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Health Watch

"For Professional Recognition of the Health Actuary"

Making the Case for an Obesity Care Management Program

by Karen Fitzner, O'Shea Gamble and Elizabeth Heckinger

Through the past five decades, self-reported measures of height and weight indicate that obesity, defined as body mass index (BMI) greater than or equal to 30 kg/m2, is rising in every state in the United States. This is true for all ages, genders and racial groups.[1] The growth of the number of working age adults with the greatest amount of obesity, morbid obesity, exceeds that of the obese population in general.[2] Morbid obesity refers to patients with BMIs greater than or equal to 40 or who are 50 kg/m2- 100 percent—or 100 pounds above—their ideal body weight.[3] Although some[4] have questioned whether excess fat itself poses a serious health risk, others have identified it as a leading public health issue.[5,6] Sansone has shown a positive correlation between increasing BMI and insurance claims expense.[7]

Scope of the Issue

The obesity epidemic is one that warrants great attention. An estimated 44.3 million Americans (two out of every three people) are overweight or obese.[8] The prevalence of morbid obesity increased nearly fivefold from about one individual in 2000 to one in 400 from 1986 to 2000.[9] Moreover, the problem is endemic in all age groups. In 1999, a national survey found that 16 percent of high school students were overweight and nearly 10 percent were obese.[10] It is likely the rates are even higher today, meaning that projections for future health care expenditures must account for obesity-related costs throughout the life span of very young individuals.

Precise health care expenditures associated with obesity are difficult to compute for a variety of reasons. One major challenge is identifying those in the obese population, because insurance claims data do not traditionally include BMI results. Orzano found BMI screening to have a positive predictive value of 97 percent.[11] BMI, however, is an imperfect metric.[12] Anyone with a BMI over 25 is classified as overweight, whether their body is short or tall, round or thin, or composed of fat or muscle. This means that athletes are often classified as obese. Hence, waist circumference has been proposed as a possible metric for determining overweight and obesity.

No matter how obesity is determined, its related expenditures fall into two main

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SOCIETY OF ACTUARIES

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by Gail Lawrence

Greetings and Happy Twenty-Fifth Anniversary to the Health Section!

The tools of the trade for actuaries were certainly different 25 years ago in those paper-intensive days of computing clerks, desktop calculators, mainframe computers and telephones without caller ID. Gathering information was labor intensive and expensive. With the Internet and astounding advancements in computing and communication systems, data and information can be easily exchanged and analyzed over wireless systems. Now the conundrum seems to be the white noise of too much information.

Our health care financing system has also seen many changes. Managed care and PPOs have gained momentum in an environment where increasing health care costs have outpaced inflation by huge margins. If trend rates continue as multiples of the inflation rate, a simple extrapolation exercise makes one think that something's got to give.

Health care financing reform has been on the political radar screen for a long time. If political action is fueled by dissatisfaction with the current system, change seems inevitable. I'm not sure our politicians have an immediate answer for the already high and ever increasing cost of health care, but they can set the rules for access to health coverage, benefit standards and the pooling of risks.

We have seen a number of reforms in the last 25 years that have improved access to health coverage. The 1980s gave us COBRA so we could keep our insurance for a period of time after defined life events. The 1990s brought us waves of reform in small group health, individual health and portability of coverage.

Many laudable changes have been made, but the simple truth remains. If a life event causes you to lose your coverage and you are not healthy, access to health coverage will be more limited and more expensive. If you have coverage and lose your health, the quality of your risk pool is likely to decline as competitive pressures siphon off the better risks. Even for individuals who have maintained health coverage throughout their life, concerns about continuing access to affordable health coverage may have a profound impact on their future life-choices.

Actuaries will play an important role in helping shape the future of our health care financing system. In this issue of *Health Watch*, our first three articles focus on the effective and efficient delivery of health care. Perhaps one day we will even see health coverage benefits based on the necessity and effectiveness of medical outcomes.

As we debate our future, it is important to learn from comparative health systems throughout the world. Global health systems was a key issue identified by the Health Section Council for 2006 and I invite you to submit an article on this topic. John Have's article gives us a look at important recent initiatives within the Canadian system to address unacceptable wait times. One of Mark Litow's areas of expertise is the interaction of the public health programs and private plans. In this issue, he focuses on an analysis of the true difference in administrative costs between the public and private health systems.

Also in this issue, Dave Axene sheds some light on the best practices in hospital contracting as health plans try to balance cost pressures with those of maintaining a high quality network. Chris Stehno proposes consideration of life-based analytics for use in health risk assessments.

Speaking of public health systems, Medicare's prescription drug benefit is now five months old and we'd like to hear about your emerging experiences. Please consider submitting an article or just come and share some thoughts at the Spring Health meeting. See you there!

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categories—treatment of obesity itself (direct cost) and treatment of related co-morbid diseases, most of which are chronic in nature. Direct costs, for example, are those associated with bariatric surgery and pharmaceutical management, two of the strategies available to treat, or at least address, obesity. Bariatric surgical interventions cost about $35,000,[13] but can be higher if the surgery is accompanied by pre- and post-care management expenditures and possible side effects or complications of the surgery. Pharmaceutical management strategies are less costly in any one year but can add up over time. Containing these costs while improving health is essential.

Obesity and obesity-related conditions, most of which are chronic, impact health as well as health care costs both directly and indirectly.

Consequences of Obesity

Higher utilization and burgeoning medical costs are associated with increased risk factors for both chronic and acute illness and the presence of costly co-morbid conditions in obese populations. Direct medical costs from obesity are estimated to consume 5.7 percent or an estimated $93 billion of total U.S. health expenditures.[14] Sturm has reported that obesity is associated with inpatient and outpatient expenditure increases of 36 percent and medication expenditure increases of 77 percent.[15] Mortality rates for obese persons are double the rates for normal persons, resulting in more than 300,000 deaths every year.[16i]

These costs and mortality rates are attributable to co-morbid conditions associated with being overweight—cardiovascular disease, diabetes and cancer (breast, colon, uterine and ovarian) and have been causally linked to being fat. Fatness is also independently associated with hypertension, congestive heart failure, stroke, gallstones, gout, osteoarthritis, obstructive sleep apnea, complications of pregnancy, poor female reproductive health, bladder control problems, uric acid nephrolithiasis and psychological disorders.[17,18,19]

Obesity and obesity-related conditions, most of which are chronic, impact health as well as health care costs both directly and indirectly. As compared to people who are not obese, individuals who are obese have 77 percent higher medication costs and 36 percent higher inpatient and outpatient costs. As noted above, among the cost drivers associated with morbid obesity are bariatric surgeries, which cost between $25,000 and $45,000.[20] According to one analysis, in a typical insurance pool of one million persons age 35-84 years, obesity will account for 132,900 cases of hypertension, 58,500 cases of type 2 diabetes mellitus, 51,500 cases of hypercholesterolemia and 16,500 cases of coronary heart disease.[21]

Estimates of weight-related Medicare expenditures are startling. One group has stated that: "Starting at age 70, an obese person will cost Medicare about $149,000; Medicare spending on an obese person is 20 percent higher than for the overweight and 35 percent higher than spending on a normal person." These costs negatively correlate with quality of life for this age group. Normal weight elders can expect seven disability-free years but their obese peers will only enjoy four and spend 40 percent more time being disabled than the slimmer individual.[22]

