Contact: janie.fields@cehi.org]

* 2004 ESRI International Health GIS User Conference, "GIS: The Key to Intelligent Collaboration in Health," October 17-20, Washington D.C. [See conference site at: http://www.esri.com/events/health/index.html]

* 132nd Annual Meeting of the American Public Health Association: "Public Health and the Environment," November 6-10, 2004, Washington D.C. [See meeting site: http://www.apha.org]

* International Conference on Social Science Research, November 11-13, 2004, New Orleans LA [See site at: http://www.centrepp.org/socialscience.html]

* 2005 Federal Committee on Statistical Methodology (FCSM) Research Conference will be held November 14-16, 2005, in the Washington, DC [Contact: Bill Mockovak, Program Chair, at fcsm@bls.gov]

* GeoHealth2004: Surveillance & Intervention, November 23-25, 2004, Wellington, New Zealand [See: www.geohealth2004.org]

* 2005 CDC/ATSDR Symposium on Statistical Methods, "Statistics and Public Health Policy," March 1-2, 2005, Washington, D.C. [See: http://www.cdc.gov/od/ads/sag]

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. **ACS 1999-2001 and Census 2000 Comparison Study Added to ACS Web Site**. The American Community Survey (ACS) is designed to produce aggregated multi-year estimates for small geographic areas. These estimates are to replace the traditional long form estimates. The U.S. Census Bureau has released results from a study comparing the ACS data from 1999-2001 in the 36 test counties to the corresponding Census 2000 sample data. These estimates, along with measures of data quality, were compared at the county and census tract level. Please visit the following online ACS website http://www.census.gov/acs/www/AdvMeth/acs_census in order to access reports and associated county and census tract-level data. [American Community Survey Alert, No. 23]

2. **Maryland Environmental Public Health Tracking, 2004 Summer Workshop: Data Collection and Data Sharing**. This workshop is presented as part of the CDC-funded Environmental Public Health Tracking (EPHT) project in Maryland. This free one-day workshop will be held July 13, 2004, at the University of Baltimore and familiarize stakeholders with the vision and justification for EPHT, lessons learned in earlier tracking efforts, and important elements to consider for successful tracking. [See: http://epht.dhmh.state.md.us]

3. The **Washington, D.C. Demographic Analysis Workshop**, July 15-16, 2004, will teach extraction, querying, downloading, analysis, and mapping of Census demographic data for Washington, D.C. and surrounding communities. Such data can provide grant writers, social researchers and community planners with powerful tools for analyzing community changes. This workshop also provides an introduction to Geographic Information Systems (GIS) which includes an overview of GIS trends and common uses, where to easily obtain mapping files for Washington, D.C., a demonstration of the map browser ArcExplorer (included with your materials), hands on practice making basic maps online and suggestions for making effective maps. [See workshop at: http://www.sgtinfo.com/asp/workshop.html]

4. **Summer Institute for Public Health Practice**. The University of Washington School of Public Health and Community Medicine invites you to attend the 2004 Summer Institute for Public Health Practice at, August 2-6, 2004 in Seattle. The Institute provides public health professionals with training that is immediately relevant and applicable to daily public health practice with course objectives mapped to emergency preparedness and Council on Linkages core competencies. This year's Institute is again organized on the theme-Public Health Emergency Preparedness: Lessons for the Frontline. [See: http://healthlinks.washington.edu/nwcphp/niphp]

B. Department of Health and Human Services

http://www.hhs.gov

5. Chronic diseases and conditions account for at least **7 of every 10 deaths** in the United States and for more than 60 percent of medical care expenditures. In 2000, poor diet and physical inactivity, which contribute to obesity, cancer, cardiovascular disease and diabetes, accounted for 400,000 actual deaths in the U.S., according to research at HHS' Centers for Disease Control and Prevention. Only tobacco use caused more preventable deaths. In addition, many chronic diseases result in disability and decrease the quality of life for millions of Americans. [See HHS Report at the website http://www.hhs.gov/news/newsletter/weekly]

6. HHS announced $498 million in awards to states, territories and four major metropolitan areas (New York City, Chicago, Los Angeles County and Washington, D.C.) **to strengthen the ability of hospitals and other health care facilities to respond to bioterror attacks, infectious diseases, and natural disasters that may cause mass casualties**. "These grants are an important addition to national security because hospitals play such a critical role in identifying and responding to a terrorist attack, an infectious disease outbreak, and natural disasters," HHS Secretary TommyThompson said. "States and communities can use these funds to improve emergency care in any health crisis, whether the source is a bioterror attack or other infectious disease outbreaks like SARS or West Nile virus, or any natural disaster like a flood or hurricane."

7. In recognition of National HIV Testing Day, HHS announced 45 grants totaling $23 million to help

communities provide outpatient and primary care services for **low-income and medically underserved Americans who are living with HIV/AIDS** or are at risk for contracting the virus. "These grants give hope to thousands of low-income Americans with HIV/AIDS," Elizabeth Duke, administrator of HHS' Health Resources and Services Administration (HRSA) said. "The patients treated by these grantees are among our nation's most vulnerable people. Many live on incomes at or below the federal poverty level, while others simply have no other source of care." For a complete list of grants, please go to: http://www.hhs.gov/news/press/2004pres/20040625.html.

Administration for Children and Families

http://www.acf.dhhs.gov

8. The **Research and Statistics section** is geared toward researchers and practitioners seeking information on numerous research activities supported by the Head Start Bureau and other agencies studying the comprehensive child development services provided by Head Start.

Administration on Aging

http://www.aoa.gov

9. The Honorable Josefina Carbonell, Assistant Secretary for Aging, Administration on Aging (AoA), was a keynote speaker at the "Challenge of Global Aging" International Conference in Mexico City, Mexico, which took place June 16-18, 2004. Mexico is one of many Latin American and Caribbean countries in which the proportion of people 60 and over is likely to exceed the 20 percent mark by 2050.

Agency for Healthcare Research and Quality

http://www.ahrq.gov

10. The Agency for Healthcare Research and Quality (AHRQ) released in December 2003 the first **National Healthcare Quality Report** (NHQR) and **National Healthcare Disparities Report** (NHDR) on behalf of the U.S. Department of Health and Human Services. The NHQR and NHDR provide the first national baseline views of the quality of health care services and of differences in how at-risk groups in America use the services.

The reports provide one of the broadest examinations to date of prevention health care quality for the nation and among key priority populations, measuring quality of care across a range of dimensions, including the degree to which care is safe, patient centered, timely, and effectively delivered. They track more than 50 primary and secondary prevention quality-of-care measures in five clinical areas, including cancer, diabetes, heart disease, maternal and child health, and respiratory disease. [See: [1]U.S. Department of Health and Human Services. National healthcare quality report. Rockville (MD): Agency for Healthcare Research and Quality; 2003, and [2]U.S. Department of Health and Human Services. National healthcare disparities report. Rockville (MD): Agency for Healthcare Research and Quality; 2003, from AHRQ website: http://www.qualitytools.ahrq.gov]

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

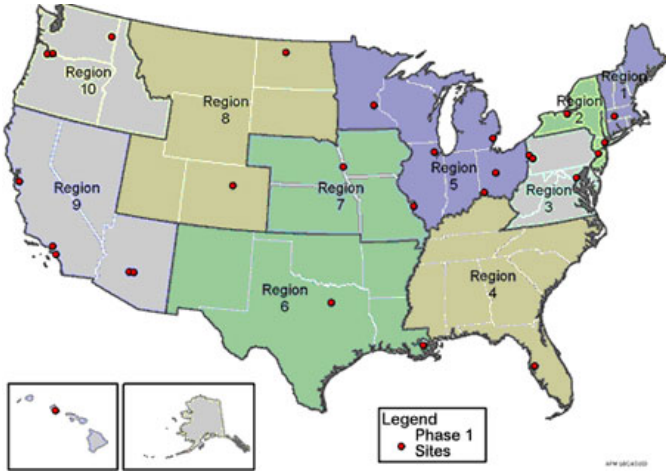
11. Federal Register: June 23, 2004 (Volume 69, Number 120). This notice announces the availability of the draft document on **proposed interim oral health guidance values for 2,3,5,6-tetrachloroterephthalic acid (TPA)**. Although available key studies for TPA were considered during development of the draft document, this Federal Register notice seeks to solicit any additional studies, particularly unpublished data and ongoing studies, which will be evaluated for possible addition to the draft document. ATSDR remains committed to providing a public comment period as a means to best serve public health and its clients. [The draft document is available at http://www.atsdr.cdc.gov/publiccomment.html. Readers may request a hard copy by telephone at (770) 488-3357 or e-mail cjc3@cdc.gov]

12. The Behavioral Surveillance Branch, Division of Adult and Community Health, National Center for Disease Control and Prevention, is pleased to announce the release of the **2003 Behavioral Risk Factor Data**. The Behavioral Risk Factor Surveillance System (BRFSS) is a unique, State-based surveillance system active in all 50 states, the District of Columbia, Puerto Rico, the Virgin Islands, and Guam. Information on health risk behaviors, clinical preventive health practices, and health care access, primarily related to chronic disease and injury, is obtained from a representative sample of non-institutionalized adults, 18 years and older, in each State.

