

How Blue Cross Blue Shield of Massachusetts is Improving Members' Health Benefits through Web Personalization



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Healthcare is on the national agenda, as evidenced by the steady stream of news stories and the healthcare reform law that was recently passed. We need to control costs, improve the quality of healthcare, and provide coverage to more people. These are challenging goals that can be achieved only through contributions from multiple stakeholders. There are also important contributions to be made by using information technology and business intelligence.

Health plan companies will play an important role in solving the nation's healthcare problems. I was encouraged to learn of the outstanding work that is being done at Blue Cross Blue Shield of Massachusetts (BCBSMA), which won this year's TDWI Best Practices Award in the Customer Intelligence category. BCBSMA has developed a Web portal that uses member, benefit plan, and claims data along with a sophisticated rules engine to deliver personalized messages that help members manage their health benefits. I invited several members of the Informatics and eBusiness team at BCBSMA, creators of the portal, to describe the work they are doing.



Figure 1. Personalized member portal

About Blue Cross Blue Shield of Massachusetts

BCBSMA is a locally based, community-focused health plan provider with nearly three million members. It promises “to always put our members first,” with a vision of having a “transformed healthcare system that provides safe, timely, effective, affordable, patient-centered care for all.” BCBSMA strives to accomplish this in part through prevention, wellness, and care-management programs tailored to its members. BCBSMA believes in rewarding doctors and hospitals for delivering safe and effective care, and in empowering patients to take more responsibility, become educated healthcare consumers, and become stronger partners with their doctors. Success depends largely on the extent to which BCBSMA can educate its members about their health and to take steps to reduce their out-of-pocket expenses.

The Challenge

Previously, BCBSMA’s Web interactions were limited to members logging in to check their health insurance plan benefits and claims history. This passive, static interaction did not engage them in their healthcare. BCBSMA also tried to educate members about healthcare-related programs through newsletters, but they were seldom read. The company’s challenge was to find a cost-effective way to deliver secure, personalized health-related messages to its members. BCBSMA had several new initiatives to reduce healthcare costs that were heavily dependent on

an engaged, educated consumer base making informed decisions about preventive care, provider networks, and the use of appropriate care sites. Millions of dollars in potential savings were at stake.

The Personalized Member Web Portal

To engage and help members in managing their healthcare, the Informatics and eBusiness team came up with an innovative solution that uses a rules engine and member data in the data warehouse to generate cost comparisons, member health alerts, and reminders that are delivered through a Web portal. The member message and the hierarchy of the alerts and reminders are personalized for each member and are generated and delivered automatically. Figure 1 shows the new BCBSMA member portal, which features personalized alerts and reminders on the right-hand side.

The alerts and reminders that a particular member sees depend on what BCBSMA wants to emphasize at any point in time and how appropriate they are to that member. For example, BCBSMA may want to emphasize that members need to have a primary care physician rather than going to the emergency room when they need routine care. This emphasis is put into the rules engine that determines what alerts and reminders are shown on each member’s page and their priority or ranking. For some members, this reminder may be ranked highly on

the page, while for those members who already have primary care physicians, there is no need for the reminder.

Table 1 shows the alerts and reminders that are currently in place and active in the portal. Table 2 shows those that are planned.

How It Works

Figure 2 shows the information flows for creating the alerts and reminders. At the left-hand side of the diagram are the subject areas (e.g., claims and enrollment) that are maintained in BCBSMA's enterprise data warehouse and provide the data upon which the alerts and reminders are based. The warehouse platform utilizes Netezza and IBM's DB2 technology.

The Member Health Intelligence (MHI) engine sources data from the warehouse. It then takes the rules that are used in generating the alerts and reminders and applies them in the form of SQL queries. The results are stored in the MHI data mart. The MHI data is used to push out member alerts and reminders and for reporting (e.g., dashboards) purposes. When a member clicks on an alert or reminder, it is recorded in a Web log file. This information is fed back to the MHI engine, along with any subsequent action taken by the member.

For example, a member may receive a reminder about eligibility to join a gym as a fitness benefit. When a member clicks on the reminder, this data is collected. If the member later joins a gym and files a claim, this data enters the data warehouse and becomes available to the MHI engine. Because this member is using this fitness benefit, the MHI engine will no longer provide the fitness benefit reminder.

Sometimes alerts and reminders are pushed to specific subsets of members. For example, management may want to target only slightly obese members for the fitness benefit reminder. More customized campaigns may also be created. For example, BCBSMA may want to promote a "Go Walking" campaign to encourage people to take daily walks. The data warehouse is used to identify the targets of the campaign, who receive the collateral through their personalized portal. Although the MHI

Alert or Reminder	Description and Purpose
Select a primary care physician (PCP)	Member needs to select a PCP, which helps reduce unnecessary visits to emergency care
Use a mail order pharmacy	Member is using higher co-pay retail pharmacy prescription drugs that could be ordered by lower co-pay mail pharmacy
Use fitness benefit	Member has a fitness center benefit but has not used it
Personal health assessment (PHA)	Member has not taken PHA
Brand versus generic Rx	Member is using higher co-pay brand prescription drug for which a lower co-pay generic drug exists

Table 1. Alerts and reminders currently in place

Alert or Reminder	Description and Purpose
Facility versus independent lab usage	Member is using a more expensive facility (hospital) lab instead of an equivalent independent lab
High-cost provider	Member is using a high-cost provider for a service for which there is a low-cost provider with equivalent or better service quality
Member not taking prescribed medication	Based on computed Medication Possession Ratio, it is determined that member is not complying with doctor's prescriptions
Cholesterol, breast cancer, cervical cancer screening	Member is due for preventive screenings
Health condition screenings for diabetics	Member is due for diabetic condition screening
Renew health plan	Member's health plan is coming up for renewal

Table 2. Planned alerts and reminders

engine is currently used only for supporting portal-based campaigns, the member lists that are generated could potentially be used with other channels, such as electronic messages or direct mail campaigns.

The Cognos-based dashboards provide information about the effectiveness of the alerts and reminders. For example, it is possible to compare the number of members who clicked on a particular reminder (such as for fitness