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## HEALTH

*Perspectives*

## Competitive Intelligence Gathering and Analysis

by Thomas Nightingale

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#### OVERVIEW

In a competitive environment, health insurance organizations need to develop strategies that will maintain and hopefully improve their competitive

position relative to other organizations in the marketplace. These strategies, often developed using techniques such as SWOT analysis (Strengths-Weaknesses-Opportunities-Threats), are based on perceptions of the marketplace and one's own current and projected future position within the marketplace. Bringing those perceptions as close as possible to reality is the function of competitive intelligence gathering and analysis.

Most health insurance organizations have a department or unit that is responsible for collecting market and competitor intelligence, organizing it, archiving it and occasionally reporting on it. In addition, every organization has an informal process of intelligence gathering through the sales force. Between the two sources, enormous amounts of incomplete, unreliable, filtered and frequently conflicting information is accumulated and reported to management, who are then expected to make sense of it.

This competitive intelligence process,

which is typical of many health insurance organizations, has two primary flaws. First, information gathering targets external sources and then only specific competitors. Often missing from the information gathering process are general market data and internal performance statistics, both of which provide valuable information that can be used for inference of competitor actions and for validation of the specific competitor intelligence. Second, management is not supported with analysis of the information collected that attempts to correlate all of the different pieces of the competitive puzzle into a coherent whole.

#### INFORMATION ON SPECIFIC COMPETITORS

The holy grail of competitive intelligence is, of course, unambiguous, verifiable information, specific to a particular competitor, that results in actions being taken to improve the competitive position of the company. Data gathered about specific health insurance competitors includes their rating formulas and factors, their benefit plan descriptions and rates by plan. It also includes information about the cost structure underlying the rates quoted. This includes administrative load, profit (or loss) margin, provider discounts, medical management, etc. If this information can be obtained, it can be compared to the same data internally and strategies can then be devised to improve competitive position.

This type of information, if available, is the most direct and useful for strategy development. Once it is understood why a competitor is reacting as it does in any given situation, one can determine an effective counter-reaction. Is the competitor under-pricing? Is the competitor simply misunderstanding the risk and pricing inaccurately? Or does the competitor have more competitive pricing (i.e., a lower cost structure)?

Unfortunately, the most useful information is often the most difficult to obtain; and when information is received it is frequently anecdotal and must be converted to an apples-to-apples basis for comparison to internal data. In order to minimize the anecdotal nature of the information and to assist in making comparisons, a coordinated plan for collecting and analyzing the information is necessary. Establishing in advance what information should be targeted, why it is important and how it will be used will facilitate the analytic process that must follow data collection.

There are typically three categories of competitor-specific intelligence that is gathered. The first includes general information such as news articles and press releases about new products, pricing, new sales, and financial condition. It also includes freedom of information law requests from insurance departments for quarterly and annual financial reports. The value of this information comes from understanding that most organizations will respond in a similar manner to similar key metrics. All companies have corporate goals that include some version of (1) grow and

(2) make money. Other mission items may be intertwined, but enrollment growth and positive financial performance are always present. Thus, the question to answer in collecting and analyzing this information is, “Is the competition exceeding or lagging in attaining growth and financial performance goals?” Then, given their recent performance, what is their likely response?

The second category is product-specific information. Included in this category are benefit plan descriptions, product-specific rates and benefit relativities, rating formulas and factors, or underwriting guidelines. In addition, this may include underlying cost structure data such as administrative loads, profit margins, discounts and medical management features. The value of this information determines whether the competition is structuring its rating formula, factors, or underwriting to attract certain types of groups or enrollees and push away other types.

The underlying cost structure data (e.g., administrative/profit loads, discounts, and medical management) is useful for understanding, on a benefit equivalent basis, where the competitor rates should be, independent of any group-specific rating decisions. Such analysis will necessarily be high level, given the information that may be available, so caution must be used since unknown factors may be affecting a particular pricing decision by the competitor. However, this analysis may determine whether there is an underlying cost structure problem that needs addressing independent of any rating process.

The third category is group specific information. Included in this category are benefit plans and rates proposed to group accounts, renewal exhibits, proposals, administrative services only (ASO) fee quotes, financial arrangements, and provider network information. The group specific information requires fairly intensive analysis to make it useful since each quote needs to be analyzed on an apples-to-apples basis. Benefit packages need to be valued; financial arrangement needs to be considered; etc. However, this is often the most easily available data so it needs to be mined as much as possible for the same type of information noted above under product-specific intelligence.

#### GENERAL MARKET TRENDS

The same general industry trends and market forces that affect an organization also affect the competition. Hence, it is beneficial to maintain a close watch over these trends and forces by accessing broad-based information sources such as brokers, consultants and multi-organization surveys. This information is valuable in two ways. First, understanding internal responses to general market trends will indicate how the competition may be reacting to those same trends. Second, it can help corroborate other information that is collected about the competition.

#### THE YIN AND THE YANG

While it may seem counterintuitive, some of the best information (from a data quality standpoint) about the competition is internal data. Sales statistics and loss ratios are strongly affected by the competition's

actions. Unfortunately, this useful source of information is often overlooked in the competitive intelligence process. Parsing lines of business into segments and tracking certain statistics for each segment can help identify areas of potential pricing inequity and degree of aggressiveness within the rating process and, by inference, within the competitor rating process. There are two types of internal analysis that “best practice” organizations perform; market segmentation analysis and rate quote process tracking.

Market segmentation analysis is the name given to a wide range of statistics produced by market sub-groups, within major marketing regions. The statistics tracked include:

- Market size and market share
- Number of quotes made and closed per period and close ratio
- Group retention ratio (lapse rates) by period
- Loss ratio of retained groups compared to target loss ratio for market segment
- Historical loss ratio of lost renewals
- Post-sale loss ratio of new accounts
- Rate concessions made by underwriting or sales to obtain new business or negotiated during the renewal process

Care should be taken in determining which business segments to analyze. Major market segments typically established by health insurance organizations are often too broad to detect useful information about the rating process and how the competition is

interacting with that rating process. For example, the weight given to manual rates versus experience rates will typically vary by group size within a merit-rated category of groups. However, if the merit-rated category is monitored only in total, it is not possible to detect whether the experience rating process is inadvertently creating a differential effect by group size and, if so, how to correct the problem.