The BRFSS provides flexible, timely, and ongoing data collection that allows for State-to-State and State-to-nation comparisons. State-specific data,

including racial-and-ethnic-specific data from the BRFSS, provide a sound basis for developing and evaluating public health programs, including programs targeted to reduce racial and ethnic disparities in health risks. The BRFSS is the largest telephone-based surveillance system in the world with over 200,000 interviews nationwide per year. The 2003 BRFSS data are located at http://www.cdc.gov/brfss. It is anticipated that the 2003 BRFSS Summary Prevalence tables will be released within two to three weeks; and also will be accessible through the BRFSS web site. [Contact: Lina Balluz at lib7@cdc.gov]

13. The **National Asbestos Exposure Review** (NAER) is the name of an ATSDR project to evaluate sites that received and processed vermiculite mined in Libby, Montana. ATSDR is working on this project with local, state, and other federal agencies. Libby vermiculite, containing asbestos, was shipped to over 200 locations around the U.S. for processing. Initially, NAER will focus on 28 Phase 1 sites, which received approximately 80 percent of the vermiculite mined in Libby from 1964 through 1980. ATSDR and other agencies are evaluating human health effects that may be associated with past or current exposure to asbestos at the processing sites and in adjacent communities. Map shows sites (Phase I) receiving asbestos-contaminated ore from Libby, Montana.



A mortality review, which compared death rates for residents of the Libby area with those in Montana and the United States for selected diseases associated with exposure to asbestos (1979-1998). The review found that for the 20-year period examined, mortality from asbestosis was approximately 40 times higher than the rest of Montana and 60 times higher than the rest of the United States.

14. From NCHS: The Injury Team at the National Center for Health Statistics (NCHS) announces a new feature of the NCHS Web site: **Injury Data and Resources**. The purpose of this Web site is to provide an overview of the sources of national level injury data available from NCHS. It provides details on the NCHS injury morbidity and mortality data collection systems including methods of identifying injury within the surveys and coding schemes used to collect and categorize the data. Links to national injury data from other sources are also provided. The site can be accessed from the NCHS home page http://www.cdc.gov/nchs by clicking Injury Data and Resources under 'What's New'. [Contact: Lois at LFingerhut@cdc.gov]

15. The July 2004 issue of ***Preventing Chronic Disease*** (*PCD*) is now available to the public online. Please visit http://www.cdc.gov/pcd, where you will be able to find downloadable articles and information on *PCD*. It includes the article "Prevention Health Care Quality in America: Findings From the First National Healthcare Quality and Disparities Reports."

16. You are invited to submit abstracts for the 2005 national conference, **"Health Promotion & Education at the Crossroads: New Public Health Directions,"** 23rd National Directors of Health Promotion and Education/CDC Conference on Health Education and Health Promotion, May 24-27, 2005, Minneapolis, MN [Abstracts to: http://www.dhpe.org/nationalconference]

Centers for Medicare and Medicaid Services

http://cms.hhs.gov

17. **Cancer Prevention and Treatment Demonstration for Ethnic and Racial Minorities**. Section 122 of the December 2000 BIPA legislation, entitled Cancer Prevention and Treatment Demonstration for Ethnic and Racial Minorities, requires the Secretary of the DHHS to evaluate best practices, and design, implement and evaluate demonstration projects for targeted ethnic and racial minorities.

As has been Congressionally mandated, these demonstration projects will be designed around new and innovative intervention models that improve health,

clinical outcomes, satisfaction, quality of life, and appropriate use of Medicare-covered services. The purpose of these demonstration projects is to reduce disparities in cancer prevention and treatment for African American, Latino, Asian American/Pacific Islander, and American Indian/Alaskan Native beneficiary populations living in both urban and rural communities. Congress legislated $25 million of Medicare trust fund monies for this project.

Food and Drug Administration

http://www.fda.gov

18. **2004 FDA/EPA Consumer Advisory about Mercury in Fish and Shellfish**. Research shows that most people's fish consumption does not cause a health concern. However, high levels of mercury in the bloodstream of unborn babies and young children may harm the developing nervous system. With this in mind, FDA and EPA designed an advisory that if followed should keep an individual's mercury consumption below levels that have been shown to cause harm.

Health Resources and Services Administration

http://www.hrsa.gov

19. First Annual U.S.-Mexico Border Binational Health Week, October 11-17, 2004: Goal are to heighten border communities' awareness of health and health services, and to foster activities that improve health. Sites in the majority of the sister cities along the border will host activities focused on immunizations across the life span, healthy behaviors, and access to health care.

Indian Health Service

http://www.ihs.gov

20. On May 14, 2004, the IHS and the Department of Housing and Urban Development (HUD), and the Otoe-Missouria Tribe dedicated the new F. Browning Pipestem Wellness Center in Red Rock, Oklahoma. The **Wellness Center** was funded by a HUD Indian Community Development Block Grant for $750,000 that was awarded in September 2002. The new wellness center is estimated to serve an Indian population of 300 living in the Red Rock area of Oklahoma. It will be staffed by seven full-time employees, with additional capacity as other programs are developed.

The Wellness Center will provide health promotion, especially those focusing on programs to address the community's diabetes and related health issues. Clinics for health screening include checks on blood pressure, cholesterol, foot care, weight management, cooking for optimal nutrition, smoking cessation, and education on healthy lifestyles. In addition, aerobics, gymnastics, massage therapy, reflexology, chair exercise, and cardiovascular machines and strength training are also available for promoting exercise and weight control.

National Institutes of Health

http://www.nih.gov

21. The National Library of Medicine, a part of the National Institutes of Health, announces a **new Web site to address the health concerns of Americans who claim American Indian or Alaska Native ancestry**. Over 4 million residents of the United States can claim American Indian or Alaska Native ancestry, in whole or in part. Though far from a homogeneous population, with over 500 tribes, most American Indians are drawn together by core values such as an emphasis on spirituality, a recognition of the sacredness of all living things, and respect for the land and the natural world in general. The many American Indian subpopulations are culturally distinctive, diverse, and complex; they are living on nearly 300 reservations in the lower 48 states, and speak more than 300 different languages.

The American Indians' diversity, coupled with their small population groups scattered throughout the United States, has made it difficult to provide a uniform, readily accessible health care system. Heart disease is the leading cause of death among American Indians, with malignant neoplasms the second most frequent cause among females and accidents the second most frequent cause among males. Recent statistics show Native

Americans 2.6 times more likely to have diabetes mellitus as non-Hispanic whites of similar age. Other causes of greater than average mortality include tuberculosis, suicide, pneumonia, influenza and homicide. Finally, deaths attributable to alcoholism are also alarmingly high among American Indians. [The site, "American Indian Health," may be visited at the following: http://americanindianhealth.nlm.nih.gov]

Substance Abuse and Mental Health Services Administration

http://www.samhsa.gov

22. People with co-occurring serious mental illness and substance abuse often do not recognize that they need treatment, a new report from the Substance Abuse and Mental Health Services Administration (SAMHSA) indicates. The report shows that 61 percent of those with both serious mental illness and a substance use disorder who had not received treatment for either illness, perceived no unmet need for treatment.

The data show that more than half (52 percent) of the four million adults 18 and older with co-occurring serious mental illness and a substance use disorder received neither mental health nor specialty substance use treatment during the past year. An estimated 34 percent only received treatment for mental disorders, 2 percent only received specialty substance abuse treatment, and close to 12 percent received treatment for both mental and substance use disorders.

