PUBLIC HEALTH GIS NEWS AND INFORMATION

August 1997 (No. 17)

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

I. Public Health GIS (and related) Events

☞ 1997 NCHS, CDC Joint Meeting of the Public Health Conference on Records and Statistics and the Data Users Conference, July 28-31, Washington, D.C., Omni Shoreham Hotel; **July 29**, 3:30-5:00 p.m., Session on "Geographic Information Systems (GIS): An Exploratory Tool for Disease Surveillance and Analysis." The meetings are open to all. Abstracts for the four GIS papers may be found in the prior edition (No. 16) of this newsletter.

☛ NCHS, CDC Cartography and GIS Guest Lecture Series, **September 3**, 2:00-3:30 p.m., at NCHS, Hyattsville with Envisioning to offsite locations. This timely presentation is entitled "Effective Management of Large Spatial and Relational Databases," and will be presented by Hanan Samet, Department of Computer Science, University of Maryland College Park. An abstract of the presentation is enclosed in this newsletter. The lecture series is open to all. To obtain more information, please contact program organizer Chuck Corner, ORM, NCHS at (301) 436-7904, ext. 146 or at e-mail cmc2@cdc.gov.

☞ The Seventeenth annual meeting of the North American Cartographic Information Society, Lexington, October 1-4; see web site http://leardo. lib.uwm.edu for further information.

☛National Occupational Injury Research Symposium (NOIRS), The National Institute for Occupational Safety and Health (NIOSH), Morgantown, October 15-17; see web site http://www.hgo.net/~noirs/ noirs.html or contact Martha Brocato at (404) 634-0804, ext. 42 for further information.

☞ The Sixth annual meeting of the International Genetic Epidemiology Society, Baltimore, October 27-28; see web site http://darwin.cwru.edu/iges/html for further information.

☛125th annual meeting of the American Public Health Association, Indianapolis, November 9-13; see web site http://www.apha.org./convention/html /registration.htm for further information.

☞ Land Satellite Information in the Next Decade: Sources and Applications, American Society for Photogrammetry and Remote Sensing, Washington, D.C., December 2-5; see http://www.asprs.org/asprs for further information.

II. News from GIS USERS

(Please communicate directly with colleagues on any issues)

A. General News (and Training Opportunities)

1. From **Gerry Rushton**, U. Of Iowa: I'm to present the results of our study of temporal changes in infant mortality rates in Des Moines to the public at the invitation of the Iowa Department of Health, courtesy of United Way of Des Moines. Our innovation this time is a rather beautiful overlay of the contoured rate maps over the USGS TIFF images of their 1:24,000 quadrangles--six in all. For us, its a big step in presentation quality and ease of inference.

2. From **Evelyn Choury**, Coastal Health District, Georgia Division of PH: Despite our relatively recent introduction to GIS, we at the Coastal Health District (the local public health provider in six coastal Georgia counties) are using Maptitude GIS in the following: 1) study of mercury-contaminated seafood consumption, a cooperative agreement with ATSDR; 2) mapping/analysis of Glynn county's hazardous waste sites (16 of them, 4 on NPL); 3) analysis of childhood lead blood test data; 4) disaster planning (in particular,

evacuation of special needs individuals/ subpopulations); 5) Environmental Health Unit water quality assurance program; 6) building a comprehensive Environmental Health Surveillance System, into which the above projects are being integrated. Thanks to Gerry Rushton and his folks @ U of Iowa for opening our eyes to the potential uses of GIS in health planning and Maptitude software, and to the many supportive and knowledgeable folks we met through the GIS Users group. We've made a lot of progress in one year.

3. **GPS and Metadata Training Opportunities**: (a) GPS Training for Federal Civilian Agencies using the Rockwell PLGR+ and Receiver, August 20-22, 1997. USDI and Geologic Survey GPS users can obtain hands-on field training in the use of the Precise Lightweight GPS Receiver (PLGR+) and the companion Mission Planning Software (MPS) for ASCII import of georeferenced positions to ArcInfo in this course. The instructors will review receiver setup, use, maintenance, and data management, including data import into the ArcInfo GIS platform. A field test course allows students to navigate to known coordinates adjacent to NWRC to verify and familiarize themselves with the PLGR's navigation functions and positioning options. The three main topics of instruction will focus on receiver set operation and planning, data manipulation, and accuracy assessment. Students should bring their PLGR+ / PLGR+96 receivers with them.

(b) Introduction to FGDC's Metadata Standards, August 12-13, 1997. The overall objective of this 2 1/2 day workshop is to provide users of digital spatial data with an introduction to an understanding of the concept of metadata (data about data) and the Federal Geographic Metadata. The workshop introduces the concept of metadata and covers related Federal Geographic Metadata. The workshop introduces the concept of Metadata and covers related Federal efforts such as the spatial data clearinghouse and the national spatial data clearinghouse and the National Spatial Data Infrastructure (NSDI). The workshop includes lectures, hands-on exercises for describing metadata using the FGDC's Content Standards for Digital Geospatial Metadata. Participants should come prepared with information on an actual or proposed spatial data set (your own or an example) to describe and develop in the workshop. Please direct questions or application requests as soon as possible to Pat O'Neil or Laurie Nelson at 318-266-8699.

4. Institute of Medicine (IOM), National Academy of Sciences (NAS): IOM RFP Announcement -- Agent Orange Exposure Assessment. The National Academy of Sciences (NAS) is seeking proposals from qualified firms, institutions and/or individuals interested in providing the services detailed in a solicitation regarding research characterizing exposure of veterans to Agent Orange and other herbicides used in Vietnam. The solicitation was issued on 30 June 1997 and has a closing date of 8 September 1997. Individuals interested in obtaining a copy of the solicitation should contact Dr. David A. Butler, Study Director, Institute of Medicine, Division of Health Promotion and Disease Prevention, via e-mail at veterans@nas.edu or via fax at (202) 334-2939. A discussion of the scientific considerations regarding this request for proposals for research is contained in the report "Characterizing Exposure of Veterans to Agent Orange and Other Herbicides Used in Vietnam", which may be accessed online at "www2.nas.edu/hpdp/2276.html".

5. **International Symposium on Spectral Sensing Research 1997**: The U.S. Army Topographic Engineering Center (TEC) is co-sponsoring the International Symposium on Spectral Sensing Research 1997 (ISSSR)'97 to be held in San Diego, California at the Westin Hotel, December 14-19, 1997. ISSSR is sponsored by a number of government organizations. The objective of ISSSR is to provide an international forum for discussion of scientific benefits of multispectral remote sensing. The theme of ISSSR '97 is OBSERVATION TO INFORMATION. Symposium Coordinator: Camber Corporation, 601 13th Street NW, Suite 350N, Washington, DC 20005, phone: (202)393-1648, fax: (202)628-8498, e-mail: register@issr.org. (cbd 04-22-97)

6. From **Iris Shimizu**, NCHS: The Conference on Scientific and Technical Data Exchange and Integration, Sponsored by U.S. National Committee for CODATA, National Research Council, December 15-17, 1997, Natcher Conference Center, National Institutes of Health, Bethesda, MD. The exchange of scientific and technical (S&T) data among different computing

environments and across diverse scientific and engineering disciplines presents major problems that hinder full exploitation of computer-based modeling, the Internet, modern scientific databases, and new computer technology. The conference has three main purposes: To identify areas, with special emphasis on interdisciplinary needs in which data exchange and integration are important; To highlight major S&T data exchange and integration efforts already underway or in planning, and; To foster serious and significant cooperation in these kinds of activities among scientific and engineering disciplines, and governmental and non-governmental organizations.

Contributed papers and demonstrations are invited (August 1 deadline) on the following topics: Discipline-specific data exchange activities and requirements; Interdisciplinary data exchange activities and requirements; Federally supported data exchange programs; Definitions of scientific and technical metadata issues; The computer science of data exchange and integration; The impact of the Internet and the World Wide Web on S&T data exchange and integration, and; Future needs for data exchange and integration for scientific and technical data. Conference Sponsors include Defense Technical Information Center, Department of Energy, National Aeronautics and Space Administration, National Institutes of Health, National Institute of Standards and Technology, National Oceanic and Atmospheric Administration and National Science Foundation.

Additional Background: By data exchange is meant several things: the transfer of large amounts of data from one set of software to other software; extracting small amounts of data from one or more data sources for specific use; and the creation of a linked or integrated data system with multiple data sources. Other possibilities exist. Data exchange has two major components: the stream of bits and bytes that actually represent the data items and fields, and the contextual meaning of individual data items and fields. S&T disciplines and applications have begun addressing data exchange issues, but progress has been slow and difficult for a variety of reasons. Scientists are often not accustomed to formal standards. Discipline experts, even though they may be quite knowledgeable in computation and database management, frequently lack expertise in information modeling and exchange standards. Metadata are not well defined, complicating the application of data across diverse scientific areas. As a result, interdisciplinary data exchange has been difficult to promote and rarely implemented.

Consider for a moment geographic information. Many applications need such information: to locate physically the sources of samples, to describe the range of a phenomenon, or to specify the location of an event, among others. Today many geographic information systems serve diverse communities of users, and several efforts to develop standards for exchanging data among these systems have been proposed. Yet progress to develop such standards in other areas has been slow. Other types of scientific data, such as biological nomenclature, chemical and engineering material identification and temporal data, suffer the same problem. Many uses for these data exist outside the scientific disciplines that generate them, yet accepted methods for exchanging these data remain elusive.

In Finding the Forest in the Trees, The Challenge of Combining Diverse Environmental Data, the U.S. National Committee for CODATA clearly documented case studies in which data interfacing, defined in that report as the coordination, combination or integration of data for the purpose of modeling, correlation, pattern analysis, hypotheses testing, and field investigation at various scales, was necessary to achieve full value of research investment. Data interfacing is founded upon the standards and protocols agreed to by different scientific disciplines to exchange data. Particular emphasis must be put on the role of metadata in this data exchange. For further information, contact Paul F. Uhlir, Director, U.S. National Committee for CODATA, National Research Council, (202) 334-2421 (tel.), codataco@nas.edu or John Rumble, Conference Program Chair, National Institute of Standards and Technology, Building 820, Room 113, Gaithersburg, MD 20899, e-mail john.rumble@nist.gov, telephone (301) 975-2200.

