

## CASE STUDY: Visualizing patient referral patterns and patient-to-service location flows to improve targeted marketing performance.

Nemours is one of the USA's largest integrated pediatric health systems. Nemours provides hospital and clinic-based specialty care, prevention and health information services, as well as research and medical education programs. Nemours' activities aim to improve the lives of children and families throughout Florida and the Delaware Valley

Tasked with expanding services into new market areas and increasing market share in others, the Nemours business development team was faced with the challenge of managing multiple Sales and Marketing strategies across a wide geographic area. They also lacked the ability to visualize and monitor the strategies in a single consolidated location. Aculytics, specializing in both QlikView and GeoQlik™, designed and built a custom BI solution to meet this need, enabling Nemours to consolidate and associate data from disparate systems and visualize the information in multiple ways, including heat maps and flow maps.

### Background

Founded in 1936, Nemours has many US based service locations throughout Florida and the Delaware Valley. With millions of patients, over four thousand employees, and several thousand referring physicians, Nemours owns a wealth of data spread across multiple database systems and service locations.

For Nemours, the ability to manage and process data efficiently promised a greater level of success with better outcomes and higher patient satisfaction. Thus, Nemours wanted to analyze referral data related to family doctors and primary care physicians and how they relate to patient populations. This would enable them to determine which areas could benefit from education about their specialty services and facilities. Additionally, Nemours wished to analyze geographic referral patterns to help and determine the best possible locations to open new healthcare facilities.

### Challenges

Nemours struggled with associating sales liaison and marketing activities from their internally developed CRM with patient referrals and demographic data. This meant cross-referencing their patient data recorded in their EHR (Electronic Health Record) database with their employee records, in order to differentiate between internal referrals and external referrals.

Associations between the different data sets, to determine which liaison and liaison activity should be credited to each patient encounter, were needed in order to determine which activities were producing the best results and analyze physician referral patterns to identify top referrers and potential opportunities. What's more, internal referrals had to be traced all the way back to the originating external referral in order to be linked to liaisons and most recent activities prior to patient encounters.



**Activity :** Pediatric care. Supports business development efforts of large pediatric healthcare organization with multiple locations spread across the Eastern USA.

**Geography :** The USA.

**Challenges :** The Nemours business development team needed to associate data from their CRM database to their EHR (Electronic Health Record) and HR databases, in order to evaluate the productivity of liaison activities.

- consolidate multiple data sources and BI dashboards into one single solution
- associate liaison visits to referral physicians to patient encounters
- trace internal referrals back to the original external source
- determine geographic areas that present the greatest opportunities for growth
- enable end-users to configure custom reports and maps.



Aculytics provides Nemours with QlikView and GeoQlik™ development and consulting services. Aculytics is a QlikView Partner and a GeoQlik™ Reseller Partner. [www.aculytics.net](http://www.aculytics.net)



GeoQlik™, the only true mapping component for QlikView, is developed by Business Geographic, a French software editor specializing in GIS and Geo-Business Intelligence. Business Geographic is a QlikView Technology Partner. [www.geoqlik.com](http://www.geoqlik.com)

## Solution

The Nemours business development team was looking for a single solution that would enable them not only to centralize their scattered data for processing and analysis, but also to explore their data freely and make new discoveries about their business and community of physicians and patients.

Nemours' solution, based on QlikView enhanced with GeoQlik™, gathers and processes data in compliance with Nemours' defined business rules, to determine which liaisons and activities are attributed to which patient encounters.

Data is then enriched and associated with patient demographics and geographic information. Finally, the data is displayed via visual maps and other graphical representations. The resulting maps immediately highlight valuable information such as patient density by zip code, new patient visits by referral physician location, patient location to point of service flows, etc. End-users interact with dynamic maps and modify them on-the-fly to explore large volumes of data easily.

## Benefits

Thanks to QlikView and GeoQlik™, Nemours can now easily make sense of their data, creating valuable cartographic analyses to locate key areas of operation and gain insights into geographic patterns or trends that they previously could not visualize.

The Nemours business development team can also identify geographic areas with low activity and high potential, in order to target physicians within those areas for future liaison activities. GeoQlik™ enables more efficient use of liaison time and improved results from activities designed to educate referral physicians about Nemours' speciality services and facilities.

The Nemours facilities management team also uses GeoQlik™ to analyze potential facility locations overlaid with patient location data to determine the most logical and profitable locations for new sites. Today Nemours is planning additional projects that will use GeoQlik™ to provide additional insights into their business and the market as a whole.

*"GeoQlik™ maps add a powerful and intuitive visual component to QlikView. Without GeoQlik™, it would be nearly impossible for analysts to recognize trends tied to geographic regions solely based on zip code numbers or county names."* - Andrew Pettit, Executive VP of Aculytics

From now on,  
Nemours' end-users  
can visualize patient  
density and  
patient-to-service  
location flows,  
lead spatio-temporal  
trend analyses...  
and much more.

