

# Disease Management **NEWS**

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## Predictive Modeling Strategy Yields Savings for TN Blues

Adding a predictive modeling tool to its data mining activities has helped Blue Cross Blue Shield of Tennessee (BCBST) save money and enhance its disease management (DM) services by better targeting plan members for care management programs and making better use of the health plan's lean care coordination staff.

BCBST first looked into the potential benefits that predictive modeling could produce for the health plan and its members about three years ago, says Sylvia Sherrill, director of healthcare services operations for the Chattanooga, Tenn.-based Blues plan, which serves more than 1.5 million members in Tennessee through multiple product lines. At the time, BCBST was using a proprietary claims processing engine developed by The TriZetto Group, a Newport Beach, Calif.-based healthcare information management firm for case and utilization management activities.

"We were struggling with a commercial population because we didn't have dynamic systems and resources integrated into our processes," Sherrill tells *DM News*. "We couldn't get our arms around which cases were appropriate for catastrophic case management. We were drowning in cases that we thought were catastrophic case management cases but really were not. They were care coordination or lifestyle counseling cases. As a result we were killing ourselves on being conservative and sending all of these cases which appeared to be catastrophic cases down the road for catastrophic case management."

The problem stemmed from the fact that the health plan's sys-

tem couldn't identify which cases were catastrophic and which were not until the care management process was well under way, Sherrill explains. As a result, BCBST's case managers had large, administratively burdensome case loads, many of which were inappropriately identified. The result was considerable waste in staff time and energy and a crew of unhappy case managers. That produced a high turnover rate for the health plan's case management staff because of the heavy workloads.

In response, BCBST began to investigate ways to better manage its care coordination services beyond simple case management, Sherrill says. "We were looking for a way to improve and increase our care coordination capabilities and efficiencies without increasing staff," she says.

With support from TriZetto's staff and BCBST's internal information services staff, Sherrill identified MCSource, a predictive modeling tool developed by ViPS, a Baltimore-based healthcare data management firm, and pilot-tested it on historical claims data to find out whether it could benefit BCBST. "We took one year of historical claims data and threw that into predictive modeling," Sherrill says. "Then we compared those members against the following year's claims data that we had so we were comfortable with the fact that predictive modeling would actually deliver what it promised to deliver."

That comparison revealed that adding an integrated predictive modeling component to the health plan's case management process could yield dramatic financial and administrative efficiencies by more accurately identifying cases that would be appropri-

ate for chronic disease management and by doing so more timely.

BCBST acted on those results and instituted the component in 2003. In the months since then, the strategy has helped BCBST more than double the average monthly savings per case manager from \$116,000 to \$291,000. "We were amazed at how very different that result would be if you applied that logic versus using clinical assessments to decide if a patient was appropriate for catastrophic case management, our care coordination programs, or health lifestyle counseling and coaching," Sherrill says. "We went from having about the same number of referrals coming into our department in both 2002 and 2003 -- around 30,000 -- but the number of cases that went to catastrophic case management fell from almost 17,000 cases to 10,000 cases."

As a result, BCBST was able to shrink its case management staff and redeploy its case managers to other care coordination activities where they could produce more targeted results. "We went from having a department of 65 case managers in 2002 to 53 in 2003," Sherrill explains. "We funneled the inappropriate cases off, and case managers were getting the cases quicker. And because they didn't have to assess whether these were appropriate catastrophic cases, they could begin the case management process quicker."

Those efficiencies also improved the case managers' job satisfaction levels, Sherrill adds, resulting in a 10 percent drop in staff turnover from 2002 to 2003.

"We've had some pretty astounding results by being able to use something that pulls us away from a very laborious clinical assess-

ment process to decide what programs to place patients into and move us toward a system that has reduced the number of cases for case managers, increased savings and allowed us to develop new care coordination programs for patients," says Steve Coulter, M.D., senior vice president and chief medical officer at BCBST. "By placing into the care management program only those cases that need to be there, BCBST has nearly tripled its savings and enabled the health plan to more efficiently use its staff in other areas, enhancing services to plan members participating in those programs and producing cost savings for the health plan. Our ability to accurately model care scenarios has led to better member care and a more attractive, full-service health plan."

