



HEALTHWAYS HEADS OFF INCREASED COSTS WITH SAS®

Healthways, the US leader in health and care support for well and chronically ill populations, relies on SAS to identify high-risk patients and implement preventative actions.

Business Issue

Determine patient risk levels to deliver improved health outcomes.

Solution

SAS® Enterprise Miner™ predicts hidden relationships in millions of member records to determine patient risk levels, deliver improved health outcomes, and develop more targeted intervention and prevention plans.

Benefits

Increase in competitive advantage by helping employer groups and insurers improve member health outcomes, reduce escalating costs, know which members will comply, and understand patient needs in the marketplace.

Healthways knows that a key to successful disease management is the correct identification of those members in greatest need of care. Using SAS, Healthways reduces costs and helps to improve member health outcomes by predicting who is at most risk for developing specific health problems. In doing so, Healthways is able to coordinate intervention plans that address care designed to avoid complications down the road.

At Healthways, the goal is to empower health-plan members to manage their health effectively. The company achieves its objective using SAS for data mining and a group of robust artificial intelligence neural networks. To support predictive analytics, Healthways accesses hundreds of data points involving care for millions of health-plan members.

“We want to develop predictive models that not only identify and classify patients who are at risk, but also anticipate who is at the highest risk for specific diseases and complications and then determine which of those are most likely to comply with recommended standards of care,” says Adam Hobgood, Director of Statistics at Healthways’ Center for Health Research in Nashville, TN. “Most of all we want to predict their likelihood of success with our support programs. By identifying high-risk patients and implementing preventative actions against future conditions, we hope to head off the increased costs of care before they occur.”

Identifying potential problems

Healthways does more than just look at the most costly diseases. Using SAS’ advanced analytics to identify and deliver new healthcare resources to the patients who can most benefit from them, Healthways improves patient outcomes, ultimately resulting in healthier members with reduced total medical costs.

Still, Healthways’ level of expertise in identifying members who are at risk goes deeper than patient risk stratification. Healthways also wants to identify members who are likely to experience future gaps in care so that Healthways can intervene and provide care or advice through its extensive network before the problems actually occur.



HEALTHWAYS

How does Healthways use SAS®?

Healthways provides disease and care management to more than two million health-plan members in all 50 states, the District of Columbia, Guam and Puerto Rico. The company provides its services on behalf of the nation’s leading health plans. It employs thousands of nurses at call centers throughout the country who collect data and provide clinical support to health-plan members and their physicians.

“SAS provides a solid and efficient linkage between our quantitative expertise and our clinical expertise. It allows us to take the data and to quickly and efficiently produce models that can be implemented to allow our clinicians to be with the right person at the right time.”

Adam Hobgood
Director of Statistics, Center for Health Research

With SAS, Healthways builds predictive models that assess patient risk for certain outcomes and establishes starting points for providing services. Once Healthways loads patient risk-stratification levels into its own “clinical expert system,” the system evaluates clinical information from hospitals, data that nurses collect by phone and information that employer groups and health-plan members report.

Finally, the clinical expert system adjusts the initial risk-stratification levels based on the new inputs and expert clinical judgment. The resulting approach to member stratification is a hybrid solution that incorporates sophisticated artificial intelligence neural network predictive models, clinically relevant rule-based models and expert clinician judgment.

“It’s a very powerful hybrid solution, and we have worked closely with clinical experts in the company to integrate the neural network predictive model with our world-class clinical expert system,” says Matthew McGinnis, Senior Director of Healthways’ Center for Health Research. “The ability of our highly experienced clinicians to use their expert

clinical judgment further complements the model and rounds out our hybrid approach to stratification. We believe that sophisticated statistical models are necessary to help risk-stratify our significant member populations, and by coupling this with the expertly trained clinical mind, we have created a hybrid solution that is unrivaled in the industry.”

How does SAS® improve performance?

Because models are run on an ongoing basis, health-plan populations are scored based on the most recent data available – such as diagnostic and treatment codes and the demographic makeup of plan members. Healthways can easily recalibrate the models and reflect the impact of changes in benefit plans within the total member population.

“With Healthways constantly adding new members, we have a rich data set for building artificial intelligence predictive models,” Hobgood says. “SAS simply has the power to accommodate the massive data sets used in our predictive models. With SAS, we can rank-order our massive membership according to risk and prioritize the utilization of our expert clinical resources.”

That capability becomes increasingly valuable given the looming nursing shortage, McGinnis says. “Eventually, we might have fewer resources available relative to our membership,” he says, “so the ability to zero in on the right people at the right time will be even more critical in the next 10 years than it was in the last 10 years.”

The research team at Healthways is continuously working to fine-tune both the sensitivity and specificity of their predictive models. Medical care and evidence-based medicine models, based on a large number of variables, can result in a fairly wide target range without this attention.

Features embedded within SAS make this process more direct and ultimately make better use of limited resources for intervention. The Healthways team experience and rich data sets, combined with SAS functionality, result in a better process for identifying the right members for the best care intervention at the right time and for significant competitive advantage.



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