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

[A listing of HBCUs may be found at the website: http://www.smart.net/~pope/hbcu/hbculist.htm]

23. **21st Annual Historical Black Colleges and Universities (HBCU) Summer Faculty GIS Workshop**, July 19-22, 2004, Washington D.C. This year's 21 Annual HBCU Summer Faculty GIS Workshop promises to provide the basic training needed to utilize GIS in the academic environment for teaching, analysis and grant research . Over 20 years ago, the U.S. Geological Survey with the National Parks Service began a summer workshop to train less than a dozen HBCU faculty in GIS. Since 1999, Howard University Continuing Education's Urban Environment Institute has expanded the summer workshop with funding from various agencies and the partnership of numerous companies. Government agencies generate nearly a third of all GIS sales of technology products and services and greatly need GIS services. Over 40 or a third of all HBCU's have had faculty trained at this summer workshop! Participants recognize the many benefits of GIS training for government, industry, university faculty and students. [Contact: Pamela R. Bingham, GIS Workshop Coordinator, at environmentally1@aol.com or 301-585-2295]

24. CDC's Office of Minority Health and the Agency for Toxic Substances and Disease Registry's (ATSDR) Office of Tribal Affairs are hosting the, 1st Conference on Increasing American Indian/Alaska Native/Native Hawaiian (AI/AN/NH) Careers in Public Health; **"Identifying the Academic Needs of AI/AN/NH Students to Pursue Careers in Public Health,"** July 20-22, 2004, in Atlanta. The specific objectives of this conference are to increase the number of AI/AN/NH public health professionals employed at all levels of government; to increase the number of AI/AN/NH's participating in CDC/ATSDR training internships/ fellowships; and increase the overall number of AI/AN/NH public health professionals. [See website at: http://www.namsinc.org/cdc/default.asp?x=dc&cid=0]

25. **National Healthcare Disparities Report** (NHDR). Significant differences exist in the use of evidence-based preventive services for certain populations, particularly people of lower socioeconomic status (SES) and some minorities. For example: *People of lower SES and some minorities are less likely to have colorectal and breast cancer screening; *People of lower SES and Hispanics are less likely to have blood pressure and cholesterol screening in addition to counseling and treatment for some cardiac risk factors; *People of lower SES and blacks are less likely to have recommended childhood immunizations before the age of four years; Children of lower SES and some minority children are less likely to have dental care; and, Lower-SES, black, and Hispanic adults are less likely to have recommended immunizations for influenza and pneumococcal disease. [See online reference: Section II B, Administration for Children and Families, this edition]

26. Recent Congressional Activity. Senator Frist (R-TN) introduced a major bill (S. 2091) to address racial and ethnic disparities in health. The bill includes provisions on education, research, access, and data. It would require

the Secretary to ensure that data are collected by race, ethnicity, and primary language for the Medicare, Medicaid, and SCHIP programs and other ongoing and new programs and to include these data in the **National Health Disparities Repor**t.

The bill also authorizes a grant program to be administered by the Agency for Healthcare Research and Quality (AHRQ) for 20 demonstration projects in health plans, health centers, or hospitals to enhance data collection, analysis, and reporting of data by race, ethnicity, or other health disparity category. The bill gives AHRQ the authority to award grants and contracts for research to analyze the causes of disparities and strategies for closing the health gap between disparity and non-disparity populations. AHRQ is also authorized to conduct a demonstration project to assess alternative strategies for identifying subpopulations at risk of poor health, improve data collection for priority populations, and track progress in reducing disparities.

Finally, the bill requires AHRQ, in consultation with CDC and CMS, to provide assistance to HHS agencies in meeting federal standards for racial, ethnic, and other disparity data collection and analysis in other federally administered programs. There has been no action on this bill yet. [This citation is adapted from a summary of recent activity in the Congress by Kathy Moss, NCHS, at KMoss@cdc.gov]

D. Other Related Agency or Business GIS News

26. From Open GIS Consortium, Inc: The Open GIS Consortium (OGC) held its 50th Technical Committee Meeting, hosted by the Ordnance Survey (OS) in Southampton, UK. This milestone event marks a decade of cooperation among industry, universities and the public and private sector organizations that use geospatial technology. These organizations have collaborated to develop and deploy open, publicly available standards for use by the geospatial and IT communities.

In addition to the regularly scheduled OGC meetings, a number of special meetings were held. The OpenGIS UK Industry Day, an all-day event on June 14, 2004 sponsored by the OGC, the OS and the Association for Geographic Information (AGI), was attended by 120 invited members of the UK government and business executive community. UK Industry Day presentations and dialog focused on how open geoprocessing environments enable agencies to foster better inter-departmental use of geographic information and mapping, and how such interoperability is important for delivering citizen-based services and meeting the UK's 2005 "Modernising Government" targets. [Contact: Mark at mreichardt@opengis.org]

III. GIS Outreach

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

The "rolling survey" is the basic new idea of the American Community Survey (ACS). It brings forth new questions that people will not have experienced when having used decennial census boundaries in the past for small area analysis. Several questions are posed here about the methods that will be used in the ACS when local area boundaries for local tabulation areas (e.g., census block groups, census tracts, ZCTAs) change over time.

Questions Posed: (a) In the ACS process, when will changes be allowed in the geographic boundaries of local tabulation areas (such as Census Blocks and Census Tracts and ZCTAs)? In the past, the geographic boundaries of census tracts, block group and block geography typically would be stable for the 10 year period between censuses, but changes could occur at the time of the census (every 10 years). With the ACS, are more frequent changes going to be allowed in the geographic boundaries, for example, if local input indicates that changes are appropriate? If so, how frequently and/or how often might geographic boundary changes be allowed and/or what would be the circumstances under which geographic changes would be allowed? (b) If geographic changes will be allowed, how will the Census develop tabulations for the new boundaries of these areas? For example, will the Census re-tabulate earlier ACS results for the new boundaries? Or, for example, will the Census tabulate and report the new ACS results using the old geographic boundaries (i.e., the geographic boundaries used in Census 2000)?

Preliminary Census Guidance: 1) The ACS used the Census 2000 geographic codes (in TIGER/Line 2000) as a starting point. The ACS does not have funds to develop its own geography. Looking towards the future, ACS plans to use the most recent version of TIGER/Line files as the source for the geographic boundaries for updated ACS local tabulation areas. The most recent version of the TIGER/Line files will reflect changes reported on the Census Boundary and Annexation Surveys. Please do visit this website at the

URL http://www.census.gov/geo/www/bas/bashome.html. 2) ACS has established a Federal Agency Information Program at http://www.census.gov/acs/www/SBasics/fed.htm. This includes an email "Alerts" service at website http://www.census.gov/acs/www/Special/Alerts/Alert15.htm. 3) ACS plans to convene a workshop for federal agency representatives. At this time, Jennifer Madans (Associate Director for Science, NCHS) is the CDC ACS representative. 4) Bay State Medical has begun to explore ACS data use with breast cancer screening (See: http://www.census.gov/acs/www/Downloads/ACS/Paper34.ppt).

Additional Question Posed: If a state central cancer registry wants to use the ACS for denominators for calculating cancer incidence rates, should the state central cancer registry re-geocode all of its cancer case data using the same TIGER/Line files that were used by the most recent ACS, rather than calculating rates using "point in polygon" methods (where latitude/longitude coordinates based on older versions of TIGER/Line files are assigned to the most recent ACS geographic units of analysis)?

This question is coming from the perspective of what are the implications of the ACS for geocoding practices by state central cancer registries that (ultimately) want to be able to calculate and map cancer incidence rates for small areas (e.g., census block groups, census tracts). The reason for re-geocoding all of the cancer registry cases to the same TIGER/Line files that were used for the most recent ACS would be so that the locational relationships between the data from different years would be consistent. Also, the answer to this question potentially might have some important implications in terms of "geocoding cost" for the state central cancer registries and/or what practices/policies should be recommended for geocoding by state central registries that want to calculate and map cancer incidence rates. [Editor: Appreciation is extended to many colleagues who raised and responded to these issues including Gerry Rushton, University of Iowa; Bruce Ralson, University of Tennessee; Chuck Croner, CDC; Jon Sperling, HUD; and Nancy Torreiri, Census Bureau]

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IV. Public Health GIS Presentations and Literature

NCHS Cartography and GIS Guest Lecture Series-to be announced September Edition

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CDC's *Emerging Infectious Diseases* and *MMWR*

Emerging Infectious Diseases

Emerging Infectious Diseases (EID) is indexed in Index Medicus/Medline, Current Contents, Exerpta Medica, and other databases. Emerging Infectious Diseases is part of CDC's plan for combating emerging infectious diseases; one of the main goals of CDC's plan is to enhance communication of public health information about emerging diseases so that prevention measures can be implemented without delay The June 2004 10(6) edition includes articles "**Epidemiologic Clues to SARS Origin in China**" and "**Antibody Prevalence of West Nile Virus in Birds, Illinois, 2002**," and the July edition 10(7) includes articles on SARS and malaria. [These are available for download at the CDC EID website at URL http://www.cdc.gov/ncidod/EID/index.htm]

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Morbidity and Mortality Weekly Report

Selected articles from CDC's ***Morbidity and Mortality Weekly Report*** (MMWR): [Readers may subscribe to MMWR and other CDC reports, without cost, at site http://www.cdc.gov/subscribe.html as well as access the MMWR online at website http://www.cdc.gov/mmwr]. Note: Efforts are made to include themes which may lend themselves to spatial distribution. Vol. 53(24)- Cancer Survivorship, United States, 1971-2001; 53, No. RR-9- Compendium of Animal Rabies Prevention and Control, 2004,National Association of State Public Health Veterinarians, Inc. (NASPHV); Racial/Ethnic Trends in Fetal Mortality, United States, 1990-2000; Progress Toward Global Eradication of Poliomyelitis, January 2003-April 2004; West Nile Virus Activity, United States, June 16-22, 2004; 53(23)- Cigarette Use Among High School Students, United States, 1991-2003; Diminishing Racial Disparities in Early-Onset Neonatal Group B Streptococcal Disease, United States, 2000-2003; 53, SS-2- Youth Risk Behavior Surveillance: United States, 2003; 53, RR-5- Framework for Evaluating Public Health Surveillance Systems for Early Detection of Outbreaks, Recommendations from the CDC Working Group; 53(17)- Lyme Disease United States, 2001-2002; Impact of Heat Waves on Mortality, Rome, Italy, June-August 2003.

