

# Location-based Analytics for Health Care Providers

## GIS Solution for WellSpace Health Center



### Welcome to WellSpace

WellSpace Health is a Federally Qualified Health Center. The center provides health care to patients across multiple health centers in Sacramento. WellSpace Health also offers inpatient and outpatient addiction treatment and mental health counseling. Our location-based analytics projects helped locate the customer distribution in and around respective clinics. The spatial analysis of customer data provided the basis for new clinics, arranging the services from one clinic to another based on various civic base maps such as transportation, existing hospitals, and spatial distribution of civic amenities.



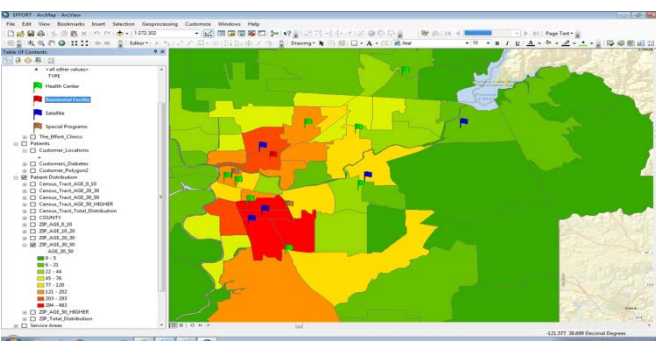
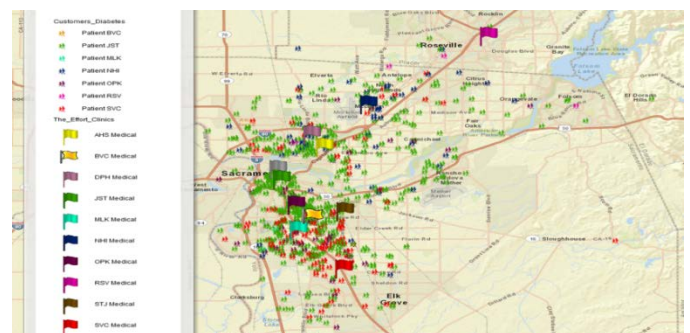
### The What and the Why of Location-based Systems

Location-based systems generally use Geographic Information Systems (GIS) technologies. GIS consists of a powerful combination of analytics and computing methodologies that work together to facilitate spatial analysis and visualization of tabular data. Spatial analysis techniques incorporate distance, location and direction measurements to produce accurate maps and reports. Hospital, health systems, providers, public health agencies, and government agencies increasingly use GIS as a tool for understanding healthy and/or unhealthy populations.

### Location-based Analytics and WellSpace

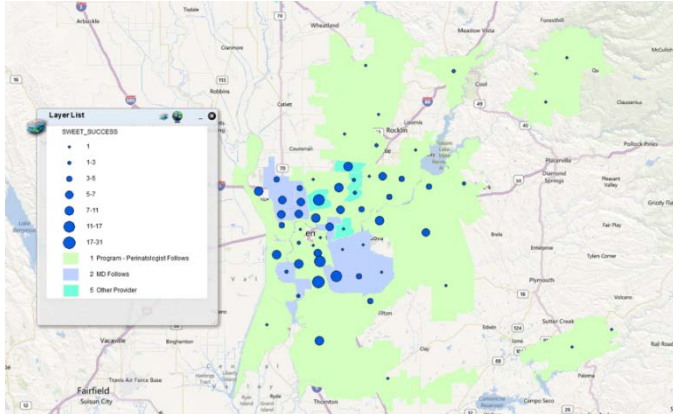
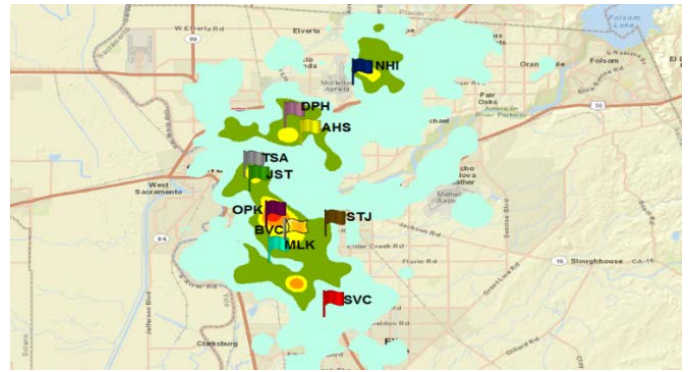
As WellSpace Health expanded and set up new clinics, the need – for analyzing the distribution of its patient's patterns, with respect to existing clinics and new clinics – emerged. This project was initiated to provide information and solutions to improve the following:

**Chronic Disease Management: By adding location-based analytics, health providers are able to analyze the patient pattern of diabetes.**



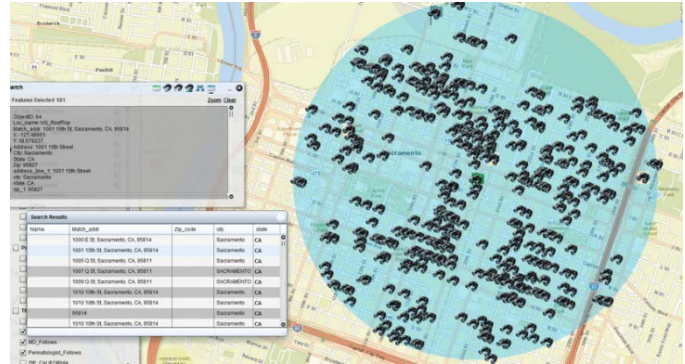
**Patient Distribution: Users can evaluate the distribution of patients by various demographics such as age and income.**

## Heat map of customers in Sacramento area.



**Analytics of WellSpace Programs: Users can measure the success of WellSpace programs such as the Sweet Success Program, California's health care program for diabetic patients for pregnant women.**

**New Site Planning: While planning new sites, stakeholders can assess the distribution of customers from existing to planned clinic. Users can also generate maps based on age and income.**



## Approach

Client Data was exported to Excel from WellSpace's SQL Server. The Excel data was converted to Geographical datasets using ESRI Tools and Technology via a geocoding process. Geographical data sets were exposed as web services, and consumed in web and desktop applications to show the distribution of patients. We downloaded various base maps, population data, and an income map from open source environments. The design is Service Oriented Architecture with login Interface.

## Key Takeaways:

- WellSpace maintains accurate information on service areas in table form. When the tabular data is generated spatially, the service areas are not consistent or erroneous.
- The WellSpace application provides distribution maps of patient programs, enabling patient management.
- The distribution of diabetic patients allows providers to manage chronic patients among the existing clinics.

## Trinity Technology Group

Trinity Technology Group has been building working IT solutions that solve real business problems for nearly 20 years in Sacramento. Our team of talented professionals – from business analysts to seasoned developers, quality assurance analysts to project managers – work hand-in-hand with you to create formal plans for each critical process and to deliver the solution your department needs.