



BAPTIST HEALTH MONITORS PHYSICIAN PERFORMANCE & HEALTHCARE SPENDING WITH DI'S DIVER SOLUTION

SOLUTION SPOTLIGHT:

DIVEPORT™:

Portal interface that delivers a single point of entry to dashboards, reports, charts, and analytical applications

NETDIVER™:

Java-based zero-footprint interface that resides on a Web Application Server

DATA INTEGRATOR:

DI's Extract, Transform, and Load tool featuring powerful data manipulation capabilities

PROFILE: With fifteen outpatient centers, a new hospital under construction, and over 1,500 beds situated across five hospitals, Baptist Health South Florida is the largest faith-based, not-for-profit health care organization in the Greater Miami area. Baptist Health's reputation for medical excellence and patient satisfaction is underscored by a plethora of prestigious awards received year after year from leading healthcare organizations and industry journals. With total operating revenue of \$1.9B in fiscal 2008, Baptist Health also donated an impressive \$222M in charity care to the communities it serves.

THE DIVER SOLUTION AND TRENDSTAR Baptist Health's HIS management group was introduced to Dimensional Insight's reporting and analytics suite, The Diver Solution for Healthcare™ in 2005. Baptist Health was originally looking for a way to improve reporting from the Trendstar Decision Support System (DSS). Explains Christian Duque, a senior Business Technology Consultant at Baptist Health, "Trendstar is an old, mainframe-based cost accounting system. It is difficult for end-users to navigate so even though it houses clinical and financial information, most hospital staffers avoid using it."

Baptist Health was looking for a way to utilize the information stored in Trendstar and deliver it to organizational users in a more user friendly way — a task that had proven to be difficult in the past. Dimensional Insight created a fully functioning prototype using its powerful ETL (extract, transform and load) tool, Data Integrator, to process extracts from the Trendstar system. DI then created a highly indexed binary file known as a Data Model, which allowed users to build reports and conduct ad-hoc analysis on virtually any dimension of the data such as diagnosis and procedure information, discharge



Dimensional
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DATA → INFORMATION → ACTION

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disposition, and even charge detail data. Unlike conventional OLAP tools, no SQL queries or pre-defined drill paths are required to use DI’s interface for reporting and analysis.

Duque continues, “The data Models we developed off of our Trendstar system are extremely beneficial to our users. By integrating Trendstar data and allowing our users to view this information in DI’s reporting and analytics interface, we’ve empowered them with a tool that makes it easy to access and utilize Trendstar data.” Historically, access to this Trendstar data was only possible through requests to a small subset of individuals with training in Trendstar’s reporting language. Baptist Health users can now navigate through the Trendstar data to obtain answers to their clinical and financial questions in an intuitive interface.