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Titles

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Statistical framework using GIS to estimate unpaved road VMT for PM10 emission inventories, Morey JE, Niemeier DA, Limanond T, J Urban Plan D-Asce 130 (2): 83-93 JUN 2004;

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NewBook

Global Positioning System: A Field Guide for the Social Sciences, John Spencer, Carolina Population Centre, Brian Frizzelle, Carolina Population Centre, Philip Page, UNC-CH, and John Vogler, East-West Center, Hawaii. John Spencer writes: I thought I'd mention, that I, along with some co-workers have written a book that might be of interest to some readers of *Public Health GIS News and Information*, and see if you would mention it in the new titles section of the next edition. The book is called: Global Positioning System: A Field Guide for the Social Sciences, is now available at the following website: http://www.blackwellpublishing.com/book.asp?ref=1405101849, and is written to guide people on the use of GPS receivers for data collection. Many of the GPS resources that are out

there are either very technical or geared toward physical scientists whose needs are quite different from the social scientist. Our book provides an overview of the GPS system, how to plan and effectively implement a GPS project and a brief guide to incorporating the data collected into a GIS, all within a social science context. [Contact: John at john_spencer@unc.edu]

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New Report

Interagency Task Force for the Economic Development of the Central San Joaquin Valley

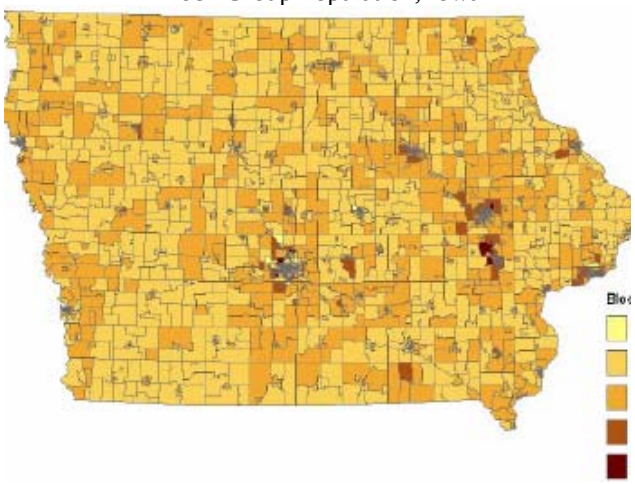
The San Joaquin Valley (the Valley) is a region with unique and serious social, economic, and environmental challenges that merit special attention by the federal government. In February 2002, President Bush implemented Executive Order 13173, which created the Federal Interagency Task Force for the Economic Development of the Central San Joaquin Valley as the primary vehicle for leading change. The Task Force comprises 19 federal agencies, including DHHS, that seek to leverage each other's strengths and resources, as well as work in partnership with local and state governments, the private sector, universities, Congressional representatives, and other local organizations.

The Task Force has chosen to focus on three priority economic development initiatives, which include measurable goals and outcomes. The Regional Jobs Initiative focuses on alleviating chronic double-digit unemployment through a comprehensive private-public effort aimed at creating new jobs in the Valley. The Clean Air/Clean Energy Initiative focuses on alleviating the region's poor air quality, a major obstacle to the region's economic development, by a series of innovative efforts to clean the environment in ways that create new jobs. The Financial Education Initiative seeks to create more opportunities for homeownership, small business development, and personal savings through increased banking relationships and access to financial services by Valley residents. [For the full report see http://www.huduser.org/publications/econdev/SanJoaquinTaskForce.html or contact coauthor Jonathan Sperling at jon_sperling@hud.gov]

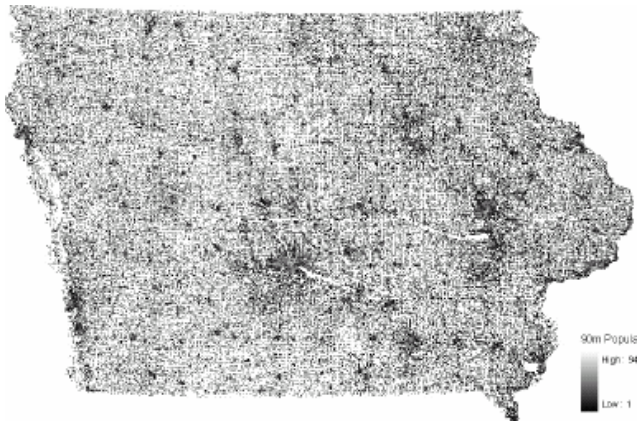
Research

SEER Special Project #08, **Development of High Resolution Population Distribution Data to Enhance Cancer Prevention and Control Research**, RFP No. NCI-PC-25014-20, Iowa Cancer Registry/Gerard Rushton P.I., University of Iowa. In this work, we computed the expected numbers of colorectal cancer cases from 1993 to 1998 in different radius filters around 20 HSA area centers in Iowa using two different local population datasets (LandScan USA and US Census 2000). The two set of results are compared mainly through two parameters-SR (Standard Ratios) and SD Standard Differences).

Block Group Population, Iowa



LandScan USA Population, Iowa



Currently, measures of cancer incidence for small geographic areas rely on population data for geographic areas defined by the U.S. Census. Consequently, these measures have traditionally only been available for Census areas or aggregations of them. This project developed age-sex population data for Iowa (Year 2000) for 90 meter square areas. Using geographic information science methods and Iowa SEER registry data, it computed and compared measures of colorectal cancer

incidence using the population characteristics of Census areas with the same measures using the population characteristics of the 90 meter grid areas. The population data for the grid was provided by the Oak Ridge National Laboratory, Geographic Information Science and Technology group, as a subcontract to this contract. [Other co-authors include Budhendra Bhaduri, Edward Bright, Phillip Coleman, Oak Ridge National Laboratory, and Qiang Cai and Michele West, The University of Iowa; For the full report, methods and findings, see report website at following URL: http://www.uiowa.edu/~gishlth/UIORNL]

New Monograph

The Public Health Disparities Geocoding Project

A new tool for monitoring socioeconomic inequalities in health

Harvard School of Public Health

We are excited to announce the availability of a free, on-line monograph sharing the concepts, methods, and US census tract poverty data for improving monitoring of- and research on-social disparities in health. The monograph draws on the work of The Public Health Disparities Geocoding Project, based at the Harvard School of Public Health. This project was designed to ascertain which area-based socioeconomic measures (ABSMs), at which geographic level (census block group, census tract, or ZIP Code), would be most apt for monitoring US socioeconomic inequalities in the health.

Our key methodologic finding was that the ABSM most apt for monitoring socioeconomic inequalities in health (based on analyses for outcomes ranging from low birth weight to cancer incidence to all-cause and cause-specific mortality) was the census tract (CT) poverty level, since it: (a) consistently detected expected socioeconomic gradients in health across a wide range of health outcomes, among both the total population and diverse racial/ethnic-gender groups, (b) yielded maximal geocoding and linkage to area-based socioeconomic data (compared to BG and ZC data), and (c) was readily interpretable to and could feasibly be used by state health department staff.

We found that the census tract poverty measure best met our criteria for a valid, robust, easy to construct, and easy to interpret measure suitable for monitoring and analyzing social disparities in health. Using this measure, we were able to provide evidence of powerful socioeconomic gradients for virtually all the outcomes studied, using a common metric, and further demonstrated that: (a) adjusting solely for this measure substantially reduced excess risk observed in the black and Hispanic compared to the white population, and (b) for half the outcomes, over 50% of cases overall would have been averted if everyone's risk equaled that of persons in the least impoverished CT, the only group that consistently achieved Healthy People 2000 goals a decade ahead of time.

