

**Case Study**  
Data Warehousing and  
Business Intelligence

## Microsoft Technologies Business Intelligence and Data Warehousing in Health Care

### Business Need

Next only to professional expertise, timely and accurate information was extremely important to the largest primary health care holding company on the West coast, Sunshine Healthcare System<sup>1</sup> and preferred provider organization Diamond Blue Cross (fictionalized as well). Both had the latest hardware, reasonably robust LAN's and no lack of information templates to ensure complete patient records. However, a great deal of information about patient profiles and treatment outcomes, about rates, insurance payments, and staff schedules were compartmentalized in disjointed applications and could not be cross-referenced easily.

Secondly, Sunshine itself still endured many time-consuming manual procedures to analyze performance and enable sound decisions. Having four hospitals, more than 1,600 licensed beds, and 7,500 employees, the healthcare provider had to hold the line on costs and still provide superlative quality of service. Finally, the two strategically-minded health care organizations realized that business growth in the near term required more widespread sharing of mission-critical information about:

- Institutional priorities;
- Policies and procedures
- Finances: revenue and costs
- Compliance with Federal and private insurer requirements

### Solution

Clearly, both organizations needed rational data warehousing to come to grips with thousands of files strewn around various databases. When called in, HyTech Professionals also realized that a business intelligence strategy built around Microsoft platforms made the most economic sense since many applications of the software company were already dispersed throughout both organizations.

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<sup>1</sup> The proprietary and "work for hire" nature of our independent software development services requires that client names, revenue projections and other sensitive information be kept confidential and disguised.

## HyTechPro

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The solution designed comprised:

- A Hytech Professionals Analytics Platform
- Based on a Microsoft SQL Server data warehouse
- SQL Server Analysis Services
- A SharePoint e-mail-to-mobile telephony UCC portal that enabled business communication (Diamond) and coordinated care (Sunshine)
- Pattern-matching algorithms enabling Diamond to uncover fraudulent claims more reliably
- Enterprise search across 2.4 million medical records that had accumulated at Sunshine.
- Track clinical outcomes by physician or by department

## Our Role

HyTech Professionals ably engaged with Sunshine and Diamond as extended software development partner. Our team of software architects and systems engineers built and tested a complete Data Warehousing and Business Intelligence solution for both while leveraging already-available resources and minimizing the disruption to two very busy organizations.

## Solution Benefits

Data warehousing meant managing the mass of information better while business intelligence tools - pulling data together from disparate databases - enabled both health care organizations to model decisions that ultimately impacted their bottom lines. In addition, these leaders in West Coast health care were pleasantly surprised at realizing these ancillary benefits:

- Improved employee communications via email.
- Empowered primary care staff to access all medical records, practice coordinated care better and look up a continuously updated knowledge base of medical best practice.
- 156 junior and middle managers gained desktop access to 285 different performance indicators that they could “drill down” through to the sub-unit level.
- Reduced the costs of an enterprise-wide re-training program by 40 percent
- Kept operating and unit heads informed about their own costs and backlogs.
- Greatly diminished the margin for error by limiting knowledgebase access to the specialty of the physician initiating the search.
- Within six months of rollout, patient satisfaction increased 38%.

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- Sunshine and Diamond estimated annual savings at 48,00 man-hours previously devoted to manual data-gathering and analysis. At an individual level, gathering information needed for decisions became a matter of minutes versus weeks previously.
- Diamond put savings from reduction of fraudulent claims at 40% within 18 months of deployment.
- EBITDA jumped an average of 17% by the end of the fiscal year for both organizations.

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