Many obesity-linked costs are indirect or hidden. For example, hospitals and clinics are adding adaptations such as reinforced gurneys and stronger/wider hospital beds. In another example, a recent study of 89 amputees in one prosthetics clinic found that average BMI was 27, indicating that the population tends to be overweight and many are obese. The two heaviest patients weighed 380 pounds each and required specially designed artificial limbs that can sustain this amount of weight.[23] The average cost of a prosthesis is $5,000, but high-end prostheses, such as those required to sustain additional weight, can cost more than $25,000.[24] Moreover, diabetes-related amputations, most of which are for the lower limb(s), cost approximately $38,077 per amputation procedure.[25]

Strategies for Addressing Obesity and Its Related Costs

Because of the increasing prevalence of morbid obesity and increasing popularity of weight-loss surgery, coverage of the costly surgery as an insurance benefit has become controversial. Advocates point out that several studies using nonrandomized control groups have shown considerable reductions in insurance claims expenses that more than makes up for the cost of the surgery[26,27] Some payers, including Medicare, have adopted the NIH criteria for bariatric surgery[28] while others are becoming unconvinced that covering weight-loss surgery is sustainable and limit coverage of treatment for obesity through exclusionary language. On July 15, 2004, the Centers for Medicare and

Medicaid Services (CMS) changed its policy on obesity so that Medicare now covers services related to the treatment of obesity as long as those services are integral to treatment and management of a co-morbid condition. But Medicare does not cover the treatment of obesity alone yet does pay for bariatric surgery when it is appropriate for other clinical issues.[29]

Pharmaceutical products that help block fat absorption are increasingly becoming accessible to obese individuals. The drug, orlistat, can be purchased in prescription form as well as over the counter.[30] In the future, additional drugs are likely to be available for the control of overweight and obesity, but their costs and benefits are yet to be quantified in insured populations. Surgical interventions are very costly and the costs of drugs to address obesity are uncertain, in large part because weight loss via drugs does not necessarily stay lost. Moreover, not all obese individuals are appropriate for bariatric surgery or are able to take "fat-busting" drugs.[31] Hence, most payers are looking to preventive and chronic care management interventions as an alternative or adjunct to surgery and drugs.

Care Management as a Strategy for Addressing Obesity

According to the Disease Management Association of America (DMAA), disease management is a system of coordinated health care interventions and communications for populations with conditions in which patient self-care efforts are significant. Disease management:

- Supports the physician or practitioner/patient relationship and plan of care;
- Emphasizes prevention of exacerbations and complications utilizing evidence-based practice guidelines and patient empowerment strategies; and
- Evaluates clinical, humanistic and economic outcomes on an ongoing basis with the goal of improving overall health.

The DMAA notes that full disease management programs have the following six components:

- Population identification processes;
- Evidence-based practice guidelines;
- Collaborative practice models to include physician and support-service providers;
- Patient self-management education (may include primary prevention, behavior modification programs and compliance/surveillance);

- Process and outcomes measurement, evaluation and management; and
- Routine reporting/feedback loop (may include communication with patient, physician, health plan and ancillary providers, and practice profiling).

Weight management services are integral to disease management programs for diabetes, congestive heart failure, back pain and other conditions in which co-morbid obesity may play a risk factor.[32] For chronically ill populations, the opportunity exists to better engage individuals in their care management to maximize their health and control costs. Chronic care management programs have a proven track record with diabetes and other such illnesses[33,34,35] and such techniques may also be applicable to overweight populations.[36]

Modest weight loss of 10 percent of body weight was shown by Goldstein to improve glycemic control and reduce blood pressure and cholesterol[37]. Despite this understanding and knowledge about the consequences of obesity, only about 40 percent of adults recall getting nutrition advice from a health professional.[38] Obviously, the status quo is not sustainable and more needs to be done to emphasize prevention, education and involvement of the patient in his own care.

While many disease management programs indirectly address obesity, a few such programs now aim to address obesity specifically. We conducted a scan of disease management programs that focus on overweight populations directly in September of 2005. The findings are presented in Table 1. In general, the programs that we identified

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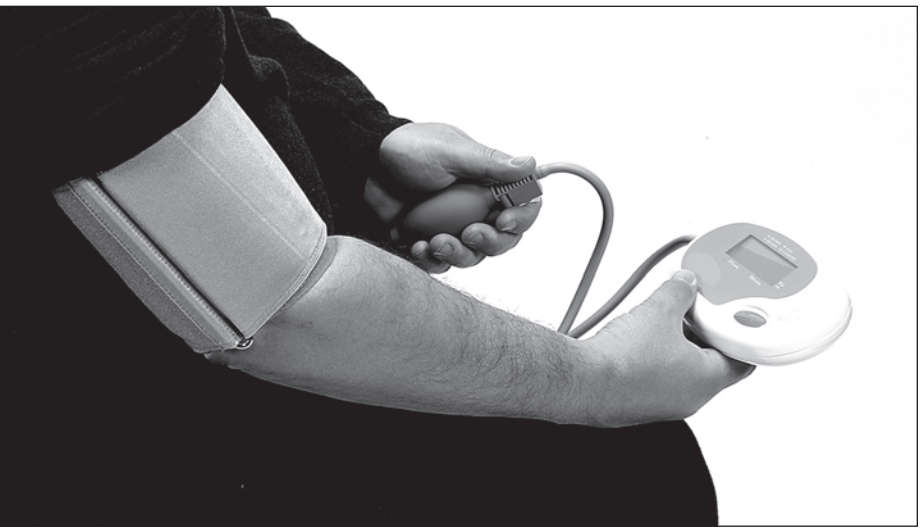

apply some of the techniques of chronic care management programs and are often integrated into disease management for co-morbid conditions. Some of the offerings are limited to being Web-based educational programs or lifestyle and behavioral change, such as those offering assistance with meal planning. While possibly beneficial, these limited offerings would not meet the DMAA definition of full disease management programs.

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Metrics Are Needed

Proof of success and defined evidence of the concept is necessary before obesity care management can become widely accepted. If resources are to be invested, effectiveness must be demonstrated. But, if, as noted above, it is difficult to identify obese individuals and calculate costs associated with morbid obesity, then determining if an intervention addressing obesity is cost-effective is even more elusive. The Congressional Budget Office noted that there is insufficient evidence to conclude that disease management programs in general reduce overall health spending although such programs could be worthwhile even if they did not reduce costs.[39] Before care management programs can be fully adopted for obese populations, new metrics are needed so that clinicians can accurately measure health improvements and financial types can assess the cost and benefit of those improvements.

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For those individuals who are identified as obese, metrics exist with which to determine changes in quality of life for those who decrease weight or BMI by applying quality adjusted life years (QALY) techniques. Clinicians can measure weight loss or changes in BMI or waist circumference and benchmark that against the 10 percent figure offered by Goldstein. But, a measurement gap remains and the risk to payers exists whether they cover treatment for obesity directly or indirectly. The lack of clearly defined and accepted metrics for determining the long-term success of obesity management is of concern and an impediment to the acceptance of cost-effective and efficacious interventions.

Conclusion

The obesity epidemic poses clinical risks to overweight individuals that translate into financial risks that impact both public and commercial payers. The U.S. Department of Health and Human Services aims to reduce obesity in adults to 15 percent or less by 2010.[40] There is a link between increasing BMI and insurance claims expense, which is of particular interest to actuaries and health economists.