B. Technical News

7. EpiInfo (v6.04b)-from the Newsletter of the European Course in Tropical Epidemiology-: The latest version of the public domain medical statistics package has just been released by the Epidemiological Program Office of the Centres for Disease Control. Copies of the program are available on the Internet and from Brixton

Books. EpiInfo is now supported by an Internet mailing list. You can subscribe to this list or download a copy of the latest version from: http://www.brixton books. demon.co.uk. This version is still limited to two digits dates but a fix will be available soon that will allow you to enter and analyse four digit dates. Work has started on a Windows(TM) version of the program which should be available by Autumn 1997. More information will appear in TropEpi when a review copy is available.

8. From David Scott, U. Of Auckland: I am looking for software to fit a random effects meta-analysis using maximum likelihood and using REML. Can anyone advise me of where to find such? In particular, can it be done using SAS, possibly a SAS macro? Reply: There are several software/programs/macros which could be used to fit random-effects models for meta-analysis. Some are:
1. SAS's PROC GENMOD procedure.
2.SAS macro METCALC (write to: okuss@imbi.uni-heidelberg.de)
3. SAS macro GLIMMIX (ftp: ftp.sas.com and search the directories there).
Other software that will enable one to fit random-effects models can also be used for meta-analysis (e.g., EGRET, S-Plus, etc). Cande V. Ananth, The Center for Perinatal Health Initiatives, Dept of OB/GYN and Reproductive Sciences, U. of Medicine and Dentistry of New Jersey, Robert Wood Johnson Medical School, 125 Paterson St, New Brunswick NJ 08901-1977 Tel: (908) 235-7940, e-mail: ananthcv@EPI.UMDNJ.EDU.

C. Internet News

9. From **Arlene Siller**, NCHS (Demographic Data Viewer 2.0 through list SASPAC-L): We are pleased to announce the release of the Demographic Data Viewer version 2.0. DDViewer is an interactive Web-based mapping tool. This tool enables users to select an area of interest from the 50 US States, specify demographic variables to map, and select map output format, color scheme, and various other options. Map images are created on the fly for each query. Tabular data and descriptive statistics may also be downloaded via Web browser. DDViewer 2.0 is available through: http://plue.sedac.ciesin.org/plue/ddviewer. A non-Java CGI version of DDViewer 2.0 is available for those who want, including those with platforms that do not presently provide good Java VM compatibility, e.g., Macintoshes.

Boundary data in DDViewer were derived from the U.S. Bureau of the Census TIGER 1992 database. Boundaries are available for counties, county subdivisions/minor civil divisions, census tracts, and blockgroups. One or more counties (or entire states) may be defined as the area of interest. About 225 demographic variables are available for mapping. These were derived from the U.S. Bureau of the Census STF3A 1990 files. A recoding option is provided enabling the creation of user defined variables. DDViewer allows the user to:
* create maps at four US Census summary geographies;
* interpret the image using the statistical summary report;
* customize the layout;
* create tabular reports;
* refer to online help;
* create simple recodes of variables.
Related Services: The data underneath this interactive tool are available, along with much more data not used by DDViewer, from the Archive of Census Related Products. You can access this anonymous FTP archive at: ftp ftp.ciesin.orgcd /pub/census; or point your browser to ftp://ftp.ciesin.org/pub/census. These services are provided by the Socioeconomic Data and Applications Center (SEDAC) housed at the Consortium for International Earth Science Information Network (CIESIN) with funding from the National Aeronautics and Space Administration (NASA) Goddard Flight Space Center (GFSC) under contract NAS5-32632. Please visit our web space at: CIESIN URL:http://www.ciesin.org/; SEDAC URL: http:// sedac.ciesin.org/.

10. From **Lois Dean**, HUD (through ppgis-scope@igc.org):1) For a links page with over a hundred sites focusing on community development, economic development, mapping/GIS, community networking, and more, check out http://www. change.org/links.htm. The list is constantly being updated, so please let me know if you have suggestions of sites that I've missed. Also, please consider linking to this site from yours, and 2) Space is still available! Explore HUD's Community 2020TM Software - learn technical skills and ways the use of GIS can help

government and citizens analyze and share information about their communities and plan activities to meet their community needs. Two-day hands-on workshop. No charge. Session One Aug 4-5; Session Two Aug 6-7; Session Three Aug 11-12; and Session Four Aug 13-14. Four Workshops will be held at the Crown Plaza Los Angeles Airport, Los Angeles, CA. Each session is limited to 50 persons. To register, call (800) 998-9999 (TDD 800 483-2209)

11. One-Stop Federal Statistics Web Site: FedStats--http://www. fedstats. gov--provides powerful link and search utilities to find statistical information generated by any Federal statistics agency without knowing in advance what agency produces or publishes the data. An "A to Z" index lists 275 predefined categories of statistical information. A user can limit a keyword search to specific statistics agencies or cover all Federal statistics. "Fast Facts" contains often-requested graphics and tables. The entire Statistical Abstract of the United States is also on the FedStats site.

12. The National Environmental Health Association (NEHA) and U.S. Environmental Protection Agency (EPA) present an all expense paid Radon Gas Educational Seminar, Washington D.C., August 2-5, 1997. In cooperation with the EPA's Radon Division, NEHA plan is to offer a significant training opportunity for environmental health professionals working in city, county or state health or environmental protection agencies. NEHA plans to provide a comprehensive, two-day training course as part of the national initiative to reduce the health risks of indoor radon gas by increasing awareness, testing and mitigation of radon. Funding for this program has been approved by EPA's Office of Radon and Indoor Air and now awaits final approval from EPA's Grants Administration Division.

Each year in the United States exposure to indoor radon gas causes thousands of otherwise preventable lung cancer deaths. In fact, radon is second only to smoking as the leading cause of lung cancer in the United States. Data gathered by the EPA national radon survey indicate that elevated radon levels are present in six million homes. With the anticipated approval of this project, NEHA will join many organizations such as the National Association of Counties (NACO), the International City/County Management Association (ICMA), and the American Lung Association (ALA) in conducting local radon action programs to achieve healthier indoor air environments.

Radon testing kits, publications and other outreach materials will be provided at no charge for those programs that are represented by the individuals selected for this training. Those individuals selected must commit to conducting a one-year radon outreach program designed to increase awareness, testing and mitigation in their communities upon their return from this class. Additionally, these individuals will serve as a community resource for radon information, encourage radon testing, provide information on mitigation techniques and encourage the use of radon resistant building features in high radon potential areas. Specifically, the course will be taught by recognized authorities in the radon field. The course will present the latest information concerning identification of high radon potential areas, identifying high risk populations, testing techniques, use of radon resistant building materials and adoption of radon resistant building codes. Each participant will receive an overview of the national radon risk reduction program; a legislative update; a review of National Radon Action Week activities; and information on how to reach minority and low income populations, and how to develop and promote a radon awareness campaign for you community.

Those wishing to participate should submit a letter of interest that addresses the following points: 1.Position title, with job description and length of time in the environmental health field; 2.History and experience of your program in addressing the radon issue; 3.How will radon rank as a priority in your overall program; 4.Any on-going programs that your agency has or that you would like to see established in the area of radon risk reduction (please indicate if your agency received EPA radon funding within the last six months); 5.The radon risk potential in your area and an estimate of the population effected by high radon levels in the areas you serve; 6.Any special areas of interest or consideration that you feel is relevant to your consideration for this course. Letters of interest should be submitted to: Mr. Larry Marcum, Manager, Research and Development, National Environmental

Health Association 720 S. Colorado Blvd., South Tower, Suite 970, Denver, CO 80222-1925 or call Larry at (303) 756-9090 for more information. [see announcement at web site http:// www.sni. net/~Becker/radon.html]

13. Free scientific software (from <fwim-l@listserv.vt.edu>): There's a new, very good site, with lots of information about scientific and other software packages running under Linux. There are two fast mirror sites: In the US, use http://SAL.KachinaTech.COM and in Europe, use http://ftp.llp.fu-berlin.de/lsoft/. SAL defined: SAL (Scientific Applications on Linux) is a collection of information and links of software that scientists and engineers will be interested in. The broad coverage on Linux applications will also benefit the whole Linux/Unix community. The popularity of SAL has led to a new categorizing scheme, a friendly user interface and a greatly expanded repertoire with more detailed information. We hope you will enjoy the new SAL! SAL is copyrighted and can be freely redistributed under GNU GPL, otherwise stated by their respective owners.

Applications available in: *Mathematics *Computer Graphics, Images & Signals Computer Algebra Systems *Processing & Visualization *Array-Oriented & Linear Algebra Systems *CAD, Drawing & Painting Tools *Statistics *Modelers *Number Theory *Raytracers *Misc *Image Viewer, Conversions & Manipulations *Geographic Information Systems * Numerical Analysis *Misc *Source Code Repositories *Discrete Methods & Related Tools *Programming Languages & Compilers Tools & Utilities *Parallel Computing *GLTM/OpenGLTM Related Libraries & Toolkits Programming Languages & Systems *Other Graphic Libraries *Communication Libraries *X11 Libraries & Toolkits *Tools & Utilities Misc *Office Software Office Suites *Scientific Data Processing & Visualization *Typesetting & Formatting Software Packages *Word Processing & Publishing Libraries Spreadsheets *Other Scientific Fields *Electrical & Related Software *Chemistry, Biology & Related Misc, etc. For more information, contact Jeff Walden, Project Leader, Fish and Wildlife Information Exchange, Dept. of Fisheries and Wildlife Sciences, Virginia Tech, 203 W. Reannex St., Blacksburg, VA 24061, ph: (540) 231-7348, fwiexchg@vt.edu e-mail or see http://www.fw.vt.edu/fishex/.

14. Version 2.07a of the PEPI package (containing over 40 statistical programs for epidemiologists) is now available. The programs can be downloaded free from the Simtel.Net and Garbo depositories and their mirror sites. Contact www.shareware.com and search for "pepi" in the "DOS" category, or visit the PEPI web site: www.usd-inc. com/pepi.html. The file to be downloaded is pepi207a.zip (NOT pepi207.zip). Version 2.07a of the PEPI package provides corrected LOGISTIK and LOGX programs. For case-control and cohort studies, trials, stratified data, matched samples, meta-analysis, appraisal of screening/diagnostic tests, etc. Multiple logistic regression, probability and inverse probability values, sample size and power, random sampling and randomization, exact tests and intervals, calculator (expression solver) with 48 registers, etc. Installation optional. Can be used in DOS or Windows. [Source: J.H. Abramson (jha@vms.huji.ac.il)]

15. Check out GISMO. Jack Eichenbaum is GISMO (New York City's GIS User Group) coordinator and maintains a webpage at http://everest.hunter. cuny.edu:80/gismo. GISMO is a user-oriented group of professionals from NYC agencies, universities, public and private organizations using or learning to use mini-or micro-based Geographic Information Systems. GISMO is a forum to share geocoded data and data processing techniques, software training, news from GIS publications, meetings, vendors, etc.

