PUBLIC HEALTH GIS NEWS AND INFORMATION

September 2000 (No. 36)

Dedicated to CDC/ATSDR scientific excellence and advancement in disease control and prevention using GIS

I. Public Health GIS (and related) Events

SPECIAL CDC/ATSDR GIS LECTURES

(1) **September 7, 2000**, 2:00-3:15P.M., **"Crime Mapping, Privacy, and Data Confidentiality,"** by Debra Stoe, Crime Mapping Research Center, U.S. Department of Justice.

(2) **October 24, 2000**, 2:00-3:15P.M., **"LandView: A Federal Geographic Data Viewer,"** by E.J. (Jerry) McFaul, Computer Scientist, U.S. Geological Survey. [The September 7 and October 24 programs will be held at the NCHS Auditorium, **RM1100**, Hyattsville, MD; Envision is available to offsite CDC/ATSDR locations; See abstracts this edition. Note: 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). All NCHS GIS and mapping presentations are open to the public; Program Contact: Chuck Croner at email ccroner@cdc.gov]

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[Note: Calendar events are posted as received; for a more complete listing see prior two bimonthly reports at NCHS GIS website]

☞ Third National Conference on Genetics and Public Health, "Connecting Research, Education, Practice & Community," September 18-20, 2000, Ann Arbor, MI [See: http://www.astho.org/access/genetics/genconf2k/genconf2k.html]

☛ 2000 Annual Meeting of the American College of Epidemiology, "Epidemiology in a Changing World," September 24-26, 2000, Atlanta, GA [See: http://www.acepidemiology.org/]

☞ GIS in the Rockies 2000 Conference and Workshop, "Applications for the 21st Century, September 25-27, 2000, Denver, CO [See: http://www.gisintherockies.org/]

☛ 20th Annual Meeting of the North American Cartographic Information Society, October 11-14, 2000, Knoxville, TN [See: http://www.nacis.org]

☞ Third International Conference on Information Technology Applications in Biomedicine-ITAB 2000, in collaboration with the Third Workshop of the International Telemedical Information Society- ITIS 2000: "Technology Challenges and Global Opportunities in the New Millennium," November 9-10, 2000, Washington, D.C. [See: http://www.hoise.com/vmw/99/articles/con tent svmwdec99.html]

☛ 99th Annual Meeting of the American Anthropological Association, November 15-19, 2000, San Francisco, California [See: http://www.aaanet.org/]

☞ The American Society for Photogrammetry and Remote Sensing (ASPRS) and the American Congress on Surveying and Mapping (ACSM), Fall 2000 Conference: "Practical Applications in the Geospatial Information Sciences," December 1-5, 2000, Providence, Rhode Island [See: www.asprs.org]

☛ Transportation Research Board Annual Meeting, January 7-11, 2001, Washington D.C. [Includes special sessions on travel demand modelling; Contact: Harvey Miller at voice (801) 585-3972 or email harvey.miller@geog.utah.edu]

☞ Coastal GeoTools 2001 Conference, National

Oceanic and Atmospheric Administration, January 8-11, 2001, Charleston, SC [See: http://www.csc.noaa.gov/GeoTools/ htm/welcome.htm]

☛ 97th Annual Meeting of the Association of American Geographers, February 27-March 2, 2001, New York, NY [See: http://www.aag.org/]

☞ XXIV Annual Conference of the Geospatial Information and Technology Association, March 4-7, 2001, San Diego, CA [See http://www.gita.org]

II. GIS News

(*Please communicate directly with colleagues on any of the following issues*)

A. General News and Training Opportunities

1. **Census Rural-Urban Continuum**: The US Dept of Agriculture Web site with the 1993 Rural-Urban Continuum Code (sometimes referred to as Beale codes) classifies all U.S. counties by the degree of urbanization and adjacency to a metropolitan area (see http://www.ers.usda.gov/briefing/rural/data/). This code is used in determining eligibility for several Federal programs, and allows researchers to break county-level data into finer residential groups than the standard metro-nonmetro. These codes are based on the June 1993 definition of metropolitan and nonmetropolitan counties as determined by the Office of Management and Budget (OMB). This Web site also includes a national level map of the 1993 rural-urban codes; a look-up for Beale codes by state; and a text file with the Beale codes for all U.S. counties.

[Editor: On July 18, 2000, **Calvin Beale** responded to the question of preparing the codes in GIS format for the USGS National Atlas of the United States. "Thanks for the suggestion about developing the Rural-Urban Continuum Code in GIS format for the National Atlas of the United States. It strikes me as a good idea. I will have to see what the person in charge of the Branch's data postings is inclined to do. We will develop an updated version after the results of the 2000 Census become available. That will require waiting, however, until the long form sample data come out in 2002, because only then will the new boundaries of metropolitan and nonmetropolitan territory be determined. Let me note in passing that I don't use the term "Beale codes" myself, because I did not develop them. I have updated the codes and slightly modified the definition, but they were originated by earlier colleagues in the mid-1970s." Calvin Beale; Contact: Calvin at voice (202) 694-5416) or email cbeale@ers.usda.gov]

2. From **Elizabeth Groff**, National Institute of Justice: The National Institute of Justice's (NIJ) Crime Mapping Research Center (CMRC) has just released an update version of the CrimeStat spatial statistics program. CrimeStat is a free program for the statistical analysis of crime and other incident locations, developed under grants by Ned Levine & Associates of Annandale, VA. The program is Windows-based and interfaces with most desktop GIS programs. The aim is to provide supplemental statistical tools to aid analysts and researchers in statistically describing the distribution of incidents. Many of these tools are useful for public health analysis and research (e.g., describing clusters of infectious diseases; describing the distribution of a disease relative to an underlying population distribution).

Version 1.1 is an update to the first version which was released in November 1999 and fixes some problems associated with 1.0 (e.g., improved performance in Windows 98), adds new database features, (e.g., the ability to handle missing values), makes improvements to some of the existing routines (e.g., edge corrections to Ripley's K statistic), and adds new journey to crime calibration and estimation routines. The latter technique, for example, could be used to help identify a source location for food-borne illnesses or other infectious disease conditions. The program is fully documented and new material is included. The new version can be downloaded from either NIJ's Crime Mapping Research Center web site: www.ojp. usdoj.gov/cmrc or the web site of the NIJ archivist: www.icpsr.umich.edu/NACJD/crimestat.html [Contact: Elizabeth at voice (202) 514-3431]

3. From **Dave Nystrom**, HUD: The Department of Housing and Urban Development (HUD) awarded a

contract to Environmental Systems Research Institute Inc. (ESRI) last month to develop and deploy a geographic information system (GIS) that consolidates the agency's GIS data and makes it available via the Internet to state and local governments to aid in their community development work. As part of the $10 million, five-year contract, ESRI will customize existing applications, integrate them into a consolidated GIS and design a software tool to give local governments data and mapping capabilities for sophisticated information analysis and data sharing. The contract is part of HUD's Community 2020 project, designed to improve the ability of communities to make local planning decisions. [For details, see the full article in July 2000 Computer Week entitled "Opening up GIS borders: HUD taps ESRI to make federal geographic data open to state, local governments," at http://www.fcw.com/fcw/articles/2000/ 0717/tec-hud-07-17-00.asp]

4. Editor: **Marjorie Roswell**, Spatial Analyst with the UMBC Center for Health Program Development and Management, has sent to me several web resources sites (and they are comprehensive) she created. These include: Health Geographics Resources at http://abyan.com/default.asp?PAGE=17F.1 and Useful Resources for MapInfo Users and All People who Love Maps at http://research.umbc.edu/~roswell/mipage.html (featured in GIS World as a favorite among GIS professionals). [Contact: Margie at voice (410) 455-6802 or email roswell@umbc.edu]

B. Department of Health and Human Services

Agency for Toxic Substances and Disease Registry

5. From **Morris Maslia**: A new report, entitled "Analysis of the 1998 Water-Distribution System Serving the Dover Township Area, New Jersey: Field Data Collection Activities and Water Distribution System Modeling," shows the integration of water-distribution system modeling and GIS, for use with a case-control EPI investigation of childhood brain and CNS cancers. It was conducted by the New Jersey Department of Health and Senior Services (NJDHSS) and ATSDR. A water-distribution model is a computer program that solves a set of mathematical equations that describe the flow of water from storage tanks, reservoirs, and wells throughout a network of pipelines. Additionally, the model developed for the Dover Township area contains information specific to the water-distribution system serving this area. The Introduction to this report is reproduced in Section IV, this edition, and the full report is available electronically at http://www.atsdr.cdc.gov. [Contact: Morris at voice (404) 639-0674 or email mfm4 @cdc.gov]

Centers for Disease Control and Prevention

6. From **Catherine Schenck-Yglesias**, EPO CDC: We are pleased to announce the availability of a new GIS website "Resources for Creating Public Health Maps" from the Epidemiology Program Office. It is accessible at http://www.cdc.gov/epiinfo/EIhlgeog.htm. In regards to a question from Mahoning County Health Department, Ohio, about the upgrade of Epi Map 2, Catherine writes: "As per CDC's licensing agreement with ESRI, the commercial firm that produces Map Objects 2, the platform on which Epi Map 2000 is built, Epi Map 2000 must be distributed as a component of Epi Info 2000, as opposed to as a stand-alone package, as was the case with Epi Map 2. So, in the Windows version of our software, you will go to http://www.cdc.gov/epiinfo/ EI2kdown.htm and download the Epi Info 2000 setup files, and upon installation, make sure that Epi Map 2000 is checked and it will be installed for you. If anyone at your health department has ArcView shapefiles, Epi Map 2000 reads that format. We also distributed free shapefiles at http://www.cdc.gov/epiinfo/EIshape.htm. Check under North America -US- Ohio. [Contact: Catherine at email czs8@cdc.gov]

7. From **Chet Moore**, NCID Ft. Collins (Availability of West Nile Virus Surveillance maps) : There are multiple pages of West Nile Virus (WNV) information now posted within the National Atlas of the United States. (1) The URL with multimedia maps (this one requires ShockWave) is at http://www.nationalatlas.gov/virususa. html; (2) The interactive map set is at http://nationalatlas. gov/virusmap.html and it lets you retrieve additional information (for this one you don't

need ShockWave). This page also has zebra mussel information, so be sure that "Zebra mussel" box is **not checked** when you select from the list in the upper right panel. The WNV selections are way down at the bottom of the list, so you have to do a lot of scrolling. It displays individual weekly or cumulative data; The third map set is at http://nationalatlas.gov/virusprint.html. These are downloadable maps in gif, pdf, and eps format, and are intended for the media and others who want something they can work with or publish directly, and the West Nile slide set is at http://www.cdc.gov/ncidod/dvbid/westnile/slide_set.htm.