Obesity treatment, management or control is typically addressed medically by bariatric surgery or through care management and prevention programs. Chronic care management programs have a proven track record with related chronic illnesses and many individuals who have a co-morbid condition are enrolled in disease management that addresses obesity indirectly. Disease management is frequently provided pre- and post-bariatric surgery, and is becoming a more popular offering as a stand-alone intervention because it is an attractive alternative to costly surgery. Consequently, new obesity disease management programs are becoming available.

Obesity disease management, albeit new, must demonstrate its value. Adoption of a viable obesity management solution is limited by a lack of metrics and data. Actuarial science can help by defining the metrics and models that will determine the value of an obesity management program's overall worth.

Acknowledgment:

We extend our thanks to Jaan Sidorov, MD for providing the clinical perspective for this article.

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Table 1 • Entities Offering Disease Management for Obese Individuals and Populations

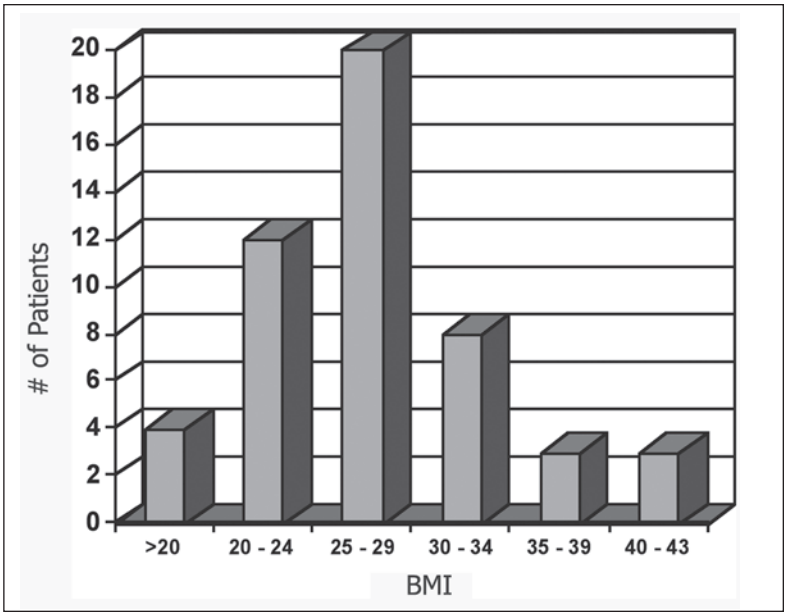
DMO	Program	Comments
American Healthways	Offering obesity disease management through Cigna.	Disease management program for obesity is being introduced in 2005.
Cardiocom, LLC (1, 3)	ThinLink; Pilot planned.	4 areas: lifestyle & behavioral change, assistance with meal planning, personal accountability and home monitoring tools.
Cardium (6)	Not a unique, stand-alone program. Part of integrated disease management program for back pain or diabetes.	Telephonic counseling and educational mailings to provide nutritional and stress management information.
Gordian	Not a unique, stand-alone program. Part of integrated disease management program for co-morbid conditions.	Offer a weight management program as an adjunct to co-morbid disease management.
Health Management Corp. (4)	Healthy Returns disease management program.	1/2005 Metabolic syndrome was added to the list of core chronic conditions in the disease management program.
LifeMasters	Not a unique, stand-alone program. Part of integrated disease management program for co-morbid conditions.	Part of integrated disease management program for co-morbid disease management programs.
Magellan Health Services (5)	Magellan Condition Care Management.	Multifaceted approach (nutrition, exercise, promotion of mental health and wellness by addressing cognitive & emotional issues) to help members lose weight and maintain that weight loss.
MSO Medical	Obesity Disease Management, CORI.	Non-interventional, medically supervised weight loss and surgical program.
Matria	Obesity disease management is part of integrated disease management program for co-morbid conditions.	Offering obesity management programs with individualized lifestyle plans, diets and exercise goals.
QMED, Inc., with Healthe Monitoring, Inc. (7)	Healthe Obesity Management.	Clinically-based approach to weight management with devices, technology and a care delivery system.
Resources For Living	Obesity Program.	A comprehensive weight loss program begun in 2003 with telephonic coaching sessions, personal health coach and registered dietitian.
Vista Medical (2)	VOW Solutions.	Morbid obesity disease state management model with behavioral and psycho-therapeutic elements both pre- and post-operatively.

Table 1 • Entities Offering Disease Management for Obese Individuals and Populations

Health Plan	Status	Comments
Aetna, Inc. (1)(8)	Piloted October 2004	Telephonic counseling.
Blue Cross and Blue Shield Massachusetts (8)	Piloted.	Web-based disease management program developed for 2005; focus on children and teens
Cigna (9)	Being rolled out in 2005.	High-risk obesity disease management program CIGNA HealthCare.
First Health Group Corp. (1)	Developing.	To manage bariatric surgery cases on the front and back end.
Health Partners (8)	Ongoing.	Phone-based disease management program for targeted members; Web-based program available to all members.
Highmark (8)	Ongoing.	Web-based and telephonic health coaching and nutritional advice.
Horizon Blue Cross Blue Shield of New Jersey (1)(8)	Available to 180,000 HMO enrollees since 2004. Weigh to live pilot.	Health and wellness education and telephonic pilots for fully insured HMO members; Weigh to live pilot.
Kaiser (8)	Varies by region.	Child/teen programs available in most regions.
WellPoint (8)	Ongoing.	Weight management integrated into several disease management programs.

Please note: The information contained in this table is from a scan that was not designed as a thorough and rigorous examination of disease management programs for overweight and obesity. It does, however, provide a sense of the types of programs that are available for managing obese populations.

Figure 1: Body Mass Index of 89 Amputees Attending a Prosthetics Clinic in 2005



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Pay-for-Performance Through the Lens of Unwarranted Variation in the Delivery of Health Care

by David Wennberg

The Problem

Tremendous paradoxes face all of us when we consider the U.S. health care system. On the one hand, advanced technical therapeutics are used on a daily basis to save lives[1]; on the other hand, opportunities to dramatically improve care for large segments of the population through the provision of more mundane services are routinely missed.[2] In addition, although the U.S. economy is seen as one of the most efficient in the world, the rising cost of employer-sponsored health care erodes gains obtained through efficiency and threatens to bankrupt the U.S. automobile industry. Finally, wherever one looks, there is tremendous variation in the delivery of health care across the United States.[3] It is in the context of such paradoxes that a new initiative is gathering steam: pay-for-performance (P4P). Outside of health care, the concept that "reimbursement" should be based on value to the purchaser is not new. Within health care, where payment is based on "doing" rather than "producing" (a valued product), it is a revolution.

Unwarranted Variation in the Delivery of Health Care

We consider P4P through the lens of unwarranted variation in the delivery of health care.[4] Through this lens we consider variations to be unwarranted when they cannot be explained by illness, patient preferences or the dictates of evidence-based medicine. The second component of the unwarranted variation lens is the categorization of care into three buckets. These are:

1) Effective and safe care—This category of care includes treatments that improve longevity or quality of life and have been studied in randomized trials or well-constructed cohort studies. Treatments such as beta-blocker therapy following an acute myocardial infarction (AMI or heart attack), treating hypertension in patients with diabetes with ACE inhibitors, and influenza vaccination are effective care interventions. Safe care includes efforts to reduce mortality following coronary artery bypass surgery.

2) Preference-sensitive care—This category of care includes conditions where there are options in treatment, where the options have different risk-benefit ratios and where only the patient can evaluate the risks and benefits. These conditions include lumbar disc disease with sciatica where the

1 Grunebaum E, Mazzolari E, Porta F. et al. Bone marrow transplantation for severe combined immune deficiency. *JAMA*. 2006; 295: 508-518.

