



Strong Medicine

SAS® helps Carolinas Medical Center enhance patient care

Industry

Healthcare Providers

Business Issue

Use data driven tools to improve patient care and keep expenses in check.

Solution

SAS® Business Intelligence

Benefits

Carolinas Medical Center implemented SAS solutions to bring timely data to physicians, nurses and administrators.

Intuition has always played a key role in healthcare. But in an era of cost cutting, complex medical procedures and increased pressure to reduce errors, more hospital leaders are turning to fact-based business intelligence to treat and prevent problems.

At Carolinas Medical Center, SAS helps the 795-bed flagship hospital of Carolinas HealthCare System plumb its own data to determine nursing workloads, conduct health services research, act on patient survey information, identify preventable complications, assess laboratory processing times and help the rural communities it serves understand their major health threats.

CMC doesn't just use SAS to deal with the large amount of data collected from the hospital; it also meshes that material with external sources, such as Agency for Health Research and Quality (AHRQ) measures. And it does this in a way that makes it easy for physicians and nurses to use the information directly – without relying on programmers to compile reports.

“There is no tool other than SAS that can handle the massive amounts of data we manipulate and analyze,” says Sherry Laurent, Assistant Vice President and Executive Director of the R. Stuart Dickson Institute for Health Studies at Carolinas Medical Center.

Competing demands: cutting costs and improving quality

For more than two decades now, hospital executives have been under

enormous pressure to hold down costs. Medicare and Medicaid reimbursements haven't risen as fast as inflation, and managed care has tried to hold down costs for private payers.

Now, hospitals are also under increased pressure to reduce errors. The 1999 Institute of Medicine report – which revealed that 98,000 people die each year because of preventable medical mistakes – has become a rallying cry for consumer, government and business groups, including Leapfrog, that want data driven, evidence-based healthcare delivery.



Carolinas HealthCare System

Hospital executives can only improve care or cut costs in collaboration with their physicians – a group that respects benchmarking efforts as long as it takes into account the severity of illness of the patients they treat. For instance, patients with the same primary diagnosis could have anywhere from one to 19 secondary diagnoses. How you benchmark the care of an otherwise healthy 40-year-old who has had a heart attack is very different from the way you would benchmark a 65-year-old who has had a heart attack and also has diabetes and high blood pressure. If physicians treating heart attack patients with many co-morbidities are shown the benchmarking data for younger, healthier patients, they are likely to misinterpret the meaning of those benchmarks.

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But SAS is powerful enough to handle complex benchmarking – and that’s important to the physicians in helping them to understand their patient population. “Unless the physicians can see the hard data, they do not feel that it applies to them,” Laurent says.

Using SAS® to solve problems, improve care

At Carolinas Medical Center, database administrators are responsible for improving the existing data processes by making them faster and easier to use and by proving the value of data driven healthcare to physicians and administrators along the way. With SAS, they’ve helped the staff:

- Determine nursing staff activity levels quickly by automating an existing staffing formula. The formula’s data had been manually entered onto a spreadsheet and tabulated on a quarterly basis. Now, the data is pulled from admission and transfer files automatically and is available to nursing supervisors each morning. “They can get on with the job of taking care of patients, instead of hand-collecting data,” Laurent says.
- Deploy the AHRQ program to use secondary diagnosis codes to detect 26 adverse events and patient safety indicators.
- Help rural community leaders discover their primary health problems and plan preventive programs. The Dickson Institute

personnel collected emergency room, hospital admissions and school absentee data and, using SAS, identified asthma as a key reason for many ED admissions. With SAS, data can be stratified by ZIP code and then a GIS analyst can map the prevalence of different types of illnesses and injuries. This helps officials target preventive care and plan emergency runs with greater accuracy.

- Automate criteria for cardiac risk scoring for classifying the severity of heart patients – and offer it to physicians via the hospital intranet. Physicians can instantly compute the risk score using handheld computers.
- Determine the expediency of lab work. An outside auditor suggested buying a new computer system to track how long it took for lab work to be completed and reported, but adapting SAS to solve the problem negated the need for a new computer system.
- Take patient survey results and immediately report the outcomes, allowing administrators to view results at the floor and shift levels. With immediate access to this information, administrators can quickly implement changes and enhance patient care.
- Help a physician gather the data for a multisite registry of cardiac stents. Laurent and the rest of the Dickson Institute use SAS to help physicians streamline their data gathering and reporting from both a research and patient care perspective.

- Assure the accuracy of data sent to vendors, such as Solucient. With SAS software’s data “scrubbing” capabilities, accuracy has improved 95 percent – and it was done more efficiently than using traditional programming methods.

For Laurent, perhaps the best part about using SAS is that no longer she’s obligated to engage pricey consultants when a study needs to be done. If the raw data exists, she can use SAS to turn it into intelligence. “It used to be, ‘You give us \$10,000 and we’ll generate a report.’ Now we generate the report,” Laurent says.

And, as often as possible, administrators and physicians are using SAS to obtain the answers themselves using their PCs and an intuitive point-and-click interface for their ad hoc queries.

The future: more up-to-date data to more people

Database administrators at Carolinas Medical Center are continuing to refine the dashboard approach to presenting information and incorporating the AHRQ measures to identify complications, and tweaking it to make sure the data is more timely. They also continue to make the staff aware of the value of SAS. “Our staff has shown that they don’t need to request reports and wait. They can go online and do it themselves,” Laurent says.



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