I had the opportunity for an interesting GIS application in my recent trip to NY and NJ. Steve Guptill's group at USGS produced a set of CD ROMs with Landsat, roads, hydrology, and land cover. It proved very helpful in setting up our sampling schemes. I could see things in the Landsat or LU/LC [land use/land/cover] images that were not apparent from the ground. I think it shortened the amount of time we spent looking for appropriate study sites. At the end of the study, the NJ people wanted to hold a press conference, and I was able to generate a map with study sites, WNV-positive birds and mosquitoes, etc., for the press conference. It helped to answer a lot of questions without my having to be intimately familiar with the names of each community, etc. All in all, a nice field tool. [Contact: Chet, Research Entomologist and Director, Ft. Collins GIS Laboratory, at email cgm2@cdc.gov]

8. From **Dixie Snider**, OD CDC: Please join us for the Annual College of Epidemiology Annual Meeting in Atlanta, September 24-26. From the Monday morning keynote address by Mike Osterholm ("Bioterrorism, Infectious Disease, and Epidemiology") to Tuesday afternoon's closing debate ("Epidemiologists Should/Should not Always Put Their Data in a Public Archive"), the meeting is packed with the emerging discoveries and the challenging problems we face in a changing world. The meeting features three symposia with presentations by internationally recognized experts, scientific posters on the full range of epidemiologic research, breakfast roundtables for special interests, policy and practice, and a lively roundtable luncheon discussion on conflict of interest. We also offer exciting pre-conference workshops on Sunday, September 24. Workshops will cover epidemiologic analysis of complex sample surveys, design and analysis of cluster randomization trials in health research, and molecular genetics for epidemiologists. For more information, please visit the ACE website http://www.acepidemiology.org. The deadline for advance registration is September 5. [Contact: Dixie, Assistant Surgeon General and Associate Director for Science, and Meeting Host, at voice (404) 639-7240 or e-mail des1@cdc.gov]

9. **Open Biological Warfare Program**- U.S. Army Medical Research Institute of Infectious Diseased (USAMRIID) CDC presentation: "Biological Warfare and Terrorism Medical Issues and Response," September 26, 27 and 28, 2000, 12:30 - 4:30 PM, at the following Clifton Road locations- September 26, BLDG. 16, ROOM 1107A; September 27, BLDG. 3, ROOM B19, and; September 28, BLDG. 16, ROOM 1107A. The purpose of this program is to inform and educate health professionals about the proper medical response in the event of an intentional biological agent release. World-renowned experts from USAMRIID and other organizations will address the issues.

Program: Day 1-Presents an overview of biological agents. (This day will be a re-broadcast of Day 1of last year's program, with the addition of live Q/A.)- Identify the most likely biological pathogens to be used in warfare or a terrorist event; Identify the characteristics that make a biological pathogen an effective weapon; Describe the epidemiology, pathogenesis, clinical features, and medical management of representative pathogens and toxins. Day 2- Uses a battlefield biological warfare (BW) scenario to discuss the management of a biological warfare or terrorist event- Identify 10 principles in the management of the clinical aspects of a biological weapon attack; Identify epidemiological clues to distinguish a natural disease outbreak from a biological attack; Describe correct triage and field management methods for biological agent casualties. Day 3-Uses scenarios and round-table expert discussion to evaluate the public health and medical response to biological

terrorism (BT). A brief discussion will focus on the Department of Defense Anthrax Vaccine Immunization Program (AVIP); Identify the primary care providers' and other public health professionals' roles in a BT event; Identify components of a PH response to BT and preparedness requirements; Review common questions related to the anthrax vaccine.

Registration, and information about viewing sites (non-CDC) is available at http://www.biomed training.org. Onsite space is limited. Offsite CDC/ATSDR locations may be able to receive this event via Envision. [Contact: Pat J. Jones at pjjones@ cdc.gov]

10. **Behavioral and Social Science Working Group** (BSSWG) Poster Day: September 28, 2000. The theme for this year's Poster Day is "Promoting Health in the 21st Century: Contributions from Behavioral and Social Sciences." The intent of Poster Day is to provide attendees with examples of quality research conducted by CDC/ASTDR and collaborating researchers external to CDC/ASTDR. Examples of potential topics at this year's Poster Day include: Local area variations in asthma mortality; developing a national group campaign to educate the general public and health care providers about diethylstilbestrol (DES); women's symptoms of depression as a prospective risk factor for incidence of obesity; and body size and body shape–perceptions of Black women with diabetes. The event will take place from 9:30 A.M.-11:30 A.M., at the D. Abbott Turner Center, 1615 Clifton Road, Atlanta. [Contact: Leonard Jack, Jr. at voice (770) 488-5942 or email Ljack@ cdc.gov]

11. **Open Asthma Program**: The University of North Carolina at Chapel Hill School of Public Health and the Centers for Disease Control and Prevention (CDC) continue to address pressing public health issues September 29, 2:00-3:00PM, with "Living, Breathing, and Beating Asthma in the Environment: A Community's Initiative," the fifth program of the Public Health Grand Rounds series. Patterned after medical grand rounds, the one-hour program will examine the Asthma Initiative of the New York City Health Department and its collaborators: Hunter College, the Environmental Protection Agency and the city housing authority. The initiative's focus on the "triggers" of asthma present in apartment buildings is yielding important lessons for public health professionals.

Asthma is one of the most common and costly diseases in the United States. More than 5 percent of the U.S. population-an estimated 17 million people-has asthma, and the numbers are growing. However, surveillance of the incidence of asthma varies at local and state levels, highlighting the need for national and global tracking procedures, especially in high-risk and hard-to-survey populations. The need to respond to this problem is increasingly urgent.

Public health leaders; managers and professionals from local and state health departments, hospitals, clinics, academic institutions, and managed care organizations; and others who seek to increase awareness of asthma and its effect on public health practice will participate in the Public Health Grand Rounds discussion through a live interactive satellite and Internet broadcast accessible worldwide.

This Public Health Grand Rounds will be led by William L. Roper, dean of the UNC-CH School of Public Health; Steven C. Redd, chief of the CDC's Air Pollution and Respiratory Health Branch, National Center for Environmental Health; Jean G. Ford, director of the Harlem Lung Center, Harlem Hospital, Columbia College of Physicians and Surgeons and the Joseph L. Mailman School of Public Health; and Hugh H. Tilson, clinical professor of epidemiology and health policy in the UNC-CH School of Public Health. Registration for downlink sites and program participants is available online at www.PublicHealthGrandRounds.unc.edu. [Contact: Donna Davis, N.C. Institute for Public Health, at voice (919) 966-9134 email Donna.Davis@sph.unc.edu; Past Public Health Grand Rounds Programs also may be viewed online at this site]

12. From **Lena Kombo**, National Vaccine Program Office: The National Vaccine Advisory Committee, the Inter-Agency Vaccine Communications Group and the National Vaccine Program Office will sponsor a *Workshop on Vaccine Communication* on October 5-6, 2000. The Workshop will be held at the Key Bridge

Marriott Hotel in Arlington, VA. The Workshop will focus on 1) identifying key issues, forces and trends that are influencing and shaping perceptions about vaccines; 2) determining how to establish more meaningful discussions regarding issues of concern; 3) defining options for establishing more effective mechanisms for communicating vaccine benefits and risks; and 4) examining and discussing the effectiveness, purpose, methods, and timing of current vaccine communications.

This Workshop should be of interest to people working in the vaccine and immunization arena including health communication and public affairs specialists, public and private sector health care providers, parent and consumer groups, vaccine manufacturers, and immunization program managers and directors. [For additional information, please visit the National Vaccine Program Office's web site (www.cdc.gov/od/nvpo/ calendar.htm) or contact Lena Kombo at (404)687-6672]

13. From **Richard Klein**, NCHS: Historically, data from a number of NCHS data systems have been adjusted to control for differences in the age distributions of the populations studied. Several different standard populations have been used in the age adjustment procedure (1940 standard million; 1970 US civilian, noninstitutionalized population; 1980 US resident population). Some of these populations are shown in *Health, United States*, Appendix II. The use of multiple standards creates problems of comparability between data adjusted to different standards and confusion among data users.

To address these issues, staff from the Division of Health Interview Statistics and the Office of Analysis, Epidemiology, and Health Promotion have produced a paper that describes age adjustment weights based on the US 2000 projected population that can be applied to analysis of NCHS survey data. This work builds on the foundation set by the NCHS Division of Vital Statistics that established the year 2000 projected U.S. population as the standard population for age adjusting mortality statistics. The mortality adjustment procedure has been published in the National Vital Statistics Report series (Vol. 43, No. 3).

The new paper contains a number of sets of adjustment weights based on the most common age groupings found in existing NCHS publications, as well as a master list of populations from which weights for other groupings can be constructed. These weights are being used to age adjust data for many variables in the upcoming *Health*, *United States, 2000* and *Healthy People 2010* publications. Examples of SUDAAN code appropriate for calculating age-adjusted rates for complex sample surveys are also provided.

The procedures described in this paper are not intended as fixed rules for age adjustment, but rather as guidelines to promote and facilitate consistency and comparability in age-adjustment procedures among users of NCHS data. [See excerpts and URL for complete paper in Section IV, this edition; Contact: Richard at email rklein@cdc.gov]

Health Resources and Services Administration

14. **Community Health Status Indicators (CHSI) Project**: Welcome to the Community Health Status Indicators Web site: http://www.communityhealth.hrsa.gov/. In response to requests for health assessment information at the local level, HRSA has funded a collaboration among the Association of State and Territorial Health Officials (ASTHO), the National Association of County and City Health Officials (NACCHO), and the Public Health Foundation (PHF) to publish reports for all 3,082 U.S. counties.