2 McGlynn EA, Asch, S.M., Adams J. et al. The quality of health care delivered to adults in the United States. *N Engl J Med*. 2003; 348: 2635-2645.

3 Wennberg, D.E. and Cooper, M.A. Dartmouth Atlas of Healthcare. 1999. Chicago, American Hospital Publishing. Ref Type: Generic.

4 Wennberg, D.E., Wennberg, J.E. Addressing variations: Is there hope for the future? *Health Aff (Millwood)*. 2003; Suppl Web Exclusives: W3-W7.

options are "watchful waiting" or surgical intervention. For sciatica most patients will be pain free in six months with either treatment. Surgery gets you there quicker, but carries the risk of chronic back syndrome in approximately 10 percent of the patients undergoing surgery.

3) Supply-sensitive care—This category of care includes specialist visits, laboratory studies, imaging studies and the use of the hospital and emergency room as a place of service. The amount of supply-sensitive care delivered is influenced by the capacity of the system. More beds and more specialists per capita result in more use. Variation in the delivery of supply-sensitive care differentiates efficient from less efficient health systems.

The causes of variation differ by each category; therefore, the remedies also must differ. Next we consider the implications for P4P through an unwarranted variation lens.

P4P Through the Unwarranted Variation Lens

The first consideration in interventions to address variation is the intended direction of the intervention.

Effective and safe care: For effective and safe care, evidence suggests that more is better. One example of this is a recent paper on the use of beta-blockers following an AMI where patients receiving their care in health care systems that pay attention to the simple things lived longer than those receiving care in more invasive intervention-minded systems.[5]

These findings place effective care on the quality agenda. Interventions, including P4P, should be aimed at increasing the use of these services.

Preference-sensitive care: For preference-sensitive care, it is unclear whether more is better. In general, patients participating in shared decision making, where there preferences are revealed and honored, are more likely to choose the conservative treatment, but not always.[6] However, what is clear is that patients choose differently when objective, evidence-based decision aids are used than when usual care is provided.

These findings place preference-sensitive care on the quality agenda. Interventions, including P4P, should be aimed toward exposing patients' true preferences and values for the risks and benefits and supporting them in efforts to choose treatment in accordance to these preferences and values.

Supply-sensitive care: For supply-sensitive care, more is worse. In several well-constructed cohort studies, patients exposed to health care systems that deliver more supply-sensitive care use significantly more resources and do not live longer than those exposed to more efficient care. In fact, the evidence suggests that those who receive more supply sensitive care are more likely to die.[7-9]

These findings place supply-sensitive care on the quality agenda. Interventions, including P4P, should be aimed at reducing the use of supply-sensitive services, or encouraging the choice of health care systems that provide fewer supply-sensitive services.

Curious Findings Through the Unwarranted Variation Lens

P4P programs should include all three categories of care. When they do, interesting findings arise.

Curious finding #1: There is no relationship between quality in one measure and quality in another. Health care systems that perform well on one effective care measure—for example, lipid management for diabetics—are no more or less likely to perform well on others—for example, controller medication for patients with asthma. While there are some

(continued on page 12)

5 Stukel, T.A., Lucas, F.L., Wennberg, D.E. Long-term outcomes of regional variations in intensity of invasive vs. medical management of Medicare Patients with acute myocardial infarction. *JAMA*. 2005; 293: 1329-1337.

6 O'connor, A.M., Llewellyn-Thomas, H.A., Flood, A.B. Modifying unwarranted variations in health care: Shared decision making using patient decision aids. *Health Aff (Millwood)*. 2004;Suppl Web Exclusive: VAR63-VAR72.

7 Fisher, E.S., Wennberg, D.E., Stukel, T.A., Gottlieb, D.J., Lucas, F.L., Pinder, E.L. The implications of regional variations in Medicare spending. Part 1: the content, quality, and accessibility of care. *Ann Intern Med*. 2003; 138:273-287.

8 Fisher, E.S., Wennberg, D.E., Stukel, T.A., Gottlieb, D.J., Lucas, F.L., Pinder, E.L. The implications of regional variations in Medicare spending. Part 2: health outcomes and satisfaction with care. *Ann Intern Med*. 2003; 138: 288-298.

9 Fisher, E.S., Wennberg, D.E., Stukel, T.A., Gottlieb, D.J. Variations in the longitudinal efficiency of academic medical centers. *Health Aff (Millwood)*. 2004; Suppl Web Exclusive: VAR19-VAR32.

who perform well on both or who perform poorly on both, overall there is no correlation. How can that be? While data is sparse, it is likely driven by the underlying principle that performance of routine care needs to be systematized. For effective care this means that routine use of total population registries (as opposed to disease-specific), standing orders, flow sheets and other tools is critical. It also suggests that non-physician caregivers should be the key providers of routine, low-tech effective care. This finding of no correlation across measures has significant implications for P4P programs.

Currently, most P4P programs are focused on single diseases and/or single measures[10]. An alternative approach would be to reward providers for developing, implementing and using the systems and processes needed to assure a consistent, non-variable approach to the delivery of effective care. While it may be politically impossible not to also consider actual performance toward measures, it is our contention that these should initially be an adjunct to rewarding for the systems.

Curious finding #2: Preference-sensitive care is driven by providers. Variations in preference-sensitive care have been considered geographic phenomena. However, recent studies have found that the geographic findings are a weighted average of the behavior of all the providers within the region. This realization leads to the consideration that for P4P to reduce unwarranted variation in the delivery of preference-sensitive care, providers should be rewarded for developing systems and processes to ensure shared decision making and that their patients use this approach. There is a growing suite of well-developed decision aids now available that aim to reveal patients' preferences and values.

Curious finding #3: There is no correlation between effective care and supply-sensitive care. While the explicit focus of most current P4P programs is to improve the delivery of effective care, there is an implicit expectation that these efforts will result in a salutary improvement in the efficiency of health care as well. Given that very well respected employers spearhead these efforts, this second expectation is not surprising. In most manufacturing and service oriented settings, there is a direct relationship between quality and efficiency. When a defect occurs on the line stopping production or becomes evident post-release requiring recalls, costs increase. However, effective care is a minority of services delivered (we estimate only 15-18 percent of care, while supply-sensitive care is the majority (approximately 50-60 percent of care). Thus, improvements in effective care are lost in the noise of the primary driver of efficiency—the delivery of supply-sensitive care. When we have evaluated the relationship at the system level between efficient health care and effective health we find the correlation to be zero.

Curious finding #4: Episodic efficiency does not equate to overall efficiency. Current efforts to evaluate and reward providers for the delivery of efficient care primarily use an episode-based system. In these systems one attempts to assess the technical efficiency in the delivery of health care, that is, the amount of inputs used to deliver a unit of care. For example, how much it will cost to deliver a cardiac revascularization? However, what is missed in this approach is the question of whether the episode, in this case the cardiac procedure, should have occurred at all.

A more defensible measure of efficiency is allocative efficiency, that is the amount of inputs used to deliver health. The cost of managing (or insuring) a population is a function of the price per unit and the number of units delivered. When we evaluate the allocative efficiency of health care systems, we find that 75 percent of the explainable variance in efficiency is associated with the number of units delivered and only 25 percent with the technical efficiency.