A corollary to market segmentation analysis is rate quote process tracking. This is a simple (in concept) device to determine accuracy of the rating formula/factors along with underwriter judgment and the degree of aggressiveness in the final quote or renewal. For each new quote or group renewal, rate, expected loss ratio, and retention are monitored through the rate development and negotiation process: (1) as produced by the rating formula, (2) by the underwriter after adjustments, and (3) as negotiated to final sale by the account. Besides the obviously useful function of internal performance monitoring, both rate quote tracking and market segmentation can be useful for inferring competitor actions and providing validation to external intelligence.

#### **STRUCTURE, PLANNING, AND RESOURCES**

While the specific data and information gathered may vary from organization to organization, depending upon need and market position, all of the best performing organizations have a structured process for gathering, analyzing and disseminating market and competitive intelligence. Employing a structured process helps ensure

that intelligence gathering and analysis becomes (and remains) a priority among the demands on staff and management time.

Perhaps more importantly, a structured and planned process of competitive intelligence gathering and analysis helps to separate facts from impressions. New pieces of information, even when accurate, if observed in isolation can lead to inaccurate conclusions; and adding context often cannot be accomplished in the time frame required for a decision. It requires time, effort and pre-planning to identify key external and internal statistics that can help add context as new information is available.

While most organizations collect competitive intelligence, few organizations have a robust analytic process for understanding the information collected. The analytic process requires time and effort not just from the market intelligence staff, but also from other subject matter experts such as actuaries and underwriters. If these resources are not freed up to perform analysis then the most reliable analysis will not occur. Without doubt, there is a cost associated with this process, so each organization must decide where cost and value are appropriately aligned.

# A Double Cheeseburger – A Better Predictor of Future Health Risks?

by Chris Stehno



The 2004 INTERHEART study demonstrated that over 90% of your chance to have a heart attack is based on lifestyle factors with nutrition and abdominal obesity ranking high on the list. The study also noted that personal medical history, family medical history and genetics accounted for less than 10%.

More and more we are seeing new scientific literature that show strong correlations between lifestyles and a number of diseases. Knowing you regularly eat double cheeseburgers and large fries for lunch may tell us more about your future health risks than looking at your historical medical records.

A new measurement technique known as Lifestyle-Based Analytics (LBA) offers enormous promise to patients, doctors and medical insurers. Existing and widely available data on the lifestyles of individuals can be analyzed with an eye toward early disease detection. Accordingly, these consumer-based lifestyle data are proving to be a valuable resource in identifying disease and pre-disease conditions.

## CONSUMER DATA

On a consumer level, the average amount of information stored for any particular individual can be estimated by Disk Storage per Person (DSP) measured in megabytes/person/year. In 1985, DSP was estimated at 0.02, grew to 28 in 1996, skyrocketed to 472 in 2000 and is projected to be an astronomical 3,700 in 2006.

Where is this data coming from? It is coming from a wide variety of sources such as: the US Census, public records, financial services, warranty and registration cards, internet transactions, affinity programs, and transaction cards.

Currently, over 95% of US households in the US have significant amounts of consumer data tied to their addresses. In the insurance industry, the emergence of this data is providing a first time look at the lifestyle and psychographic trends in our marketplace as they relate to health risks.

Many of the 1,000 plus data elements that can be found in today's marketplace revolve around lifestyle-based descriptors. Examples of these types of data elements include food purchases (fast food, diet food, vegetarian, gourmet), self improvement (health/fitness, dieting/weight loss), fitness activities (aerobics, running, walking, tennis, golf), physical inactiveness (television time, computer time, board games, stamp collecting), tobacco preferences, travel, occupation, and vehicle type.

## LIFESTYLES & DISEASE

Many of the lifestyle choices made daily, whether conscious or unconscious, have an impact on an individual's risk for disease. The following are examples of this:

- Cigarette smoking is highly correlated with cancer of the lung, larynx, oral cavity and esophagus. Tobacco use has strong ties to cardiovascular diseases, respiratory diseases, reproductive effects (infertility, low birth weight and other complications), and a variety of other diseases including cataracts, hip fractures and low bone density.

- Obesity shows correlations to heart attacks, congestive heart failure, angina, diabetes, various cancers, sleep apnea, arthritis, complications of pregnancy, gall bladder disease, and depression.

- Alcohol consumption is related to liver disease, hepatitis, cirrhosis, heart disease, cancer of the esophagus, mouth, throat, and larynx and pancreatitis.

- Pollutants in the environment where we live and work are tied to cancer, asthma and cardiovascular problems.

- Poor nutrition and inactive lifestyles tie to obesity and obesity related diseases. In addition, poor nutrition and inactive lifestyles also correlate to osteoporosis, osteoarthritis, rheumatism, and lower back pain.

- Stress indicators such as financial situation, family situation, and occupation, have strong ties to depression, anxiety, back pain, obesity, cardiovascular and other diseases and medical conditions.

- Pregnancy, a medical condition rather than a disease, is another highly predictable circumstance and is based on factors such as family size, ages of current children, family status and financial indicators.

## INDUSTRY APPLICATIONS

The major use of consumer data in the insurance marketplace today has centered on marketing applications. Direct to consumer marketing efforts as well as agent directed marketing efforts are all using consumer data in one way or another.

*See Lifestyle-Based Analytics on page 12*

# Medical Cost Trend for Special Populations: A Case Study of Cancer and Disease Management

by Kathryn Fitch



TREND, in all its variations, is a pervasive concept throughout the healthcare industry. Today, the development of benefits programs for people with special care

needs is forcing payers to look at an entirely new dimension of trend – how costs vary by disease.