16. On June 26, 1997, the National Library of Medicine announced that its MEDLINE database of more than 8.8 million references to articles published in 3800 biomedical journals ma be accessed free of charge on the World Wide Web. Two Web-based products, Internet Grateful Med and PubMed, provide this service. Internet Grateful Med provides free access to MEDLINE, AIDSLINE, HEALTHSTAR. Loansome Doc document delivery service is available. PubMed provides free access to MEDLINE. Linkages to publishers' sites for full-text journals. Initially 24 journals available, some by subscription only. For more information about any of the above, see http://www. nlm.nih.gov. Susan M. Sparks, RN, PhD, FAAN,

National Library of Medicine and e-mail sparks@nlm.nih.gov.

III. GIS Outreach

(Editor: All solutions are welcome and will appear in the next edition; 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 **David Woodbridge**, U. Of South Florida: I am trying to get the GIS program established at the three privately funded Historically Black Colleges and Universities (HBCUs) of Florida. I want them to become involved and use the GIS for a better evaluation of environmental health conditions in minority communities. Many of the black population in the South eat fish that have been caught in canals and streams that are polluted. Practically no effort has been made to evaluate the chemical and/or biological pollutants in these streams. We would like to have one or all three of the privately funded HBCUs of Florida evaluate the pollutant condition of streams in their minority community. They then would determine a Comparative Risk Assessment (CRA) and their associated isopleths and put them into the GIS. Superimposing minority community health information would provide information on an important health relationship. If this type of minority project is of interest to you please get in touch with me. I hope to be hearing from you soon. Sincerely, David D. Woodbridge, Associate Professor, Environmental and Occupational Health, College of Public Health at ph: (813) 974-6638 or e-mail: dwoodbri@com1.med.usf.edu.

☎ From **Khosrow Heidari**, South Carolina Department of Health and Environmental Control: It has been less than six months that we started looking at GIS application to MCH issues. One of our goals has been to enable our local health departments to use Zip code level data with their communities. As a result we generated a Zip code boundary of South Carolina for EpiMap software. We used an ASCII format of Zip code coverage from ArcInfo to convert into EpiMap format. It was rather challenging. One of the problems that we encountered was that we have more Zip codes in SC than boundaries. Question- Does anyone know where to get the more recent Zip code coverage than 1990 Census? Thanks, Khosrow Heidari, Research and Statistics Coordinator, Bureau of MCH, South Carolina Dept. Of Health and Environmental Control, ph: (803) 737-3920 or e-mail: heidarik@columb63. dhec.state. sc.us.

☎ From **Roger Friedman**, NIP: Question- Does anyone know of any training resources here at CDC for Atlas GIS? Response from Allen Hightower: there aren't any classes at CDC for Atlas GIS. However, ESRI- the parent company, has training classes in Atlanta and all over the US. Check out www.esri.com. Any additional information GIS Users may provide is appreciated.

☎ From **Chet Moore**, NCID: We are looking into purchasing an 8-mm tape drive for our GIS lab so we can deal in-house with some of the data we are getting from EROS Data Center (EDC) and other sources (currently we go down to Colo. State Univ., read the tapes onto a UNIX workstation, upload to our ftp site in Atlanta, come back to DVBID, and download the data--not very economical of our time!). It occurred to me that some other members of the GIS group may already have experience that they could share with us. Specifically, we have the following questions: 1) What are the best 8-mm tape units (preferably on GSA contract) for a PC environment (Pentium, Windows 95)? 2) What is the optimal capacity (we see a wide range advertised)? Since there are budgetary considerations, we don't want to buy more capacity than we are likely to use. 3) What are the common data storage formats for 8-mm tape, and what software is available for reading tapes from EDC? Any other advice and pointers would be most welcome. Chet Moore, Ecology/Epidemiology Section, ADB, Division of Vector-Borne Infectious Diseases, NCID, CDC, P.O. Box 2087, Fort Collins, Colorado, USA 80522-2087, ph: 970-221-6423 or e-mail: cgm2@cdc.gov.

Response from **Gib Parrish**, NCEH: I forwarded your request to a graduate student in computer science who works with me and his response follows- Gib, I'm not too knowledgeable about 8mm's in a PC environment so can't offer much help OS-wise. Regarding the hardware, as far as I know, any of the major brands are good (e.g., Sony), capacity should be

2-3 gigabtyes. Data storage format is up to the Operating system, sounds like these folks are probably using TAR since they're reading it onto a UNIX system. Mark Devaney, Artificial Intelligence / Cognitive Science, ph: (404) 894-2590 or http://www. cc.gatech. edu/people/home/markd/.

Response from **Mike Fay**, ATSDR: I've spent years on CSi, and they have lots of helpful folks there. I've almost been a sysop once, and did some other stuff for them too. Try the IBMHW forum. I'm kind of a known name around there, although about two months ago I had to go cold turkey to get some other stuff done. You may not need these suggestions but: 1) Remember to make your title precise, as in "Best 8mm t. drive?" 2) Be open to wholly new suggestions, such as if several people insist you try something besides 8mm... make sure you at least find out why they are insisting; the decision is always still yours. 3) You have special needs -- you're backing up megadata, not a home PC. Make all special needs known, or your replies will address the wrong situation. If you don't point them out, people will assume the most common situation, and therefore _will_ get it wrong. The more detailed your request is, the more on-target your replies will be. Hope this helps; apologies if you already know all of this. But I couldn't help but think you didn't know about the power of online forums, since you were asking through a channel not specialized on your need. Mike [ph: (404) 639-6308]

☎ Boarded and vacant housing (thru **Lois Dean**, HUD): I am looking for research concerning boarded and vacant housing in urban areas. My project deals with determining the factors which lead to a house becoming vacant and boarded. Can anyone offer some help? Thanks you much. Lori Mardock, l-mard@ maroon.tc.umn.edu. Response from Brian Ross: In Philadelphia a study was done (1991) demonstrating the relationship between electric and gas disconnections of low-income households and housing abandonment. The Energy Coordinating Committee and the Institute for Public Policy Studies at Temple University (ECA/IPPS) conducted the study. Sorry, I don't have a contact other than the above cite.

☎ From **Gina Day**, NIH: Gina has written to me requesting reference to anyone's work/thinking about spatial masking techniques for protecting confidential data. NIH is negotiating to include health outcome data (incidence, mortality, and hospital discharge data) from New York State Dept.of Health in the GIS-H that will be developed for the Long Island Breast Cancer Study Project (LIBCSP). Could anyone recommend scenarios under which we could meet the requirement of maintaining the confidentiality of health records, while ensuring that good GIS-H analyses could be done [the smallest area that New York Cancer Registry has released aggregated data is the census tract level].

Two options that appear so far: 1) Agent-based computing is one alternative ("agent" -meaning a computer module that answers queries by computing from its original data). The computer (i.e., a separate server maintained by NYSDOH) would provide the results of the submitted analyses (by NCI-designated investigators), using the data in its raw form, but never releasing the data and never releasing results from which the raw data could ever be recovered. The client, however, gets the results they want just as if they had been given the raw data. A good example in our case might be "Do a variable SCAN statistic for Long Island for Breast Cancer registered cases between 1980 and 1990." The agent would get the data and do the analysis and report the result to the client. The client has the same result as if they had been given the raw case data and done the analysis themselves. 2) A second option is having the geocoded cancer data (preferably lat/long coordinates) housed on the proposed NCI system and using some random perturbation techniques - in which each point is displaced by a randomly determined amount, in a randomly determined direction, specific to its original location. This option would require more safeguards to be set up to protect confidentiality. There are probably several others. I'd appreciate any advise and suggestions - also any references you may think of. Gina L. Day, Project Officer, Division of Cancer Epidemiology & Genetics, National Cancer Institute, 6130 Executive Blvd, Rm. 535, Rockville, MD 20852, ph: (301) 496-9600 or e-mail: gd17y@nih.gov.

☎ From **Edgar Monterroso**, NCID: I have a multiple site project in six cities in the US. We are collecting information and would love to be able to map and analyze according to census tracts (HIV incidence in inner city neighborhoods). Is there a source at

CDC/ATSDR where I could obtain these maps?

Response from **Janet Heitgard,** NCPS: You can obtain hard copy census tract maps (for a nominal cost) from different sources, including the U.S. Bureau of the Census. More likely, you'll want to consider using Geographic Information Systems (GIS) technology to map and spatially analyze data according to census tracts. For example, with GIS you can use the Census Bureau's TIGER/Line files (for digital mapping of streets, and census polygons - such as tracts) and Summary Tape Files (to help describe the socio-demographics of areas), and user defined data (possibly HIV incidence if available at the census tract level) for display and, most importantly, analysis. There are a number of different programs that may be useful to you or you may want to consider using a contractor.

In January, I joined the Program Evaluation Research Branch, Division of HIV/AIDS Prevention - Intervention Research and Support, and have been trying to encourage interest in, and use of, GIS for HIV prevention planning and evaluation. You may have seen an e-mail from me a couple months ago asking for information on people's experience and interest in using GIS in HIV prevention activities. I'd be happy to talk to you about obtaining and using census maps (are you going to the HIV Prevention Indicators Meeting, July 14-15?). I am very familiar with Census data (both the TIGER/Line files and Summary Tape Files) and gained experience with GIS at ATSDR. My phone is (404) 639-0946.