Wrapping it Up

Through the unwarranted variation lens the domains of health care quality can be expanded; insights into the drivers and the potential remedies of variation in quality can be obtained; and P4P programs can be created to deliver broad value to purchasers, providers and recipients of health care. The pioneers who are championing P4P programs have taken a revolutionary step forward in a fee-for-service dominant world. It is time to join them in the next evolution.

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[10] Rosenthal, M.B., Frank, R.G., Li, Z., Epstein, A.M. Early experience with pay-for-performance: from concept to practice. JAMA. 2005; 294: 1788-1793.

SOA Embarks on Several Pandemic-Related Initiatives

by Steven C. Siegel

It's hard to pick up the newspaper these days and not scan the front page for the latest news on whether avian flu is destined to become an all-out pandemic. Whether it is a report of avian flu broaching another continent or new cases in already touched areas, it's difficult not to be concerned by the flu's potential. Certainly, in the event of a widespread pandemic, daily life would be greatly impacted with many of our normal activities immediately curtailed. *The New York Times* went so far as to report in a recent article that even our customary handshake greeting would need to be replaced by the more hygienic, albeit less intimate, "elbow bump."

In the face of these developments, how has the SOA responded? Last fall, through its Issues Advisory Council (IAC), the SOA's Board of Governors recognized the growing importance of this issue and put in place a broad-based initiative to educate and provide information on this topic to SOA members. A multidisciplinary staff team was assembled to coordinate and develop efforts to provide actuaries with the most relevant available information and research that could be used in their daily responsibilities.

As of the writing of this article, several activities are already well underway:

(1) Relevant Literature Search – A search for the most relevant pandemic information and articles of use to actuaries was undertaken by the staff team coordinating the pandemic initiative. This gathering of publications includes articles ranging from the latest in actuarial models simulating an influenza outbreak to the clinical uses and indications of the antiviral medicine, Tamiflu. The literature search is available on the SOA's Web site. Check it regularly for updates.

(2) Insurer Readiness Research Project – The SOA's Life Sections and Risk Management Section are sponsoring a research project examining the impact of an avian flu pandemic on life and health insurers. The study, which is being led by Jim Toole, a managing director of MBA Actuaries in Winston-Salem, N.C., will address the readiness of insurers in the face of a widespread pandemic including the extra exposure to mortality and morbidity risk. How an insurer might function with major portions of its workforce either ill or unable to travel are among the many preparedness questions that will be considered. The results of this project are planned to be made available during the SOA's Spring Health Meeting in June in Hollywood, Fla.

(3) Pandemic/ERM Roundtable – A roundtable of leading experts, both actuarial and non-actuarial, has been recruited to discuss, in the context of enterprise risk management, the potential effect on a corporation from a pandemic in the context of enterprise risk management. This event will be transcribed and made available on the SOA Web site. In addition, an article describing the roundtable is planned for the June issue of *The Actuary*. Watch for it in your mail.

The SOA is dedicated to advancing knowledge and helping its members become more conversant on the potential consequences of an avian flu pandemic. As actuaries, we will surely be called upon by senior management to both elucidate today's facts and predict tommorow's unknowns. As such, we would greatly appreciate any ideas or thoughts you have to make this initiative more valuable for you. Please feel free to contact me at *ssiegel@soa.org*.

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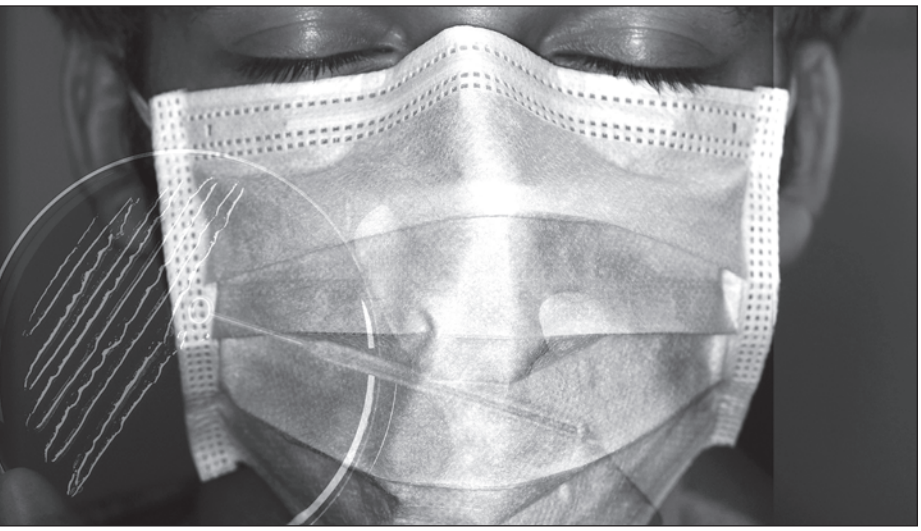
Paradise Lost: Return on Investment in Disease Management

by Don Fetterolf



For a health plan or a disease management company, no client presentation can be complete without a painful discussion of the return on investment for the involved medical management or disease management programs. Organizations bring the best and brightest they have to sit in a stuffy conference room for long periods and tediously debate which aspect of the return on investment calculus are the most appropriate and apply to their case. Even to individuals who are pathologically addicted to detail, this is a painful process. It may be time to rethink our approach altogether.

There is widespread industry consternation around the issue of return on investment for disease management and medical management programs. Over the past five to six years, a considerable amount of effort was directed at the pursuit of the ideal return on investment methodology. A great deal of research has been done and a large number of articles have been written creating a chronicle of the frustration the industry experienced in this pursuit.[1][2][3][4][5][6] An important conclusion learned is that any return on investment calculation in a subject as complex as this is highly dependent on methodology and is rarely satisfactorily resolved. Almost everyone who creates a calculation has his own method. Some methods have more rigor than others, but in the end, two or more organizations end up in a conference room and painfully confront the fact that they really do not know what the ideal method for determining the value of medical management may be or what the reasonable return on investment for the proposed program is.

From the perspective of most who have been involved in working through these issues for more than 20 years, the problem can sometimes seem hopeless, with a large number of equations trying to characterize an even larger number of variables. In the absence of a controlled clinical trial, only estimations carry much weight, and debate over the estimation methodology consumes hours of

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1 American Healthways and Johns Hopkins Consensus Conference. Standard Outcome Metrics and Evaluation Methodology for Disease Management Programs. Disease Management. (6) 3. Fall 2003. pp. 121-138.

2 Fetterolf, D., Wennberg, D., and DeVries, A. Estimating the Return on Investment in Disease Management Programs Using a Pre-Post Analysis. *Disease Management*. (7) 1. 2004.

3 Linden, A. and Roberts, N. A User's Guide to the Disease Management Literature: Recommendations for Reporting and Assessing Program Outcomes. *Am J Managed Care*. (11) 2. February 2005. pp. 113-120.

4 Fetterolf, D. and Sidorov. Disease Management Program Evaluation Guide. Washington, D.C. Disease Management Association of America (DMAA). 2004.

5 Duncan, I. PART 2: ACTUARIAL ISSUES IN CARE MANAGEMENT INTERVENTIONS: Paper 4: Understanding the Economics of Disease Management Programs. Society of Actuaries (SOA). August 16, 2004.

6 Duncan, I., Owen, R., and Dove, H. Testing Actuarial Methods for Evaluating Disease Management Savings Outcomes. Society of Actuaries. June 2, 2005.

time for individuals whose brainpower can be used elsewhere. Clearly, medical programs present value, which is rarely debated. Value develops in a variety of ways from clinical interventions and produces outcomes along a multidimensional range.

