

# healthyGIS

Esri • Spring 2011

GIS for Health and Human Services

## How Accurate Is Your Health Data?

By Bill Davenhall, Global Marketing Manager, Esri Health and Human Services



I am often asked the question, How accurate is health data? My answer is always the same: “It depends on what you will do with the data.”

In other words, it depends on what you want or need the data to do. Will it be used to

save a life, set a payment rate, or be part of population statistics? Will it simply be a gross generalization of health or social conditions or a provider’s capability status, or do you need to launch a serious intervention with life-saving consequences?

Not long ago, a friend entreated me to review the quality of a certain geographic database. The data pertained to locations of light poles in commercial parking lots. The parking lots had been selected as potential medical helicopter landing pads in the event of a community emergency. I was not troubled by the task of assessing this database until an

additional challenge was raised: the helicopter had to be able to land in the dark.

The problem, of course, was that the database was created for some other purpose far less demanding than that of my friend flying medical helicopters. What my friend needed was a spatial data infrastructure that specifically included considerations for landing helicopters at night. The location of light poles would then have become an attribute that required specific accuracy.

Many of the databases that are used in health and human services are not geographically accurate. By simply trying to fix up a marginally useful database, we unlock hidden dangers and incur distinct costs. Health data simply must become more precise and move more quickly into the hands of people who need it. The type of data found on medical and social intake and claim forms—including locations of service and the addresses of patients or clients—is just the beginning.

There is not a reasonable excuse anymore in the United States for a health provider to not provide an accurate geocode on every birth or death registration.

Also, we have the ability to know the precise location of every hospital, medical clinic, or governmentally sponsored resource.

It is time for every national health and social ministry to begin building a spatial data infrastructure (SDI) for health and human services that can support resource and policy decision making, service delivery, and emergency response.

How well do you think you would be served today if the health of your family members depended on your “local” health and human service data? Do they have the accurate geographic information they need to make decisions?

If you are reading this, you are most likely part of the solution to this challenge. So begin to learn more about how to build an accurate health and social SDI as part of your 2011 resolutions.

As always, second opinions are welcome.

To learn more about building a spatial data infrastructure, visit [esri.com/sdi](http://esri.com/sdi).

## Interactive Map Helps Speed Aid to Haiti

The catastrophic Haiti earthquake of early 2010 devastated the country as it indiscriminately demolished government buildings, homes, health care centers, and schools. An estimated 230,000 people died, some 194,000 were injured, and 1.3 million were displaced. In the chaotic aftermath, survivors were in need of medical supplies and drinking water. Hundreds of individuals and businesses rallied to help, but many had little background knowledge of Haiti or a starting point for action.

Having worked in Haiti since 1964, Direct Relief International (DRI) was one nonprofit group that was able to respond right away. DRI, a humanitarian medical-material aid organization with more than 60 years of experience, distributes medical supplies and pharmaceuticals to a current total of 72 countries including the United States. The Santa Barbara, California-based company receives donated medical supplies from corporate partners and distributes resources to registered health care providers in high-need areas.

In the six months following the Haiti quake, DRI provided more than 400 tons of emergency medical assistance worth more than \$57 million to 53 Haitian health care facilities, international medical teams,



Visitors to the DRI website can view a map of Haiti with clickable icons to explore details about shipments based on location and supply type.

mobile medical clinics, tent-based hospitals, and medical units at camps for displaced people across the country. Workers for DRI were able to share and communicate the details of their activities through an interactive map application based on Esri technology.

“To avoid waste and help the most people possible, supplies should be delivered in the right amounts, forms, strengths, and dosages to the facilities that need them,” said Andrew Schroeder, director of research and analysis for DRI.

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## More Industry News

You will find more news and information specific to GIS for health in ArcNews, a quarterly magazine for the Esri community. Please visit [esri.com/arcnews](http://esri.com/arcnews).

To learn more about GIS for health, visit [esri.com/health](http://esri.com/health).

To submit an article, subscribe, unsubscribe, or change your mailing address, visit *HealthyGIS* online at [esri.com/healthygis](http://esri.com/healthygis).

My Place History for iOS is now available on the App Store. Learn more at [esri.com/geomedicine](http://esri.com/geomedicine).