A distinctive aspect of the CHSI Project is that each county can be compared with its peers, those counties similar in population composition and selected demographics. Comparison of a county to its peers is thought to take into account some of the factors that make a difference in a community's health. Strata, or peer groups, were developed with input from an advisory committee composed of Federal, State, and local public health professionals and members of academia. The project goal was to develop strata of 20-50 counties each, providing several peers for each county. The relatively large number in each stratum allows counties to choose a few peers that they believe to be most like them. The stratum size averages 35 and ranges from 14 to 58 counties. There are a total of 88 strata. Using an ordered, staged approach, counties

were first grouped according to frontier status. Population size was used next. Then, as the number of counties in each category allowed, further groupings were made based on the remaining variables until the optimum stratum size was reached. Therefore, while all peer groups were classified according to the first two variables, only some were defined by factors of poverty, age, and population density. A schematic of the stratification process [is provided]. Each of the 88 strata is uniquely defined by two or more of the factors. It is possible that counties that are similar in several factors may not be in the same stratum due to category divisions. [Special thanks are provided to Stephen Campbell at email stevecampbell@prodigy.net for identifying this website]

National Institutes of Health

15. The American Public Health Association announces a live satellite broadcast on "Health Disparities: Contributions from Social and Physical Environments," sponsored by NIH's **National Institute of Environmental Health Sciences**. The session will be broadcast from APHA's 128th Annual Meeting in Boston on November 14, 2:30-4:30PM EST. To find out more about this live satellite teleconference go to http://www. apha.org/meetings/satellite.htm]

16. **Institute of Medicine** to release report *Promoting Health: Intervention Strategies from Social and Behavioral Research*: The Institute of Medicine (IOM), with support from the Robert W. Woodruff Foundation, has recently completed a 16-month study to better understand the promise of social and behavioral research to improve health. The report identifies important areas of research that hold promise for future public health efforts. With assistance from 18 leading researchers who contributed essays to the report volume, the IOM study committee (chaired by S. Leonard Syme, emeritus professor of epidemiology at the University of California at Berkeley) provides 22 recommendations regarding needed steps in intervention, research, funding, and training. [The published version of the report can be ordered from the National Academy Press beginning in September 2000 and will be available in electronic form at www.nap.edu]

17. From **Linda Anderson**, NCI (Geographic-based Research in Cancer Control and Epidemiology): Two new Program Announcements (PAS) invite applications using the Atlas of Cancer Mortality in the United States, 1950-1994 (http://www.nci.nih.gov/atlas) as a catalyst for research in cancer etiology and control. Further epidemiologic research is needed to identify the reasons for the geographic variation of specific cancers, including the clustering of areas with high or low incidence and/or mortality rates. In addition, Geographic Information Systems (GIS) provide new tools to explore these patterns and for use by cancer surveillance and control programs.

The National Cancer Institute (NCI) wishes to stimulate research in three areas to encourage researchers to use the Atlas to speed the process of scientific discovery and application. These areas are: (1) epidemiologic research to study determinants of the geographic patterns uncovered by the Atlas, (2) use of GIS for cancer research in response to the Atlas, and (3) methodologic GIS research needed to accomplish such research. Separate announcements for investigator-initiated R01 and R03 (small grant) applications appear in the NIH Guide for Grants and Contracts, July 14, 2000 at http://grants.nih.gov/grants/guide/pa-files/PAS-00-120.html and http://grants.nih.gov/grants/guide/pa-files/ PAS-00-121.html. [Letters of Intent due October 9, 2000, and June 14, 2001; Applications due November 13, 2000, and July 19, 2001; The Division of Cancer Control and Population Sciences (DCCPS) has budgeted $3 million in total costs, for the PASs combined, for the first year of funding of each round of applications received, subject to availability of funds. Contacts: For programmatic issues contact Bud Erickson, Jr. at email be13u@nih.gov and for fiscal issues contact Sara Stone at email stones@gab. nci.nih.gov]

D. <u>Historical Black Colleges and Universities (HBCUs) and Minority Programs</u>

18. “Encourage representation on the National Committee on Vital and Health Statistics (NCVHS) and the planning groups for NCHS surveys by organizations

such as the National Medical Association, National Coalition of Hispanic Health and Human Services (COSSMHO, formerly the Coalition of Spanish-Speaking Mental Health Organizations), National Hispanic Medical Association, Association of Asian/Pacific Community Health organizations, Indian Health Service, and **a Historically Black College or University**." [See: Improving the Collection and Use of Racial and Ethnic Data in HHS-Joint Report of the HHS Data Council Working Group on Racial and Ethnic Data AND The Data Work Group of the HHS Initiative to Eliminate Racial and Ethnic Disparities in Health, December, 1999, Item No. 8, cross-cutting recommendations, Section VI., this edition]

19. From **Susie J. Anderson**, Director, Office of Equal Employment Opportunity, CDC: The Blacks in Government (BIG) 22nd Annual National Training Conference was held August 21-25, 2000, in Washington, DC. The CDC/ATSDR Agency Forum was conducted on Monday, August 21st and Tuesday, August 22nd. The theme was "Partnerships for Minorities and Women's Health." A sampling of speakers included Diane Garrett, Johns Hopkins University, Carol Lewis, Minority Health Professions Foundation, Robert Bullard, Clark-Atlanta University, and many CDC/ATSDR staff. [Contact: Marie Young, CDC, at voice (404) 687-6641]

D. Other Related Agency or Business GIS News

20. **GIS for Public Health and Safety**: (Disaster Planning, Analysis, and Response): You are invited to a free workshop on geographic information system (GIS)technology sponsored by ESRI and IBM, on September 12, 2000, at the Best Western, Pentagon (Site: http://gis.esri.com/events/PublicHealthSafety.pdf). This workshop is designed for public health and safety professionals who want to understand how a GIS can help them make their communities safer places to live. Industry experts will demonstrate powerful new GIS applications for planning, analysis, and emergency management ranging from acts of terrorism and hazardous materials incidents to epidemic outbreaks and natural disasters. You will learn how current technology can be applied to a wide range of user needs and explore specific applications that can help you solve problems and save lives. This powerful combination of demonstrations and hands-on sessions will provide a wealth of valuable information for both public health and safety GIS professionals and managers. See how today's GIS technology can help your community; prepare for the next disaster or terrorist incident; Discover the Consequences Assessment Tool Set (CATS), a GIS application for emergency response planning and management; Learn about E Team, the Internet-based system that combines GIS mapping displays with powerful incident tracking and management; Explore new mobile GIS tools for epidemic event monitoring and other features [Contact: Jennifer Harar at email jharar@esri. com]

21. **GIS Technology Day** sponsored by ESRI: You are invited to GIS Technology Day, a free event for CDC and regional public health officials. It will be held Tuesday, September 19, 2000, from 9:00 A.M.-4:00 P.M., at the D. Abbott Turner Center at Emory University, 1615 Clifton Road, Atlanta. It is a unique opportunity to learn how geographic information system (GIS) technology is being used in the health field, and to see live demonstrations of GIS tools. Members of the ESRI's Health Solutions Team will be on hand to answer your questions. A "doctor's office" will be open for technical and customer service related questions. Educational materials related to the demonstrations will also be available. AGENDA: What's new in ESRI Technology-ArcGIS; What's new in GIS and Health; ESRI's Geography Network; Software Demonstrations: ArcView 8.1, Geostatistical Analyst, ModelBuilder and ArcPad, and Doctor's Office. Registration and directions are available at http://gis.esri.com/events/seminar_detail.cfm?shownumber=S20000277 [For all inquiries call (909) 793-2853, extension 1-1070]

22. From **Georgia GIS Data Clearinghouse**: Since the establishment of the Georgia Spatial Data Infrastructure (GSDI) in March of this year, the Clearinghouse has completed several additions and updates to the web site that we would like to bring to your attention. New additions to the Clearinghouse's Online Maps include

the Georgia 2000 Information System, the Georgia High-speed Telecommunications Atlas, the GaDOT's 2000 Railmap, the Digital Environmental Atlas of Georgia produced by the DNR and USGS, and small scale USGS Digital Raster Graphics (DRGs) at http://gis.state.ga.us/Clearinghouse/Onlinemaps/onlinemaps.html.

23. **ArcExplorer 3-Java Edition**: ESRI has released ArcExplorer 3-Java Edition (GIS data viewer). ArcExplorer 3-Java Edition is free and can be downloaded from ESRI's Web site at http://www.esri.com/software/arcexplorer/index.html. ArcExplorer is a lightweight GIS data viewer developed by ESRI. This freely available software offers an easy way to perform basic GIS functions.

ArcExplorer is used for a variety of display, query, and data retrieval applications and supports a wide variety of standard data sources. It can be used on its own with local data sets or as a client to Internet data and map servers. With ArcExplorer 3 you can: Pan and zoom through multiple map layers; Query spatial and attribute data; Create a buffer around selected features; Measure distances on a map; Create map layers with one symbol, unique symbols, and graduated symbols; Label map features, with many options for effects (such as highway shields); Locate an address; Incorporate image formats (BMP, TIFF, PNG, JPG, and GIF); Save and retrieve projects; Print maps; Incorporate overview maps, and; View legends and scale bars.

24. From **Lew Nelson**, Law Enforcement Solutions Manager, ESRI: The Boulder office of ESRI has been developing a web site that shows the status of wildfires in the pacific northwest. They are using ArcIMS and ArcSDE. There are locator tools to zoom in on an area, or you can search on a fire name, etc. Go to http://wildfire.usgs.gov/html/geomacpublichome.html, then click on "Wildfire Information Map." [Contact: Lew at email lnelson@esri.com]

III. GIS Outreach

[Editor: All requests for Public Health GIS User Group assistance are welcome; please 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 or ATSDR]

☎ From **Keith Adams**, HRSA: I am a contractor working for the Health Resources and Services Administration (HRSA) in Rockville, MD. I have been tasked to assist HRSA towards the goal of using GIS as a regular part of their data analysis process. At the moment, HRSA is at the very beginning of the process of getting users trained in ArcView, assessing what data they have that can be used with GIS, and determining what kinds of analyses they want to conduct. My immediate client is very interested in exploring what kinds of things other Federal agencies have done with GIS, to serve as examples to the HRSA GIS users.