Trend commonly means “inflation” – but any particular trend is really defined by how it will be used. For example, a per-member-per-month (PMPM) trend might be used to set the renewal premium for a group benefit program, while a trend in hospitals’ per-day costs might be used to adjust a hospital fee schedule. For decades, actuaries and others have refined trends and their use and many publications discuss how trends vary for particular services, such as hospital care or prescription drugs, or the many factors that can affect trend – changing benefit designs, cost shifting, demographic changes, etc.

Programs for “special populations” are becoming more popular and these programs are requiring a new examination of trends, particularly because they may experience different trends than total population trends. Disease Management (DM) programs focus on special populations, particularly people with chronic conditions including congestive heart failure, diabetes, coronary artery disease or asthma/COPD. Medicare and many state

Medicaid programs support numerous DM Demonstration Projects and also Special Needs Plans. Financial outcomes for these programs, including financial guarantees, depend on choosing appropriate trends.

This article reports on a client study related to a narrow area - cancer DM and medical cost trend. The authors found that the medical cost trend for cancer patients is increasing more than total population trend and illustrate the importance of adjusting for this higher trend when performing DM financial reconciliation. As described below, changes in medical practice support our findings – it makes sense that per capita cancer treatment costs are growing faster than trends for the total population. This should be a concern to payers/employers as people with cancer account for about 10% of a typical employer (or commercial) benefit program cost – a significant cost driver (Milliman Report, Cancer Screening: Payer Cost/Benefit thru Employee Benefits Programs, November 2005).

## A TREND ISSUE IN TYPICAL DISEASE MANAGEMENT CONTRACTS

Disease Management services continue to experience double digit growth in both public and private sectors. DM vendors, whether stand-alone companies or business units within insurers, charge for their services, and sophisticated buyers often hold the vendors accountable with contracts that require a partial refund of fees if performance targets are not met. In this report, the authors focus on financial performance targets and the use of trend.

Measuring financial outcomes for DM contracts is controversial (see sidebar). However, most contracts define a “Return on Investment” (ROI) that calls for a reduction in trend for a disease-specific subpopulation compared to the total trend for the entire population. These are typically measured between some defined “baseline” year and an operational year. For example, if the per-member-per-month trend for a Health Maintenance Organization (HMO) turns out to be 10%, the contract may specify a target trend for a DM subpopulation two points lower, or 8%. Implicit in this method is the assumption that the DM subpopulation would have the same trend as the total population if unmanaged. This report presents a DM subpopulation where this assumption does not hold.

Advocates claim DM impacts total population trend by reducing the unit cost of services (through steerage to lower cost services) and by reducing utilization (through avoiding inappropriate use of services). If this occurs, the medical cost trend for the DM population will be lower than it would have been without management. However, if a DM subpopulation would have had a much higher trend than the total population, a DM program could have a significant impact and still show a trend higher than the total population. Few organizations can establish an appropriate “treatment arm/control arm” structure – hence the need for an appropriate proxy for a DM subpopulation trend.

**TREND USE IN A TYPICAL DM “ROI” SETTLEMENT**

There are scores of contractual variations for DM financial measurement and settlements, but we present a simplified version of a typical approach below:

1. DM Cohort PMPM

- Calculate baseline year PMPM for members meeting criteria for each DM cohort.
- Calculate operational year PMPM for members meeting criteria for each DM cohort (or for actual members managed)

2. Total Population Trend

- Calculate baseline year PMPM for total membership
- Calculate operational year PMPM for total membership
- Calculate cost trend between base year and operational year for total membership

3. Calculation of Savings

- Apply total population cost trend to base year PMPM for each DM cohort to produce “trended base year PMPM”
- Compare each “trended base year PMPM” for each DM cohort to actual PMPM of DM cohorts in operational year
- Compare the savings to the amounts paid to the vendor for “ROI”

**IS THE TOTAL POPULATION TREND RIGHT FOR DM SPECIAL POPULATIONS?**

Medical cost trends are influenced by many factors that impact cost and utilization of health care services. Using the total population trend to measure DM program impact has the advantage that it captures many of the standard trend considerations including:

- Change in membership: age/sex distribution or health status
- Change in contracted rates or contract arrangements (fee for service vs. capitation)
- Change in covered benefits (cost sharing)
- Physician practice patterns
- Regulatory changes

However, the total population trend does not adjust for disease-driven trend

considerations that may be concentrated in special DM populations such as:

- Treatment advances: surgery, biotechnology
- Diagnostic advances
- Changes in screening practices

Disease driven factors can lead to higher (or lower) trend in health-care costs for special populations causing a concern for bias with traditional ROI approaches that use total population trend. The example in Table 1 illustrates a typical approach where the total population trends at 10%, and the DM vendor has guaranteed to beat the total population trend by 2 percentage points. No adjustment is made for disease specific trend and, in this example, the cost savings are negative.

**TREND AND A SPECIAL DM POPULATION: CANCER PATIENTS**

For cancer patients, it makes sense that

*Table 1  
TREND in Disease Management Special Populations*

	Base Year PMPM (Cal Year 2004)	Op Year PMPM (Cal Year 2005)	Trend
Total Population	\$300	\$330	10.0%
DM Cohort			
DM Trend Guarantee compared to Total Population			-2.0%
Targeted DM Trend			8.0%
Actual Experience	\$1,500	\$1,665	11.0%
Guarantee (2 point trend reduction)		\$1,620	8.0%
Cost Savings (Loss)		(\$45)	

### MEASURING DISEASE MANAGEMENT PROGRAMS

The DM industry lacks a uniform methodology for demonstrating financial or clinical value, and skeptics question whether some DM programs cost more than they save. The Disease Management Association of America announced an initiative earlier this year in which they will develop a single, uniform system with which to measure the financial and clinical effectiveness of DM programs. CMS's approach to measuring financial value for their DM Demonstration Projects (Medicare Health Support, Care Management for High Cost Beneficiaries, and others) utilizes a randomized controlled study design with control and treatment arms. This approach addresses regression to the mean and selection bias; major challenges for traditional DM measurements and contracts. However health plans and employers are typically not positioned or willing to pay for and endure the rigor of this design. Even after the results of the CMS controlled studies, buyers will still need practical ways to hold DM vendors accountable for results.