It is important to step back from the grueling debate on return on investment and think about what the actual questions are that we must resolve. From the perspective of an organization undertaking these types of activities, senior management wants to know only a few basic questions. They are concerned mainly about the business rather than an academically pure solution to the problem:

- Is the program underway? Does it meet contractual requirements?
- Is the return on investment a "*red number*" or a "*black number*"? (i.e., is there a return on investment at all, or not?)
- If there is a return on investment, is it a *large* one or a *small* one? While the CEO is interested in whether the numbers are black or red, vice presidents need to know whether the number is large or small to appropriately allocate resources.
- How certain are we that value is being created for the amount of money being spent?
- Given two or more possible methods for delivering the service, does one appear to be better than the others are?
- Given several competing demands for capital, should this program be on the list?

If you think about it, a precise return on investment number to two or three decimal places is unnecessary to answer most of the above questions. Therefore, if you take a step back and think about the problem, you might find the following recommendations lead you out of the morass and the stuffy conference room and let you get back to work.

- First, it is important to stop driving ourselves crazy regarding the optimal return on investment methodology. Given the fact that there are a lot of different options, you should simply pick a method. Become familiar with that method, its limitations and its general overall ability to predict whether the program is retuning a black number or a red number or a large black number or a small black number. Use it until the industry decides on a "generally accepted accounting principle" for doing it or a decidedly better method emerges.

- Pick a method that you feel most comfortable with, and one that is explainable to senior management. I am sure there are individuals within your organization who assure you that the only way to create a return on investment methodology involves the use of genetic algorithms, neural network simulations or predictive modeling programs that can only be understood by black-belt SAS programmers and PhD statisticians. Resist the urge to go down that path. The additional amount of specificity developed by these methods may be real, but is unlikely to add substantially more insight into the answers to the questions above, cost a considerable additional amount of money, and rarely leave anyone outside a small number of highly focused analysts with a feeling that they have truly resolved the issue.

Value develops in a variety of ways from clinical interventions and produces outcomes along a multidimensional range.

- Absolutely do not propose providing *multiple* ROI methods as a way of resolving the issue or demonstrating choices. Senior managers repeatedly note such a course only confuses the issue and suggests the analysts really don't understand the process at all.

- Use simple methods to come to a consensus that the effect on overall medical costs is a reasonable number, and can be signed off by financial people, clinical people, operations staff, etc. Complex or black-box methods breed anxiety among the non-analytical, who then ask more questions and create more analyses. Use the same method each year to allow comparability. Provide insight into the limitations of the method and whether you believe the results are overstated or conservatively understated.

- It is important to make sure that the method used does not contain some obvious errors in methodology that have now been listed fairly completely in the appropriate literature. Regression to the mean, selection bias, and other basic errors in evaluating programs are errors well documented and known in the industry.

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- Consider discussing the impact of all programs on overall medical care cost trends as opposed to more arbitrary estimates of "return on investment" for individual programs, which share much overlap. The real money is where the total medical care cost trend is moving in any event, and the impact of any medical management programs should be no more than a reasonable change in trend might allow.

ROI is significant but is alone insufficient for characterizing the economic impact of disease management.

- Present the results as a three-part distribution. Note there is an upper limit on the return that is possible, a lower limit below which it is unlikely the program is having an effect, and an optimal value around which you can develop a discreet point for risk calculations.

- Consider taking the least of the most optimistic results and the greatest of the least optimistic results to represent a confidence interval around which you base your decisions. For example, if the net impact on trend for a medical management program is estimated to be 2.4 percent by the actuaries, 5.6 percent by the medical management vendor and 3.2 percent by the staff and informatics, consider accepting the value of 2.4 percent as an area where *all* can agree. It is a conservative approach, but senior management will see a united agreement on the decision. Similarly, at the lowest end, if the least amount of impact that is estimated is 1.3, 1.7 and 1.0 percent of trend, consider using the 1.7 percent as the lower boundary of the "confidence interval." The resulting interval, which by definition is agreed upon by everyone, thus puts within range answers to the questions most required by senior management, namely, "Is it a red number or a black number?" and, "Is the number large or small?" Senior management, who have significant fiduciary responsibility for a large public or private organization prefer to remain conservative about the total impact of medical management efforts.

- Avoid contractual agreements that base reimbursements on ROI guarantees. Because there is no standard method, organizations waste many hours of productive time arguing about the ROI. Given the large number of possible calculations and the problem of high cost and variation in the clinical base in any case, this is sheer folly. Instead, suggest that the contracts build guarantees about easily measurable, discrete outcomes such as program implementation milestones, clinical outcome changes and similar statistics.

- Given the fact that value actually develops from multiple sources, make sure the group presents its findings in a multidimensional format. ROI is significant, but is alone insufficient for characterizing the economic impact of disease management. These other factors are impressive contributors to disease management value and should be considered in their own right. Comprehensive, specific, and sensitive indicators of program activity and results are available across a number of dimensions. A "balanced scorecard" approach may make some sense here.[7] With it, you might describe results along the following axes:

  Operational outcomes, targeting execution milestones and other proof that the program is executed and developed as described in contractual materials. While not a quality indicator in itself, the absence of operational evidence would suggest any downstream results would be unrelated.

  Clinical outcomes can be broken down into utilization management results (such as changes in emergency room or hospital admissions) and more quality-oriented results (such as changes in HEDIS scores). While clinical values do not directly

[7] Kaplan, R. and Norton, D. The Balanced Scorecard—Measures that Drive Performance and Putting the Balanced Scorecard to Work, *Measuring Corporate Performance*. Harvard Business Review Books. 1998.

address the issue of return on investment, a clear estimate is possible for the financial impact of many of these changes that result from interventions.[8]

Financial impact can be described in a number of ways. But, most senior managers now recommend that these be limited to estimating the effect an overall trend, and perhaps one or two estimates of economic impact, such as predective models, ROI calculation using reasonable guidelines, call center estimates of projected impact, etc., which seek to confirm the directionality and general magnitude of medical care cost savings.

Intangible results also remain important and include patient satisfaction and provider network satisfaction with the process.

- Consider early how you will handle year two and year three of a program. Each year, effective programs will reduce waste and improve quality on a decreasingly incremental scale. Movement of indicators from an unmanaged population can be impressive, but are often less extreme as time goes on. This is not a reason to abandon the programs. If your children could not manage their finances and you started them using a software product to keep track of their bills and income, you would not recommend discarding it after they corrected the problem. Similarly, claims from other vendors that they could produce dramatic impact in a program underway must be viewed very skeptically.

- Follow the activities of the Disease Management Association of America and others seeking to quantify and standardize methodology. The course of this work has steadily moved from wildly varying results and methodologies to increasingly robust computational recommendations that will help you in your work.[9] While not yet at "the method," these efforts have greatly helped the industry and will continue to do so.

Overall, the approach described above represents a reasonable, indeed the only reasonable, way large organizations can come to terms with the diffuse issue of economic value in medical management programs. Estimates of whether or not the program is executed properly, and whether or not an impact is being seen, are all that is necessary to determine whether the program should continue. Once a methodology is fixed, changes in the activities undertaken or costs incurred could have expected results on the outcome as one becomes familiar with the limitations, good and bad, of the chosen methodology.