Specifically, we are interested in learning about: what types of data have you used; what did you have to do in order to get the data from its original format into GIS-compatible format (e.g. aggregate individual data records into summary tables that contain counts, averages, or sums, etc.); what would we have to do in order to use data from the CDC (yes, I recognize that there's no single answer to this, as it would depend on the specific data under discussion and the use to which it is to be put); what policy or health problems or questions have you addressed; have there been any policy changes or decisions made as a result of your using GIS technology to analyze your data; (how) has GIS changed the way you do business, and; could we talk with Public Health GIS Users or other people in your organization about the field of GIS and how you've applied it. To begin with, does anyone have a project description I could read over, or a copy of a publication that used the results of GIS work? That's be a good place to start. [Contact: Keith at email Kadams@hrsa.gov]

☎ From **Scott Kyl Proescholdbell**, Prevention Research Center, Arizona State University: I'm working with some local tobacco projects (Full Court Press, University of Arizona and Arizona State University) and interested in utilizing GIS to examine vendor density and distance in high school attendance areas. Because of the nature of high school attendance areas, they do not correspond well as a unit of analysis like census or even ZIP codes. Has anyone looked at vendor density and distance from schools? What kinds of

analyses should we think about? Is there a way to do spatial auto-correlation within ArcView? [Contact: Scott at voice (480) 965-5421or email skp@asu.edu until mid-September and spp9@cdc.gov afterwards in the Office of Smoking and Health]

☎ From **Jay Devasundaram**, ESRI: I have recently moved to ESRI and am involved in a project to categorize symbology sets for Health use-e.g., the red cross for "medical". This email is a general request for any suggestions or inputs or pointers to pre-existing, or original thoughts on, symbols in the medical field so that these may be incorporated in a Symbol Set to be used in GIS software catering to health care. [Contact: Jay at email epijay@hotmail.com]

Editor: The US Postal Service features a ZIP+4 Web site look up if you have a single address, and want to check the ZIP+4 code and standardize the address: http://www.usps.gov/ncsc/lookups/lookup_zip+4.html. Another US Postal Service Web site is the US Postal Service City/State Zip Code Associations-which provides a list of ZIP codes for individual cities: at http://www.framed.usps.com/ncsc/lookups/lookup_ctystzip.html.

IV. Special Reports

"Age Adjustment of National Center for Health Statistics Data Using the 2000 Projected U.S. Population with Emphasis on Survey Data Systems,"by Charlotte Schoenborn, Division of Health Interview Statistics, Richard Klein and Virginia Freid, Office of Analysis, Epidemiology, and Health Promotion, NCHS [NOTE: This paper was prepared for NCHS internal use. However, the paper is being made available to outside data users who may wish to construct comparable age-adjusted rates using the same standard population. The paper will be adapted and published in the *Healthy People Statistical Note* series later this year.]
Excerpts:

Age adjustment, using the direct method, is the application of age-specific rates to a standard age distribution in order to eliminate differences in observed crude rates in populations of interest that result from differences in the populations' age distributions. This adjustment is usually done when comparing two or more populations at one point in time or one population at two or more points in time. Age adjustment is particularly helpful when populations being compared have very different age structures. The classic literature on age adjusting, [1] as well as more recent National Center for Health Statistics (NCHS) publications, [2-5] has focused on adjusting vital events (e.g., deaths, births) and provides comprehensive discussions of age adjustment techniques, however the technique can be applied to any population-based events.

The purpose of this paper is to establish several sets of age-adjustment weights, based on the year 2000 projected U.S. population, that can be applied to analysis of NCHS survey data. This work builds on the foundation set by the NCHS Division of Vital Statistics that established the year 2000 projected U.S. population as the Standard population for age adjusting mortality statistics. The age groupings provided in this paper are based on the most common groupings found in existing NCHS publications. Age adjustment weights, as well as examples of SUDAAN code appropriate for calculating age-adjusted rates for complex sample surveys, are being made available to NCHS staff and others. They are not intended as rules for age adjustment, but rather as guidelines in order to promote and facilitate consistency in age adjustment procedures among users of NCHS data. [For the complete article and guidelines for age-adjustment using the 2000 standard population see http:// www.cdc.gov/nchs/products/pubs/workpap/ageadjust.htm].

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"A Lecture in the Perspectives on Crime and Justice Series," National Institute of Justice, U.S. Department of Justice, April 5, 2000, by Lawrence W. Sherman, Fels Center of Government, University of Pennsylvania.
Excerpts: The epidemiology of gun violence--which traces the patterns of risk factors associated with its incidence-- can prod us to invent new policies that may be more effective than any we now have, or any we are now debating. Previous public health successes have always linked the policy intervention to the epidemiology of the problem. From this perspective, it is appropriate to use epidemiology to judge the "safe guns" strategy. These strategies seem aimed at

middle-class gun owners--and their neighbors--who would use a triggerlock as conscientiously as they use their automobile safety belts. Triggerlocks can be turned off, and even a "personal gun" can be abused by the person authorized to use it.

From an epidemiological perspective, the premise of these "safe gun" strategies is the corollary of "safe people," or the people who can be trusted to use the gun lawfully and safely. If safe guns are safe because only safe people can activate them, a great deal hangs on our current definition of safe people. What the epidemiology shows is that current legal boundaries between people declared "safe" and "unsafe" for gun ownership fall very wide of the mark. The Brady bill and the instant background check battle has been focused on the no-felony-conviction definition of safe people. Yet by that definition, the majority of crimes with guns are committed by people who are legally "safe," law-abiding citizens for purposes of present gun ownership policy. Samples of persons arrested for using guns in crime consistently find that the majority have no prior felony conviction. The U.S. Bureau of Justice Statistics reports that in 1992, fully two-thirds of felony weapons offenders had no prior felony conviction.

The most important epidemiological fact is that gun violence is geographically concentrated in the areas of greatest inequality in our nation, the hyper-segregated poverty areas of inner cities. Half of all homicides occur in the nation's 63 largest cities, which house only 16% of the population. Most of those homicides are committed with handguns, often obtained illegally. Ample epidemiological data show that the greater the density of guns in a population, the greater the level of gun injury and gun death, other things being equal. Thus the key epidemiological question for any new gun policy is whether it will increase gun density in areas of the greatest gun crime. [For the full lecture see http://www. preventingcrime.com/; Lawrence was senior author of the congressionally-mandated 1997 report, “Preventing Crime: What Works, What Doesn't, What's Promising”]

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Analysis of the 1998 Water-Distribution System Serving the Dover Township Area, New Jersey: Field Data Collection Activities and Water Distribution System Modeling, by Morris L. Maslia, Jason B. Sautner, and Mustafa M. Aral, Agency for Toxic Substances and Disease Registry, and prepared in coordination with the New Jersey Department of Health and Senior Services, New Jersey Department of Environmental Protection, Ocean County Health Department, Citizens Action Committee on Childhood Cancer Cluster and United Water Toms River, Inc. Introduction: The Agency for Toxic Substances and Disease Registry (ATSDR), an agency of the United States Department of Health and Human Services, is required, among several other congressional mandates, to evaluate the public health threat of hazardous waste sites using environmental characterization data, community health concerns, and health outcome data. In the spring of 1996, ATSDR and the New Jersey Department of Health and Senior Services (NJDHSS) began to investigate health concerns of the Dover Township, Ocean County, New Jersey, community. In particular, community members feared that exposure to environmental contaminants from the area's hazardous waste sites, including two National Priorities List (Superfund) sites (Plate 1) was related to the elevated incidence of childhood leukemia and brain and central nervous system (CNS) cancers.

In 1997, ATSDR and NJDHSS began designing a case-control epidemiologic study of childhood cancers that occurred in the period 1979 through 1996 (Berry and Haltmeier 1997) in Dover Township. In a case-control study, a population is delineated and cases of diseases arising in that population over a specified time period are identified. The exposure experiences of the case group are compared to the exposure experience of a sample of the non-diseased persons in the population from which the cases arose. Exposures that are more common among the cases may be considered as possible risk factors for the disease (Rothman and Greenland 1998).

The study, which began data collection in 1998, is exploring multiple possible risk factors, including environmental exposures. One of the environmental factors of community concern that is being investigated in the study is the potential for exposure to certain drinking water sources. ATSDR and NJDHSS have determined that completed human exposure pathways

to groundwater contaminants have occurred in the past (through private and community water supplies) in some parts of the community (NJDHSS 1999a, b, c).

To assist with the exposure assessment component of the epidemiologic study, ATSDR is developing a water-distribution model using the EPANET software (Rossman 1994) to reconstruct historical patterns of water distribution. Given the paucity of historical contaminant-specific concentration data during the time frame relevant to the epidemiologic study, ATSDR and NJDHSS have determined that modeling would estimate the percentage of water that a study subject might have received from each of the points of entry to the water-distribution system (Plate 2). This would allow epidemiologists to assess the association between the occurrence of childhood cancers and exposure to each of the sources of potable water entering the distribution system, including ones known to have been historically contaminated.

A detailed literature review of epidemiologic investigations relating water-supply contamination with health effects is beyond the scope of this report. However, a brief review is provided below. Lagakos et al. (1986) describe an association between exposure to trichloroethylene-contaminated drinking water and increased prevalence of stillbirths and CNS defects, oral defects, and chromosomal defects. To investigate the potential reproductive health effects of long-term, low-dose exposure to waterborne chloroform, Kramer et al. (1992) conducted population-based case control analyses to study the association of trihalomethanes with low birth-weight, prematurity, and intrauterine growth retardation using state of Iowa birth certificate data. Bove et al. (1995) used environmental and birth-outcome databases for a four-county area in northern New Jersey to study the effects of public drinking water contamination on birth outcomes.