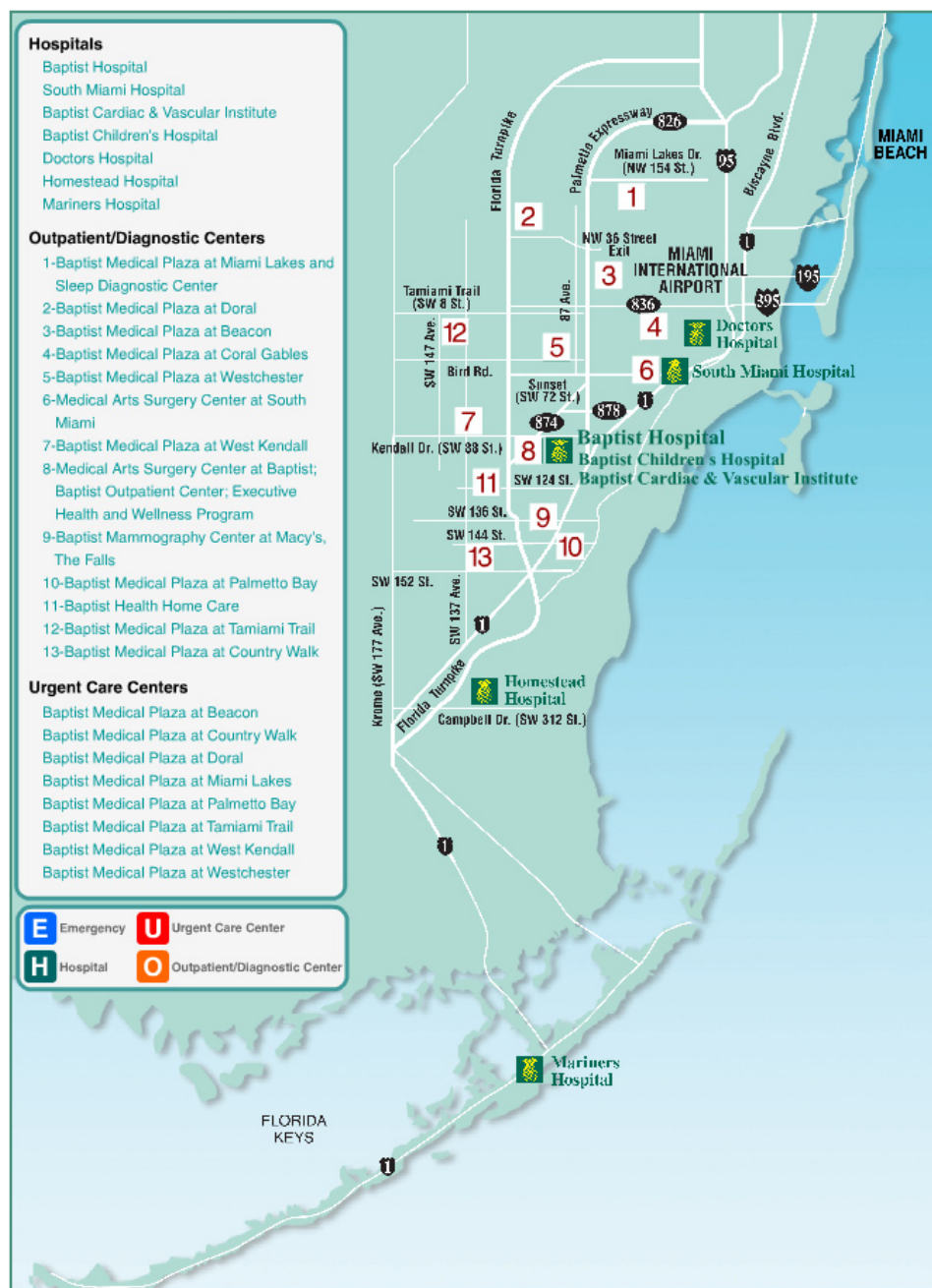
Once Baptist Health was able to effectively mine, report and analyze data from their Trendstar system they began to identify new areas where DI’s business intelligence suite, The Diver Solution for Healthcare, could be utilized. The flexibility of DI’s solution set allowed the Decision Support group to quickly roll out new performance management applications that ranged from a physician scorecarding project to managing procedure costs for the system’s orthopedic and cardiac rhythm management practices.

STREAMLINING THE PHYSICIAN SCORECARDING PROCESS Alicia d’Empaire, Baptist Health’s Corporate Director, I.T., Managed Care and Decision Support Systems, had been tasked with finding a tool capable of supporting a group of core users who were required to create Physician Scorecards for each of

Baptist Health's seven hospitals. d'Empaire recalls, "we were working on a physician scorecard, and our corporate Vice President of Clinical Performance Improvement felt DI's tool set would be great for helping with our Data Trends Physician Scorecarding project. The timing was perfect because I needed something that would do the job fast. Once we started working with Dimensional Insight, I knew we could create the physician scorecard much quicker using their solution than by relying solely on Crystal Reports."

A number of disparate data sources had to be accessed and integrated in order to create a scorecard: proprietary file formats from various medical systems such as ACS MIDAS+, Trendstar, Siemens Invision, PLATO Analyzer, and Siemens Pharmacy; subscription based services such as Premier's quality benchmarking data and Press-Ganey's patient satisfaction data; and flat files such as text documents and Microsoft Excel spreadsheets. As daunting as this integration challenge appears, DI's built-in ETL tool, Data Integrator, handled the various data sources with ease; merging them into a coherent and synchronized view of physician activity.