As a result of those benefits,

BCBST will launch eight pilot DM programs in 2004 to coordinate care for several other impact conditions, says Sherrill. "We're moving to a broader group of strategies to handle the broader population, whereas in the past it was focused mainly on the catastrophic population."

BCBST has done "a great job of targeting the care management process," adds Val Dean, M.D., vice president of Care Management and Network Management for The TriZetto Group. "They've used the data that they've had and have been sitting on for years and combined that with some predictive modeling tools and are now using that system to target those members for whom it would be valuable from both a quality of care and cost of care point of view if they intervened."

Finding those people who are

costly or have complicated health-care issues where the outcome can be improved is the key to doing efficient and effective care management," Dean tells *DM News*.

"They've really proved that over the last 18 months in Tennessee. They've shown that you can expand the effectiveness and reach of your care management program without increasing the number of staff if you do accurate and effective predictive modeling of who needs to be involved in your care management processes."

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## Look Beyond DM for Uses of Predictive Modeling

Predictive modeling tools can do more than identify and stratify future high-cost cases for disease management (DM) organizations and health plans, says Val Dean, M.D., vice president of Care Management and Network Management for The TriZetto Group, a Newport Beach, Calif.-based healthcare information management firm.

Consider the powerful software for these purposes, too, he suggests:

**Risk management.** Predictive modeling tools can be used to predict high-cost populations and areas of high resource consumption within a plan's membership, thereby assisting with marketing, actuarial pricing, underwriting and benefit design.

**Provider profiling.** Some predictive modeling software is becoming very good at comparing providers on an apples-to-apples basis. This information can be valuable in identifying the quality, efficiency and costs associated with various providers. Provider profiling is fraught with controversy, but such data can be very useful in educating physicians about variability from practice norms, improving overall and patient-specific quality of care, and directing specific patients toward efficient, high-quality physicians. Ultimately, members and employers can benefit from access to this information on many important attributes of providers and networks.

### Return on investment (ROI) calculations.

Predictive modeling can now help determine a DM organization's or health plan's ROI for care intervention activities. In care management today, the pressure is on to prove that an intervention activity saves more money than it costs. Yet, an ongoing debate exists about how to determine ROI, which must take into account several cost factors, including manpower, software, licensing and the general inflation rate of healthcare costs.

**Product pricing.** Predictive modeling tools that foretell

specific costs per employer can be valuable in helping actuaries and underwriters price products at the employer level.

**Delivering information to members.** As their out-of-pocket expenses continue to rise, members are starting to demand cost and quality information so they can make more informed healthcare decisions. Predictive modeling tools can play a part in helping to transform health plans from transaction managers to information managers.

**Improving quality of care.** The tools can be used to survey your population about compliance with preventive care measures such as mammography or colorectal screening. Your plan can then target specific members for communications encouraging appropriate self-care. Specific patients can also be matched to their physicians to achieve greater compliance with care guidelines.

While each of these benefits can be realistically achieved with predictive modeling, purchasers also should be aware of the limitations of predictive modeling, Dean cautions. A primary limitation of predictive modeling is that it's only as good as the data available. "The tools are getting sophisticated enough to generate fairly high accuracy using relatively small amounts of data, but their predictive ability increases with every piece of additional data," Dean says.

Another issue with predictive modeling tools that may affect cost is the frequency of determinations you make using it. If your goal is to locate patients as quickly as possible to begin early interventions, you have to be ready to exercise your software often or, at least on new members, within a reasonable time frame, Dean says.

"Understanding the costs and resources, both internal and external, of running the predictive modeling tool in your plan is an important consideration in understanding long-term value," he says.

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## Plan Before You Buy When Shopping for Predictive Modeling Tools

Predictive modeling has emerged as one of the hottest software tools available for disease management (DM) firms and health plans involved in DM to identify and stratify people enrolled in their DM programs in order to predict and target future costs. As the accuracy of predictive modeling grows, health plans have become extremely eager purchasers of predictive modeling software as they struggle to rein in costs. As a result, they are lining up to take advantage of the technology for use in their DM programs and other product lines.

