



Dr. Patricia Cerrito, PhD
Professor of Mathematics
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SAVING LIVES, CUTTING PATIENT COSTS

Louisville hospitals advance with SAS® Text Miner

Industry

Education and Healthcare

Business Issue

Analyze text-based medical records and healthcare reporting practices.

Solution

SAS® Text Miner extracts and explores information from thousands of medical records.

Benefits

Text-based research helps reduce costs and improve patient care.

With new advances in text mining software, medical researchers can now unlock the intelligence held in patient records and solve patient care problems that have existed for years. By examining textual documents alongside large hospital databases, researchers are discovering relationships between physician practices and patient outcomes.

At the University of Louisville, researchers use SAS Text Miner to uncover potential areas for cost savings and to reveal new ways to improve patient care. With SAS, Dr. Patricia Cerrito and her team of researchers can easily quantify and analyze text from hospital billings, medication orders and physicians' chart notes to strengthen their research into cancer, genetics, heart disease and environmental health.

Cerrito, who holds a PhD in biostatistics, is a Professor of Mathematics at the University of Louisville. She uses SAS Text Miner, SAS Enterprise Miner™ and SAS/STAT® software to tap into a wealth of analytic power. The tight integration between tools allows Cerrito to move quickly between applications and explore structured data and unstructured text more deeply than ever before.

Analyzing physician practices

The text mining process first generates a quantitative representation of text, then distills this information and performs traditional data mining techniques, essentially pulling relevant variables from patient charts and making it easy for Cerrito to look at patterns in patient treatments and patient outcomes.

Before using SAS Text Miner, Louisville hospitals surveyed physicians' practice patterns for variations but they were not analyzed for critical insights. With SAS, Cerrito can now examine relationships between physician practices and thousands of patient outcome records, revealing, for example, that the prescription of certain medications can result in prolonged patient hospital stays.

In other projects, Cerrito and her co-researchers use SAS Text Miner to understand how consistent reporting practices can improve patient care and hospital accreditation rankings. Cerrito regularly presents and publishes research results to healthcare organizations around the world. Her research is funded by the National Science Foundation, the National Institutes of Health, international drug companies and local hospitals.

Cerrito's story

The benefits of Cerrito's research results hit close to home when her husband, John Cerrito, underwent open-heart surgery at Jewish Hospital in Louisville. His surgical team made medication decisions based, in part, on Cerrito's own research. Specifically, their decisions were made based on a recent study that connected the post-surgical outcomes of diabetic patients who underwent open-heart surgery and were prescribed antibiotics.

Her research with SAS detected a relationship between high glucose levels and a risk for infection. So when Cerrito witnessed her husband's posi-

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tive outcome firsthand, she knew his surgical team’s research-based medication decisions had worked to his benefit.

Integrated text mining capabilities

Cerrito commends SAS for having the best data mining algorithms and the simplest interface for managing and importing data. But most importantly, she says SAS integrates its text mining capabilities into its data mining solution better than any other vendor.

“SAS has always integrated its analytic tools better than other software vendors. Text Miner highlights relevant patterns in docu-

ments such as clinical reports, and it quantifies text-based information. We move seamlessly from Text Miner to Enterprise Miner to combine and analyze this unstructured text with structured data such as demographics and laboratory values. And we augment that analysis with SAS/STAT,” says Cerrito.

“That’s why we standardized on SAS for our research,” she continues. “No other software delivers this depth and breadth of analytic functionality. During any given workday, these benefits add up to significant ROI at the University of Louisville.”



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