☎ From **John Norberg**, NIOSH: Ted Lowe and I are with the NIOSH Spokane Laboratory in Spokane, Washington. Our principal GIS issues revolve around the occupational health and safety hazards facing workers in the mining and the mineral processing industries. Currently Ted and I are working with occupational disease, injury, and fatality data collected by the Mine Safety and Health Administration (MSHA) during mine and mill inspections. We are using ArcView 3.0 as our principal GIS software; however, we "discovered" MapInfo Professional. Although we are, for the most part, satisfied with ArcView, we are interested in other software that may facilitate our display/analysis of the MSHA data. Perhaps, there are people in the CDC/ATSDR GIS user group that can provide a comparison of ArcView with MapInfo Professional. [E-mail addresses are NBL7@CDC.gov or JDN4@CDC.gov]

☎ From **Roger Friedman**, NIP: We are looking to do some evaluation of immunization status as a function of socioeconomic status. We have a national telephone survey that gives us immunization status, phone number and zip code. About 40% of the phone numbers have addresses determined from a criss-cross listing. We are looking to geocode this data into sets of census tracts, each with a probability -- so that if we can geocode exactly, there is one census tract with probability one; and if we can't, we use some combination of phone and zip to make statements like 50% of the population of zip code 1 is in census tract A, 25% of the population of zip code 1 is in tract B, and 25% of the population of zip code 1 is in tract C. What we need are coverages: street addresses, zip code boundaries, phone boundaries, census tract boundaries. We need to know what software they're available for and how current they are (especially zip codes). If you can give me any help with this, please let me know (404) 639-8789.

☎ From **Brent Burkholder**, NCEH: I am an medical epidemiologist working with the International Emergency and Refugee Health Program at NCEH. We are exploring ways to use GPS in monitoring and assessing demographic and health information among refugees during emergency situations. We are trying to purchase GPS hardware and software for this purpose. Do anyone know of any good review articles which outline available equipment and software? Thanks. [You can reach Brent at ph: (770) 488-3519]

IV. Special Reports

(Submissions are open to all)

❖1996 USGS/NPS Historical Black Colleges and Universities Summer Faculty Workshop

Source: Lee De Cola, Research Physical Scientist, USGS (Reston, VA). From July 28 to August 3 1996 staff from the US Geological Survey with assistance from the National Park Service (NPS) conducted the 13th annual Historically Black Colleges and Universities (HBCU) summer faculty workshop. Seventeen earth science faculty from across the Southeast collaborated

on training and research using global positioning systems (GPS), which are used to map features on the land in real time, interactively and to a degree of accuracy that used to require the skills and tools of trained survey teams.

Lee De Cola, a Research Physical Scientist at USGS Reston, was coordinator of the 1996 Workshop, which was held at North Carolina Central University, in Durham. De Cola comments that "I began my career as an regional planner in the 1960s when there were lots of minorities starting to make their careers in planning and community organization. By now, most of my minority colleagues are beginning to retire and, frankly, I'm not sure that the earth sciences and professions are bringing enough new African-American talent into the system. These workshops are a small effort to correct this problem."

The core of the Workshop was 3-day GPS training course conducted by Matt Florio and Daryl Huffman of Trimble Navigation, Inc. using six roaming data capture receivers and one stationary base unit. Technical lectures were supplemented with hands on experience mapping portions of NCCU campus where participants functioned as "human digitizers." GPS receivers were used to collect electronic signals from satellites and transform these signals into latitude and longitude. The corrected data were used to reference objects found on the ground to produce a campus map. The USGS team worked with participants to analyze the GPS raw data for accuracy assessment, scale issues and datum adjustments. Discussion was provided on data processing techniques, and the integration of collected field data with USGS Digital Line Graph data using ArcView software. Comments at the workshop and in letters from HBCU participants reflect their enthusiasm:

"This summer's GPS workshop was highly successful. It provided us with valuable hands-on experience, which most of the participants would not ordinarily have access to at their respective institutions."

"I personally benefited from this summer's experience and will incorporate the GPS measurements taken on the NCCU campus in a paper that is underway."

"I learned enough about the GPS technology to be able to use it efficiently and I enjoyed being part of every activity of the workshop."

"I thoroughly enjoyed the presentations and learned information that I am now using for my GIS course that I am teaching this fall."

"We purchased a hand-held GPS later that summer after the workshop."

Two other USGS staffers, Larry Hothem and Peter Murtaugh, conducted training at the workshop. Murtaugh stresses that it is actually useful when things seem to break down because people learn as much when systems don't work right--which is often--as when they do: "One afternoon the lesson plan broke down and pandemonium broke out around the room. Questions were being asked from all sides at once by several of the educators, and of course I did not have all the answers. It was exciting that eventually we sorted out all of the questions relying upon each other to find the information!"

The workshop covered the following topics: Global positioning systems; Introduction to GPS; Satellite global positioning; Operating base and field units; Fieldwork; Collecting field data for features of the NCCU campus; Verifying the locations of known geodetic control points; Navigating using GPS; Geographic information systems; Producing GIS databases of the mapped features; Plotting GPS data as maps; Integrating GPS and other spatial data using LandView and USGS data sources; Accessing GPS and other spatial information on the Worldwide Web; Spatial analysis of the quality of GPS data, and; Mapping markets.

Organizations involved: U.S. Geological Survey; U.S. National Park Service; Trimble Navigation, Inc.; Duncan Parnell, Inc., and; George Mason University. Participating HBCUs included: North Carolina Central University (host), Alabama A&M University, Austin Peay State University, Tennessee, Del Mar College, Texas, Elizabeth City State University, North Carolina, Florida A&M University, Grambling State University, Louisiana, Savannah State University, Georgia, Texas Southern University, University of Arkansas at Pine Bluff, University of District of Columbia, University of Michigan, University of New Orleans and Virginia State University. [For more information, contact Lee at 521 National Center, Reston VA, 20192, ph: 703-648-4178, or e-mail ldecola@usgs.gov or Web site http://geog.gmu.edu/gess/classes/geog590/gis_internet/ldecola/baltwash/]

V. Public Health GIS Literature

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

NCHS Cartography and GIS Guest Lecture Series

Hyattsville, MD, September 3, 1997

"Effective Management of Large Spatial and Relational Databases," to be presented by Hanan Samet, Department of Computer Science, University of Maryland College Park, September 3, 1997 at NCHS, Hyattsville, MD (see announcement, p. 1). ABSTRACT: A central problem in modern database design is how to integrate spatial operations with normal database operations in an extended relational database environment. Example application domains where this problem arises include environmental monitoring, urban planning, and remote sensing. Problems from these domains are usually dealt with by making use of geographic information systems. An introduction in the from of tutorial/survey is given to geographic information systems and their relationship to a spatial database from the perspective of a computer scientist. Special emphasis will be placed on the issues involved in integrating such systems with conventional database management systems. Other topics to be discussed include the nature of a map and the functionalities that are desired in such systems. Representation issues will also be reviewed. The focus will be on indexing methods as well as the integration of spatial and nonspatial data. An example browser to a geographic information system that incorporates a spatial database built with these considerations in mind will be demonstrated live or with a video on some real world data and representative queries. [Contact: Hanan Samet at e-mail: hjs@cs.umd.edu]

1997 Joint Statistical Meetings of the American Statistical Association,

San Diego, August 10-14, August: Selected Abstracts

Title: "Spatial and Temporal Analysis of Ozone and Pediatric Asthma Emergency Room Visits" by P. Tolbert, D. Macintosh , F. Xu, J. Mulholland , and O. Devine. KEYWORDS:ozone; asthma; air pollution; spatial analysis. ABSTRACT: The temporal and spatial distributions of visits for pediatric asthma to selected emergent care facilities in metropolitan Atlanta are being studied in relation to estimated ozone exposures, lagged one day, and spatially resolved by zip code of residence for the summers of 1993-1995. Spatial resolution of ozone exposure is being achieved by kriging daily data from ten monitoring stations located throughout the metropolitan Atlanta area and estimating the value for each zip code centroid. Covariates include other air quality indices, race, age, and Medicaid payment status (proxy for socioeconomic status). Two general types of analysis are being performed: 1) Poisson time-series analyses modelling counts of asthma visits by zip code as a function of zip-code specific ozone values and covariates (race, SES) as well as certain non-spatially resolved variables, and 2) logistic regression modelling log odds of a patient being a case as a function of the ozone estimate for the patient's zip code of residence on the day prior to presentation, as well as the patient's covariate status, with controls defined as patients presenting with non-asthma diagnoses. There is little precedent in air pollution health effects research for use of spatially resolved data in time-series types of analyses and for the use of exposure data that is temporally and spatially resolved in logistic analyses. In this presentation we will summarize findings from this investigation and evaluate the merits and limitations of these analytic approaches.

"Linking Exploratory Spatial Data Analysis with GIS: Operational Issues in Spacestat/Arcview Interface and S+grassland Link" by B. Shuming and L. Anselin. Keywords: Spatial Statistics; Spatial Association; GIS; Spatial Autocorrelation. ABSTRACT: The extension of the functional capacity of geographic information systems with tools for exploratory spatial data analysis has been an increasingly active area of research in recent years. In this paper, the operational implementation of the SpaceStat/ArcView Interface and the S+ Grassland Link is illustrated. The SpaceStat and the S-PLUS/SpatialStats are two of the most popular statistical tools for spatial analysis, while the ArcView and the Grassland are two of the typical GIS tools for visualizing spatial data. The emphasis is on techniques of exploratory spatial data analysis to describe spatial distribution, visualize the pattern of spatial autocorrelation and assess the presence of global and local spatial association. The integration for SpaceStat and ArcView is based on loose coupling by means of an

efficient file export and import between to packages, while the integration for S-PLUS and Grassland is based on the S+API (Application Program Interface) and OGDI (Open Geographic Datastore Interface) techniques. Conceptual and technical issues related to those implementations of the linked framework are discussed and compared. The future directions for linking exploratory spatial data analysis and GIS are explored. [Contact: Bao Shuming at e-mail bao@statsci.com]

"An Interface Between S-plus and Arcview" by S. Kaluzny. Keywords: spatial statistics; GIS; software; ABSTRACT: This paper describes the integration of S-PLUS with ArcView for the analysis of spatial data. S-PLUS, with its SpatialStats module, provides a wide selection of tools for exploratory data analysis and modeling of three broad classes of spatial data: geostatistical data, point patterns and lattice data. ArcView is a desktop GIS and mapping system from Environmental Systems Research Institute, Inc. In the interface, the statistical and analytical functions and the graphical capabilities in S- PLUS are integrated with the spatial visualization techniques in ArcView. The conversation between S-PLUS and ArcView is established through an S+API linkage. The user can launch an S-PLUS session or close an S-PLUS session from ArcView. Selected records and variables can be exported from ArcView to an S-PLUS object. The user can also access an S-PLUS object directly from ArcView, such as plotting a map in ArcView with residuals or fitted values from a kriging object in S-PLUS. The interface also allows constructing spatial weight matrices according to distance and neighbor criteria in ArcView for use in spatial regressions in S-PLUS. [Contact: Steve Kaluzny at e-mail spk@statsci.com]