Once the data had been integrated, DI built a scorecard application based on the Key Performance Indicators (KPI's) identified by Baptist Health. With the template created, generating monthly scorecards became easy. As improvements are requested, Baptist Health's team of analysts incorporate the changes into the Diver scorecard application. By integrating core measures with Trendstar activity data, Baptist Health was able to assign results to each physician based on the role they played in the case — something that had never been done before. As the Joint Commission on the Accreditation of Healthcare Organizations (JCAHO) perpetuates new standards, new KPI's will be incorporated.



▲ Baptist Health also offers a variety of healthcare services, such as outpatient/ diagnostic and urgent care facilities, and home health care.



▲
Baptist Health South Florida's decision support group is operated out of the Miami-based office, shown above.

"DIVER WAS THE PLATFORM THAT ALLOWED US TO INTEGRATE OUR DATA FROM SEVERAL DISCRETE INFORMATION SOURCES: MATERIALS MANAGEMENT, OUR CHARGE ENTRY SYSTEM, OUR SURGERY SCHEDULING AND OUR SURGERY INFORMATION SYSTEMS AS WELL."

DOUG HORWITZ
MANAGER OF STRATEGIC PLANNING AND
BUSINESS DEVELOPMENT, BAPTIST HEALTH

Each hospital in the Baptist Health system has its own scorecard, with indicators relevant to that hospital. Turiany Cespedes, a Baptist Health Business Technology Consultant, voices no nostalgia for the previous scorecarding process, "Before Diver, only one scorecard was sent out and it was done manually in Crystal Reports. The scorecard was disseminated via Excel and Word and creating it was a laborious process." As a result, using this manual process Baptist Health only had the resources to create a single scorecard for one hospital in the system."

Cespedes notes that the introduction of the physician scorecards resulted in a cultural shift for many of Baptist Health's physicians. "At the beginning of the scorecarding process there was some pushback, not everyone appreciated the value of the project. As the process moved forward, we saw a change in physician's attitudes. Physicians have become more collaborative; they now go back to the departments and ask questions. Some seek feedback when they see low scores and ask for ways to improve. This has proven to be a success and we have seen an across-the-board improvement in physician scores since we automated the scorecarding process with Diver."

DIVER ANALYTICS AND HEALTHCARE EXPERTISE

DELIVER RESULTS Asked about the Diver user experience, Cespedes replies, “The appeal to our users is the unfettered drilldown capability inherent in the Diver interface: to the patient level, the physician level, the specialty level, or even the procedure. Diver allows you to see anything you want to look at. This is amazingly insightful when providing, for example, mortality information to a physician. You can look at each patient that influenced the mortality score to determine the circumstances.”

Reflecting on how Diver stacks up against the competition, d’Empaire observes, “we license products from other major BI vendors, but in my experience their tools are not flexible enough to adequately support the needs of healthcare organizations with multiple disparate data systems. Dimensional Insight knows healthcare — they are focused on it and that’s what sold me. We have been able to leverage their expertise that they’ve applied at other hospitals to help us. I also find great value in the annual Dimensional Insight Users’ Conference (DIUC); this is such a unique chance to exchange information with other Healthcare MIS professionals. You don’t find this anywhere else.”

FINDING COST SAVINGS IN ORTHOPEDIC SURGERY

Driven by an internal profitability committee reporting to the CFO, Baptist Health recently decided to tackle a vexing problem in the financial arena: managing their orthopedic implant spending. Again, DI’s end-to-end business intelligence suite turned out to be the tool of choice.

“We had undergone an organization-wide initiative to find areas that could have been more profitable”, explains Doug Horwitz, Manager of Strategic Planning and Business Development at Baptist Health. “Orthopedic surgery, specifically joint replacement surgery, was not as profitable for our hospitals as it should have been.” Baptist Health’s analysts applied the 80/20 rule to identify the 20% subset of all orthopedic procedures that constituted 80% of the costs. That subset turned out to be knee and hip implants. Implants are categorized as Physician Preference Items (PPI’s) because physicians typically enjoy

wide latitude in deciding which vendor to use for a particular implant. With 1,200 cases annually, Baptist Health’s system-wide implant spending had reached \$8.5M.