The program administrators will continue to have trouble evaluating the question as to which of two different programs are most effective. There is unlikely to be any realistic way of doing so within the near term until a more standardized and consistent method of evaluation is developed. Problem reduction strategies and methodologies for making choices and complex decisions are available and might be used better than the seemingly quantitative, but inaccurate, approach of ROI calculation.[10]

In conclusion, by stepping back and considering what the important questions are for an organization to decide, medical management programs can be evaluated and a decision made to move forward without the lengthy and expensive process of extended debate over methodology. By contemplating a rational approach to the problem from the outset, an organization can avoid the expensive needless consumption of resources working on an insolvable problem and get on with the business.

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8 Fetterolf, D. and West, R. The Business Case for Quality: Combining Medical Literature Research with Health Plan Data to Establish Value for Nonclinical Managers. *American Journal of Medical Quality*. (19) 2. Mar/Apr 2004. pp. 48-55.

9 Fetterolf, D. and Sidorov. Disease Management Program Evaluation Guide. Washington, DC. Disease Management Association of America (DMAA). 2004. A follow-up text is scheduled to be available in late 2006.

10 Hammond, J., Keeney, R., and Raiffa, H. *Smart Choices. A Practical Guide to Making Better Decisions*. Harvard Business School Press. Boston, MA. 1999.

What We Have Learned in the Last 50 Years—and Aren't Using

by Chris E. Stehno

I recently attended an underwriting conference in predictive modeling where one of the speakers stated, "The way we underwrite has not changed since 1957." I expected to hear gasps from the crowd but instead, I saw most everyone's heads nodding in approval. Why is this? Why have underwriting, pricing and other health risk assessment techniques stayed so consistent?

The obvious answer would be that the analysis of historical medical information combined with simple demographic information like age, sex, geography and industry provide an accurate representation of health risks. However, over the last 50 years, the health care industry has collected mounds of data and produced hundreds of reports that challenge the above beliefs. A thorough review of the data and literature points to one conclusion: in short, we have fallen behind the times.

Our Unhealthy Lifestyles

It is nearly impossible to open up the newspaper or watch the evening news without seeing or hearing some reference to the unhealthy lifestyles of Americans. This comes to us in the form of obesity/overweight estimates, diabetes and cardiovascular trends, lack of exercise statistics, amounts of tobacco, junk food, fast food and soda consumed and a variety of other indicators. In fact, reports released by the U.S. Surgeon General and the Center for Disease Control and Prevention show that more than 70 percent of diseases in the United States are the results of the lifestyles we lead, which in turn accounts for more than 75 percent of the health care costs.[1]

One significantly alarming statistic reported by the CDC states that of U.S. children born in the year 2000, one in three will become diabetic. If this holds true, diabetes will be a health care epidemic unlike any ever seen before in the United States and possibly the world.

Yet today, the health care industry still looks to the past as a predictor of the future. Trend rates are drawn from historical medical experience. Both new and renewal underwriting is judged on current and historical medical analysis. And even disease management and wellness applications are derived from current and past medical indicators.

A great example of new medical research can be found in the 2004 INTERHEART study by Salim Yusuf et al., published in the Sept. 11, 2004, issue of the *Lancet*. This study showed that nine lifestyle-based risk factors like smoking, obesity and exercise made up more than 90 percent of the risks associated with a heart attack. The study also concluded that family history of a heart attack, which is thought by many to be the major factor, only accounted for 1 percent when added to the other nine factors. In other words, it is not a hereditary event, but a lifestyle-based relationship. If your father had a heart attack, you are not necessarily more at risk for having one because of your genes, but because you are more apt to be overweight and lead an inactive lifestyle just as your father probably did.[2]

Similarly, the American Cancer Society has reported that more than 80 percent of the risk for developing cancer in the United States is correlated to lifestyle-based factors including diet, smoking,

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[1] Center for Disease Control and Prevention. 2004. The Burden of Chronic Diseases and Their Risk Factors, U.S. Department of Health and Human Services . 3, 29.

[2] Yusuf, S., Hawken, S., Ôunpuu S,, et al. 2004. Effect of Potentially Modifiable Risk Factors Associated with Myocardial Infarction in 52 Countries (the INTERHEART study): Case-Control Study, Lancet. 364: 937-52

physical exercise, sexual behavior, occupation, alcohol and sun radiation.[3] Numerous studies on Type II diabetes have shown that nearly all cases can be prevented and, in many cases, reversed through proper nutrition and exercise.

Lifestyle-Based Analytics

So what can we do about this? A good start would be to begin evaluating lifestyles and their relationships, impact and correlations to medical conditions and expenses. We are just beginning to see this happen through a new and emerging field called lifestyle-based analytics. In short, lifestyle-based analytics combines the worlds of clinical medicine with statistics and actuarial science to develop measurable health risk parameters tied to lifestyle-based traits.

One of the first questions commonly asked about lifestyle-based analytics is where do you get the data? The answer is that it is all around you and can be easily obtained. One available and overlooked source is right under your nose. Applications used for insurance products often contain gems of information that have significant correlations to early disease/condition detection. Tobacco usage is often a question on the application and is directly tied to several cancers. Height and weight are other components that can be tied to diabetes and cardiovascular events. As another example, the number and ages of children within a family are highly correlated with future pregnancy.

Other lifestyle-associated measurements can often be derived. For example, stress and obesity measures have strong correlations to commute time. Thus, calculating the distance between home address and work address provides a valuable element for several pre-disease models.

Health Risk Appraisals (HRAs) are another source of lifestyle-based data. In general, about one half of the questions asked are lifestyle related. This includes elements such as tobacco and alcohol consumption, exercise and nutrition.

Finally, lifestyle-based data can be purchased from third party vendors for relatively inexpensive fees—usually about $0.10 per name. Currently, more than 95 percent of the households in the United States have significant amounts of consumer data tied to their addresses. Many of the 1,000-plus data elements that can be found in the marketplace today revolve around "lifestyle"-based descriptors.

Examples of lifestyle-based 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.

... Lifestyle-based aanalytics is used to develop independent underwriting factors or it is combined with current medical underwriting techniques as another component to the overall underwriting factor.

Applications for Lifestyle-Based Analytics

So now that we have the data and developed these new correlations between lifestyles and diseases, where are the applications? The first and most obvious comes in the form of a new health risk factor for underwriting. Current underwriting techniques focus on simple demographic factors like age, sex, industry, geography, etc. Where detailed medical data is available, medically based underwriting techniques focus on who currently has a disease or condition and/or use past medical experience to look at co-morbidities. However, little else is ever done to predict who will be next.

There will be an estimated 1.2 million heart attacks in the United States this year.[4] Of that number, 700,000 will be first-time events. Currently 7 percent of the U.S. population is diabetic. However, almost one-third of that population is undiagnosed. Even more alarming is the additional 15 percent of the U.S. population that is pre-diabetic; most of whom do not even know it. When asked to report on known diabetes incidence rates, most health care organizations can only account for 2 to 3 percent of the population and usually less than that for pre-diabetes. Lifestyle-based analytics

(continued on page 20)

[3] American Cancer Society data. Detailed Guide: Cancer – What Are the Risk Factors for Cancer. *http://www.cancer.org/docroot/CRI/content/CRI_2_4_2x_What_are_the_risk_factors_for_cancer_72.asp?sitearea=*. Accessed March 1, 2006.