"Interactive Graphics for the Exploratory Analysis of Spatial Flows" by L. Liu and Duane Marble. Keywords: Spatial flows; Dynamic graphics; Exploratory data analysis; Visualization; GIS; ABSTRACT: Spatial flows, such as flows of commodities and people, exist across different regions. The study of spatial flows has been challenging due to the complexity of these flow systems and the lack of appropriate tools. Based on several recent research activities on the exploratory analysis of spatial flows, this paper reports upon the application of interactive graphics to explore spatial distribution patterns of the flows and relationships of the flows to spatial distance and locational characteristics. Distance is used as a control variable to create spatially lagged scatterplot of multi-variate flow variables, which is then mapped onto the flow map, enabling researchers to compare the spatial flow patterns associated with different distance. Brushing the scatterplot of locational attribute variables creates spatially lagged flow maps, which can be used to assist researchers to study the relationship between flows and locational characteristics. [Contact: Lin Liu at e-mail lin.liu@uc.edu]

"The Arcview/xgobi/xplore Link: Technical Details and Applications for Spatial Data Analysis" by Juergen Symanzik, Thomas Koetter , Swetlana Schmelzer , and Sigbert Klinke. Keywords:Geographic Information System (GIS); Dynamic Statistical Graphics (DSG); Statistical Software; Dynamic Linking. ABSTRACT: This article descibes the dynamic linking of three software packages to allow spatial data analysis directly from within a Geographic Information System (GIS). This link is an extension into a third direction of an existing system: The statistical software package XploRe (Haerdle, Klinke, and Turlach, 1995) has been added to the bidirectional link (e.g., Cook, Majure, Symanzik, and Cressie, 1996) between the GIS ArcView 2.1 and the interactive dynamic statistical graphics program XGobi (Swayne, Cook, and Buja, 1991). This article presents information about the technical realization of the link and provides examples how to conduct spatial data analysis in the ArcView/XGobi/XploRe environment. [Contact: Juergen Symanzik at e-mail symanzik@iastate.edu]

"Hierarchical Modeling in Geographic Information Systems: Population Interpolation over Incompatible Zones" by B.P. Carlin and A. Mugglin. Keywords: Bayesian methods; Markov chain Monte Carlo; Misaligned data; Spatialstatistics. ABSTRACT: When inference is desired regarding some attribute of a particular geographic region, it often happens that data are not directly available for that region. However, it may be that data are available over the same general area, but reported according to a different set of

regional boundaries. Recently, powerful computer programs called geographic information systems (GIS's) have enabled the simultaneous display of such ``misaligned" data sets, but these systems address only the descriptive needs of the user, leaving the inferential goal unmet. In this paper we describe a hierarchical Bayes approach, implemented via Markov chain Monte Carlo methods, which provides a natural solution to this problem through its ability to sensibly combine information from several sources of data and available prior information. After presenting a simple idealized example to illustrate the method, we apply it to a data set on leukemia rates in Tompkins County, New York. The approach emerges as flexible, accurate, and suggestive of promising related methods for spatial smoothing of underlying relative risks. [Contact: Bradley Carlin at U. of Minnesota]

1997 Joint Meeting of the Public Health Conference on Records and Statistics,Washington, D.C., July 29 and the 61st annual meetings of the National Environmental Health Association, July 1, Washington, D.C.: Paper Titles

I want to acknowledge outstanding presentations by GIS Users in two recent GIS sessions which I had the privilege to chair. "Geographic Information Systems: An Exploratory Tool for Disease Surveillance and Analysis" was the GIS theme at the 1997 Joint Meeting of the Public Health Conference on Records and Statistics and the Data Users Conference (NCHS/CDC), July 29, Washington, D.C. Special thanks are extended for papers by **Tom Richards**, Medical Officer, CDC's Public Health Practice Program Office, entitled "Pilot Project to Develop a Geographic Information Systems-Based Sampling Frame for National Surveys of Local Health Departments and Local Boards of Health"; Professor **Gerald Pyle**, UNC at Charlotte, entitled "A Geographic Information Systems (GIS) Approach to Community Epidemiology in a North Carolina Industrial County"; Professor **T. Joseph Sheehan**, University of CT School of Medicine, entitled "GIS and Breast Cancer Screening: Integrating Cancer Registry, Census, and Mammography Site Data to Monitor Breast Cancer Control" and; Staff Scientist **Steve Melly**, Silent Spring Institute, entitled "Investigating Breast Cancer and the Environment Using a Geographic Information System". Abstracts appear in the June (No. 16) edition of the newsletter.

At the annual meeting of the National Environmental Health Association, I want to thank several GIS Users for their presentations in the session "GIS Computer Applications for Environmental Health." These include **William Henriques**, GIS Manager, ATSDR for his paper "Overview of Geographic Information Systems and Spatial Analysis Techniques" and **John (Jay) Nuchols**, Professor, Colorado State University for "An Overview of GIS-based Research Initiatives to Address Environmental Health."

1997 University Consortium for Geographic Information Science Meetings.

Bar Harbor, June 1997, Selected Abstracts

"Access to Geographic Data--Clearinghouses and Digital Libraries" by D. Nebert. ABSTRACT: The National Spatial Data Clearinghouse, sponsored by the Federal Geographic Data Committee, is a decentralized system of servers located on the Internet which contain descriptions of available digital spatial data. This descriptive information, known as metadata, is collected in a standard format to facilitate query and consistent presentation across many distributed sites. Using public domain Web technology and searching and serving software, the Clearinghouse functions as a detailed catalog service. It allows individual agencies, consortia, or geographically defined communities to band together and promote their available digital spatial data. Thus, the Clearinghouse assists in coordination of data collection and research activities as well as providing a means by which traditional and non-traditional spatial data users may access data. The Clearinghouse discussion will be facilitated by Douglas Nebert, Clearinghouse Coordinator for the Federal Geographic Data Committee, and will address such research issues as interoperability, semantic representation of geographic data, metadata, digital libraries for spatial information, and user interface problems. Discussants will include Dr. Joseph Ferriera, Massachusetts Institute of Technology, James Frew, Alexandria Digital Library Project, Melissa Lamont or Todd Bacastow, Penn State University Library, Kenneth Gardels, University of California, Berkeley and Open GIS Consortium (tentative) and Gordon Longsworth, College of the Atlantic. [Contact: Doug Nebert, USGS, National

Center, phone: 703-648-4151 or e-mail: ddnebert@usgs.gov]

"Climatological Study of Modeled Solar Radiation: A Case Study using GIS" by J. Callahan and T.L. DeLiberty. ABSTRACT: Solar radiation reaching the earth's surface is an important meteorological parameter that influences atmospheric and oceanic circulation as well as the surface climate. It is the source of energy for all exchange processes occurring at the earth-atmosphere interface. There is a growing demand for information on this variable to meet diverse needs at a wide range of spatial and temporal scales for research on climate change issues, weather processes. and is also a critical variable for study in the solar heating arena. Yet, information on hourly solar radiation are generally available from only a limited number of observing stations over land, and climatological records are practically non-existent. Since the measurement network does not provide solar radiation data with sufficient spatial and temporal continuity to define the climatological potential for various applications such as solar energy utilization, modeling procedures are therefore required to fill spatial and temporal gaps.

This paper presents a methodology for calculating broadband (0.29-2.7 (um) solar irradiance (radiation incident on earth's surface) using a geographic information system (ARC/INFO) to aid in management and manipulation of the large input datasets and also for the analysis and visualization of results. The solar radiation model employs parameterizations of various extinction process (e.g., rayleigh scattering, absorption by ozone, uniformly mixed gases, water vapor) affecting the transfer of shortwave radiation developed by Christian Gueymard with a cloud layer scheme. The model uses readily available hourly meteorological data including air temperature, surface pressure, relative humidity, and aerosol optical depth from the first-order National Weather Service station network. It uses also additional atmospheric parameters (e.g., ozone, surface albedo, slope, aspect) to characterize scattering and absorption properties in the atmosphere from ground networks, satellites and modeled data. Analysis will examine the performance of modeled estimates and investigate the variability both spatially and temporally across the continental U.S. during a decadal time period. [Contact: John or Tracy, Department of Geography, University of Delaware, phone:(302) 831-2294 or e-mail:diodata @udel.edu or tracyd@udel.edu]

"Adapting GIS Tools to the Interpretation and Decision Making Process: Studying Hazardous Waste and Spatial Relations in Michigan" by A. Friedman-Torres. ABSTRACT: If the United States is to remain a world power it must encourage the upbringing of children who will grow into healthy adults! Adults who are educated and able to compete for decent paying and environmentally safe jobs which pay enough to support themselves and those on social security. Although some studies depict the relationship between asthma and air quality, lead poisoning and attention deficit disorder, congenital malformation and environmental pollutants, few studies specifically relate presence of toxic industrial pollution (TRI), the number of hazardous chemicals at ACT 307 sites (ACT) and hazardous waste sites (HWS) to children's health. Spatially associating risk factors and disease in a GIS system is important because it provides a visual mechanism to analyze the geography of disease and hence allows for predictions as to where disease is expected to emerge in the future. The proposed assembly paper will use data from the following sources: the United States Environmental Protection Agency's Toxic Release Inventory, the Michigan Department of Natural Resources' ACT 307 sites data base, the Michigan Department of Public Health's birth records and asthma discharge data, and the 1990 U.S. Census. This data will be used to clarify our understanding of environmental injustice by comparing defined geographical areas in the state of Michigan with respect to the incidence of low birth weight, childhood asthma, hazardous sites and socio-economic characteristics. An objective of this project is to efficiently use spatial tools by going beyond "pretty pictures" and associating GIS with spatial statistics. [Contact: Alissa Friedman-Torres, Population Studies Center, U. Of Michigan, phone: (313) 998-7270 or e-mail: alissaf@umich.edu]

"Performing Fractal Analysis of Congressional District Boundaries as an Alternative Measure of Compactness" by J. Knight. ABSTRACT: Having a compact congressional district is a conventional redistricting goal suggest by many researchers and the U.S. Supreme

