AMERICAN CITY & COUNTY

Healthy perspectives

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For public health officials, knowing where in the community people are contracting diseases or viruses is just as critical as knowing who has symptoms, what the symptoms are, when they began and how many people are suffering. For years, geographic information system (GIS) technology has been used to marry location information with the rest, but it has been a technical specialty with a steep learning curve, often requiring a highly skilled, dedicated person or department to compile and navigate. That is changing as location intelligence tools are taking the “science” out of mapping and elevating the importance of location-based insight.

The goal of location intelligence tools is to help people in non-technical jobs use computer maps without the need to be a GIS specialist. For public health agencies, that means doctors — experts in medicine and public health, but not in mapping — can use the technology. With GIS technology, public health officials can see complex information in context and create compelling presentations to communicate the status of health projects and issues. Location information can be combined with graphs and charts to help uncover patterns, risks and opportunities that may be overlooked with traditional spreadsheets and analysis tools.

Location intelligence also can help state health officials determine where to dedicate resources, such as primary care, mental health and dental providers. For example, Medicaid data can be combined with population demographics, rural indicators and provider information to identify where outreach or provider services are most needed.

The Louisiana Bureau of Chronic Disease and Prevention Unit of Baton Rouge is working with other health organizations to use location intelligence tools to help identify asthma among children in rural and urban areas. The project, sponsored by the Environmental Protection Agency, has collected child asthma diagnoses from hospitals and clinics, and outdoor air quality indicators (particulate and ozone levels, wind speed/direction and barometric pressures) from the Louisiana Department of Environmental Quality. In addition, population demographics and adult behavioral risk factors, such as smoking and school/household environment indicators, were plotted on maps, creating a comprehensive picture of the burden and triggers of asthma in children.

As with all health data, protecting individual privacy is a concern. Location intelligence tools help protect privacy by aggregating data about many individuals while hiding personal details. Thematic maps that indicate areas of concern remove individual point data and show continuous surfaces instead. Using that type of analysis for health care reveals hotspots by location while masking individual identity. For example, thematic maps can identify locations where different types of cancers are prevalent and assist health officials in making predictions and conclusions based on the visual data. By visualizing and combining a variety of data and information, health officials can better prepare and deploy assets, such as mobile clinics and medicines, improving services and responding quickly to health emergencies.

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