For the short term, the pre-post study design, which measures change in medical cost trend, will continue to be the backbone of disease management financial reconciliation. The majority of disease management contracts today contain terms that require keeping the disease management population's trend lower than that of the total population's trend. But what if the disease management population, when unmanaged, experiences a trend that is significantly higher or lower than the trend of the total population? Will comparison to the total population's trend accurately capture the DM program's impact on medical cost trend?

trends will be significantly higher than the total population's trend for several reasons:

- Hospital-based care. Trends for hospital services have been higher than for physician services. Health plan cost trend surveys project 2006 trends for hospital services at approximately 12% while projected 2006 trends for physician services are reported at approximately 10%. People with serious conditions such as cancer often receive a higher portion of their total care at hospital facilities.
- Biotechnology products. Emerging

and advanced treatment for cancer is expensive. As we enter the biotechnology era, more advanced products, including chemotherapeutic agents that benefit cancer patients are being approved for use. The projected trend for biotechnology or specialty drugs, often used in cancer treatment, is projected to be approximately 22% for 2006.

- Radiation therapy: New RT approaches for treating some cancers may tend to be more expensive than the treatments they replace.

- Utilization of services. Advances in cancer treatment have allowed more aggressive curative and palliative treatment (e.g. multiple therapy treatments in place of single therapy treatments) which generates higher utilization. Utilization is also impacted by improvements in cancer survival rates extending the utilization of treatments over longer periods.

### DEVELOPMENT OF A CANCER-SPECIFIC TREND

Our analysis of historical claims data found that people with cancer generate annual medical cost trends that are higher by a factor of about 1.05 than trends for the total commercial population. This means that if an organization's total population trend is 10%, the trend for cancer patients would be 15.5% ( $1.10 \times 1.05 - 1$ ). We examined subsets of the MedStat MarketScan™ claims data 2002-2004. Note: because we used proprietary definitions of cancer cohorts, these figures may not be appropriate for cancer cohorts defined in other ways.

Table 2 on page 8, shows the application of this cancer-specific adjustment to Table 1 on page 6. This case uses a disease-specific adjustment factor that recognizes the higher expected trend for the DM cohort, and the calculation shows a gain. (In both Tables 1 and 2, we have ignored the fact that the DM cohort contributes to the total population trend.)

### CONCLUSION

Our analysis suggests that purchasers and providers of DM services need to consider whether the trends they currently use are

appropriate for their special population programs. We demonstrated that trends for people with cancer are higher than average, and other diseases are also likely higher than average. Payers will also want to know which conditions are associated with lower than average trends. As special population programs expand, we believe understanding the disease dimension of trend will be increasingly important.

**Table 2**  
*Application of Cancer-Specific Trend*

	Base Year PMPM (Cal Year 2004)	Op Year PMPM (Cal Year 2005)	Trend
Total Population	\$300	\$330	10.0%
DM Cohort			
Disease-specific trend adjustment factor			1.05
DM Trend Guarantee compared to Total Population			-2.0%
Targeted DM Trend			13.5%
Actual Experience	\$1,500	\$1,665	11.0%
Guarantee (2 point reduction)		\$1,703	13.5%
Cost Savings (Loss)		\$38	

**Please Note:** The healthcare trend for a particular organization is determined by numerous factors including changes in general inflation, fee schedules, health status, demographics, utilization management, physician practice patterns and random fluctuations. These are generally too numerous and complex to define precisely, especially for smaller organizations.

Healthcare cost trends are a complex issue and the information presented here may not be applicable to the reader's own organization. We recommend the reader obtain professional advice on the application of trend to a particular situation.

**CANCER SCREENING: PAYER COST / BENEFIT THRU  
EMPLOYEE BENEFITS PROGRAMS**

A report by a Milliman team shows that the cost of cancer screening for an employer is balanced by savings in medical, disability and life insurance programs. The report was funded by C-Change and the American Cancer Society.

The report assembles the impact of cancer screening using the following key assumptions:

- Cancer screening recommendations of the US Preventive Services Task Force
- Typical employer-sponsored demographics, benefit and cost levels
- Literature-based data on how much screening can reduce incidence, severity and mortality

The report, authored by Milliman's Bruce Pyenson, et al, contains additional information on the cost of cancer and is available at no charge at [www.cchangetogether.org](http://www.cchangetogether.org).

# Health Insurance Lessons from the Auto Insurance Industry

by Tia Goss Sawhney



The Insurance Research Council estimates that 86% of drivers are insured. Meanwhile, the Employee Benefits Research Institute estimates that only 28% of non-elderly

individuals not covered by public or employment-based plans are insured under individually purchased health insurance plans<sup>2</sup>. Why do 86% of drivers buy auto insurance while only 28% of people who otherwise do not have health insurance purchase individual health insurance?

There are some obvious reasons for the differences:

**1. Auto insurance is required by law in many states, while Massachusetts and Vermont are the only states to (soon) require health insurance.** But auto insurance laws are not uniform and are easily circumvented. Perhaps the recent Massachusetts and Vermont legislation will herald a new trend of states requiring health insurance.

**2. Auto insurance is required by auto loan lenders and lessees.** But there are ways to have a car without leasing or having obtaining a collateralized loan. A car can be purchased with cash, financed by home equity or credit cards, or any original indebtedness may be paid off.

**3. Auto insurance is more affordable than health insurance.** Yes, but not as much as you might think and not consistently.