Court. Several congressional districts with non-compact characteristics have recently have been found to be illegal by the Supreme Court and others are now under investigation. Spatial compactness measures are one of the mechanisms for assessing the manipulation of electoral boundaries for the purpose of gerrymandering. Unfortunately, no definitive compactness measure has been found to adequately assess all of the districts spatial components within a single measure. This paper will evaluate the suitability of applying fractal analysis as a statistical measurement and methodology to investigate the shape characteristics of congressional districts as an alternative to conventional compactness measures. The application of fractal analysis and measurement provides additional tools for the redistricting authority to gain insight into the spatial nature of compactness and gerrymandering of voting districts. This paper will highlight the potential advantages of applying statistical analysis through a GIS environment to quantify geographic shape. Analysis of the U.S. 103rd Congressional districts with boxcount fractal analysis and conventional compactness measures using TIGER files within a GIS environment provides the basis of study. [Contact: Jeffrey Knight, George Mason University, at phone: (703 0 834-5000 ex 2592 or e-mail jlknight@tasc.com]

"Patterns and Trends in Residential Segregation in Knoxville, Tennessee" by L. L. Laaken. ABSTRACT: I created tract level and block level maps of African-American population in Knoxville, Tennessee using U.S. Census data and MapInfo. Applying Douglas Massey and Nancy Denton's American Apartheid measures of segregation, I assessed segregation at the tract and the block level. These five measures of segregation include unevenness (dissimilarity), isolation, clusteredness, concentration, and centralization. The indices of unevenness and isolation have been calculated for both resolutions while the other three measures have been assessed conceptually rather than quantitatively. The analysis focuses on data from 1970 and 1990. One part of the study assesses the trend in segregation from 1970 to 1990 at both the tract and the block level, obtaining natural breaks using combined data histograms. The second part of the study discusses the unit of analysis for each time period, obtaining natural breaks using each year's data histogram. The difference in resolution is striking. A tract level comparison facilitates generalization and a comparison among cities when block data would pose logistical challenges. Tract data, however, masks the severity of population boundaries that is visible at the block level. In a study that focuses on just one city, block level data provide superior analysis. [Contact: Lena Laaken, University of Minnesota, phone: (612) 625-6080 or e-mail aak0004@gold.tc.umn.edu]

VI. Related Census, DHHS and Other Developments

Excerpts from the March 13-14, 1997 meeting of the NATIONAL COMMITTEE ON VITAL AND HEALTH STATISTICS, Public Health Service, Washington, D.C.

ACTION ITEMS

•The Committee approved the revised charge for the Subcommittee on Health Data Needs, Standards and Security.

•Recommendations for the Secretary related to Kennedy-Kassebaum will be circulated well in advance of the Committee's June meeting.

•The Subcommittee on Populations at Risk was renamed the Subcommittee on Population-Specific Issues, and its charge was approved.

•The three Subcommittees will co-sponsor hearings on population-specific aspects of K2, to be held in June on the west coast.

•The Committee agreed to co-sponsor a series of meetings with the National Center for Health Statistics, to consider the best advisory mechanisms for the Center.

•The Department will supply Committee members with a list of the code systems currently used in the transactions.

•Plans were made for the April 15-16 hearing on coding and classification systems, and for the June 24-25 meeting of the full Committee.

ISSUES SURROUNDING UNIQUE IDENTIFIERS

Dr. Braithwaite surveyed all the identifiers for which K2 has mandated recommendations from the Secretary, with particular attention to the unique patient identifier. He reviewed in detail the analysis of ASTM,

the one ANSI-SDO to have a recommendation on the unique patient identifier, and discussed some of the options for the identifier. The group discussed the relative merits of a security-enhanced Social Security Number (SSN) versus other alternatives, and affirmed earlier NCVHS recommendations that an encrypted SSN be used as the unique patient identifier. The K2 Work Group was asked to approach its work with mindfulness of past NCVHS recommendations. The critical importance of privacy protections and security was also reaffirmed, and the Committee agreed to focus on the protections to the number.

Dr. Braithwaite briefly reviewed the progress on the provider and payer Ids. Committee members stressed the need to continue work on the location code, and issues regarding sanctions. A good deal of concern was expressed about the volatility of provider groupings and the difficulties this imposes on a group numbering system.

PRIVACY AND CONFIDENTIALITY

Mr. Gellman, Chair of the Subcommittee on Privacy and Confidentiality, reviewed the contents and findings of six days of hearings on this topic. He noted that every user group gave compelling arguments for being exempted from restrictions to access to patient records. He also described the wide disparity between users' views and those of privacy advocates. Some of the most difficult issues are patient consent, making legislative distinctions between similar uses for different purposes, patient registries, and preemption of state law. An area with some potential for progress is the possibility of using non-identifiable information for many purposes. Other areas of concern are employer access to patient records, law enforcement's claim to unrestricted use of records, and redisclosure.

Committee members stressed the basic distinction between clinical and secondary uses of patient records, and favored using the Committee's energy and influence to clarify the former area and to build firewalls between it and secondary uses. Members were encouraged to be aware of the real possibility of protecting information through new technology and better policy. Interest was expressed in the uses of the smart card in Europe and in how privacy issues have been resolved in that context.

Mr. Gellman recommended that the Committee use its position to promote serious discussion and compromise among the stakeholders, and to elevate the importance of this issue within the administration and on Capitol Hill. Some members urged that the Committee also make as many specific recommendations as possible to strengthen security and confidentiality, to create the conditions in which it can comfortably promote administrative simplification.

UPDATE FROM THE DEPARTMENT AND HHS DATA COUNCIL

HHS Implementation of PL 104-191 (HIPAA) - David Garrison, ASPE: Mr. Garrison is Principal Deputy Assistant Secretary for Planning and Evaluation, and co-chairs the Data Council with Dr. Bruce Vladeck. The Council is the Departmental focal point for K2 administrative simplification requirements. It is moving forward quickly on health data standards and privacy issues, and has benefitted from a close working relationship with NCVHS and Dr. Detmer.

Mr. Garrison put this activity in the context of the Council's long-term agenda and work plan, the six major themes of which he reviewed. The work on a data collection strategy covers survey integration and strategies for state-level data as well as race and ethnicity data. Work on the Department's research planning initiative is aimed at ensuring a capability to monitor the impacts of the market and structural changes underway. The research initiative is in its second phase, focusing on a national research conference to be held in May. On strategies for state-level data, the Department is looking at such things as modular designs for national surveys to facilitate state-level estimates, augmented national surveys, and a state telephone survey. For race and ethnicity data, the Data Council's working group is developing recommendations for a Department-wide approach.

The Council is developing and implementing additional ways to interact with NCVHS, e.g., bringing policy issues to the Committee at an early stage and coordinating staff work where possible. The Council has begun examining applications in the national information infrastructure such as telemedicine and improved electronic dissemination. It is acting on a Vice Presidential directive to lead interagency efforts on health data standards, health information privacy, telemedicine, and enhanced health information for

consumers. For the latter, it is developing Health Finder, a new collaborative Website that provides access to the consumer health information resources of several federal agencies. Finally, the Council is helping develop Departmental positions on data issues raised externally, including legislative proposals and international health data matters. A working group is coordinating the Department's international activities. Dr. Detmer expressed appreciation for being made to feel welcome at Data Council meetings. He then turned the Committee's attention to its forthcoming recommendations on unique identifiers.

ISSUES SURROUNDING UNIQUE IDENTIFIERS: Dr. Braithwaite said he would approach the subject of identifiers in the context of HIPAA (K2), which charges the Secretary with recommending standard unique health identifiers for each individual, employer, health plan and provider in the system, taking into account the uses of the numbers and with provisions to punish misuse. The Secretary is also directed, where possible, to adopt standards developed by ANSI standards development organizations, which Dr. Braithwaite pointed out is not the same thing as an ANSI standard.

The ANSI-HIS inventory identifies a standard for individual identifiers, called ASTM E-1714. It offers not an identifier per se but a guide, or set of criteria, for the properties of a universal health care identifier (UHID). The ANSI inventory also discusses many other options, which Dr. Braithwaite enumerated. He then reviewed the criteria articulated by ASTM, which call for the identifier to be (in his words, and among other qualities) accessible, atomic, concise, content free, cost-effective, dis-identifiable, incremental, linkable, mappable, networked, permanent, public, repository-based, secure, standard, unique, universal, and verifiable. Until such an identifier is ready, each institution is to assign temporary identifiers and then is responsible for assigning the UHID.

ASTM talks about options, including the Social Security Number (SSN), as well as other countries' ideas, and they outline their ideal UHID. Two implementations have been underway for two years in VA hospitals in Florida, and they are pleased with it.

A 1993 WEDI report on unique identifiers recommended the use of the SSN with the addition of a check digit and some encryption elements. It also discussed the problems with the SSN. Their recommendation was echoed in the 1996 CPRI recommendation that a unique identifier be implemented as soon as possible to make possible the compilation of lifetime health records. CPRI stressed that confidentiality and security issues must be dealt with first to prevent damaging linkage, and it called for a trusted authority and public education about health information and confidentiality.

A fourth approach is not to identify each piece of information with a unique identifier, but to have a "virtual unique identifier" for each person in the country and a community-level index to that information, held by various provider organizations. This is supported by the Foundation for Health Care Quality, among others. The Health Insurance Association of America also favors the use of a different number in each data base, to prevent massive linkages that "make a mess of people's lives."

Dr. Braithwaite said these examples illustrate the variation and lack of consensus about the unique identifier. He called attention to a new National Research Council report, "For the Record: Protecting Electronic Health Information," which recommends a set of criteria for evaluating identifiers in respect to privacy concerns. Regarding other identifiers, Dr. Braithwaite said there are no existing standards, but the national provider identifier and payer identifier being developed by HCFA are regarded by the industry as the best systems in existence. They were drafted originally to support the needs of the Medicare system, and are now being adapted for issuance as K2 standards.

Dr. Detmer reported that the Data Council is also looking at the experience in Europe with smart cards, which are being introduced in Germany, France and Italy. Dr. McDonald commented that for all the criticism of the Social Security number system, it has a far lower error rate than the typical hospital numbering system. He asserted that there are coherent arguments both for and against having a common identifier, but once there is an identifier, any number would be subject to the same risks and problems as the SSN. Thus if there is to be a number, it may as well be the SSN, with modifications.