Baptist Health strategically selected orthopedic implants for three reasons: it was a large opportunity, there was a defined critical focus, and there were a select number of physicians that impacted the success of the initiative. According to Horwitz, “We also took a look at the number of physicians performing these surgeries and identified those physicians who represented the vast majority of the volume.” Baptist Health ensured these physicians were engaged early on in the process.

USING DIVER TO UNCOVER PROBLEMS

Horwitz describes the role that The Diver Solution for Healthcare played in this performance improvement initiative. “Diver permitted us to accurately track and monitor our orthopedic supply expenses. By working jointly with our IT team, DI was able to get a feed from our Lawson materials management system that allowed Diver to pull specific costs by item number.” Since the Lawson system was only storing the current price Baptist Health paid for supplies, a price history was built so that the correct item price would be assigned based on date of service. Horwitz explains, “Diver was the platform that allowed us to integrate our data from several discrete information sources: materials management, our charge entry system, our surgery documentation system, and our Trendstar decision support system as well. This enabled us to simultaneously merge and view information from all of these disparate systems which provided us with important business intelligence that we would not have been able to access without Diver.”

With Diver, Baptist Health is able to ‘dive’ down through detailed levels of data to individual cases and examine supply costs. This flexibility quickly allowed Baptist Health to isolate potential profitability issues. Baptist Health is able to look at an individual case and see if it has zero supply costs associated with it. Since Diver empowers users with instant access



Baptist Health South Florida is the largest not-for-profit health care organization in the region. See hospitals and affiliates on the opposite page, at right.

to detail data, users can drill into specific cases to see if it lacks an implant charge. These cases are then flagged and handed over to Patient Financial Services group for further research.

Horwitz describes the importance, “while missed charges don’t necessarily have an impact on Medicare patients given that they are paid on a case rate or by Diagnosis-related Group (DRG), for our managed care and commercial businesses it did have quite a negative impact. Diver allowed us to easily run reports and identify cases with missing or miscoded charges. We can drill down to the charge detail level, isolate cases with the wrong charge coded and adjudicate them. Finding these types of exceptions is critical to supporting profitability system-wide”

SOLVING THE PPI CONUNDRUM Following the initial 80/20 analysis, Baptist Health focused on reducing operational expenses in joint replacement surgery. A key strategy employed by Baptist Health was renegotiating orthopedic implant rates, or the rates paid per device to implant vendors. Baptist Health also focused on reducing the number of vendors they deal with in the orthopedics area.

Turning to the vendor selection process, Horwitz recalls, “the idea of a preferred vendor list is an integral part of the cost containment solution. The establishment of a preferred vendor list is considered a best practice in terms of negotiating optimal prices for PPI’s. Up until that point, we had been operating under an *all-play* system. Baptist Health had a certain price and any vendor willing to meet that price could provide implants to our health system.”

Through analysis performed in Diver and external benchmarking practices, Baptist Health realized that the prices they had set were not competitive and higher than the mean. This lead Baptist Health to work directly with each of their vendors to see what price reductions could be negotiated. Vendors came back to Baptist

Health with prices that were still above the market mean. At this point, Baptist Health decided to engage two of their higher volume vendors in discussions, offering them exclusive access to Baptist Health in exchange for additional discounts.

Reflecting on the research that Baptist Health conducted as part of the performance improvement initiative, Horwitz states, “In orthopedic implants, vendor comparison studies have shown that limiting vendor selection generates outcomes equivalent, if not better than, a broad vendor selection. Despite all of the vendor-based marketing, the devices are roughly equivalent, high quality and mostly interchangeable. From a quality standpoint, we knew there was not a difference if we were to limit our vendor selection.”

An additional benefit to limiting vendor selection is that the surgical staff becomes more familiar with the particular tools for a specific vendor and therefore they are less likely to make mistakes. This parallels the recommendations of the Leapfrog Group Consortium and other healthcare groups that state hospitals should have a certain minimum volume threshold of implants to establish a level of competency and comfort with implants and procedures.