According to the Insurance Information Institute, the average annual auto insurance premium per car in 2003 was \$821 and the average annual individual health insurance premium per family member in 2004 was \$1,484 (per America's Health Insurance Plans, Center for Policy Research). And auto insurance was particularly expensive in some cities. The average auto insurance premium for one city in 2003 was in excess of \$5,000 and four more cities had average premiums in excess of \$3,000 (per the Insurance Information Institute). These amounts would have provided individual health insurance for an entire family in much of the country (per America's Health Insurance Plans, Center for Policy Research).

Furthermore, there are good reasons why we could argue that individual health insurance should be purchased more often than auto insurance:

**1. Health insurance is more self-serving.** It directly protects you and your family, not someone else. Except in no-fault states, the mandatory portion of auto insurance coverage only covers your liability to other people. Given a limited budget, isn't it more rational to protect yourself from a health catastrophe than to protect someone else from injury or property loss?

**2. Many of the poorest people do not need to purchase individual health insurance** since they are covered under Medicaid and public programs and are not included in the above statistics. Everyone

who drives is included in the auto insurance market, regardless of their ability to pay for the insurance. Admittedly, most wealthy also do not need to purchase individual health insurance since they are covered under employment-based insurance.

The private health insurance market in total is shrinking. The number of people covered under employment-based plans is steadily declining as employers become less willing to provide health insurance and the economy shifts toward smaller employers. As a result the potential market for individual health insurance is steadily increasing, but this does not translate into increased purchases of individual health insurance. The number of people covered under individually purchased health insurance plans is essentially flat and the percentage covered is decreasing.

**In the current environment, the only opportunity for net growth in the private health insurance industry is to get more of the people not covered by employment-based and public plans to purchase individual insurance. The good news is that with only a 28% penetration, there is in fact plenty of opportunity for growth in the individual health insurance market. The auto insurance market provides us insights as to how this might be accomplished. The remainder of this article will discuss strategies that we can be borrowed from the auto insurance industry.**

**A. We need to see value in low maximum and limited benefit policies.** Low maximums are commonly available in

the auto insurance market, as are limited benefits. In the auto insurance market, some insureds will buy policies with limits as low as \$20,000 and other insureds will buy multi-million dollar limits; in addition to basic liability coverage, insureds can choose whether to add collision, comprehensive, and other benefits to their policy. Auto insurers and the public don't presume that everyone "should have" a multi-million dollar maximum and coverage for every auto risk. In contrast, while low maximums and limited benefits are available in the health insurance industry, insurers and the public alike often deride such policies for providing inferior coverage.

The public good is served anytime the insurance industry can sell policies, that insureds are willing to pay for, that absorb the risk of health insurance costs that insureds would otherwise be unable to pay for. This is not an excuse for price gouging (pricing well above expected claims) or deceptive marketing (selling a limited policy as a substitute for a comprehensive policy). It just means that some risk protection is better than nothing.

Suppose that an insured can only afford health insurance coverage that pays for claims between \$500 and \$25,000 – a very limited benefit compared to the \$1,000,000+ limits which are the health insurance norms. Milliman only expects 3% of people to have claims over \$25,000 in a year. Therefore approximately 97% of the insureds with such a policy would be

fully covered and even the other 3% would have \$24,500 more of coverage than they would have had. Just this much insurance for uninsured Americans would remove a significant burden from the individuals and from the American society which otherwise may have had to pay their bills.

**B. We need to understand that overly-equalitarian ideals do not work in a voluntary market.** If the low risk person has to pay the same premium as the average risk person, many will simply drop out of the market, raising the average risk and premium levels higher, causing more people to drop out. 72% of people (100% - 28%) have already dropped out of the individual health insurance market – most of whom could pay something toward some level of insurance. Of course any insurance plan will use good risks to subsidize poor risks to some degree, but more subsidy in total is generated from a small subsidy collected from a lot of good risks than from a large subsidy collected from only a handful of good risks.

We need to understand that an insurance market which differentiates risk, charging the best risks a favorable premium and the worst risks a higher premium, does not need to exclude the poor risks. It is possible to build a vibrant market that covers at least as many, if not more of the poor risks as are covered today – while rapidly growing the participation rates for the best risks. Furthermore, the state will probably always have a role in directly subsidizing or forcing

a subsidy for the worst risks.

The history of auto insurance provides a positive example. All states have "shared markets" which through various mechanisms guarantee that auto insurance is available to those who cannot obtain it in the private market. However, according to the Insurance Information Institute (III) *"The percentage of vehicles insured in the shared market is dropping (down to 1.6% in 2002), in part because of growth in the nonstandard market."* The III goes on to say *"With advancements in computer technology that made it easier to set appropriate prices for smaller and smaller risk categories, some insurers began to specialize in insuring drivers with marginally bad driving records.... By the late 1990s, the nonstandard market accounted for about one-fifth of the total private passenger auto insurance market."*

We can contrast this with health insurance in New Jersey. By not allowing medical underwriting and using a community rating rule, New Jersey has imposed socialism on the voluntary individual health insurance market. As a result New Jersey individual health insurance premiums are roughly 300% the national average for the individual market and New Jersey citizens have the lowest overall participation rate in the individual market.

Once we understand that socialism does not work, we need to then convince both the

public and state regulators.

**C. We need far more sophisticated methods for risk evaluation and rate setting.**

Health insurance premium rates are commonly printed in brochure form, giving the rates by benefit level, age, sex, area, and perhaps a couple of other variables. Furthermore, according to AHIP, 88% of individual health insurance applicants are accepted -- 68% at standard rates, 19% at sub-standard rates, and 1% with excluded conditions. Therefore 68% of applicants get the rates and benefits printed in the brochures. This is tantamount to saying that these people have no differences in health risk profiles, other than differences captured by age and gender: for example that 68% of males age 40-45 sharing a zip code, also share a common health risk profile. Nonsense!