In this monograph, we explain the concepts guiding our project and the methods we used, plus provide a data set and instructions for learning how to generate incidence rates stratified by the census tract poverty measure. Also included, at no cost, are: (1) census tract poverty data (categorical & continuous) for all US census tracts included in the 1980, 1990, and 2000 census, ready for linkage to any geocoded data set, and (2) .pdf files of our scientific publications. [See: http://www.hsph.harvard.edu/thegeocodingproject; Contact: Nancy Krieger, Harvard School of Public Health, at nkrieger@hsph.harvard.edu]

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 Register/Vol. 69, No. 120 /Wednesday, June 23, 2004/Notices- **Federal Geographic Data Committee (FGDC); Public Review of Framework Data Standards**. ACTION: Notice.

SUMMARY: The FGDC will conduct a public review of draft framework data standards developed through the Geospatial One-Stop initiative. The public review is scheduled to begin in July 2004. Framework data standards establish common requirements to facilitate data exchange for seven themes of geospatial data fundamental to many different Geographic Information

Systems (GIS) applications. The seven geospatial data themes are: **geodetic control, elevation, orthoimagery, hydrography, transportation, cadastral, and governmental unit boundaries**. The standard for each of the seven framework themes specifies a minimal level of data content that data producers, consumers, and vendors should use for the interchange of data.

The intended users of the framework data standards are data producers and collectors, system architects, database designers, and software developers who will implement these standards in different GIS applications. The FGDC will solicit comment on the draft standards from the geospatial community in public and private sectors to ensure that the broadest set of needs are met. Comments that address specific issues/ changes/ additions may result in revisions to the draft framework data standards.

After the end of the FGDC public review period, the comments will be evaluated and reviewers will receive notification of how their comments were addressed. Revised draft framework data standards will be submitted for further processing for approval by the American National Standards Institute (ANSI), including a second public review that will be announced in ANSI's Standards Action bulletin. After ANSI approval and formal endorsement by the FGDC, which is expected in the second half of calendar year 2005, the published framework data standards and a summary analysis of the changes will be made available to the public.

Dates: FGDC public review is scheduled to begin in July 2004. The actual start date will be published on the FGDC and Geospatial One-Stop web sites.

Contact And Addresses: Inquiries about the framework data standards and the FGDC public review should be addressed to Ms. Julie Binder Maitra, FGDC Standards Coordinator c/o U.S. Geological Survey, 590 National Center, 12201 Sunrise Valley Drive, Reston, Virginia 20192 or by phone 703-648-4627 or by facsimile 703-648-5755 or Internet at jmaitra@usgs.gov.

Supplementary Information: Following is information about the framework data standards: The standard for each framework theme will specify a minimal level of data content that data producers, consumers, and vendors should use for the interchange of data by various means, including Web services. The standards do not specify a particular structure for the interchange of data. Data producers and users may structure thematic data in any format for their own internal use. The standards do not modify business processes or modify how organizations hold data.

The framework data standards establish the content requirements for the collection and interchange of data pertaining to the seven framework themes. The standards identify terminology, encoding schema, data components, and metadata needed for data exchange. The seven framework themes covered by these standards are described below: **1. Geodetic Control**: Geodetic control provides a common consistent, and accurate reference system for establishing coordinates for all geographic data. All framework data and users' applications data require geodetic control to accurately register spatial data. The fundamental geodetic control for the United States is provided through the National Spatial Reference System (NSRS) managed by the National Oceanic and Atmospheric Administration (NOAA). **2. Elevation Bathymetric**: The bathymetric data for near coastal marine, Inland, and inter-coastal waterways is highly accurate bathymetric information collected to ensure that Federal navigation channels are maintained to their authorized depths. Bathymetric survey activities support the Nation's critical nautical charting program. This data is also used to create Electronic Navigational Charts. The bathymetric data supports the elevation layer of the geospatial data framework. **3. Elevation Terrestrial**: Land elevation data contains georeferenced digital representations of terrestrial surfaces, natural or manmade, which describe vertical position above or below a datum. As with bathymetric data, terrestrial data may be modeled in various forms, such as in an evenly spaced grid or as irregularly spaced points (triangulated irregular network, contour lines, mass points). The terrestrial data, in its various forms, can contribute to the elevation layer of the geospatial data framework. **4. Orthoimagery**: This dataset contains georeferenced images of the Earth's surface, collected by a sensor in which image object displacement has been removed for sensor distortions and orientation and for terrain relief. For very large surface areas, an Earth curvature correction may be applied. Digital orthoimages encode the visible and near visible portions of the electromagnetic spectrum as discrete values modeled in an array of georeferenced pixels. Digital orthoimages have the geometric characteristics of a map and image qualities of a photograph. **5. Hydrography**: This data

theme includes surface water features such as lakes, ponds, streams and rivers, canals, oceans, and coastlines. Each hydrography feature is assigned a permanent feature identification code and may also be identified by a feature name. Spatial positions of features are encoded as flowlines and polygons. Network connectivity, direction of flow, and a linear referencing system are also encoded. **6. Transportation**: Transportation data are used to model the geographic locations, interconnectedness, and characteristics of the transportation system within the United States. The transportation system includes both physical and non-physical components representing all modes of travel that allow the movement of goods and people between locations. Sub-themes representing the physical components of the transportation infrastructure include the road, railroad, transit, and waterway networks and airport facilities. **7. Cadastral**: Cadastral data describe the geographic extent of past, current, and future right, title, and interest in real property, including above, surface, and below ground and water, and the foundation to support the description of that geographic extent. **8. Cadastral (Marine)**: The marine cadastre includes, but is not limited to: Marine Managed Areas and their boundaries; parcels of ocean uses and their boundaries, including the submerged land management system used by the United States; and the rights, restrictions, responsibilities, and legal authority applied to marine spaces. **9. Governmental Unit Boundaries**: Governmental units are legally bounded geographic entities that have the authority of a government. A legal government is one established under Federal, Tribal, State or local law with the authority to elect or appoint officials and raise revenues through taxes. The Governmental Unit Boundary standard accommodates other legal entities and adopts the ANSI X3.31 (FIPS Publication 55–3) description for such entities and also applies to entities that are statistically equivalent to a legal entity for data reporting purposes, e.g., incorporated places that are independent of counties and serve as equivalent to a county.

The framework data standards were initially developed through the Geospatial One-Stop e-government initiative (see http://www.geo-onestop.gov); however, the Federal Geographic Data Committee (FGDC) organization will complete this intergovernmental geospatial standards development on behalf of Geospatial One-Stop and subsequently maintain the standards. Framework data standards will be submitted for approval by the American National Standards Institute (ANSI). ANSI is a private, non-profit organization (501(c)3) that administers and coordinates the U.S. voluntary standardization and conformity assessment system. ANSI has accredited the InterNational Committee for Information Technology Standards (INCITS) to develop standards for information and Communications Technologies (ICT).

The INCITS Secretariat is administered by the Information Technology Industry (ITI) Council, a trade association representing leading U.S. providers of information technology products and services. The project for development of framework data standards is registered as INCITS 1574–D, Geographic Information Framework Data Content Standard.

As the framework data standards were developed using public funds, Geospatial One-Stop and the FGDC shall be able to freely publish and distribute the contents, including the framework models to the public, as provided through the Freedom of Information Act (FOIA). Upon adoption of the framework data standards as American National Standards, the Information Technology Information (ITI) Council will copyright the American National Standards version of these standards on behalf of INCITS and provide free of charge to the FGDC a non-exclusive license to these standards. [Ref: http://www.access.gpo.gov/su_docs/fedreg/a040623c.html; for this reference and many new geospatial data resources available for download please visit the FGDC homepage]]

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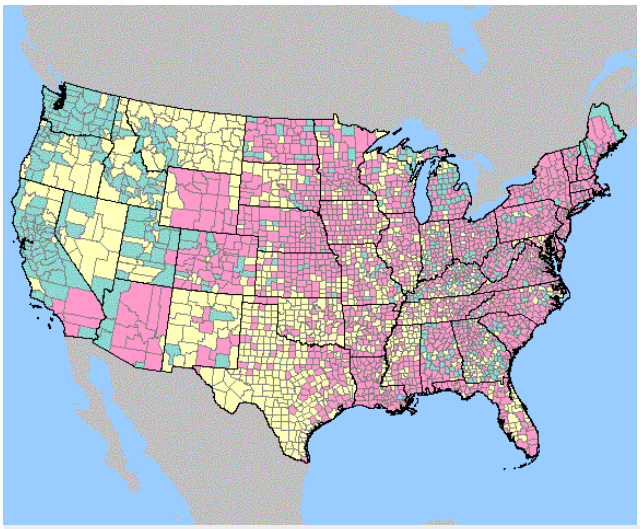
Web Site(s) of Interest for this Edition

http://westnilemaps.usgs.gov/2003 **W. Nile Virus-Birds-U.S., 2003** Human and animal infections were not documented in the Western Hemisphere until the 1999 outbreak in the New York City metropolitan area. Since then, the disease has spread across the United States. In 2003, WNV activity occurred in 46 states and caused illness in over 9,800 people. WNV is transmitted to humans through mosquito bites. Mosquitoes become infected when they feed on infected birds that have high levels of WNV in their blood. Infected mosquitoes can then transmit WNV when they feed on humans or other animals. At this site, readers additionally may view national and state distributions for humans, mosquitoes, sentinel and various other kinds of veterinary animals.



