Improving Oral Health: Using GIS Technology to Target Scarce Resources

Geographic Information Systems technology, also known as GIS, has emerged as a valuable analytic tool to assist public health officials in addressing many of the health care issues faced by Americans today. GIS is used to view and analyze data geographically. In any type of a public health situation, be it a disaster response or a program to reduce disparities in oral health care, data is critical for directing resources to where they are most needed. Analyzing multiple types of data through maps allows policymakers, public health officials, and others engaged in improving health to see patterns and relationships not immediately seen on spreadsheets, thereby informing plans, programs, and strategies to improve population health.

The Association of State and Territorial Dental Directors (ASTDD), in collaboration with HRSA MCHB and HSR, hosted this web conference to inform the oral health, MCH, and primary care communities about GIS mapping and its use for improving the oral health of children and families in the United States. The program opened with a brief introduction from the Dental Director from the Mississippi State Department of Health who discussed the important role of GIS in improving public health. A senior representative from ESRI, an international developer of GIS software and technology, followed with an overview of GIS and a description of its capabilities and applications. Next, examples of how GIS can be used to examine and address oral health issues at the State and national levels was provided by GIS experts from the University of Mississippi’s School of Dentistry and the Centers for Disease Control and Prevention. After these presentations, there was an opportunity to address questions to the presenters.

Support for this Web conference was provided by the Maternal and Child Health Bureau and Health Systems, Inc.

Wednesday, February 8, 2006
2:00–3:00 p.m., Eastern Time
(1:00–2:00 p.m. Central, 12:00–1:00 p.m. Mountain, 11:00–12:00 p.m. Pacific)

2:00–2:10 p.m. Logistics Overview
Beth Zimmerman, M.H.S.
Web Conference Coordinator
Health Systems Research, Inc.

Welcome and Program Overview
Nicholas Mosca, D.D.S.
Dental Director
Mississippi State Department of Health

Captain James Sutherland, D.D.S., M.P.H.
Web Conference Moderator and Region VIII Oral Health Consultant
Health Resources and Services Administration

2:10–2:20 p.m. GIS: Its Capabilities and Applications
William Davenhall, M.S.
Director
Health and Human Services Solutions Group
ESRI

2:20–2:30 p.m. GIS Utilization at CDC with the Behavioral Risk Factor Surveillance System
James Holt, Ph.D., M.P.A.
Geographer and Acting Chief
Emerging Investigations and Analytic Methods Branch
Division of Adult and Community Medicine
Centers for Disease Control and Prevention

2:30–2:40 p.m. The Dental Workforce in Mississippi: Distribution and Demographics

Denise Krause, M.A., M.S.
Director of Information Technology and Assistant Professor
School of Dentistry
University of Mississippi Medical Center

2:40–3:00 p.m. Questions and Answers

Beth Zimmerman, M.H.S.
Web Conference Coordinator
Health Systems Research, Inc.

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General Program Information
PowerPoint Presentation (.06 mb)
Text Slide Description (Rich Text Format)

Nicholas Mosca, D.D.S.
“GIS Program Overview”
PowerPoint Presentation (.32 mb)
Text Slide Description (Rich Text Format)

William Davenhall, M.S.
“GIS in the Health Organization ESRI”
PowerPoint Presentation (1.22 mb)
Text Slide Description (Rich Text Format)

James Holt, Ph.D., M.P.A.
“GIS Utilization at CDC with the Behavioral Risk Factor Surveillance System (BRFSS)”
PowerPoint Presentation (1.36 mb)
Text Slide Description (Rich Text Format)

Denise Krause, M.A., M.S.
“The Dental Workforce in Mississippi: Distribution and
U.S. Government GIS Resources:

- U.S. Census Bureau – www.census.gov
  - Census Bureau Geography – www.census.gov/geo/www/index.html
  - Geospatial One-Stop – http://gos2.geodata.gov/wps/portal/gos
- Federal Geographic Data Committee – www.fgdc.gov
  - National Geospatial Data Clearinghouse (Federal Geographic Data Clearinghouse) – www.fgdc.gov/clearinghouse/clearinghouse.html
- Health Resources and Services Administration – www.hrsa.gov
  - HRSA Geospatial Data Warehouse – datawarehouse.hrsa.gov
- Centers for Disease Control and Prevention – www.cdc.gov
  - National Center for Injury Control and Prevention – www.cdc.gov/ncipc/default.htm

Academic GIS Resources

- Loma Linda University, Health GeoInformatics Lab – www.llu.edu/llu/sph/geoinformatics/index.html
- Baystate Medical Center, Health Geographics Program – www.baystatehealth.com/eConsumer/bhs_chan_index.jsp?chId=589ed3c44e33d00VgnVCM1000000f0c19acRCRD
- University of Mississippi Medical Center, Geospatial Information Services Program – son.ume.edu/research/geospatial.html
- Duke University Center for Geospatial Medicine – www.nicholas.duke.edu/cgm

Private Sector GIS Resources

- Association of State and Territorial Dental Directors – www.astdd.org
- Center for Spatially Integrated Social Sciences – www.csiss.org
- ESRI (Environmental Systems Research Institute, Inc.) - www.esri.com
- ArcNews is the complete newsmagazine printed quarterly for ESRI software users and others interested in mapping and GIS technology. www.esri.com/news/arcnews/fall05articles/free-publications.html
- Healthy GIS is a newsletter printed quarterly for the health and human services GIS user. The publication features articles describing the function of GIS in public health, workforce development, and health education. www.esri.com/news/arcnews/fall05articles/free-publications.html
Publications


James Sutherland, D.D.S., M.P.H. (Moderator)