In contrast, there are no rate brochures for auto insurance; there have not been for decades. Even before the advent of today's computing technologies, the auto insurance industry realized that there are a multitude of variables impacting risk. In today's computing environment they are using more variables than ever, from a variety of data sources, not just what the applicant reports during the application process, pulled together by advanced predictive analytic models. Auto insurance policies can be underwritten faster than ever, usually in minutes, with more risk differentiation, and less human involvement. In contrast the individual health insurance

underwriting and rating process has not fundamentally changed in decades. It is still largely paper bound, slow, and manual – an “art”, not a science.

Auto insurance focuses on assuring that applicants are placed into the appropriate risk/rate category; furthermore insureds seamlessly shift between risk categories over time. Individual health insurance in contrast focuses on excluding the worst risks and, with the exception of premium differences based on age and gender, assigning everyone else to a single risk category – a risk category that they will often stay in for as long as they maintain their policy. But insureds do not belong in a single risk category, nor should they stay in the same risk category over time.

Every insurer knows that there are significant numbers of insureds in every age category for whom insurers will pay zero claims in a given year – sometimes as many as 50% of the insureds. Furthermore, these “\$0 claimants” have a supernormal chance of having \$0 claims in the following years, with a minimal chance of a large claim. In contrast, an insured with even a low level of claims has a substantially lower chance of \$0 claims in the following years and a much higher chance of a subsequent big claim. Yet the industry makes no attempt to differentiate at the time of underwriting and rating between insureds who are likely to produce \$0 claims and insureds who are likely to produce low claims. As a result many likely \$0 claimants rightfully feel that

insurance is over-priced for them and stay out of the health insurance market.

The technology exists for this type of analysis and the rewards go to the insurance company who can learn to do so with even a little bit more accuracy than its competitors. Far more science goes into the underwriting and rate making when an auto insurer underwrites an insured for a \$50,000 liability policy than when a health insurer underwrites for a health insurance policy with a \$5,000,000 maximum. It is time to substitute science for art in individual health insurance underwriting and rating.

Of course, it will not be easy for health insurance companies to re-think their underwriting processes in order to assign insureds to an array of risk categories. Nor will it be easy to convince regulators that the public good can be served by allowing additional risk classification, including risk classification that can change, even adversely, after policy issue. And finally, like we have for auto insurance, we would need mechanisms to give access to the insurance market to even the highest risk individuals.

It is worth noting that risk-differentiated health insurance does not mean that guaranteed renewable, single risk class policies like those we have today need to be eliminated – they simply must be priced appropriately and be allowed to compete against more dynamic products.

Finally, consider the added benefit that

results from risk differentiation: it changes behavior. What stops us all from driving 100 miles an hour down the highway? For many people, it is neither the risk of an accident nor the cost of a ticket; it is the increased insurance premiums that a ticket(s) will lead to. Have you ever admonished a 20 year old that he/she must drive slowly and carefully in order to remain insured? 20 year olds cannot avoid being in the under age 25 high risk category, but they can control their behavior within this risk class. The same applies to health insurance. If we start truly differentiating by risk, insureds will then have tangible and immediate incentives to reduce the controllable elements of their risk profile – incentives that are lacking in today's health system. Behavior changes as a result of the incentives will benefit both individuals and society.

Re-thinking health insurance to incorporate lessons from auto insurance will not be easy – health insurance companies will have to adopt new attitudes toward risk assessment and policy design and new technologies for assessing risk and managing their business. Furthermore, regulatory change will be required. But the result may be more insured Americans.

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*Lifestyle-Based Analytics continued from page 4.*

However, the applications of lifestyle-based data using LBA within the insurance industry are wide and diverse. Currently, one of the most obvious and studied trends is in the use of LBA to augment the current underwriting process.

Current medical-based underwriting provides an accurate picture of an individual's past medical conditions and acts as a good predictor of future issues associated with those conditions. LBA, however, excels in the prediction of lifestyle-based diseases that are not hereditary in nature and typically have no associated medical precursors; in other words, those elusive medical conditions traditional underwriting cannot predict. This makes LBA a logical complement to traditional medical underwriting.

Even within the underwriting arena, LBA has a variety of applications. When combined with marketing, LBA can be used as a pre-qualifier for the insurability for direct to consumer or agent directed marketing efforts. Similarly, it can be used as a pre-qualifier for simplified issue policies.

In a more integrated fashion, LBA is used as an augment to traditional underwriting. In the individual and small group marketplaces, LBA is used as an exploratory tool to assign follow-ups and APS, to check for fraud, and to firm up pricing decisions. In the mid-sized group marketplace, LBA is providing significant predictive lift to traditional age/sex/industry pricing practices.

As a new business growth mechanism, LBA is redefining our ability to identify the healthiest of risks. Traditional medical underwriting was developed to discover and price the unhealthy individuals. However, it lacks the ability to place risk factors on the other 70% to 80% of the population who do not have significant medical histories.

LBA, on the other hand, is equally adept at discovering both unhealthy and healthy

individuals. LBA allows you to rank by health risk this population thereby producing aggressive preferred rates which otherwise would be impossible with traditional medical underwriting.

Less obvious, but even more beneficial, is the use of LBA in the wellness and disease management arenas. Current disease management predictive modeling techniques rely on a medical event or multiple events to trigger an intervention. On the other hand, LBA can predict that an individual has a high propensity to contract or have a disease prior to any medical conditions presenting themselves, that is, in the early-onsite or pre stages.

#### CONCLUSION

The use of lifestyle data or LBA in the insurance segment is rapidly taking hold. In an underwriting context, it allows for the elimination or re-pricing of the worst risks. In a growth or new business arena, LBA is providing a statistical and actuarial sound method of identifying the best risks allowing for both growth through preferred pricing and increased company profit margins on these populations. And as employers demand the move from managed care to managed health, LBA is situated to be the mechanism that defines the at-risk population for disease management and wellness applications.

Whether used for disease management, wellness initiatives or in an underwriting context, the use of consumer data and lifestyle-based analytics as a health risk measurement technique is accelerating rapidly as early adopters gain significant competitive advantages through its applications.