[Map shown-Cumulative 2003 Data. Legend colors: pink- positive test results; blue- samples submitted; tan- no data. This map reflects information for the 2003 West Nile Virus reporting season that has been submitted and verified to CDC through the week of April 9, 2004. These are the final USGS West Nile maps for the 2003 season]

http://www.ucgis.org/winter2004/fedbriefing.htm
UCGIS Winter Meeting, Took place February 4-6, 2004, Washington DC 20003. The Congressional Breakfast Program this year focused on homeland security issues. It was followed by briefings to UCGIS delegates by federal agencies involved in GI Science. Discussion centered on grant opportunities. Sponsors to the Congressional Breakfast Program were Senator Charles Schumer and Representative Christopher Shays. Presentations are online and include speaker slides presented at the program.

http://uspirg.org/uspirg.asp?id2=13532&id3=USPIRG&
Dangerous Dozen: A Look at How 12 Chemical Companies Jeopardize Millions of Americans, U.S. PIRG Education Fund report, June 2004. Across the United States, thousands of industrial facilities use and store hazardous chemicals in large quantities that pose major risks to their neighbors. More than 100 of these facilities would each put at least one million people at risk of injury or death in the event of a chemical accident or terrorist attack.

http://www.whitehouse.gov/news/releases/2004/06/20040626-8.html U.S.-EU Summit: Agreement on GPS-Galileo Cooperation. The United States and the European Union reached an agreement covering their satellite navigation services, the U.S. Global Positioning System, and Europe's planned Galileo system. The U.S. Global Positioning System (GPS) is a constellation of 28 satellites and ground support facilities, used for a wide array of economic, scientific, and military applications. Recognizing the added benefit to civil and commercial users if the two independent systems were compatible and interoperable, the United States and the European Union have shared technical analyses and information, resulting in an agreement to establish a common civil signal.

Final Thoughts

Towards the GIS Evidence of Public Health Inequalities

We have in GIS the necessary scientific tools and visualization firepower to effectively communicate the space-time statistics and measurements of health inequalities. Perhaps it is time we think about communicating healthcare disparities with new urgency. Although not to minimize our recent national concern with bio and chemical terrorism, I cannot diminish either, or separate from, the inordinate differential burdens of poor health and elevated disease risk that often characterize many minority citizens and communities. It's not that we are unaware of these burdens. I suspect the disconnect in the development of a coherent national response and urgency to eliminate these burdens has something more to do with how well we convey this reality to stakeholders and legislators.

In this discussion I'll cite the example of tuberculosis (TB) as one example of a variety of differential health conditions, including infant mortality, childhood vaccinations, asthma, prenatal care (first trimester), childhood dental visits, diabetes hospitalization, health insurance, source of ongoing care, and fewer health care services (*National Healthcare Disparities Report*, HHS, Rockville, DEC 2003), that creates undue burden on the lives of African American citizens. Other well documented elevated and preventable differentials exist such as childhood environmental lead exposures and certain age-specific causes of death e.g., homicide, male prostate cancer, and others.

The report that "in the United States, in 2002, non-Hispanic blacks continued to have TB rates eight times greater than non-Hispanic whites" (in seven southeastern states, *MMWR* 53(25);556-559 JUL 2, 2004), is and of itself a signal of inordinate TB distress in seven states where CDC surveillance occurred. Further, it took place despite substantial declines in US TB during the preceding decade and that the rates in these seven states were similar to rates among non-Hispanic blacks in the rest of the country. In other words, the burden of an elevated and significant prevalence of TB in the U.S. is a condition disproportionately borne by African American citizens.

Given these statistics, there should be no room for disconnect. As a result, "In 2003, the federal Advisory Council for the Elimination of Tuberculosis and CDC developed a strategy for nongovernment organizations to help reduce TB disparities in the United States by studying local TB epidemiology, increasing awareness about TB disparities (especially among non-Hispanic blacks), and educating legislators. In addition, in 2002, CDC began funding three ongoing demonstration projects (in Georgia, Illinois, and South Carolina) to identify innovative strategies to accelerate the decline of TB among non-Hispanic blacks. In January 2004, CDC began the Tuberculosis Genotyping Program to identify instances of recent TB transmission, enabling earlier outbreak detection and more thorough contact investigations, which might help reduce racial disparities in TB in the United States" (Rosenblum L, Crawford JT, Navin TR. *Molecular epidemiology of tuberculosis* [Letter]. *N Engl J Med* 2003;349:23648).

These CDC responses are to be applauded. A studied strategy to better engage, understand and reduce TB is underway. As GIS practitioners we can help advance this agenda and help assure the connection is realized. Our ability to communicate localized community differentials in disease burden may be indispensable to its success. With GIS tools we can demonstrate visually the evidence that TB differentials occupy real locations both in time and space. We are uniquely positioned to translate scientific measurements of TB burden into identifiable communities and neighborhoods where TB suffering persists beyond reasonable thresholds. We can apply our tools to georeference street addresses or earth locations where each and every TB test measurement exists and then produce map evidence revealing TB's enervating and pernicious existence.

We can apply additional evidence that characterizes TB communities from other contextual geospatial databases. We can incorporate into maps the associative predisposing and census-derived area-based socioeconomic measures (ABSMs) of disparity (see reference this edition, *The Public Health Disparities Geocoding Project Monograph*). Under certain circumstances we can model and extrapolate these contextual characteristics to similar but untested communities to possibly help identify still others in need of TB reduction. With GIS, we are positioned to detect and circumscribe African American elevated and high risk TB communities across the nation. Communicating the evidence to local health decision makers of the space-time dimensions of this monstrous disease should result in renewed, hopefully urgent, commitment and cost effective intervention.

Charles M. Croner, PhD, Geographer and Survey Statistician, and Editor, ***Public Health GIS News and Information*****,** Office of Research and Methodology, National Center for Health Statistics, and DHHS Representative, Federal Geographic Data Committee, at cmc2@cdc.gov. Celebrating our **59th** edition with continuous reporting since **1994.**

The NCHS GIS home page contains current GIS events, archived GIS reports and other GIS links
http://www.cdc.gov/nchs/gis.htm

APPENDIX: MAPPING HEALTH INEQUALITIES
[Second in Series: See also May 2004]

Census Tract Prenatal Care Adequacy among Women Giving Birth in Northern Humboldt County, California, 2000

…Don Taylor, California Children and Families Commission

INTRODUCTION

The weight of scientific literature suggests that prenatal care is effective in lowering the risk of a range of pregnancy-related problems, including maternal and infant mortality,[1,2] low birthweight,[3-8] and preterm birth.[4,5,9-12] Prenatal care has also been shown to be a useful screening tool to effectively detect other important problems such as fetal genetic disease,[13,14] maternal infections,[15] fetal infections,[16] alcohol and drug use,[17,18] maternal smoking,[19] and domestic violence.[20]

Inadequate prenatal care utilization, as measured by the Adequacy of Prenatal Care Utilization index (APNCU), has been associated with an increased risk of low birthweight.21 The APNCU, adopted by the National Centers for Disease Control and Prevention, the California Department of Health Services and local health jurisdictions throughout California, is more robust than either first trimester care or late prenatal care measures and considered to be an improvement over the Kessner index.22

The APNCU uses two indices of prenatal care to calculate a score; an index of the mother's adequacy of initiation of prenatal care, and an index of the adequacy of prenatal care visits compared to the number of visits recommended by the American College of Obstetricians and Gynecologists. APNCU categories are inadequate, intermediate, adequate, adequate plus, and missing. For more information about the APNCU index used in this report please see the website: http://www.mchlibrary.info/databases/HSNRCPDFs/Overview_APCUIndex.pdf.