This report will focus on the four aspects of the overall exposure assessment effort, being conducted jointly by ATSDR and NJDHSS, that will eventually use a calibrated model for historical reconstruction of the hydraulic characteristics of the water-distribution system. These aspects are: (1) data gathered during field tests conducted in March and August 1998, (2) the development, calibration, and testing of the water-distribution system model for 1998 conditions, (3) a water-quality simulation of a naturally occurring conservative element, barium, to further test the reliability of the model calibration, and (4) the simulation of the proportionate contribution of water from points of entry to various locations throughout the distribution system for 1998 conditions. [The full report is available electronically at http://www.atsdr.cdc.gov]

V. GIS and Related Presentations and Literature

(This section may include literature citations, abstracts, syntheses, etc., and submissions are invited)

NCHS Cartography and GIS Guest Lecture Series:
September 7, 2000. **"Crime Mapping, Privacy, and Data Confidentiality,"** by Debra Stoe, Crime Mapping Research Center, U.S. Department of Justice. The presentation will revolve around the following issues: *Where is the balance between the public's right to know and the victim's right to privacy?* When a law enforcement agency posts a map of crime incidents on the Internet, it runs the risk of including too much or not enough data. For example, if a rape victim is identifiable, then his or her privacy has been violated. Yet if a rape is not posted and subsequently an individual falls victim to a rape, has the agency violated the public's "right to know"? That is, in not publishing the risk of rape in an area, is the agency failing to let would-be victims know they are at risk so they can take appropriate precautions?

Should professional standards or guidelines be developed for crime mapping as it pertains to privacy and freedom of information issues? If so, what should these standards look like and who should promote them? With the growing use of information technology in law enforcement, agencies are becoming increasingly concerned with their roles and responsibilities in creating and distributing crime maps and geocoded data. Individual agencies and analysts have experimented with "fuzzing" geocoded data and representing crime incidents and related data in various levels of aggregation, but no widely accepted standards or methods exist. Further, the Federal government has had limited success in issuing similar guidelines to local law enforcement in the past, raising the question of how

local law enforcement might promote its own standards.

When information passes from one agency to another, who is liable or accountable for the inappropriate use of crime maps or the sharing of inaccurate geocoded data? What kind of statements should be made (i.e., disclaimers). A valid concern exists that disseminating crime maps to the public will revitalize informal redlining methods employed by some insurance and banking companies. Whereas a neighborhood identified as a high crime area could be targeted for various types of positive local interventions, it could also be flagged as undesirable, resulting in residential flight and ultimately causing more damage to an already problematic area. Further, the creation of crime maps or sharing of geocoded data that are inaccurate may result in false perceptions regarding the nature of a crime or public safety problem. Examples already exist of agencies publishing incorrect addresses of released sex offenders under Megan's Law, resulting in serious legal implications for such errors.

What is the appropriate model for partnerships between law enforcement agencies and researchers with regard to data sharing? Researchers are accustomed to signing agreements to ensure the confidentiality of individuals when analyzing survey data, but such agreements are not prevalent in the area of geocoded data. The field has yet to agree on what restrictions should be placed on researchers' use of data that will safeguard confidentiality while enabling researchers to experiment with rigorous analysis methods--methods that ultimately serve the entire criminal justice field.

What security measures are available for data sharing over Internet or intranet environments, and how can they be shared with local agencies? Setting up password protections, firewalls, and creating search and query options that block the display of particularly sensitive fields can be accomplished. However, police departments and officers have a healthy skepticism about the prospects of ensuring that intelligence information and other restricted data do not end up in the wrong hands. This calls for both public education on the reliability of such security measures as well as dissemination of specific methods for ensuring security.

[Contact: Debra at email stoed@ojp.usdoj.gov]

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October 24, 2000. "LandView: A Federal Geographic Data Viewer," by E.J. (Jerry) McFaul, Computer Scientist, U.S. Geological Survey. Abstract. LandView is an innovative "community right-to-know" software tool that provides a comprehensive means to view and analyze federal spatial data. LandView runs in both the Windows and Mac environments on modest hardware platforms. It was developed as a result of a cooperative effort between NOAA, EPA, Census, and USGS and is thus in the public domain and may be freely duplicated.

LandView has application in situations where layers of spatial data and associated attribute information need to be analyzed in a straightforward manner. LandView has the ability to not only easily display and manipulate these data layers, but also is able to export any resulting maps into formats compatible with commercial GIS systems. Also, any corresponding attribute data can also be exported into a variety of formats for importing into spreadsheet and database applications. One current USGS initiative is an attempt to use LandView to depict mercury contamination in water bodies across the U.S.

The federal data that comes with LandView includes environmental (EPA), geographic (USGS), and demographic (Census) data that can be readily analyzed and displayed by a non-technical person. In addition, any spatial data that already exists, either in a simple flat file or a shapefile format, can readily be imported into LandView. In essence, LandView is a vehicle for delivering a wide variety of our Federal Government's valuable information to local communities to enhance their decision-making processes. It should be a useful resource for state and local public health departments.

LandView incorporates the following types of data and allows one to easily display and manipulate data in a visual way: EPA-regulated site locations and information; TIGER/Line map data; Demographic and economic data from the Census Bureau; Miscellaneous public structures and facilities; Jurisdictional entities (states, counties, cities & towns, and congressional districts); Geographic entities (schools, hospitals, cemeteries, ZIP code reference points, etc.); Detailed

networks of major and minor roads, rivers, and railroads; Census block groups and tracts, and; Selected landmarks. [Contact: Jerry at email jmcfaul@usgs.gov]

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Emerging Infectious Diseases

The July-August 2000 issue of CDC's journal, *Emerging Infectious Diseases* (EID), is now available at site http:// www.cdc.gov/ncidod/eid/upcoming.htm. Selected articles include: Migratory Birds and Spread of West Nile Virus; Reemergence of Pertussis in the Netherlands; West Nile, Rift Valley, and Sandfly Arboviruses in Jordan; Dual Captures of Rodents and Hantavirus Transmission; Role of Pathology in a West Nile Encephalitis Outbreak; Isolation of West Nile Virus in Southern Russia; SNV in Deer Mice Captured Inside Montana Homes; Lyme Disease Surveillance in England and Wales; Dengue Epidemic in Southern Vietnam.

Morbidity and Mortality Weekly Report

Selected articles from CDC's *Morbidity and Mortality Weekly Report* (MMWR, see http://www2.cdc.gov/mmwr/mmwr.html): Vol. **49**, No. **34**-Legionnaires' Disease Associated With Potting Soil-California, Oregon, and Washington, May-June 2000; Foodborne Botulism From Eating Home-Pickled Eggs-Illinois, 1997; Notice to Readers: Availability of Influenza Pandemic Preparedness Planning FluAid, 2.0; Vol. **49**, No. **33**- National Cholesterol Education Month-September 2000; State-Specific Cholesterol Screening Trends-United States, 1991-1999; Trends in Cigarette Smoking Among High School Students-United States, 1991-1999; Progress Toward Poliomyelitis Eradication-Pakistan, 1999-June 2000; Surveillance Summaries, Volume **49**, Number **SS-8**: *Surveillance for Characteristics of Health Education Among Secondary Schools--School Health Education Profiles, 1998*; Vol. **49**, No. **32**-Update: Newborn Screening for Sickle Cell Disease-California, Illinois, and New York, 1998; Progress Toward Global Dracunculiasis Eradication, June 2000; Public Health Dispatch: Varicella Outbreaks Among Mexican Adults-Alabama, 2000; Vol. **49**, No. **31**-Fatal Illnesses Associated With a New World Arenavirus-California, 1999-2000; State-Specific Prevalence of Disability Among Adults-11 States and the District of Columbia, 1998; Update: West Nile Virus Activity-Northeastern United States, January-August 7, 2000; Notice to Readers: Publication of Surgeon General's Report on Smoking and Health; Vol. **49**, No. **30**-Missed Opportunities for Prevention of Tuberculosis Among Persons with HIV Infection-Selected Locations, United States, 1996-1997; Assessment of Infectious Disease Surveillance-Uganda, 2000; Intimate Partner Violence Among Men and Women-South Carolina, 1998; Vol. **49**, No. **28**- West Nile Virus Activity-New York and New Jersey, 2000; Notice to Readers: Update: Expanded Availability of Thimerosal Preservative-Free Hepatitis B Vaccine; Vol. **49**, No. 27- National and State-Specific Pregnancy Rates Among Adolescents-United States, 1995-1997; Silicosis Screening in Surface Coal Miners-Pennsylvania, 1996-1997; Hepatitis B Vaccination Coverage Among Asian and Pacific Islander Children-United States, 1998; Notice to Readers: Delayed Supply of Influenza Vaccine and Adjunct ACIP Influenza Vaccine Recommendations for the 2000-01 Influenza Season; Vol. **49**, No. **RR-8**- *Compendium of Animal Rabies Prevention and Control, 2000*: National Association of State Public Health Veterinarians, Inc; Surveillance Summaries, Vol. **49**, Number **SS-6**- *State- and Sex-Specific Prevalence of Selected Characteristics-Behavioral Risk Factor Surveillance System, 1996 and 1997*; Vol. **49**, No. **26**- National, State, and Urban Area Vaccination Coverage Levels Among Children Aged 19-35 Months-United States, 1999; Notice to Readers: Update: Nucleic Acid Amplification Tests for Tuberculosis; Notice to Readers: Federal Register Notice on Draft Public Health Action Plan to Combat Antimicrobial Resistance.

Other Related Presentations and Literature

"Cancer Incidences in Europe Related to Mortalities, and Ethnohistoric, Genetic, and Geographic Distances," Sokal RR, Oden NL, Rosenberg MS, and Thomson BA, Proc Natl Acad Sci U S A; 97(11):6067-72 2000. Abstract: We have previously shown that geographic differences in cancer mortalities in Europe are related to (in order of importance): geographic distances (reflecting

environmental differences), ethnohistoric distances (encompassing cultural and genetic attributes), and genetic distances of the populations in the areas studied. In this study, we analyzed the relations of the same three factors to European incidences of 45 male and 47 female cancers. Differences in cancer incidences are correlated moderately, first with geographic distances, and then with genetic distances, but not at all with ethnohistoric distances. Comparing these findings to the earlier ones for cancer mortalities, we note the reversal in the importance of ethnohistory and genetics, and the generally lower correlations of incidence differences with the three putatively causal distance matrices. A path diagram combining both studies demonstrates the lack of cultural carcinogenic effects, but suggests cultural influences on procedures such as the registration of deaths in different political entities. Additionally, the relatively large correlation between ethnohistoric distances and mortality differences is caused by common factors behind the correlation of ethnohistoric and geographic distances. Geographic proximity results in similar ethnohistories. The direct effects of genetic distances are negligible and only their common effects with geographic distances play a role, accounting for the weak to negligible influence of genetics on incidence and mortality differences. Apparently, the genetic systems available to us do not substantially affect cancer incidence or mortality. We present indirect evidence that international differences in the quality of cancer rate data are greater in mortalities than in incidences.