DI’s solution set played a key role in convincing surgeons to help rein in these costs. Profitability reports generated in Diver were shared with top administrators and high volume surgeons in each hospital. The reports incorporated external benchmarking data from Trendstar and Premier, painting a compelling picture of Baptist Health’s costs relative to its peers. Once surgeons saw cost breakdowns by vendor, as a share of total surgery cost, and cost relative to peer averages, support for the profitability initiative began to grow.

DIVING TO NEW DESTINATIONS Now that the Diver-based orthopedic implant application is operational, Baptist Health is already expanding its functionality and scope. Horwitz explains, “Outcome tracking is one of the applications that Diver will be used for in the future – verifying that outcomes

“THE DIVER CRM MODELS TRACK PAYORS, VENDOR PART LINES, HOSPITAL SERVICE, ATTENDING PHYSICIAN, AND SURGEON. OVERALL, DIVER IS A GREAT TOOL. I REALLY ENJOY USING IT AND HAVE FOUND IT TO BE VERY USEFUL”

DAN MURPHY
BUSINESS TECHNOLOGY CONSULTANT,
BAPTIST HEALTH

do not suffer due to limiting vendor selection. By tracking outcomes such as patient satisfaction scores and readmission rates for revisions (failed implants), Baptist Health will be able to monitor the success of the two-vendor system and respond to any potential issues.”

The knowledge gained in tracking orthopedic implant spending was quickly cloned into a similar Diver performance management application for Cardiac Rhythm Management (CRM). As with orthopedic PPI’s, implantable cardiac devices such as pacemakers often exhibit huge price variance and comprise a significant percentage of the procedure’s total cost. Horwitz projects that Baptist Health’s CRM spending will be in the neighborhood of \$25M in the current fiscal year. An anticipated spend reduction of 10% due to the Diver-based CRM application will result in an annual savings of \$2.5M. With these numbers as incentive, it’s easy to see why Horwitz and his team continue to look for additional areas within Baptist Health to which this framework could be applied.

Dan Murphy, one of Baptist Health’s Business Technology Consultants who worked on the Diver CRM application, explains the scope of the project. “The Diver CRM models track payors, vendor part lines, hospital service, attending physician, and surgeon. Overall, Diver is a great tool. I really enjoy using it and have found it to be very useful”, says Murphy. On a recent visit, Murphy demonstrated the flexibility of the interface that his users find so appealing. Using Trendstar data incorporated into Diver profitability reports, users can compare reimbursements for the current year against previous year, this month versus last month, broken down by individual payors. With a few clicks, users can examine cases and charges, delineated by inpatient, outpatient, or both. Profitability reports are published within DI’s portal environment, DivePort, where users can look at an



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HOMESTEAD



MARINER’S HOSPITAL



WEST KENDALL



**Baptist Health
South Florida**

individual hospital within the Baptist Health system, the entire organization, or a user-determined grouping of two or more hospitals or clinics. This flexibility requires no SQL queries or pre-defined drill paths. Users are free to start exploring their data from virtually any entry point, continuing through finer layers of data granularity, until their questions are satisfactorily answered.

CONTROLLING PAYMENTS, RETAINING TALENT Murphy and his team members are also using DI's business intelligence suite for several other novel initiatives related to profitability within Baptist Health. The Recovery Audit Contractor (RAC) application monitors Baptist Health's payments to Medicaid and Medicare, ensuring that Baptist Health is neither overpaying nor underpaying. The team also tracks physician utilization within

the Baptist Health system. This information is used by Baptist Health's sales group to recruit surgeons working in other hospitals throughout the Miami tri-county area.

d'Empaire sums up The Diver Solution's value proposition for Baptist Health. "The user acceptance of The Diver Solution within Baptist Health has been amazing. When we develop a reporting model for users they love it because it is truly user friendly. We push out a lot of information to our users and Diver is the right tool for making it understandable. I'm ecstatic with how impressed our profitability committee is with the information we have made available to them. For many years we were lacking the right tool and now, thanks to Diver, we are finally able to foster an environment of data-driven decision making."

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