Dr. Lumpkin reminded the group that the reason for an identifier is to be able to compile a person's medical history; the issue, in this context, is

how to limit access through proper security. Mr. Gellman, who chairs the Subcommittee on Privacy and Confidentiality, said every alternative identifier has drawbacks from a privacy perspective, just as not having a number has drawbacks. The SSN is a particularly emotional issue; but if a new number were created, it probably would be prone to the same problems as the SSN, especially given the wide range of people Congress has recognized as legitimate users of a health identifier.

Dr. Cohn stressed the importance of having appropriate security and confidentiality safeguards in place before deciding on any identifier. Dr. Detmer noted that NCVHS has already gone on record in support of a unique identifier, favoring the SSN but acknowledging its imperfections. Ms. Greenberg added that the Committee also recommended encrypting the identifier. Dr. Cohn asked that members be supplied with the supporting documentation for past NCVHS recommendations in this area.

Mr. Gellman pointed out that the standard(s) on which the decision is made must be clarified and prioritized: e.g., privacy, cost, institutional changes required. Ms. Ward called attention to the possibility that better linkages could heighten the danger of discrimination against some populations, as long as this country tolerates unequal health coverage. Asked for his view about the master patient index idea, Dr. Braithwaite said it seemed no safer while adding a layer of overhead. Echoing Dr. Cohn, Dr. McDonald urged the Committee to focus on the protections to the number, thereby making the identifier more acceptable to the public. He questioned the validity of the ASTM process and conclusions regarding the specific format of an identifier, and advised caution in considering the recommendations.

Reinforcing the confidentiality theme, Ms. Frawley remarked on the NRC Committee's discovery in site visits of an unexpected degree of information flow, "to people we never even contemplated" and without the awareness of consumers. She agreed that the chief issue in regard to identifiers is the potential for abuse. To a query about what might motivate organizations to share information about best practices for protecting privacy, Ms. Ward said the NRC group found a widespread desire to "do it right," but limited means to do so. She recommended national incentives, perhaps including "a small hammer," so those responsible for information can persuade those in charge of budgets to invest in better security. Ms. Frawley added that many of the integrated delivery networks are giving non-employees too much access to their clinical information systems and are "naive" in their approaches. Dr. Mor cautioned that with the momentum toward integrated delivery systems in many communities, security measures will fall by the wayside in the absence of standards and policies.

Asked to comment, Mr. Fanning expressed agreement with the view that protection of the information, rather than the nature of the ID number, is the real issue. Concluding this portion of the discussion, Dr. Detmer asked the K2 Work Group to consider its mandate in the light of past NCVHS recommendations. He also noted that the foregoing discussion strengthens the charge to protect privacy and confidentiality. On the provider ID, Dr. Braithwaite reported that some technicalities are being worked out, partly stemming from the need to adapt the original Medicare-oriented system to one that applies to all providers. A major issue is how to enumerate all those who provide documented services but who are not identified as a billing providers -- e.g., taxi drivers. Another complication is that those who provide, charge for and are paid for a given service are often different.

Asked about timing, Dr. Braithwaite explained that the NPI timetable has been separated from the standard HCFA rule-making process and "fed into" the K2 process. There will probably be two or three rules related to provider identifiers. The group discussed the complexities of the distinctions among service providers, billers and those paid for the service, and the complexities of the different types of people covered by the provider ID. They also reviewed the issues surrounding the locator number, with Dr. McDonald expressing particular concern about "the operational and nuisance effects" of the current HCFA plan. Committee members stressed that the task and the billing must be totally separate, and that a provider number must not depend on payment factors. It was noted that the chief difficulties are associated with groups of providers, and there was some talk of a separate mechanism for enumerating groups. Dr. Braithwaite said the current system has a mechanism for linking individual providers with their groups, but

people expressed concern about the fact that these groupings are quite volatile.

Noting the number of people who would be eligible for a provider ID, Dr. Mor suggested the possibility of a single health ID number to be used for both providers and patients. He described his frustration with the changing national drug codes, and predicted that frequent mergers will create the same kind of chaos in a provider numbering system. He cited the rate of change in the nursing home and home health field and the need for continuity in order to track and keep consumers apprised of quality of care, even as ownership and names change. He pointed out that this is a licensing issue.

Dr. Cohn called attention to the unresolved issues related to sanctions in a national provider file. Dr. Braithwaite said the Department is considering that issue and welcomes the Committee's recommendations. Dr. Lumpkin pointed out that the identifier does not have to encapsulate all information, and there are other ways to store and convey information.

PRIVACY AND CONFIDENTIALITY: Dr. Detmer introduced new member Richard Harding, M.D. He then explained that the purpose of this discussion is to start focusing on the Committee's forthcoming recommendations, by reviewing what has been learned in the six days of hearings. He asked Subcommittee chair Robert Gellman to review the main issues.

Mr. Gellman said that while everyone thinks confidentiality is important, every user community also offers compelling reasons for being given an exemption. Opinions on the subject range widely, from privacy advocates who question the very structure of the contemporary health care system and the merits of computer-oriented administrative simplification, to those who have strong arguments for access to medical records. He suggested that the Committee think about the scope of its recommendations in this light, and he invited other Subcommittee members to comment on highlights of the hearings. Ms. Ward said the apparent desire of privacy advocates to "take us back in time," actually reducing information flow from its present state, makes it difficult to imagine how to move forward.

Dr. Harding praised Mr. Gellman's skill and evenhandedness in chairing the hearings. He noted that most groups said many of their functions could be done with non-identifiable information. The issue of how to enhance the consent process came up frequently. Even though "the horse is out of the barn," or because it is, it will be important for the Committee to define misuse. He noted the testimony of occupational nurses about the pressure they are under from employers to reveal medical information. Revco pharmacy chain is often asked for access to its encrypted prescription database, requests that they deny.

Dr. Detmer commented that social workers are often called upon to "adjudicate across the boundaries" of individual and social welfare. Mr. Scanlon observed that public health representatives made a strong case for access to medical records, as did researchers. Ms. Greenberg noted the general consensus on the need for federal legislation but lack of agreement about whether it should preempt state law. Dr. Schwartz noted the general support for IRBs as the best available means of controlling uses of information for research. Dr. Detmer thanked the staff for their hard work in organizing the hearings. Dr. Amaro praised Mr. Gellman's discussion paper for helping orient non-Subcommittee members.

Mr. Gellman then focused the discussion on specific issues. The first was the use of non-identifiable information, which he said will become increasingly possible with better technology and administrative systems. This will not solve the problem, however, because there are still instances in which identifiable records are needed, such as in fraud investigations. He noted that no proposed law has adequately addressed the issue of encryption and the use of non-identifiable records.

Another issue is consent, on which views range widely. A particular challenge is that claims processing systems have grown up with unpredictable and even untrackable paths and unknown players, making it impossible to have patients consent to every access to their records. Furthermore, the system is structured in a way that militates against having individual preferences affect the uses of information, because consent forms generally stay in the physician's office. The question, then, is what can reasonably be expected of the consent process. The alternative is statutory rules that limit uses, plus a way for people to opt out of normal information processing for their records through special arrangements with their physicians.

A serious issue that no legislation has adequately addressed is employer access to health data in the workplace. Mr. Gellman said this setting may require a special set of rules, especially since the interplay between health data and the workplace will get more complex and more routine in the future. Claims processing functions may also require unique rules.

Mr. Gellman said that in general, the hearings revealed the difficulties with categorizing people and functions for legislative purposes, because of the similarities and overlaps among them. This is a problem with which he and Mr. Fanning have struggled for a long time, and to which no one has found a solution. Dr. Mor cited his experience as a researcher as an example: He has to get IRB approval to gain access to the very same health records to which a given health care institution's administrators have unrestricted access as the "owners" of that information.

Mr. Gellman noted that law enforcement is different from other functions in that once they have access to information for one purpose, such as investigating fraud, they want to be able to use it for other purposes, such as investigating crimes by individual patients. Asked about precedents in the banking arena, he described the history of the Right to Financial Privacy Act and its conversion over time into "more of an anti-privacy bill" in which individuals have little right to privacy. Dr. Harding drew a distinction between health research in the public interest and fiscal research intended to improve a private bottom line. He noted that the latter use of records sometimes results in the denial of care, and it should be restricted.

Dr. Lumpkin observed that the public health uses of information are sanctioned by state laws, mediated by legislative process and public oversight, that declare a public interest in certain information. Federal legislation preempting state laws in this area would cause major problems. Mr. Gellman said there was general agreement among witnesses that public health is a special case. The difficulty comes in defining exactly what is a public health function. As exceptions to the general support for public health access to information, Dr. Mor cited the public concern around HIV contact tracing and Dr. Detmer noted that genetic information is regarded by some as a special case. On the latter, one expert witness recommended not giving special protections to genetic information, because it is rapidly becoming indistinguishable from other types of medical information. On the former, Dr. Lumpkin noted that states have responded in different ways to the concerns about revealing HIV information; but all of the outcomes have been through an open public process by which people could weigh the privacy infringement against the public good.

In response to a question from Ms. Coltin, Mr. Gellman said no witnesses cited the legal liabilities of health plans and hospitals as an argument in support of the right to access information in order to monitor quality. Dr. Detmer commented that this observation as well as the concern that the needs of populations with special needs have not been adequately addressed may suggest the need for more hearings. Dr. McDonald asked if concerns were expressed about information sharing for the purpose of providing patient care, and Mr. Gellman said some privacy advocates do want to restrict the use of networked computer systems to transmit records, because of concerns about the heightened possibility of inappropriate access. Ms. Ward added that some consumer advocates want to limit the information to which providers have access on their own patients. Dr. McDonald observed that access to complete records is the precise goal of computerization, and to deny clinicians such access is to limit their ability to care for patients.

Dr. Harding mentioned the related issue of a possible black market in medicine where people with sensitive conditions (e.g., STDs) could get treatment from "a non on-line provider." Mr. Gellman said the right to anonymous care was an unresolved topic of debate during health care reform. Asked about disclosure monitoring, Mr. Gellman noted the NRC report's discussion of this issue and of notions of an audit trail. The technology for this exists, although it is expensive to retrofit old systems for this purpose. The main problem is the volume of accesses in a single day. Having an audit trail is useless as a deterrent unless there is a mechanism to monitor the uses and follow the audit trail. Ms. Frawley said redisclosure is the biggest problem in regard to confidentiality and privacy. Even though health care entities generally do a good job of controlling access, once the information leaves them the controls are gone and finding out where breaches occur is very difficult, especially since many of those who receive the information are opposed to any

restrictions on its use.