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"Beyond Social Capital: Spatial Dynamics of Collective Efficacy for Children," Sampson, Robert J., Jeffrey Morenoff, and Felton Earls. 1999. *American Sociological Review* 64: 633-660. Abstract: We propose a theoretical framework on the structural sources and spatially embedded nature of three mechanisms that produce collective efficacy for children. Using survey data collected in 1995 from 8,782 Chicago residents, we examine variations in intergenerational closure, reciprocal local exchange, and shared expectations for informal social control across 342 neighborhoods. Adjusting for respondents' attributes, we assess the effects of neighborhood characteristics measured in the 1990 census and the role of spatial interdependence. The results show that residential stability and concentrated affluence, more so than poverty and racial/ethnic composition, predict intergenerational closure and reciprocal exchange. Concentrated disadvantage, by contrast, is associated with sharply lower expectations for shared child control. The importance of spatial dynamics in generating collective efficacy for children is highlighted -proximity to areas high in closure, exchange, and control bestows an advantage above and beyond the structural characteristics of a given neighborhood. Moreover, spatial advantages are much more likely to accrue to white neighborhoods than to black neighborhoods. [On August 10, 2000, CDC's Behavioral and Social Sciences Working Group sponsored a presentation by coauthor Morenoff similar to this topic. Color maps are available at site http://phdcn.harvard.edu/asrmaps/index.htm]

VI. Related Census, DHHS and Other Federal Developments

National Committee on Vital and Health Statistics: Workgroup on Health Statistics for the 21st Century and the Workgroup on National Health Information Infrastructure, July 10, 2000. Unedited and Excerpts of remarks by John Lumpkin, Chair of the National Committee for Vital and Health Statistics.

The health care system is in a tremendous transformation. How do we understand what is going on? What are the impacts on health and health care by using this transformation. And, by the way, tremendous amounts of scientific research, the human genome research project being the least but certainly is the one that has been the most traumatic and what are the impacts upon that in the future. Further trends. Information technology is going through radical transformations. I think IBM just released a small new hard drive that is about the size of this quarter. There is a gigabyte of information. And they continue to get it smaller and smaller.

We have to balance privacy versus the common good, and this is an ongoing issue as people become more and more concerned about the ability of technology to identify them. We have to convince them

that there is some importance for them giving up this information-concerns about the quality of data, the resources to collect the data and, of course, the burden of collection going back the birth certificate example or the birth example I gave earlier.

We have held a number of hearings. In these hearings we have identified so far 10 principles. Let me just run through these quickly and then we will go to the first panel. The first is privacy, confidentiality, security and fair information practices have to be a key integral component of any new health statistics system for the 21st century.

Second, is that we need to have a conceptual framework. This conceptual framework has to be integrated with the National Health Information Infrastructure which we are talking about which is a much more global and encompassing health information conceptual model. I say conceptual framework. Let me emphasize with this, as we will this afternoon, we are not talking about building a new data base. We are really talking about a conceptual framework of how information is collected and used to make health decisions, health care decisions in this country so that people can be put in a position where they can make good, healthy choices and that doesn't require a single data base. How data is accessed can be dependent upon the need for that access.

Third, the flexibility to identify and address emergent issues and the health needs of the population. Obviously, if you are in the middle of an outbreak such as they were in Milwaukee, that system has to be able to respond to that kind of thing which they have had to in the mid-1990s. The usefulness of different levels of aggregation. We tend to have a system that in many ways is a top-down system. It is designed to give us national data dn, if we are lucky, we might get some state data. Yet there are some clear examples of use of information at the community level to guide and direct community health decisions to improve the health of the community. Without having appropriate data, those kind of projects become very difficult and people in communities lose control, they don't feel empowered, they are not as committed to the change process so it is very important for us to consider the impact of those.

The fifth principle is there is a need for compatible standards serving multiple purposes. We need one set of data standards. Sometime within the next week or so, and I have got my fingers crossed, the transaction standards rule will become final. When that rule comes out, there are some 430 data fields that will be defined as a standard and that will be a big step forward but we need to continue to make sure that not only standards for the data and how it is defined but how data is transmitted, how it is packaged and communicated so that it will serve all the purpose for which it is intended.

Number six, unitary data collection for multiple purposes. About five years ago in Illinois, we started a new system called Cornerstone. Cornerstone was an integrated maternal and child health information system. What it is designed to do in a paperless way is to allow a case manager to provide maternal and child health services to a pregnant woman or a young mother and family. This system is designed to allow the case manager to do his or her job, yet is a very rich data system for analysis of what is going on, for planning. But in Williamson County which is a southern county in Illinois, there was a maternal and child health nurse who first used the system and when the client left, she commented as she was looking around her desk, she said, I am done. What she meant was there was no reports to fill out. There were not documents to complete. No time sheets to check because that was all done automatically by the system while she was doing her work. So the rich data collection which this system allows is transparent to the user even though it may go off to the immunization registry or off to the WIC system or off to the well child system. Unitary data collection, one time, she only filled it out once, but it goes for multiple purposes.

Access has to be enhanced, and access at an appropriate level. If you are a case manager, the access obviously to the information is going to be very detailed. It is going to be identified. But issues of taking that information and re-identifying, aggregating it to the appropriate level, to the community level, to the county level, to the state level, to make the kind of decisions is very important, and it needs to be easy to use.

We need to make sure we have adequate, well-managed resources, the data that is used, that is

converting the information needs to have some relevance to the policy. There needs to be a reason to collect the data, not just because well, it would be nice to look at. And, finally, we have to have broad collaboration. That has to be not only collaboration within government but within various sectors outside the government. [For the full text of the meeting see http://www.ncvhs.hhs. gov/lastmntr.htm]

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Improving the Collection and Use of Racial and Ethnic Data in HHS-Joint Report of the HHS Data Council Working Group on Racial and Ethnic Data AND The Data Work Group of the HHS Initiative to Eliminate Racial and Ethnic Disparities in Health, December, 1999 (recently posted): This chapter summarizes the data recommendations from the reports of the six health focus area work groups of the HHS Initiative to Eliminate Racial and Ethnic Disparities in Health: (1) infant mortality; (2) cancer screening and management; (3) cardiovascular disease; (4) prevention of diabetes complications; (5) HIV/AIDS; and (6) child and adult immunizations. The data-related recommendations are given in greater detail in Appendix B. Many of the reports made similar recommendations; four of the six reports contained specific recommendations that are the focus of area work groups. As a result, the summary is divided into two sections: (1) cross-cutting recommendations and (2) report-specific recommendations.

The causes and dynamics of health disparities are very complex, and the limited knowledge in this area is imperfect. The six focus area reports all recommended cross-sectional studies. However, there is a special need for longitudinal studies that can assist in unraveling the complex causal relationships.

Several areas in which health disparities are targeted for elimination directly relate to the health of the elderly (e.g., diabetes, cardiovascular disease, and cancer screening). It should be noted, however, that important outcomes that partly represent the "final common pathways" for these diseases (i.e., physical, cognitive, and psychological disabilities) are not as salient in the report as data needs, although they may in fact be assumed under the specific diseases.

For the readers' reference, the new Federal standards for racial and ethnic data specify reporting data for a minimum of five categories of race (American Indian or Alaska Native, Asian, black or African American, Native Hawaiian or Other Pacific Islander, and white) and two categories of ethnicity (Hispanic or Latino and non-Hispanic or Latino). The use of more refined categories is not restricted as long as they can be aggregated into the OMB standard.

Cross-cutting Recommendations. The following recommendations cross cut the six health focus area reports:

1. Data are needed for: (1) morbidity; (2) mortality; (3) life expectancy; (4) normative data (e.g., mean blood pressure); (5) prevalence data on chronic and infectious disease risk factors; and (6) health care indicators for at least the five minimum standard categories for racial and ethnic data. For some minority groups, little or no data exist for many of those five categories. Where data do exist, increasing both the quality and quantity of data collected, and the level of data detail collected are clearly needed.
2. Increase the visibility and availability of the data currently available from the HHS Initiative to Eliminate Racial and Ethnic Disparities in Health website (http:// raceandhealth.hhs.gov/).
3. Examine the possibility of expanding the Centers for Disease Control and Prevention's (CDC) WONDER system, especially the mortality data, to include data for: (1) the OMB minimum standard racial and ethnic categories; (2) American Samoa, Guam, Puerto Rico, U.S. Virgin Islands, and U.S. Pacific territories; and (3) life expectancy.
4. HHS should encourage and sponsor the analysis of all types of existing data by outside researchers including vital statistics, hospitalization, medical care, immunization, cancer screening, risk factor data, and incidence and prevalence data.
5. Evaluate the possibilities of collecting risk factor data for the OMB minimum standard racial and ethnic categories in samples large enough to produce reliable statistical estimates at the State level for those racial/ethnic groups that comprise a significant proportion of the State population and at the national level for groups using the State and Local Area Integrated Telephone Survey (SLAITS) methodology

and questions from the Behavioral Risk Factor Surveillance System (BRFSS) or the Youth Risk Behavior Surveillance System (YRBSS).

6. Encourage the development of population-specific examination surveys targeted to small ethnic subgroups or medically underserved populations who cannot be included in the national surveys (National Health Interview Survey [NHIS] and National Health and Nutrition Examination Survey [NHANES]) through oversampling.

7. The Health Care Financing Administration (HCFA) should consider collecting hospitalization data on Hispanics and Hispanic subgroups, and NCHS should consider expanding the National Hospital Discharge Survey to include data for those groups.

8. Encourage representation on the National Committee on Vital and Health Statistics (NCVHS) and the planning groups for NCHS surveys by organizations such as the National Medical Association, National Coalition of Hispanic Health and Human Services (COSSMHO, formerly the Coalition of Spanish-Speaking Mental Health Organizations), National Hispanic Medical Association, Association of Asian/Pacific Community Health organizations, Indian Health Service, and a Historically Black College or University.