# Manage Security Risks with Cost-Effective Tools

by John L. Phelan



## OVERVIEW

Security program spending is growing dramatically as healthplans, financial service companies and publicly held entities respond to laws and regulations for

protecting sensitive personal and financial information. Wide media coverage on identity theft has further heightened security concerns.

Security demands are likely to continue to increase with new regulatory measures and more sophisticated thieves. Unfortunately for many organizations, security may seem a bottomless well demanding ever more staff, technology upgrades and consulting expenditures. Security program “scope creep” can be especially frustrating since these programs typically constitute an operating cost without commensurate revenue offsets, thus reducing bottom line revenues.

In this evolving and heavily regulated area, healthplans could benefit from affordable long-term measures for implementing and managing organizational safeguards. New security management software applications may offer healthplans an affordable alternative for demonstrating due diligence, identifying security priorities and reducing the need for additional spending as new mandates and issues emerge.

The administrative simplification provisions of the Health Insurance Portability and

Accountability Act (HIPAA), the Sarbanes-Oxley Act (SOX), and the Graham-Leach-Bliley Act (GLBA) represent federal attempts to assure the public that organizations adequately control sensitive information. Some states have also developed their own privacy rules and the National Association of Insurance Commissions (NAIC) is developing its own recommendations for HIPAA-like state rules.

Most healthplans, however, have already made a significant financial commitment—in larger organizations this can be in the millions of dollars—to assure plan participants and regulators that critical information is secure. HIPAA, with its privacy and security provisions, provided just one more spur and set of deadlines (in this case, April 21, 2005 for health plans with over \$5 million in annual revenues).

The problem for many healthplans may not be the lack of safeguards but the difficulty in documenting and managing the safeguards deployed across an ever-changing and often complex organization.

## THE SECURITY COMPLIANCE PROCESS TODAY

Responding to HIPAA, SOX and other security mandates has been a human resource intensive effort. To meet regulatory compliance dates, healthplans may contract with consultants or increase internal resources or both. The results of this investment may include:

- Detailed evaluations of organizational security

- New security policies, procedures and practices
- Modifications to business associate agreements
- Organizational changes
- Upgrades to hardware and software
- Facility modifications.

A healthplan’s security efforts may prove an adequate one-time solution to a regulatory problem although in some instances senior management may have remaining concerns. For example, it may be difficult to assure appropriate security exists in large organizations or those with geographically dispersed or outsourced operations or for new acquisitions. The size of the compliance investment, however, may at least represent a reasonable and defensible due diligence effort.

Even with increased vigilance, however, a number of organizations have experienced the loss or theft of sensitive information. These cases underscore difficulties inherent in security management and the need for an effective long-term and comprehensive solution. Despite corporate policies and procedures, some business units or vendors may have unencrypted sensitive information on laptops, backup tapes or insufficiently secure computers. Other limitations may exist in user authentication and auditing that provide opportunities for disgruntled or dishonest employees.

In a large enough organization, significant breaches and policy violations are not only

possible but are likely over time. The result is newspaper headlines, potential litigation and further increases in regulations that translate into additional healthplan costs. Moreover, the public will expect healthplans to accept responsibility for vendor security incidents even when the healthplan itself is fully compliant.

For example, a recent newspaper headline blamed a well-known healthplan for stolen member information. The theft occurred at a vendor to a plan subsidiary. Thus, while the plan may not have violated HIPAA's regulations, assuming that an appropriate business associate agreement existed, the media coverage suggested the plan itself was responsible and the plan's participants were the ultimate victims.

#### A LONG TERM SOLUTION

Security regulations in their different incarnations draw from the same generally accepted standards. These standards have been refined and documented over the years by a number of standard-setting bodies.

HIPAA's security mandates, for example, can be found in the security protocols of the National Institute of Standards and Technology (NIST). Sarbanes-Oxley regulators have looked to the Control Objectives for Information and Related Technology® (CobIT®) standards for an auditable security management framework.

Information technology applications are well-suited for improving the operational efficiency of highly specified and organized processes that reflect a substantial body of knowledge. Computer programs

can translate such processes into coded algorithms and databases. Organizational security programs match these characteristics. Until recently, however, the level of interest in such tools has not been sufficient to support development. This changed in response to mounting regulation and corporate security investments.

Health plans may consider implementing two different types of security software applications. One assesses and documents compliance activities and aids in setting management priorities. A second type automates critical processes, such as tracking system access. Since it is important to determine key applications and priorities before investing in process automation, the following discussion focuses on the first need: support for an effective and comprehensive security management program.

Milliman has made available to clients a security management system of its own, the Milliman Security Management System or MS2. More information on this Milliman solution can be found at [www.milliman.com/ms2](http://www.milliman.com/ms2).

#### SECURITY SOFTWARE: WHAT TO LOOK FOR

When evaluating security management software, health plans should consider the following features and how these features support plan needs:

***Routine, comprehensive security risk assessments:*** Risk assessments and other security evaluations are intrinsic to most security regulations. A thorough assessment

is also the first step in determining remediation priorities. Some software applications provide a structure for periodic risk assessments and may include intelligence that generates baseline risk measures automatically; others are more labor intensive requiring organizational staff and processes to set risk levels with the application documenting these decisions.

***Due diligence documentation:*** Security audit or oversight processes involve reviewing documented policies, procedures and practices. The best security management software includes document management capabilities that bring together available written policies and procedures throughout an organization. Some health plans lack sufficient documentation but many others have ample materials. Policies and procedures, though, at larger healthplans, especially those with decentralized operations, can be inconsistent among business units. An appropriate document management tool can reduce the cost and headaches involved with this proliferation of written information.

***Management level reporting:*** The government and public increasingly locate responsibility for organizational failures with senior management. Sarbanes-Oxley explicitly provides for Chief Executive Officer sign-off on the validity of financial reporting, including the security of that information. The Department of Health and Human Services also places culpability for HIPAA failures, and potential sanctions, at the top level of an organization, not with operational staff.

