

Healthcare Management Gains Ground with GIS Services

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In the healthcare field, we all use a number of different tools to assist us in effective management of our current facilities and sound strategy for future development and growth. We manage using dashboards, spreadsheets, charts, trends, and management reports, among many others. Working with C-level healthcare executives and administrators, we get to see first hand how disparate and disconnected these tools can become, making management less a visual tool and more an “in the numbers” process.

Geographic Information System (GIS) was created to aid the leader, strategist, manager, and planner, with effective and visual decision making tools. Collating virtually infinite types of data sets and statistics – like demographics, geographics, zoning and infrastructure, and utilities – GIS can produce maps and reports that visually display pertinent and timely information.

Consider the following management and strategy scenarios that can be aided by GIS:

Examining the Spatial Distribution of Healthcare facilities and providers

Location intelligence is the key to a successful medical facility, and using mobile GPS mapping and routing equipment, healthcare providers can track and analyze the most favorable routes for emergency vehicles. Data obtained from this mobile equipment can be tied into the provider’s GIS system to understand the quickest and most preferred routes from the location of the emergency to the nearest healthcare facility.

This healthcare coverage area evaluation could use GIS to map out the distances to the facility in 5-, 10-, and 15-minute drive-time increments to show the existing coverage area for a given facility. This type of analysis can also be used to show the spatial distribution of facilities and identify possible gaps in a particular market where a potential in-fill healthcare facility could be located to serve a population that may be too far from an existing healthcare facility and is therefore under served.

Modeling demand for different services based on demographic data

Healthcare systems can use GIS to view characteristics about their patients and identify population trends over the regions which they serve. By syncing patient records databases with GIS software, decision makers can display a map showing where their patients reside. This analysis could demonstrate how patients are geographically concentrated, illustrate where new patient growth is occurring, or balance facility locations and service capacities with existing and future population densities.

Demographic information about patients from a particular hospital or medical facility, such as age, gender, race, income level, and education can be presented in map form. This can help determine level of service shortages or surpluses. For instance, by tracking common characteristics of heart attack and stroke patients using GIS, healthcare administrators can better evaluate how their system is able to care for these types of ailments in certain geographic regions. In the end, institution decision makers can use GIS reports and findings to assist in their de-

cision to construct additional facilities or augment their services to accommodate areas that are under served by existing providers.

In addition, patient data can be assigned consumer lifestyle profiles to determine if there are dominant lifestyle classifications within a particular service area. Lifestyle patterns and profiles are different among different patient groups. This information can be used by healthcare facilities to market specific services (cardiac, family birth centers, emergency medicine) to a particular patient group or demographic. Information gleaned from GIS services could also benefit

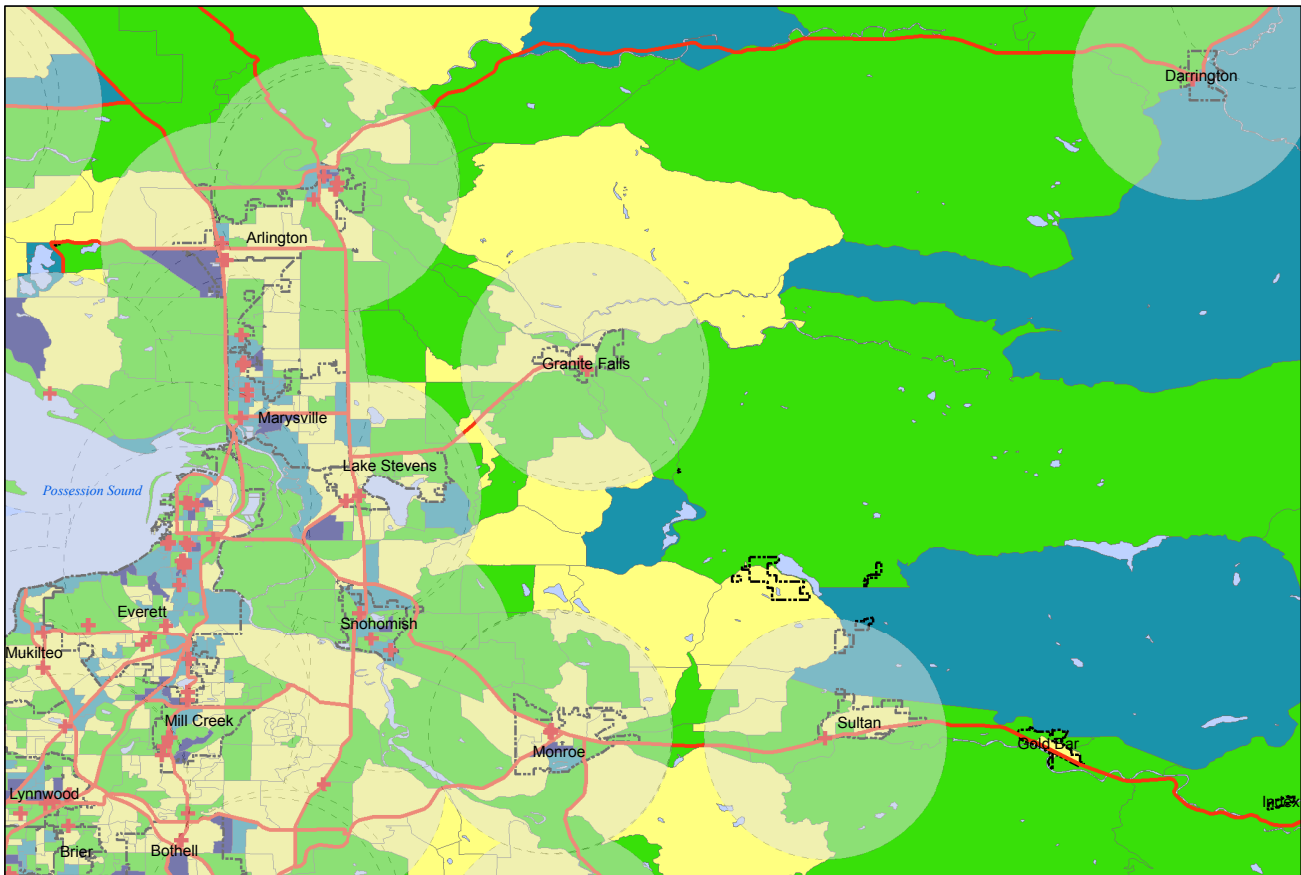
marketing and advertising efforts aimed at target communities for specific services. GIS software and maps can also easily display specific ailments from a patient database, show the potential migration of a specific disease, and analyze the spatial association of infected persons.

Where to Begin

For most, investment in GIS as a long term management and strategy tool is not a logical first step. Many begin by exploring partnerships with firms that employ GIS technology and specially trained technicians with healthcare design

backgrounds. Their guidance can assure you have effective visual tools rooted in data that can help healthcare administrators and C-level executives see new opportunities in new ways.

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Older Adults in Relation to Primary Care Services

Legend
 + Primary Clinic
 Primary Clinic 5-Mile Coverage
 State Highways
2000 Census
Percent of Population 65+
 0% - 6.3%
 6.4% - 12.3%
 12.4% - 22%
 22.1% - 46.8%

GIS can visually overlay unrelated information into one display for analysis and decision making. In this case, we show Census regions and their population of aging adults in relation to primary care clinics. Map courtesy of BCRA.

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