Methods

The APNCU was calculated for each birth to a California resident (n = 530,957) in the year 2000. The percent of inadequate prenatal care was calculated using all births for which an APNCU score could be calculated, as the denominator. The numerator included all births in which the mother had an APNCU score of either inadequate or intermediate.

MapInfo's Mapmarker was used for stepped automated geocoding. In subsequent manual geocoding, MapMarker was augmented with lookups in ESRI's ArcView 3.3. These manual lookups consisted of cross-referencing maps of street, city and zip code layers to get accurate maternal residence locations.

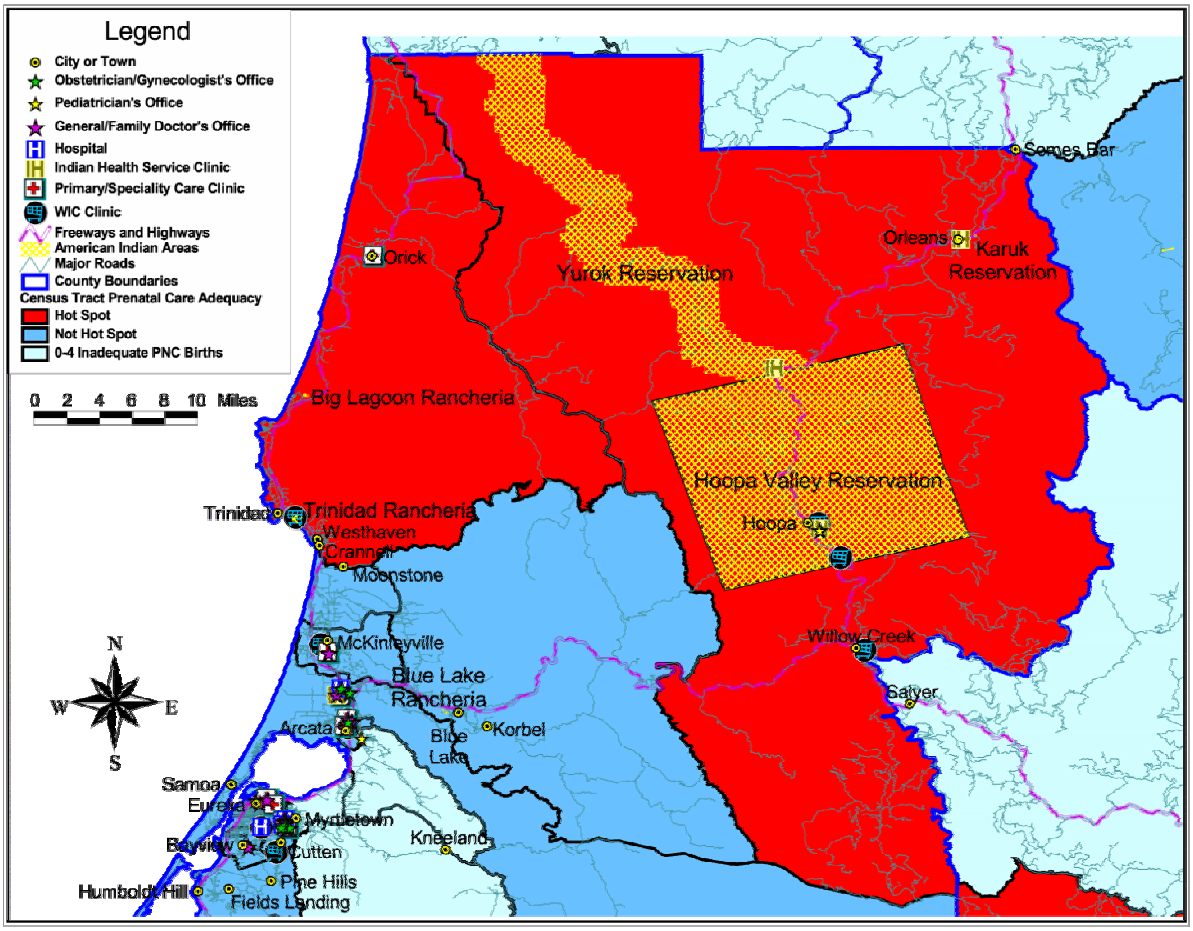
As a cross-check to the accuracy of the geocoded maternal residences, an analysis of aggregated zip code level data was conducted. Since all original birth records had zip codes, zip code frequencies were compared for all births and geocoded births to detect non-geocoded spatial clustering. All records in zip codes that had less than 80% of records adequately geocoded were manually re-geocoded.

Consequently, 93.7% of maternal residences were placed at the exact location and an additional 2.8% were placed at a lesser, zip+2 centroid level of accuracy (n = 513,227). Of these, 96.4% (n = 494,584) had sufficient data to calculate an APNCU score. Census tract boundaries were then overlaid on the maternal residential locations and counts of births made. Census tracts with a statistically significantly higher percent of inadequate prenatal care were designated as "hot spots" (Poisson, $P \leq .05$).

RESULTS

Of all births to residents of Humboldt county (n = 1,371), 95.9% were adequately geocoded (n = 1,315). Of these geocoded records, 98.6% (n = 1,297) had sufficient data to calculate an APNCU score. Among mothers identifying themselves as American Indians in Humboldt county (n = 94), 95.7% (n = 90) of records were adequately geocoded and of these 97.8% (n = 88) had sufficient data to calculate an APNCU score.

In analyzing small area geocoding accuracy through comparison of aggregate zip code counts, the data represented in the map are fairly consistent. In the zip code that roughly follows the boundaries of both the Yurok and Hoopa Indian Reservations (n = 56), 100% of birth records were adequately geocoded and 96.4% (n = 54) had sufficient data to calculate an APNCU score. In the zip codes within the northwest coast census tract hot spot encompassing Trinidad and Orick (n = 34), 91.2% (n = 31) of birth records were adequately geocoded and 93.5% (n = 29) had sufficient data to calculate an APNCU score. In the zip codes within the northeast census tract hot spot encompassing Orleans (n = 7), 100% of birth records were adequately geocoded and 100% had sufficient data to calculate an APNCU score. In the zip codes within the east census tract hot spot encompassing Willow Creek (n = 15), 100% of birth records were adequately geocoded and 100% had sufficient data to calculate an APNCU score.



Disparities in prenatal care adequacy in northern Humboldt county, California, 2000

This map displays disparities in prenatal care adequacy in northern Humboldt county California. The census tract hot spots occur in rural communities and encompass three American Indian reservations and two American Indian Rancherias. Among all geocoded births in the state, 23.6% had inadequate prenatal care. This compares to 46.7% (21

out of 45 geocoded births) in the census tract hot spot encompassing the exact boundaries of the Hoopa Indian reservation, 58.1% (18 out of 31 geocoded births) in the census tract hot spot that includes the Yurok and Karuk Indian Reservations, and 51.7% (15 out of 29 geocoded births) in the rural northwestern coast census tract hot spot that includes the Big Lagoon and Trinidad Rancherias. Of note is the relative lack of physician's offices in census tract hot spot areas. Of the one primary care and three Indian Health Service clinics, only the Hoopa clinic is staffed by MDs.

CONCLUSION/USE

The map suggests that travel time, lack of physician resources, and cultural barriers may combine to increase the risk for inadequate prenatal care. It may be used to compare local prenatal care disparities, locate resources and potential partners to improve services, determine optimum routes for mobile services, and to plan new service sites to improve the adequacy of prenatal care for these populations.