# Health Practice's Upcoming Engagements

**Multi-purpose applicability:** HIPAA's regulations provide one structure for organizing security documentation, the Sarbanes-Oxley Act relies on another, Medicare a third, and so on. The building blocks under the different regulatory structures, though, are fundamentally the same although the focus may be somewhat different. The ideal software provides a comprehensive management solution without the need to purchase new products or hire new consultants for each compliance need, assessment framework, or as new regulations emerge.

**Ease of implementation across organizational units including outsourced operations:** Health plans benefit from an application that they can roll out to its business units and vendors, such as a web-based application. In addition, the application needs to be easy to use by managers with limited security or technology expertise who are critical to implementing safeguards. Including a health plan's vendors in the security program is also valuable because the public, media and plan participants hold plans responsible for identity theft even when a plan is not technically violating HIPAA or other regulatory mandates.

## CONCLUSION

Health plans have received increasing publicity and regulation over problems with managing security for financial controls and the protection of plan participant information. The result has been increasing expenditures on consultants and internal resources to improve safeguards.

Implementing uniform standards and controls has been difficult because:

- Consultants tend to provide a one-shot fix but often leave healthplans in need of longer term solutions that can adapt to emerging needs.
- Security projects suffer from "scope creep" with management uncertain as to the value of increasing resource commitments.
- Large and diverse organizations, and those that outsource support, have problems tracking and managing security throughout the organization. Auditing security in outsourced operations can be especially difficult and expensive.

Recent developments in security management software applications, such as Milliman's MS2, can be a cost-effective solution for achieving:

- A uniform security management framework to establish and monitor the implementation of industry-accepted security practices in diverse business units, multiple systems platforms, and outsourced services.
- Detailed security compliance documentation on demand that demonstrates due diligence for regulatory compliance audits—whether HIPAA, Sarbanes-Oxley, state mandates or identity theft responses.

- 7/27-7/28/2006 – Midwest Business Group on Health (MBGH) 26th Annual Conference; Mid-America Club, Chicago, IL – "What We Know and Do Not Know About Consumer Driven Health Plans" (Tom Kess)
- 8/23/2006 – Society of Actuaries' Webcast, "Advanced Techniques for Applying Predictive Modeling and Algorithms" (Chris Stehno)
- 8/9/2006 - Society of Actuaries' Webcast, "Advanced Techniques for Applying Predictive Modeling and Algorithms" (Ross Winkelman)
- 9/6-9/8/2006 – Disability Insurance / Long-Term Care Insurers' Forum sponsored by LIMRA International/LOMA/Milliman; Hyatt Regency Grand Cypress, Orlando, FL (Robert Beal and Daniel Skwire)
- 9/22/2006 – 2006 SOA Health Underwriting Seminar for "Advances in Health Underwriting;" Cleveland, OH (Chris Stehno)
- 9/26/2006 – 2006 National, Finance, Actuarial & Underwriting Conference (NFAU) for "Underwriting via Lifestyle-Based Factor and Prescription Drug Profiling;" Phoenix, AZ (Chris Stehno)
- 9/26/2006 – Critical Illness Insurance Conference for "Lifestyle-Based Analytics;" Phoenix, AZ (Chris Stehno)
- 10/2-10/4/2006 – Wisconsin and Greater Chicago HIMSS Chapters' Annual Fall Technology Conference, Lake Geneva, WI – "Evaluating and Monitoring Evidence Based Medicine (EBM) with Claims Data" (Brian Studebaker)

## Data Reliance and Data Integrity

This edition of Health Perspectives serves as a reminder that the work we do is only as good as the data underlying it. As an actuary, I am often called upon to gather, cleanse, compile and interpret healthcare-related data. While there is some truth in the old adage—"garbage in, garbage out"—it is sometimes not that easy to recognize data that lacks credibility or integrity.

I was reminded of this while reading Kate Fitch's article on Disease Management analytics and Tom Nightingale's article on gathering competitive information. "Most health insurance organizations have a department or unit that is collecting market or competitor intelligence, organizing it, archiving it and occasionally reporting on it," Nightingale says. "In addition, every organization has an informal process of intelligence gathering through the sales force.

Between the two sources, enormous amounts of incomplete, unreliable, filtered and frequently conflicting information is accumulated and reported to management, who are then expected to make sense of it. Thus reliable data is necessary."

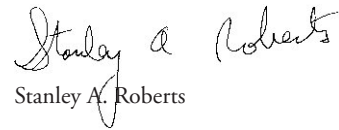
Actuaries and healthcare analysts run a number of data cleansing and edit checks to test absoluteness, correctness and reasonableness of data. One such challenge comes into play when interpreting and tying together seemingly comparative utilization statistics between medical service categories. The adjudicated claims data could be absolutely correct. However, efforts to tie together the resultant metrics and uncover a "message" or additional intelligence from the data could be foiled by something as simple as varying unit definitions between service categories.

In many cases, while we recognize the limitations or "soft spots" in a particular data set, we are forced to tie dissimilar data together, trying to fill in data holes. Using comparative metrics or other benchmarks will help to ferret out these dissimilar unit counts and can help to fill in data holes.

Naturally, the actuary has to communicate data integrity issues and reliance upon other data sources or benchmarks. This begins with understanding the data and its limitations.

I hope you enjoy this and upcoming issues.

Sincerely,



Stanley A. Roberts

### ABOUT MILLIMAN

Established in 1947, Milliman is one of the premier actuarial and business management consulting firms, serving clients in four practice areas – employee benefits, property and casualty insurance, life insurance and financial services, and healthcare insurance and management.

Milliman has offices in over 40 locations and is a founding member of Milliman Global, an international organization of actuarial and related firms.

To learn more about Milliman, visit our website at [www.milliman.com](http://www.milliman.com) or email [health.perspectives@milliman.com](mailto:health.perspectives@milliman.com).



## Milliman

1301 Fifth Ave  
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