## More GIS News

Keep up with breaking GIS news, watch the latest videos, access ArcGIS resources, and connect to social media outlets at the newly launched [esri.com/news](http://esri.com/news).

# Esri Health Conference Coverage

View videos from the 2010 Esri Health GIS Conference including keynote speeches from leaders in the health industry and technical plenary demos showcasing the use of geographic information system (GIS) technology for health and human services workflows. The event was held October 18–20, 2010, in Denver, Colorado.

In the Keynote Address, Michael Byrne, geographic information officer of the Federal Communications Commission, gave the talk *Broadband and the Internet: Moving Health Forward*. His presentation concerned the use of broadband capacity building as a vehicle for improving accessibility to health care services as well as reducing health care disparities, regardless of the geography.

Amy Hillier, assistant professor at PennDesign Department of City and Regional Planning, presented a series of case studies from her own work and that of colleagues to identify key elements to successful mapping projects aimed at social change.

Michael S. Johnson, director of Utility for Care Data Analysis for Kaiser Foundation Health Plan, shared his work to apply GIS capabilities in support of care delivery, health plan operations, and community benefit initiatives.

During the technical plenary, Esri GIS experts shared information about what is new in ArcGIS 10. Demonstrations showed how health and human services organizations can now collaborate more effectively to align resources with needs, understand and address community health concerns, and respond to public health emergencies with greater insight.

For more information, visit [esri.com/health10](http://esri.com/health10).



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## Interactive Map Helps Speed Aid to Haiti

Schroeder and his team turned to DRI's GIS, a resource already loaded with crucial information about Haiti. Built with assistance from researchers at the University of California, Santa Barbara, the system integrates Esri's ArcGIS technology with the SAP business management application DRI uses to track inventory. This combination makes it possible to take detailed assistance data from SAP and map it using the ArcGIS location-based interface.

As new donations arrived in Haiti, DRI's GIS platform and SAP application provided a way to keep track of supplies, needs, and working partners. The ArcGIS component made this information accessible to DRI personnel through an internal website.

DRI was also able to share information with the donors via a public-facing website. Visitors can see a map of Haiti and click icons to explore details about shipments based on location and supply type. Pie charts provide a visual breakdown of the shipment types matched with a list of associated cost values.

"We wanted to be as transparent as possible about humanitarian aid operations," Schroeder said. "One of the major debates in the aid world right now is whether anyone knows what actually happens to the resources that they donate."

Using ArcGIS API for Flex, DRI created an attractive, interactive online mapping application that features smooth zooming and querying as well as multiple-scale viewing.

As there is no time to waste in an emergency, DRI put the application together quickly by modifying StateStat, an existing application found at ArcGIS.com. StateStat was built to inform the public about spending in the US state of Maryland. The DRI team removed the Maryland basemap layer from StateStat and imported Haiti basemaps and satellite imagery as map services from ArcGIS Online.

The new application was ready in two weeks. An additional two weeks were spent checking the data and ensuring that everything worked properly before going online.

"The value of Esri technology is that we were able to create a common platform for knowledge and understanding that renders fairly complex issues much more rapidly comprehensible than I had thought possible before I became a GIS user," said Schroeder. To find out more about the Direct Relief International interactive map and ongoing recovery work in Haiti, visit [directrelief.org](http://directrelief.org) or contact Andrew Schroeder at [aschroeder@directrelief.org](mailto:aschroeder@directrelief.org).



Direct Relief International uses GIS to track donations in the wake of the 2010 Haiti quake.

# Esri UC 2011: Where Technology Sparks Your Imagination

However you use GIS, the Esri International User Conference (Esri UC) offers ways to do it better. This year's event, set to take place July 11–15 in San Diego, California, features a comprehensive track for GIS users in health and human services.

Esri UC offers benefits to professionals in all types of health organizations including public health, managed care, hospitals, academic health, and human services. GIS plays an increasingly substantial role in areas of public health preparedness, health metrics

and evaluation, and health information exchange.

Attendees of Esri UC have a tremendous opportunity to address challenges and build on the work of geomedicine, according to Esri's global health and human services industry manager Bill Davenhall.

"Geomedicine brings a different perspective to the way we examine and understand the impact of the physical environment on personal health," Davenhall said. "At Esri UC, we will have a chance to identify and discuss geographic information tools that can improve the disease discovery process."