9. Evaluate the impact of the new year 2000 standard population and ICD-10 coding (morbidity and mortality) on data for all ethnic groups.

10. Encourage geocoding of all health-related data to determine patterns of health and disease among minority populations (mortality, morbidity, risk factors, health care utilization), as such patterns may be masked when evaluating data at the State level.

Specific Recommendations. The following recommendations were proposed by specific health focus area work groups.

Cancer Screening and Management:

11. Explore the feasibility of moving the basic questions on mammograms and pap smear screening from NHIS supplements to the core questionnaire.

12. Although the Statistics, Epidemiology, and End Results program (SEER) has done an excellent job of reporting on racial and ethnic groups, given current resources, the National Cancer Institute (NCI) should explore the feasibility of expanding the SEER Program and/or forming alliances with the State-based cancer registries to produce national cancer incidence rates for the minimum racial and ethnic categories and to allow the system to produce rates for ethnic subgroups.

Cardiovascular Disease:

13. The National Heart, Lung, and Blood Institute (NHLBI) has collected incidence data from different sources such as the Atherosclerosis Risk in Communities (ARIC) Study and the Minnesota Heart Survey. Despite good data, the sample sizes are too small to be able to estimate current levels and trends in incidence for any of the minority groups. As a result, NIH, CDC, and HCFA should explore the feasibility of setting up a SEER-like registry for heart disease and stroke.

HIV/AIDS:

14. To allow the U.S. to target programs and resources most effectively, we must be able to monitor the epidemic. This means that we need to improve the ability to track early HIV infections before they progress to AIDS. As of December 1997, only 27 States sent data to CDC on all confidentially reported cases of HIV infection. Two additional States reported only cases of HIV infection among children under age 13, and only one State reported cases for children under the age of 6. CDC and the State public health departments should investigate the feasibility of anonymous HIV infection reporting by racial and ethnic groups.

Child and Adult Immunizations:

15. CDC should investigate the feasibility of setting up a national immunization surveillance system that includes the capability for the rapid assessment of influenza vaccine effectiveness among vulnerable U.S. populations.

16. Improve time of availability of NHIS- and BRFSS-reported vaccination levels to less than 1 year after data are collected.

17. Data on vaccination levels for Asian or Pacific Islander and American Indian or Alaska Native populations, age 65 and above, are lacking. The Data Work Group encourages a feasibility study on conducting special surveys of vaccination levels or adding vaccination questions on existing surveys of these populations. For example, CDC should assess the

feasibility of using the National Immunization Survey (NIS) sample frame to survey adult immunization levels.

18. Although some States have implemented immunization registries, in the long term, a national system of registries is needed. The Data Work Group encourages a feasibility study on implementing a national system of State-based immunization registries. At a minimum, NHIS and NIS should continue to collect information on vaccine coverage, along with information on race and ethnicity and socioeconomic status. [Source: http://aspe.hhs.gov/datacncl/index.htm]

Federal Geographic Data Committee (FGDC)

[*The Federal Geographic Data Committee (FGDC) is an interagency committee, organized in 1990 under OMB Circular A-16, that 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 17 federal agencies that make up the FGDC (pending DHHS membership) 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*]

OMB Information Initiative

Collecting Information in The Information Age: Geospatial Information Roundtable. Summary of Proceedings (Excerpts follow). On July 18, 2000, the Office of Management and Budget (OMB) held a public roundtable in cooperation with the Federal Geographic Data Committee (FGDC) and the National Partnership for Reinventing Government (NPR) to explore how to overcome the financial and institutional barriers to the sharing of geospatial information horizontally and vertically among Federal, State, local and tribal government agencies, and the private sector. The roundtable built upon a dialogue begun on July 7 in a general session on Information Technology. The roundtables were part of the Information Initiative "Collecting Information in the Information Age" conducted by OMB's Office of Information and Regulatory Affairs (OIRA) to examine how government may improve the quality of the information it collects and minimize the collection burden by maximizing the benefits of information technology. Over 110 senior officials from Federal agencies, states, cities, technology vendors, OMB, Senate Appropriations staff, and public interest organizations attended the July 18 meeting.

RECOMMENDATIONS

* Accelerate efforts to develop Framework data layers, and increase participation in Framework development and conformity to standards at all levels of government.
* Urge all federal agencies and departments (including DOD and NASA) to find ways to adopt standards, use the Web, and make useful information and data products available to other Federal, state, local and tribal government entities, the private sector, and the public.
* Through coordinated efforts by FGDC, NPR, and other entities, Incorporate spatial information in the development of an Interactive Town Square. Spatial data can help facilitate public access to information, products and services in a way that citizens prefer - one stop, by place, by issue and by function rather than by organization. Spatial data can also enhance accountability of government for results by connecting performance information to locality.
* In alliance with State, local, and tribal partners, encourage the development of a national cadastral (parcel mapping) layer providing parcel information, outlines and ownership. This should be a priority given the many uses for home and business location information, and of sufficiently high resolution so as to be useful to local and tribal governments (which usually require greater detail than their state or federal counterparts.)
* Supplement the NSDI Clearinghouse with a map showing which Framework data layers exist for each county and city in the nation. Encourage government and private sector entities to document and register in an NSDI Clearinghouse legacy data or planned data collection activities that might fill in the gaps in coverage. Strive for a national inventory of spatial data

that is accessible, comprehensive and always up to date, showing the quality (conformance to standards), scale and maintenance cycle.
* Encourage Federal participation and facilitation of intergovernmental and public-private partnerships and alliances to maximize the benefit of the NSDI. The private sector has important roles to play as a contractor and provider of data, and as a primary party in making sharable data commercially available and useful.
* Given that much geospatial information is generated at the local and tribal level, support the development of interagency and intergovernmental partnerships and alliances of "nested responsibilities" in which the appropriate levels of government (or their outsourced providers) and the private sector collect and maintain data, using national and market-driven standards.
* Build a business case for the NSDI that would justify funding from legislative bodies and financial markets.
* Find alternatives to the current legislative funding process. The current legislative appropriation process responds better to narrowly defined programs, not to requests for inter-agency and intergovernmental multi-year investments as is required for the NSDI. To the extent that we must continue to depend on appropriated funds, we must do a better job of explaining to Congress and State legislatures the need and benefits of aligning investments that achieve the NSDI.
* Align and leverage interagency and intergovernmental geospatial capital planning and budgeting processes through memoranda of understanding or other cross-cutting arrangements that incorporate common investment criteria, and consortia that responsibly maximize the efficiency and effectiveness of shared information.
* Implement effective investment monitoring procedures to ascertain whether changing to a pooled investment strategy with nested responsibilities results in individual and aggregate savings, better quality data and more robust privacy, security, public access and other "social capital."
* Revise OMB Circular A-16 to reflect the technological and institutional changes that have taken place since it was promulgated in October 1990 and to reflect the recommendations made in the roundtables and by the recent FGDC Design Study Team.
* OMB should perform a leadership role to help the FGDC and Federal agencies develop a new strategic plan to accelerate development of the NSDI.
* Local, Tribal and State governments should have one Federal champion within a geographic area acting as a liaison or portal to all Federal agencies through which they can coordinate and communicate regarding NSDI activities. The position could be modeled after the River Navigator in the American Heritage Rivers program.
* Use the pending FEMA/North Carolina Cooperating Technical State Memorandum of Agreement (FEMA-NC) or other precedents as a starting model for other agencies to use to establish Federal/State alliances with other states to accelerate development of the NSDI.
* Participate in standards-setting organizations (such as OpenGIS) that support COTS (commercial off the shelf software, hardware, and data services) with functions robust enough to satisfy then normal requirements of government users.
* Establish Federal/State partnerships in other states to pursue specific projects to move the national NSDI effort forward, and use them to help build the business case for integration.

[Full report will post shortly at fttp://www.fgdc.gov]:

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TMDL Rule Signed

A TMDL or Total Maximum Daily Load is a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards, and an allocation of that amount to the pollutant's sources. Water quality standards are set by States, Territories, and Tribes. They identify the uses for each waterbody, for example, drinking water supply, contact recreation (swimming), and aquatic life support (fishing), and the scientific criteria to support that use. A TMDL is the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources. The calculation must include a margin of safety to ensure that the waterbody can be used for the purposes the State has designated. The calculation must also account for seasonable variation in water quality.

The Clean Water Act, section 303, establishes the water quality standards and TMDL programs. The EPA Administrator signed the new TMDL rule to clean

up the nations waterways (requires states to make comprehensive pollution surveys of more than 40,000 bodies if water over the next 15 years and subsequently develop plans to clean them up). It should already be in the Federal Register [See http://www.epa.gov/owow/tmdl/finalrule/ for a copy of a fact sheet and the entire rule; Contact: Jo Ann Mills, Fish & Wildlife Service at email Jo_Ann_Mills@fws.gov]

Web Site(s) of Interest for this Edition

http://www.geog.utah.edu/~hmiller/IJGIS/ *International Journal of Geographical Information Science* (IJGIS). You may not be aware there is an online version of the IJGIS. Every issue since Vol. 11, No. 1, 1997 is available online. There are currently 28 issues online. A free online issue (Vol. 11, No. 1, January 1997) is available for your perusal and includes the following articles: "Oversize shelves: a storage management technique for large spatial data objects," by O. Gunther and V. Gaede; "Assessing, representing and transmitting positional uncertainty in maps," by H. T. Kiiveri; "GIS support for distributed group-work in regional planning," by R. M. Jones, C. V. Copas, and E. A. Edmonds; "Map dynamics: integrating cellular automata and GIS through Geo-Algebra," by M. Takeyama and H. Couclelis, and; "Variation in count data transferred from a set of irregular zones to a set of regular zones through the point-in-polygon method," by A. Okabe and Y. Sadahiro. This fall, IJGIS is launching prEview; this will allow subscribers to access prepublication versions of articles in press ahead of formal publication.