ABOUT FIRST 5 CALIFORNIA. Proposition 10, passed by the voters in November 1998, created a state California Children and Families Commission, also known as First 5 California. First 5 California provides for and monitors the funding of programs to improve the health status, education, and family functioning among young children. First 5 has determined that community level scientific needs assessment, resource identification and allocation can be most effectively supported through the use of an internet-based, comprehensive, integrated, statewide GIS. This GIS displays risk factors, resources, and other information related to First 5's child well being mandate. [For more information see: www.ccfc.ca.gov; contact: Don, Epidemiologist, at dtaylor@ccfc.ca.gov]

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APPENDIX: MAPPING HEALTH INEQUALITIES

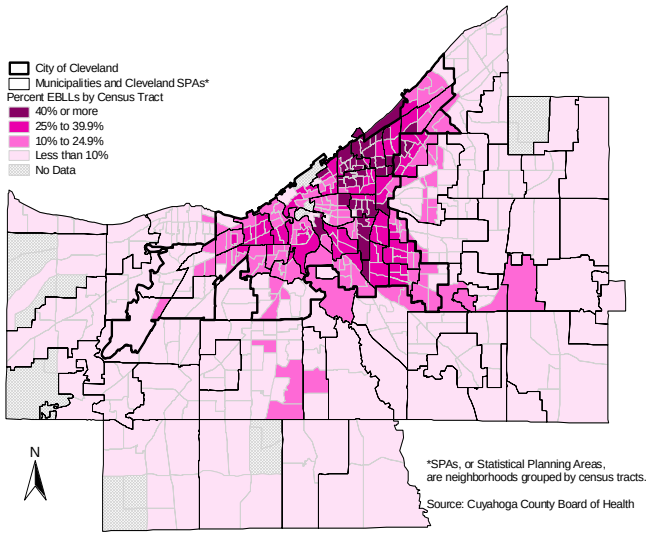
Children with Elevated Blood Lead Levels

Cuyahoga County, Ohio, 1997 to 2000…Terry Lenahan, The Center for Community Solutions
Cleveland, Ohio

One out of every 11 children in the United States has dangerous levels of lead in his or her bloodstream. Lead absorption is particularly prevalent and problematic in children because a child's body confuses calcium with lead and can absorb lead at high levels. The Centers for Disease Control and Prevention (CDC) states that a blood lead level of 10 mg/dl (micrograms per deciliter), which does not necessarily cause distinctive symptoms, is associated with decreased intelligence and impaired neurobehavioral development. The CDC ranks Ohio third among the states in the prevalence of lead poisoning.

Paint, dust, and soil are the most common lead hazards. Lead can be released from paint due to weathering, aging, and rehabilitation of older homes. Lead paint use was most prevalent before 1940. Lead dust deposits remain in the soil and on or near the surfaces of residential living areas until they are removed. These risk factors are generally most concentrated in the older, more densely populated, and poorer neighborhoods. The median year that housing stock was built in Cleveland, Ohio is 1920; in the Cuyahoga County suburbs surrounding the city of Cleveland it is 1959.

Percentage of Elevated Blood Lead Levels Among Tested Children under Age Six Cuyahoga County, 1997 to 2000

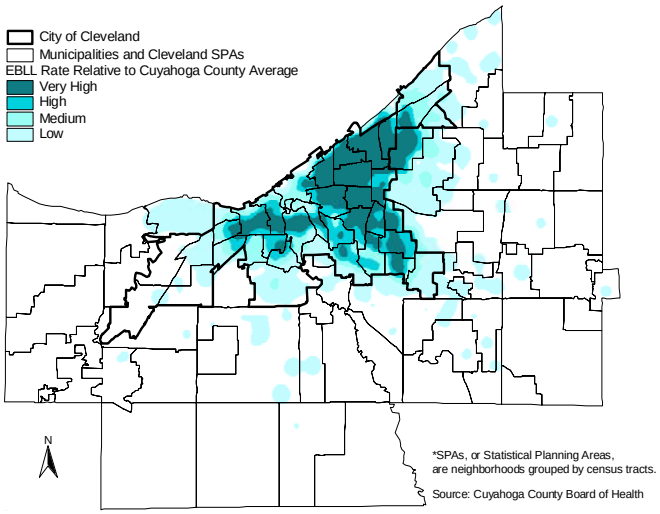


African American children in the city primarily live in older, poorer neighborhoods and are more often at risk for lead poisoning than White children. The city's African American population has remained relatively constant during the last 50 years, at about a quarter of a million persons. But with the loss of White population, which largely migrated to the suburbs and surrounding counties, the African American population increased from 16 percent of the city's total population in 1950 to 51 percent in 2000. Eight east-side SPAs (Statistical Planning Areas, or city neighborhoods grouped by census tracts) are over 95 percent African American.

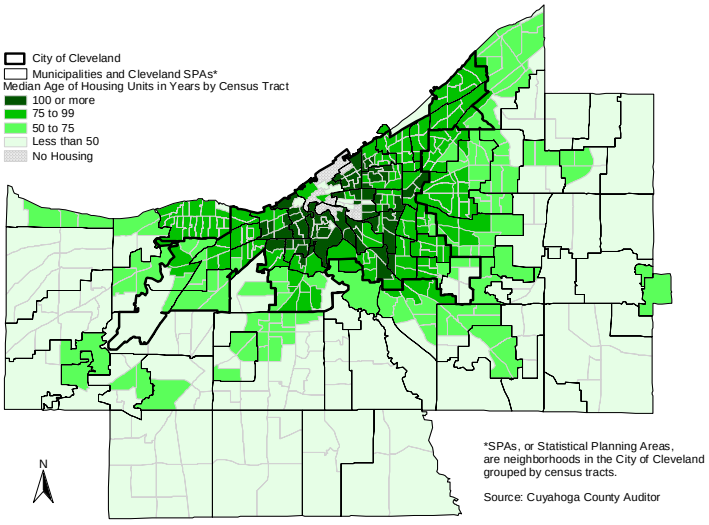
The Cuyahoga County Board of Health measured the percentage of children under age six with elevated blood lead levels (EBLL) over a four-year period. If a child was tested more than once during a year or in the four-year period, only one test was tabulated and if a child had at least one confirmed EBLL, the child was considered to have an EBLL during the four-year period. A confirmed EBLL was defined as a venous blood test result that was greater than or equal to 10 mg/dl or two capillary tests performed within 90 days of each other with both results greater than or equal to 10 mg/dl.

From 1997 to 2000, the proportion of EBLLs among tested children under age six was 27 percent in the city and 10 percent in the suburbs. Percentages decreased for both the city and suburbs during the four-year study period.

Ohio HELP (Help End Lead Poisoning), created in 1997 to address the issue of children with lead poisoning in Ohio, was successful with the passage of a lead testing law (HB 248) which mandates a number of actions to identify these children and requires follow-up actions to remove the source of the poisoning. In addition, the Ohio Department of Health administers the Ohio Childhood Lead Poisoning Prevention Program (OCLPPP), which provides program funding, public and professional education, environmental consultation and investigation, case management, and data collection and analysis. The program addresses the needs of children from birth through age 6 years and their families. OCLPPP is the lead agency for the CDC childhood lead poisoning prevention efforts in Ohio. The City of Cleveland and Cuyahoga County are also developing local plans.

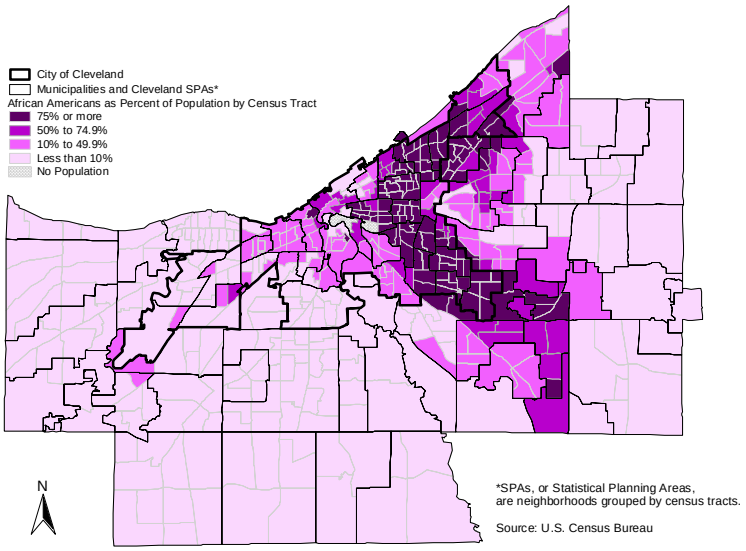


Map to right: Smoothed Elevated Blood Lead Level Rates Among Tested Children under Age Six, Cuyahoga County, 1997 to 2000
[Note- density map was generated from point features to calculate EBLLs per square mile using Spatial Analyst. Smoothing is achieved by Kernel method]



Map bottom right: Median Age of Housing Units Cuyahoga County

Percentage African American of Total Population
Cuyahoga County, 2000 [Base Map]



Maps created by: Ms. Terry Lenahan, Policy and Planning Associate in Research, The Center for Community Solutions (formerly, Federation for Community Planning). Elevated blood lead level cases geocoded and rates calculated by Christopher Kippes, Director of Epidemiology and Surveillance, Cuyahoga County Board of Health. Cuyahoga County Auditor housing data provided by the Center for Housing Policy Research, Levin College of Urban Affairs, Cleveland State University, and analyzed by Richard Marountas of Community Solutions, and Mark Salling, Ph.D., of Community Solutions and NODIS, Levin College, Cleveland State University. Contact: Terry at tlenahan@communitysolutions.com]

"Children with Elevated Blood Lead Levels" 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).