Session topics will focus on improving community health by eliminating disparities, ensuring better access to health care and services, and managing health data using web-based systems. Other user presentations will discuss

- Geocoding health information
- Public health viewers
- Accessibility to health care
- Environmental health

Learn more about Esri UC, watch videos, and register for the event at [esri.com/uc](http://esri.com/uc).



Esri's president Jack Dangermond speaks at the Esri UC plenary.



Where **technology**  
sparks your **imagination**

Esri International User Conference

July 11–15, 2011 | San Diego, California

Register by May 20, 2011

[esri.com/uc](http://esri.com/uc)

## On the Road

**Esri Partner Conference**  
March 5–8, 2011  
Palm Springs, California, USA  
[esri.com/epc](http://esri.com/epc)

**Esri Developer Summit**  
March 7–10, 2011  
Palm Springs, California, USA  
[esri.com/devsummit](http://esri.com/devsummit)

**Global Health Metrics and Evaluation Conference**  
March 14–16, 2011  
Seattle, Washington, USA  
[ghme.org/conference](http://ghme.org/conference)

**American Mosquito Control Association**  
March 20–24, 2011  
Anaheim, California, USA  
[mosquito.org](http://mosquito.org)

**Health Decisions Made Easy**  
March 21, 2011  
Riyadh, Saudi Arabia  
[rc.kfshrc.edu.sa/hdme/Welcome.html](http://rc.kfshrc.edu.sa/hdme/Welcome.html)

**Health Journalism 2011**  
April 14–17, 2011  
Philadelphia, Pennsylvania, USA  
[healthjournalism.org](http://healthjournalism.org)

**World of Health IT**  
May 10–13, 2011  
Budapest, Hungary  
[wohit.org](http://wohit.org)

**Netsmart Connections**  
May 16–19, 2011  
Orlando, Florida, USA  
[ntst.com](http://ntst.com)

**Esri International User Conference**  
July 11–15, 2011  
San Diego, California, USA  
[esri.com/uc](http://esri.com/uc)

**National Association of County and City Health Officials**  
July 20–22, 2011  
Hartford, Connecticut, USA  
[naccho.org](http://naccho.org)

**Medicaid Management Information Systems**  
July 31–August 4, 2011  
Austin, Texas, USA  
[mmisconference.org](http://mmisconference.org)

**HealthGIS India**  
August 5–6, 2011  
New Delhi, India  
[e-geoinfo.net/healthgis2011](http://e-geoinfo.net/healthgis2011)



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380 New York Street  
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## Web Tool Advances Lung Health

It is estimated that one in five Canadians is living with lung disease such as asthma, emphysema, lung cancer, pneumonia, tuberculosis, and chronic obstructive pulmonary disease.

The New Brunswick Lung Association responded to the issue by developing web services and an application to access distributed environmental and health datasets. The web application, based on Esri technology, seamlessly integrates the datasets to make information available to the public as well as health professionals.

“Through web mapping, we are able to identify trends in respiratory health so that we can develop programs that are more effective in reducing the overall burden of respiratory disease in New Brunswick,” said Eddie Oldfield, New Brunswick Lung Association.

By integrating a decade of datasets—including statistical, public health, hospital discharge, and simulated surveillance—Lung Association staff developed more than 1,600 information layers. They also superimposed layers such as asthma camps, flu clinics, and air pollution monitoring stations on top of thematic health maps illustrating comparable rates of illness and morbidity in various health regions.

The application can be used to monitor trends, identify potential causal factors and exposure risks, examine public access to care, determine sites for new hospitals or facilities, plan education programs, and conduct public health research.

A map showing asthma camps, along with asthma trends, for example, helps association staff identify resource gaps and plan community outreach to vulnerable groups.

In a simulated pandemic influenza outbreak, association staff were able to visualize impact on public health and monitor supplies of medicine, food, and fuel infrastructure.

Members of the public can use the web application to view areas where there are high concentrations of respiratory illness and locate community outreach programs.

This technology could support a national atlas to plan respiratory health programs across the country.

For more information, visit [gishealthportal.ca](http://gishealthportal.ca).



A web application identifies respiratory health information and resources.

## Online

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