http://www.cdc.gov/epiinfo/EIhlgeog.htm CDC has a new GIS website "Resources for Creating Public Health Maps" from the Epidemiology Program Office. It includes many useful resource links as well as EpiMap 2000 downloadable software and free shapefiles. With Epi Info 2000 and a personal computer, epidemiologists and other public health and medical professionals can rapidly develop a questionnaire or form, customize the data entry process, and enter and analyze data. Epidemiologic statistics, tables, graphs, and maps are produced with simple commands such as READ, FREQ, LIST, TABLES, GRAPH, and MAP. Epi Map 2000 displays geographic maps with data from Epi Info 2000. A new version, Epi Info 2000 for Windows retains many features of the familiar Epi Info for DOS, while offering Windows ease of use strengths such as point-and-click commands, graphics, fonts, and printing.

http://www1.od.nih.gov/osp/ospp/ecostudies/COIreportweb.htm The NIH Office of Science Policy and Planning has posted the updated reversion of the report "Disease-Specific Estimates of Direct and Indirect Costs of Illness and NIH Support." The report was prepared in response to a congressional request that the NIH combine and update two previously requested reports entitled "Disease-Specific Estimates of Direct and Indirect Costs of Illness and NIH Support" and "HHS and National Costs for 13 Diseases and Conditions". In the current update, cost estimates were revised for alcohol abuse, allergic rhinitis, Alzheimer's disease and other dementia, asthma, atherosclerosis, dental, peptic ulcer, heart diseases, coronary heart disease, HIV/AIDS, lead poisoning, end stage renal diseases, mental disorders, neonatal respiratory distress syndrome, acute respiratory distress syndrome, smoking, and urinary incontinence.

http://www.schs.state.nc.us/SCHS/healthstats/healthatlas.html. Currently, the North Carolina Health Atlas includes over fifty maps portraying the state's Leading Causes of Death and Infant Mortality (LCDIM) for the period 1993-1997 and 1994-1998. Also included is a set of maps that describes how much reduction in the county mortality rates is needed to meet the national Healthy People 2010 Objectives, which was published in January 2000. Currently available map series includes two versions of "Leading Causes of Death in North Carolina 1994-1998" (using the 1990 NC Standard Population and the US 2000 Standard Million Population), "Healthy People 2010 Target Maps for North Carolina Counties", and an animated map of "Terrestrial Animal Rabies Diffusion in North Carolina". Subsequent installments will include county health profiles (e.g., socio-demographic characteristics), communicable diseases (STDs, HIV/AIDS, and TB), and various regionalized rate calculations including the

ability to combine neighboring county rates into one aggregated age-adjusted rate. The intended audience for the website and atlas is the general public, students and researchers, public health workers and educators, and other state agencies. [Contact: Jim Wilson, State Center for Health Statistics, at jim.wilson@ncmail.net]

http://www.geovista.psu.edu/grants/nchs/color.htm. The graphic display of data plays a critical role in visualization and exploratory data analysis. Appropriate use of color for data display allows interrelationships and patterns within data to be easily observed. The careless use of color will obscure these patterns. It is hoped these guidelines and the associated terminology will also guide the work of people grappling with data visualization challenges in diverse disciplines such as physics, medicine, psychology, and graphic arts. The goal of this WWW resource is to help you do better than that by using color with skill. This resource provides a generalized set of color schemes and example maps. Additionally, the reader will find multivariate representation methods for time series geo-referenced health statistics and other map representation and visualization research developments. [Contacts: Cynthia Brewer or Alan MacEachren, GeoVISTA Center and Department of Geography, Penn State University, at email cbrewer@essc.psu.edu or alan@geog.psu.edu, respectively]

http://www.geographynetwork.com/. The Geography Network, from ESRI, is a global community of data providers who are committed to making geographic content available. It is ESRI's desire to make vast resources of geographic data accessible through a central portal. This portal provides access to data resources, data services and data clearinghouses. This content is published from many sites around the world, providing you immediate access to the latest maps, data, and related services. This portal to the Geography Network enables you to discover this content and share your own. The Geography Network provides access to a large collection of geographic data from many of the world's leading data publishers. This digital data is intended for use with geographic information system (GIS) software tools. ESRI's goal is to create 500 new Geography Network sites using ArcIMS by the end of the year 2000.

Final Thought(s)

NSDI and Geospatial Age: Empowering Citizens, Communities and the Democratic Process

I had the distinct pleasure this past week to be among 50 or so attendees for a morning program at the Department of the Interior entitled "E-Government in the Netherlands: A Progress Report on the Revolution in Data Management and Citizen Access to Government Information and Services." In spite of my own deadlines, I know from experience that these brief informational programs are timely and speak to the very issues we that help drive the National Spatial Data Infrastructure (NSDI). I appreciate the fact that many of these programs take place in Washington, D.C., not far from the National Center for Health Statistics.

Bas Kok, Secretary General of the Dutch Council for Geographic Information (RAVI), provided an overview of Dutch policy that has led to a major emphasis of one-stop public access to key government information and services throughout the Netherlands. He emphasized that geospatial information was the core underpinning of Dutch policy and programs. The similarities between the U.S. and Dutch are striking. It was nice to see the big picture and it reinforced to me that NSDI is international in every respect. In fact the Dutch face similar challenges as we in promoting data sharing and E-Government activities. Their GeoInformation infrastructure is being built around a Dutch NSDI. Many other countries are in the early stages of planning and initiating similar infrastructure activities that will help to build something we may not have fully visualized ten years ago--a global spatial data infrastructure.

The following speaker, **Harlan Onsrud**, Professor of Geography, University of Maine is one of our foremost authorities regarding those ever-present legal challenges surrounding the use and development of geographic information technologies and databases. Harlan's guidance reminds us that as we build to connect from local to national to international communities, legal linkages are (and will continue to be) a crucial part of the NSDI infrastructure. He has written extensively on the topic (excerpt): "The use of geographic information technologies is pervasive throughout business, government, industry and the scientific community in the United States. Conflicts are arising on a daily basis for those using geographic information systems and their affiliated databases, for those implementing such systems, and for those designing the next generations of spatial information technologies. Balancing among competing interests and resolving conflicts involved in the use of these technologies are growing problems for numerous parties within society. Among the problem domains of greatest concern in use of these technologies are those involving personal information privacy, intellectual property rights in geographic information, liability in the use of geographic data sets, public access to government geographic data sets, public goods aspects of geographic information in libraries, and sales of geographic information by government agencies." The full text of this paper, with many helpful references, is at http://www.spatial.maine.edu/~onsrud/GISlaw.htm.

The issues of "'G-Gov' and E-Gov" were addressed by **Pamela Johnson**, Deputy Director, National Partnership for Reinventing Government. The national reinventing government initiative began in 1993 (based on 1,200 recommendations). The "E-Gov" or electronic part was signed into law by President Clinton as recent as December 1999 with the purpose to "Enable Americans to have access to all government information and be able to conduct all their government business online by 2003." In September, this year, the first all-government Internet portal will be launched.

To make access to all a reality, Vice-President Gore's interactive "Town Square" is a metaphor for every citizen having online access to government information and transactions. The idea is to empower citizens to engage in the processes of governance and make government more accountable and less costly. Ensuring privacy and security is an integral part of the initiative. In the next few years there are plans for deploying some 6-8,000 kiosks to deliver Town Hall accessibility to those areas of the nation most in need of technology.

America's interactive Town Square will contain information on quality education, transportation, jobs and businesses, air, streets, food, public health and other themes, for our respective communities. For example, to answer the question "where" is there a good nursing home near me, one could link to www.medicare.gov/nhcompare/home.asp to search for information on health plans, nursing homes, Medigap policies, contacts, and Medicare activities in his or her community. To answer questions on approaching severe weather conditions, one might browse to sites such as http://weather.unisys.com/, for local weather, and http://iwin.nws.noaa.gov/iwin/nationalwarnings.html for storm warnings in realtime (refreshes every 60 seconds). These and many other resources, including public health alerts and services, will be Web available to all. Thus, the role of geography and georeferenced information, or "G-Gov", is crucial to the process of participatory government. Nearly 80 percent of all government data is geographic or place based. Mapping and GIS will be an integral part of citizen and community decision making.

John Moeller, Staff Director, Federal Geographic Data Committee (FGDC), concluded the session with a presentation entitled "US Spatial Data Initiatives: NSDI and FGDC." The FGDC, comprised of 17 Cabinet and Executive level agencies, has provided critical leadership for NSDI especially with the foundation building block of spatial data standards, and related framework, metadata, GEOdata and clearinghouse components. John put it all in perspective by reminding us that today technology is restoring data and information to communities.

Geographic information technologies can be viewed as "Jeffersonian Technologies" that support the democratic process. The vision of the NSDI is deployment of a geographic information resource for the 21st century, with many individuals and organizations working towards a common goal.

As part of the vision, "current and accurate geospatial data will be readily available to contribute locally, nationally, and globally to economic growth, environmental quality and stability, and social progress." A good illustration of coordination, and one of a growing number of FGDC demonstration projects (also referenced in Pam's talk), is the dramatic reduction in 1999 flooding losses, compared with those in 1996, to housing, livestock and businesses in Tillamook County, Oregon. Their success is attributed to the coordinated data sharing and planning for flood mitigation between the county, the Federal Emergency Management Agency (FEMA), Army Corps of Engineers, the Department of Housing and Urban Development (HUD), Environmental Systems Research Institute, Inc. (ESRI) and concerned citizens (see http://www.fgdc.gov).

There are currently more than 3,000 community locations in the U.S. that support a wide range of geospatial or NSDI activities. NSDI data clearinghouses have grown worldwide, from zero in 1995, to 10 in 1999, and to 210 today! These provide spatial data searches and support an evolving global network of digital geospatial resources. And in many respects this is only the beginning. When one considers that most georeferenced data is localized there will be an enormous resource to add to the NSDI. NSDI's GeoData Alliance is designed to bring all parties aboard. From my perspective, NSDI is perhaps the most significant and exciting development of our geospatial age.

[Editor: Appreciation is extended to **Mark Reichardt**, FGDC, who organized and chaired this program, and to **David Hayes**, Deputy Secretary, DOI, and member of the President's Management Council, for his opening remarks. David emphasized the importance of leaving a clear vision of E-Gov and its geospatial foundation for the next administration.

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