Chattanooga, Tenn.-based Blue Cross Blue Shield of Tennessee (BCBST), whose experience is chronicled in the story on p. 1, is one of them. Integrating a predictive modeling tool into its existing data management systems has helped the health plan more than double its savings while enabling the organization to enhance its other care coordination programs.

But for every BCBST, there are many other health plans that are wasting money on pricey predictive modeling tools, says Val Dean, M.D., vice president of Care Management and Network Management for The TriZetto Group, a Newport Beach, Calif.-based healthcare information management firm. These organizations are guilty of trying to kill a fly with a hammer when a flyswatter will do, he says.

The problem stems from failing to determine a valid and cost-justified strategy for using predictive modeling tools before buying them, Dean says. "I see health plans that have purchased relatively expensive predictive modeling tools without thinking through how they were going to use them," he tells *DM News*. "And because of that they are not getting full value."

For example, Dean has seen health plans where the care management departments operating in a silo buy predictive modeling software to help their nursing staff better target whom they should intervene with. But the underwriting and actuarial departments in these organizations don't know that they have this predictive modeling tool in-house.

In other instances, Dean has seen health plans buy predictive modeling software with the sole intent to identify patients that are going to be costly and to design interventions to pursue them. That's a valid reason for investing in a predictive modeling tool, he says, but these same tools can be used to profile provider networks and target providers who are not achieving the kinds of outcomes that are expected across a specific disease by following care management guidelines.

"Health plans really need to sit down and think about all of the processes that go on in [their organizations] that might be improved by understanding the predictive modeling tool and its capabilities before they purchase it," Dean advises. "At one level I'm saying if you're going to go out and spend this kind of money it should be a plan-wide decision, an enterprise-level decision, and all of the processes in the enterprise should be considered for how they can use the output. From the other point of view, there are plans that probably should not invest in some of these more expensive predictive modeling tools because with the data they have in their claims system or data warehouse and some relatively simple tools, they can do a fair degree of identification and stratification of their population for disease management

purposes without purchasing expensive tools."

For example, predictive modeling tools offer a degree of sharpness and targeting, but they are not absolutely necessary for purposes such as calculating HEDIS scores, which is one reason many health plans are buying predictive modeling tools, Dean says. "There's plenty of data within the health plan already to do some campaigns to improve disease-specific HEDIS scores. You have to sit down and ask what you're going to use the tool for and then can you justify the cost of these products based on how much benefit you're going to get across all the different business cycles that the health plan is dealing with."

Dean recommends that DM organizations and health plans keep the following principles in mind to determine whether purchasing predictive modeling software will provide benefits beyond an organization's existing in-house capabilities:

**1. Predictive modeling tools are most valuable when data sources are available and integrated within the health plan and when multiple departments use the tools.** Currently, some health plans are buying multiple variations of these tools without a cohesive, company-wide strategy. Determining each department's goal for using this technology will help you identify the functionality you'll need.

**2. Predictive modeling may not be cost-effective if used solely for DM.** Most health plans with access to pharmacy data can relatively easily identify and stratify patients with specific diseases without investing in predictive modeling software.

**3. You probably don't need to buy predictive modeling software just to improve HEDIS scores.** You may already have the data and tools in-house to do reasonable identification and stratification for improvement of these scores and other quality issues.

**4. Purchase a simple reporting tool if you only want to extract information from your data warehouse.** It will be much less expensive than buying a predictive modeling license.

**5. If you want highly targeted lists of patients within disease categories in order to tailor interventions to specific patients, then you need the extra horsepower of a full-capability predictive modeling tool, especially if your organization will also be using it for pricing and network decisions.** Together, these uses maximize the tool's functionality.

**6. Once you determine the applications for predictive modeling in your organization and how these tools support strategies throughout it, think about your long-term strategy for this technology.** What will you need and want to do next year? In three years? In five? Deciding your long-term goals will help you align the predictive modeling tool's capabilities with these plans.

"Defining your long-term strategy for using these tools across your company will help you make the best purchasing decision when it comes to predictive modeling," Dean says. "And sometimes the best decision is not to purchase at all."

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