Dr. Lumpkin cautioned the Committee against viewing this issue solely in terms of past deficiencies and errors. He described the tight security built into Illinois' integrated maternal and child health system, and asserted that the technology exists to design systems that protect certain information, like this one. He urged the Committee to form its recommendations with a knowledge of the safeguards that are both desirable and possible. Furthermore, he cited the evidence (e.g., the rush for medic alert badges) that people want to have their medical information available in the event of emergencies. What is needed is a system that accommodates both those who want their information available and those who do not. Asked to elaborate on the Illinois system, he said the basic principle is sharing only the minimum amount of information needed to accomplish a given purpose. Mr. Gellman said this principle has broad support.

Dr. McDonald observed that it would be unethical to capitulate to those wanting to completely restrict information flow and create a "bad practice situation" in which providers would give care without knowing all they could about their patients. He likened this to doing surgery with one's eyes closed. Dr. Starfield stressed the critical distinction between clinical care and other uses of health records. She noted the French acceptance of the smart card, which protects privacy by requiring pin numbers by both the provider and the patient in order to access information. Mr. Gellman noted that smart cards still leave unresolved the question of who controls and has access to the centralized record system. He agreed that the Committee and Department should learn more about the European systems.

The group discussed the role of a unique identifier in linking records and in limiting access to identified information. Dr. Lumpkin reiterated his point that the basic issue is how to protect the records, wherever they are stored and whether or not there is a unique identifier. Dr. McDonald urged the Committee to focus on clarifying the legitimate uses of records for clinical care and on finding ways to "put a hard lock" on them in respect to secondary uses. Dr. Detmer said that poll data show public support for this approach, as most people want their health professionals to get the data needed to care for them.

Mr. Gellman noted two other issues that arose in the hearings: disease registries and preemption of state laws. He said no one was able to define registries in a way that suggested how to regulate the disclosure of information in this area. Preemption is the most difficult issue politically, because of widely ranging views about it. The issue has two components: whether it is possible for separate rules and procedures to apply to different pieces of the same record, and how to balance federal and state authority. Generally, the industry favors uniform rules, while privacy advocates want the federal law to set a floor that states can surpass with stronger laws. One problem with that is how to determine the relative strength of laws. He observed that K2 offers no policy guidance in this area; on the one hand, it promotes uniformity and administrative simplification, while on the other, it permits the preservation of stronger state privacy laws.

Dr. Starfield again stressed the basic distinction between clinical and secondary uses of health records and the need to deal differently with the two usage categories. To illustrate the ease of slippage from the first to the second, Betsy Humphreys of the National Library of Medicine described the way information on prescriptions bought with a credit card becomes commercial property. At present, there is nothing illegal about using that information.

Dr. Detmer observed that the Committee is dealing with some fundamental social issues in which people have widely divergent views. The question is whether, despite those differences, it can help get "a good basic privacy law on the books." This will require getting stakeholders together and helping them find common ground. He asked for discussion on how to move toward the Committee's recommendations.

Mr. Gellman said the Committee cannot possibly propose legislation, given the complexity of the subject. Moreover, it is meaningless to affirm the broad principles, because everyone professes to support confidentiality protections while being entrenched in uncooperative positions below the surface. He suggested these ways for the Committee to contribute to the process:

- encourage key stakeholders to sit down together in a spirit of compromise, recognizing that everyone will benefit from a bill
- get the Administration to assign this a high priority

- identify the areas, such as non-identifiable uses of information, where more research is needed, and encourage such research
- encourage Capitol Hill to give this issue a high priority and to pass a bill well in advance of the 1999 deadline

In other words, he suggested that the Committee provide moral leadership, something he said no other entity is positioned to do. Ms. Frawley agreed that it is not feasible to come up with a legislative proposal. Dr. Cohn agreed that the Committee should articulate principles, but added that he hopes that in areas of consensus it will promote security so it can then advocate for electronic transaction standards. Dr. Harding suggested focusing on building firewalls between clinical and non-clinical uses, with patient consent required for the latter. Ms. Ward suggested offering policy direction about misuses, of which the public is mostly unaware. Dr. McDonald urged going beyond being a cheerleader to making clear recommendations related to clinical care, with the object of leaving clinicians free to provide good care. He agreed with Dr. Mor on the difficulty of articulating a firewall between clinical and non-clinical uses in respect to quality control, and said this could be deemed a clinical use. Ms. Frawley suggested identifying the functions that are possible with non-identifiable information, and in general laying out principles for collecting, storing, handling and maintaining information without getting into the question of the media used.

Dr. Detmer noted that the Committee also needs to talk about sanctions, which Mr. Gellman said most people favor. Members of the audience were then invited to comment. Louis Kuhn of AHCPR suggested ensuring the ability to trace all electronic transactions, and pointed out that the disease prevention benefits of genetic information cannot be realized without the ability to link records. Michael Fitzmaurice of AHCPR noted the need for a principle that establishes a way for consumers to have redress for harm to them, by attaching some value to the damage done to them.

Steve Greenfield of the HHS Inspector General's office noted the possible relevance of the standards for electronic records promulgated by the IRM Division of the Department of Justice. However, Mr. Gellman said this does not relate specifically to medical records. John Nap of the International Billing Association pointed out that the proposal to allow patients to access and correct their records at sites other than their providers violates the provider/patient contract and raises liability and clinical care problems.

REVIEW AND APPROVAL OF CHARGES, WORK PLANS AND RECOMMENDATIONS

Subcommittee on Privacy and Confidentiality: Mr. Gellman said the Subcommittee would be developing recommendations for everyone to review in the next month. Dr. Detmer added that the Executive Subcommittee hopes to have all Subcommittee recommendations circulated well in advance of the June meeting, and to be notified of members' views on the recommendations.

Subcommittee on Population-Specific Issues: Dr. Detmer noted that this Subcommittee (previously the Subcommittee on Populations at Risk) has chosen a new name. Dr. LaVeist, the previous chair, has had to withdraw from NCVHS and Dr. Iezzoni has agreed to chair the Subcommittee.

Dr. Detmer reported that Dr. Sondik met with the Subcommittee yesterday to discuss the desire of the National Center for Health Statistics for an advisory committee to look at current projects and where it is headed. The group agreed to jointly hold a series of public meetings on this subject, following which the Subcommittee and the full Committee would decide whether the Center's needs can be addressed within the current NCVHS structure and/or whether outside expertise is needed. Dr. Sondik commented that NCVHS is the most appropriate group to assist the Center.

Dr. Starfield stressed the Committee's commitment to dealing with whole population concerns, and to not letting them slip in the press of responding to K2. Dr. Iezzoni then introduced the Subcommittee's draft charge by explaining the general thinking about its mission. Several health issues -- e.g., mental health and substance abuse, chronic illness and impairments -- affect people's access to quality health care. Gender, race and ethnicity interact with all these issues, and all of these factors have special impact on the areas addressed by the other NCVHS subcommittees. This Subcommittee will focus on this array of issues, and also make sure that they are addressed by the other

Subcommittees. The charge is structured around five tasks:

•review the core data elements in terms of population-specific issues; bring forward recommendations for core data elements on mental health/substance abuse and long-term care/disability

•help NCHS think through methodological issues related to its surveys, and review issues in other data systems

•review the Department's new initiatives -- notably the performance partnership grants-- in terms of their effect on specific populations

•identify and recommend relevant research and development questions

•work jointly with the other two NCVHS Subcommittees on overlapping issues stemming from K2; sponsor joint hearings on these issues.

The Subcommittee discussed the charge and made minor modifications and edits. Dr. Lumpkin suggested including attention to the impact of K2 on providers serving special populations, and Mr. VanAmburg suggested something on looking at geographic allocation of data under task #2. The Committee then approved a motion accepting this charge and task statement. Dr. Detmer suggested that Dr. Iezzoni, Mr. Gellman and Dr. Lumpkin get together and review how their subcommittee/work group issues intersect. He also proposed a hearing on the west coast to deal with them. The group endorsed these suggestions and discussed the timing of such a hearing, agreeing that it should occur before the Committee prepares its recommendations for the June meeting. They also agreed to try, to the extent possible, to include population-specific issues at the April 15-16 hearing on coding and classification. The Committee then discussed the agenda of the June meeting, mentioning the following topics:

•state presentations on their experience with data standards

•review of OMB proposal on race/ethnicity classifications and Committee responses to it (based on recommendation of the Subcommittee on Population-Specific Issues)

•draft recommendations from the subcommittees on K2 provisions, allowing plenty of time to discuss the recommendations (which will be circulated in advance)

[Editor's Note: For more information on the activities of the DHHS Data Council see web site http://aspe.os.dhhs.gov/ncvhs]

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Net Site(s) of Interest for this Edition: **TJ Mathews**, NCHS, writes if you plan to travel to the Washington, D.C. area this summer, you may wish to prepare for ozone and air quality conditions. The Maryland Department of the Environment and the Department of Meteorology, University of Maryland College Park have posted some interesting air quality web sites for perusal. Try http://www.mde.state.md.us/arma/ Airqulty/daily.html and http://www.meto.umd. edu/~ryan/ozone_fcst.html and http://metosrv2. umd.edu/~owen/EARTHCAST/.

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Final Thought(s): Exciting Times for Public Health GIS

There are many GIS developments taking place in public health. These are occurring laterally across all sectors of the economy as well as vertically, from federal, state and local government to neighborhood GIS interest groups. Evidence of this steady growth is apparent in the agendas and proceedings of professional organizations and conferences, in trade and academic journals and in the proliferation of informative sites and digital databases on the

Internet. We are gaining momentum in communication and connectivity. The vision of Vice-President Gore's National Information Infrastructure, to enhance basic telecommunications and digital computer technology, and the dedicated work of the Federal Geographic Data Committee have provided significant impetus for this growth. I will keep you informed of important national events such as the initiative by the Agency for Toxic Substances and Disease Registry (ATSDR) to hold a 1998 "Geographic Information Systems in Public Health" conference (West Coast site and Fall date to be announced shortly at web site http://www.atsdr.gov). Through GIS, and the science of GIS, I believe we have only begun a long-term harvest in improving disease surveillance, control and prevention. These are exciting times for GIS and public health.

Charles M. Croner, Ph.D., Editor, ***PUBLIC HEALTH GIS NEWS AND INFORMATION***, Office of Research and Methodology, National Center for Health Statistics <cmc2@cdc.gov>

Summer '97 ... stay in GIS touch