Application of GIS in Health Care Analytics

For more than two decades, Altarum Institute has used geographic information systems (GIS) to solve vexing health care problems and more clearly communicate important health care information. We excel at helping our clients frame their problems and understand spatial influences on their health care operations. Altarum is applying GIS technologies to Health Care Analytics in

- Health program evaluation,
- Operational health metrics,
- Health market demand analysis and site planning, and
- Web portals and dashboards.

Health Program Evaluation

Altarum is using GIS technologies to support the evaluation of two high-visibility health care programs: the Veterans Health Administration’s (VHA) pilot project Access Received Closer to Home (ARCH) and the White House and First Lady’s childhood obesity prevention effort.

Project ARCH is a congressionally mandated demonstration to improve health care access for the nation’s Veterans in rural areas by connecting them to health care services closer to home. By using GIS technologies, Altarum can determine Veteran drive time proximity to services, which is a key component of the eligibility criteria used within the VHA.

Understanding proximity to health services

Operational Health Metrics

While technologically straightforward, the use of GIS to map and display health care data and metrics has a significant impact on the ability to communicate important messages that are often obscured or hard to grasp in reports and tabulations. Altarum’s provision of national maps portraying county-level disease rates over time to support the Health Resources and Services Administration’s (HRSA) Maternal and Child Health Bureau illustrates this most basic use of GIS reporting.

The White House and First Lady’s childhood obesity prevention efforts include brokering private-sector commitments to undertake actions such as opening grocery stores in urban food deserts, thereby providing healthy food options in the nation’s fight against obesity. Serving as a third-party evaluator for the Partnership for a Healthier America (a nonprofit working alongside the White House), Altarum is using GIS technologies to produce map products and reports to evaluate program effectiveness by verifying store location, proximity to food deserts, population served, population of low income, and population of low income and low access.

Tracking and evaluating program effectiveness

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Understanding the geographic progression of disease

A more operational variant of health metrics reporting is the tracking and display system that Altarum implemented for the VHA Chief Business Office to monitor monthly the performance of third-party collection efforts across the department’s Veteran Integrated Service Networks.

GIS tracking of third-party collections

Health Market Demand Analysis and Site Planning

Altarum combines GIS technologies with advanced analytics to help clients understand the dynamics of health care market demand and perform site planning for health services. Using drive time analyses, hot spot or proximity mapping, and advanced regression modeling techniques, we help our clients thoroughly understand geographic influences on health consumer behavior and its importance to services and site planning.

Altarum is experienced in using GIS technologies to perform market area and health systems analyses, from single or multimarket analyses to complex national-level health systems. Our geospatial analysis of the U.S. Department of Defense’s Military Health System determined how many of the Department’s millions of beneficiaries across all 50 states resided within and outside the Department’s 60-minute drive time access standard to behavioral health providers.

Proximity mapping to understand market area dynamics

Web Portals and Dashboards

Developing advanced geospatial Web portals that integrate health data warehouses with advanced GIS applications and dashboards provides lasting value in a visible way. For the U.S. Department of Veterans Affairs (VA), Altarum’s portal provides VA analysts and managers with intranet access to GIS mapping, drive time, and other geospatial application technologies that integrate ESRI ArcGIS Server technologies with SAS Enterprise Business Intelligence data warehouse capabilities.

To learn more about how Altarum is applying GIS technologies, please contact:

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