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Captain James N. Sutherland, D.D.S., M.P.H., is a retired Captain in the U.S. Public Health. A graduate of the University of North Carolina, Chapel Hill, he began his career in the U.S. Public Health Service in July 1988 as a Commissioned Officer stationed at the Navajo Area Indian Health Service Dental Program in Shiprock, NM, and later at the Portland Area Indian Health Center Dental Program in Toppenish, WA. In August 1995, he was detailed to Louisiana as the State Oral Health Program Director while completing a part-time dental public health residency through Baylor College of Dentistry, Texas. He completed his dental public health board certification in May 2000. In September 1998, Dr. Sutherland transferred to the HRSA Region VIII, Denver Regional Division as Area/Regional Dental Consultant. During 2002, Dr. Sutherland also served as the HRSA agency Oral Health Coordinator. Currently, he conducts Performance Reviews of HRSA grantees and serves as the HRSA Office of Performance Review Lead Dental Consultant. Dr. Sutherland is a contributing author in several national publications, completed an innovative HRSA GIS mapping project and has completed a 3-year term as American Association of Public Health Dentistry Executive Council. He also has been an active member on the Association for State and Territorial Dental Directors, Best Practices Selection Committee since its development.

William Davenhall, M.S.
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Bill Davenhall has served as the Health and Human Services Solutions Manager at ESRI since 1997. His responsibilities include managing ESRI's marketing and educational activities to health and human service organizations worldwide. His experience in health and human services spans nearly three decades and includes executive leadership of hospitals, health and human service agencies, health care consulting and research organizations, and strategic market planning experience. Mr. Davenhall is a frequent author and speaker on the subject of market information and analysis, geo-demographics, psychographic customer analysis, and the use of geographic information systems in the health and human services. His employers have included foundations, health care trade associations, hospitals, human service organizations and private research centers. Mr. Davenhall earned his master's degree in sociology with a concentration in medical behavioral science at the University of Kentucky. He also received a National Institute of Mental Health Traineeship (U.S.) in conjunction with his work at the University of Kentucky Medical Center.

James B. Holt, Ph.D., M.P.A., is the Acting Chief for the Emerging Investigations and Analytic Methods Branch in the Division of Adult and Community Health. He earned his doctorate in geography with a major in geographic information science and cartography from the University of Georgia. Prior to earning his doctorate of philosophy, Dr. Holt was the Deputy Director of the Division of Adult and Community Health from 1998 to 2001. His many research interests include exploratory spatial data analysis and visualization of public health surveillance data.

Denise Krause, M.A., M.S., is Director of Information Technology for the University of Mississippi School of Dentistry, Assistant Professor in the Department of Periodontics and Preventive Sciences, and a doctoral student in the Department of Preventive Medicine in the UMC Medical Center. Also a Certified Novell Engineer and a Microsoft Certified Systems Engineer, Ms. Krause designed and implemented the computer network for the School of Dentistry and develops and integrates new technologies and computerized dental applications. She is currently working on her dissertation in pursuit of a doctoral degree in preventive medicine. Ms. Krause is Principal Investigator on a statewide access to care research grant for persons living with HIV/AIDS in Mississippi. Her areas of interest include medical and dental informatics, preventive medicine and dentistry, epidemiology, geographic information systems in health research, and biostatistics.
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Nicholas Mosca, D.D.S., is the Mississippi State Dental Director and a Clinical Professor at the University of Mississippi Medical Center (UMMC) School of Dentistry. He received his dental degree from Loyola University School of Dentistry in 1987 and completed a 2-year General Practice Residency at Charity Hospital in New Orleans. From 1989 to 1999, he directed a hospital-based dental program at UMMC University Hospitals and Clinics and taught predoctoral and graduate-level hospital dentistry. In 1998, Dr. Mosca served as Clinic Coordinator for a 10-operatory outpatient dental clinic in the Jackson Medical Mall, an inner-city multiservice complex. He served as a dental coordinator for the MS Resource Center of the Delta Region AIDS Education and Training Center, and in 2002, he obtained funding for an HIV Community Dental Program through the Health Resources and Services Administration-funded Ryan White Community-Based Dental Partnership. He is Newsletter Editor for the Association of State and Territorial Dental Directors and recently completed a DHHS Primary Care Health Policy Fellowship in Washington, DC.

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Association of State & Territorial Dental Directors (ASTDD)

The Association of State and Territorial Dental Directors (ASTDD) is a national non-profit organization representing the directors and staff of state public health agency programs for oral health. ASTDD formulates and promotes the establishment of sound national dental public health policy and assists state dental programs in the development and implementation of programs and policies for the prevention of oral diseases.

The Association builds awareness and strengthens dental public health professionals’ knowledge and skills by developing position papers and policy statements on oral health issues, conducting special studies on dental public health practices, providing information on oral health to health officials and policy makers, publishing a quarterly newsletter, and conducting conferences for the dental public health community.

- For more information, go to http://www.astdd.org/

The Maternal and Child Health Bureau (MCHB)

The Maternal and Child Health Bureau (MCHB) is charged with the primary responsibility for promoting and improving the health of our Nation’s mothers and children. The mission of the MCHB is to provide national leadership and to work in partnership with States, communities, public-private partners, and families to strengthen the maternal and child health (MCH) infrastructure, assure the availability and use of medical homes, and build knowledge and human resources in order to assure continued improvement in the health, safety, and well-being of the maternal and child population. The MCH population includes all America’s pregnant women, infants, children, adolescents, and their families—including women of reproductive age, fathers, and children with special health care needs.

- For more information, go to http://www.mchb.hrsa.gov/
- Web conference coordination and production provided by Health Systems Research, Inc.