[4] Thom T, Haase N, Rosamond W, et al. 2006 Update. Circulation - Heart Disease and Stroke Statistics, American Heart Association 2006; 8

is providing a means to help determine who the next will be.[5]

As a functional underwriting measure, lifestyle-based analytics is used to develop independent underwriting factors or it is combined with current medical underwriting techniques as another component to the overall underwriting factor. In its independent state, lifestyle-based analytics provides an underwriting measure where data is limited or unavailable. An excellent example of this is in the mid-sized group marketplace, where claims experience both on an individual and group basis is often missing.

In this situation, armed only with an employee census containing names and addresses, lifestyle-based analytics uses consumer datasets to evaluate the health of the individuals and the group as a whole. This provides significantly increased accuracy and lift to the traditional measure that looks at age, sex, industry and geography.

Also used as an independent variable, lifestyle-based analytics is helping streamline underwriting operations by providing guidance on follow-up recommendations such as APS, tele-underwriting and fraud detection. Many applications are followed up by underwriters because they do not think it feels right or they think something may be missing. And many of these follow-ups are coming from clean applications. Lifestyle-based analytics can help with this process by identifying not only who to follow up with, but what questions to ask. In addition, it is being used to identify possible fraudulent applications including the reporting of tobacco usage, height-to-weight ratios or past medical conditions.

Beyond a determiner of unhealthy risk, Lifestyle-based analytics is providing a look at the overall health of an individual. Medical underwriting techniques were never designed to find healthy individuals. A clean application is a clean application. However, we know that there is a large amount of variability within clean applications. Lifestyle-based analytics uses factors like exercise and nutrition to determine overall health of the individual.

In combination with current medical underwriting techniques, Lifestyle-based analytics provides an extra level of detail not found in medical information. For example, a current clean application may result in an underwriting factor of 0.8. However, as noted before, there is a wide variation in clean applications. By using lifestyle-based analytics, we see that the first clean applicant is an avid runner, works out regularly and generally speaking, eats well. Whereas the second clean applicant eats fast food on a regular basis, smokes and rarely gets any physical exercise. In this situation, applicant one will have a new underwriting factor of 0.65 whereas applicant two's factor may now be over 1.0.

This works not only on the healthy, but on the diseased as well. For example, there are two major courses of treatment for diabetics; one is through medications, and the other is through weight loss and proper nutrition. In fact, a study by The Physicians Committee of Responsible Medicine found that more than 90 percent of patients on oral diabetic medications and 75 percent of patients on insulin were able to get off of their medications after 26 days on a proposed diet and exercise program. Yet, for underwriting purposes, a diabetic is a diabetic. Even worse, medically based predictive models often punish individuals who stop taking medications no matter the cause.

Disease management and wellness applications are proving to be another excellent use for lifestyle-based analytics. Current disease management programs can be best described as "late stage disease management." That is, rarely do today's disease management programs focus on the early or pre-disease stages even though it is well documented that intervention in the early stages has both beneficial health and financial outcomes. One of largest and least addressed issues within disease management today is the speed at which disease management can recognize a candidate.

What is the main obstacle to early detection? The answer lies in the data, or more specifically, lack of data that can be correlated to early disease detection. Current modeling techniques utilized in the industry rely primarily on historical medical data to fuel their predictions. Unfortunately, most of the conditions that disease management focuses on today have few or no associated medical precursors. For example, the first alert a model will give us that someone is at risk for being diabetic is not until the person's record includes the ICD-9 code for diabetes.

Alternatively, lifestyle-based analytics can be programmed to detect the individuals or groups of individuals who are most likely to become diabetic in the near future. Finding these individuals in the

[5] Centers for Disease Control and Prevention. 2005. National Diabetes Fact Sheet: General Information and National Estimates on Diabetes in the United States, U.S.Department of Health and Human Services.

pre-diabetic stages can result in significant savings through greatly increased success rates with intervention programs as compared to later state disease onset programs.

Retention issues are becoming a major factor in the determination of health risk status. The combination of employee turnover and employers moving business has brought the average length of time a member is enrolled in a plan to an all-time low. This is now somewhere around 18 months. These retention issues are resulting in even less medical data to work with for both underwriting and disease management applications.

A Time for Change

It amazes me to still see in presentations and in literature the 20/80 rule (20 percent of the people account for 80 percent of the costs) and the expressed need to focus entirely on this 20 percent high-cost population. Medically based health risk assessment would hold true if the 20 percent high-cost individuals were the same individuals year after year. However, upon our analysis, we found that three-quarters of the 20 percent group was not there the year before. In fact, 60 percent of the high-cost individuals were not in the high-cost group in any of the previous five years.

	Current Year	Prior Year	Prior 3 Years	Prior 5 Years
% Generating 80% of Costs	19%			
% of Those in Prior Year	100%	23%	37%	40%

However, this retention issue also brings up the question of lifestyle-based analytics' value as a near-term predictor of medical expenses. Although it would seem that lifestyle-based analytics is more forward looking, the prediction time frame can be adjusted to the situation at hand. In the life insurance underwriting arena, we may look at a three to five year time frame. However, in the health care underwriting arena we rarely look out past the next 12 to 18 months.

Lifestyle-based analytics' models can be adjusted to account for this. For example, clinically we know that once diagnosed with diabetes, the first (and many times only) behavior change an individual makes is to start purchasing diet food. Therefore, using diet food purchaser as a flag in our modeling we can often distinguish between individuals who have been diagnosed with diabetes and individuals who might be on a collision course with diabetes in the future.

In the disease management arena, it is not uncommon for it to take six to 12 months for enough medical data to be accumulated before predictive models can begin to work. By this time, you have lost almost one-half of the average length of time a participant is enrolled. Using lifestyle-based analytics in combination with real-time consumer databases, disease management and wellness applications can take place on day one.

Similarly on the underwriting side of the equation, real-time applications are now allowing for desktop versions of lifestyle-based analytics that can sit on an agent's desk allowing for instantaneous underwriting, which significantly increases the close ratios.

In the short term, we will see insurance companies that embrace lifestyle-based analysis gain competitive advantages as they will be able to underprice their competition on the healthiest populations. In addition, they will have the added benefit of additional risk measures that will enable them to avoid or properly price those groups posing the greatest heath risks, thereby shifting much of the worst risk to their competitors.

Disease management companies that embrace lifestyle-based analysis will have a tool that will aid in the detection of early or pre-disease diagnosis. At this point, it is well known that intervention provides positive results both for the individuals in terms of their health and the insuring company in terms of ROI. Companies that embrace this technology may finally be able to get over the industry hurdle—do late-stage disease management programs really provide positive ROIs?

In the longer term, we see all companies embracing some form of lifestyle-based analysis as employers are now demanding population health management. The days of managed care appear to be numbered as employers are quickly realizing that what they need to control costs is not managed care, but managed health.

It is true that the job and tools for health risk assessment have remained relatively stagnant over the last 50 years. Now is a time for change. Armed with mounds of clinical literature, proven statistical correlations and a barrage of new data sources, it is time to incorporate lifestyle-based parameters into the evaluation of health risks.

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Health Care Guarantees under Canada's Medicare Plan

by John Have

Waiting lists for some medical procedures have become the norm in most public health insurance plans in the Western world. Aging populations, availability of many new and effective medical procedures along with patient expectations has demand increasing faster than the capacity growth of medical resources.

During the recent Canadian federal election, the two main political parties both promised health care guarantees, as to maximum wait times, for five key medical procedures (cancer care, cardiac care, sight restoration, diagnostic imaging and joint replacements).

Canadian Medicare

The federal government provides partial funding and oversight of the overall Canadian Medicare plan under the Canada Health Act. Each province has developed its own Medicare plan that must cover at least core medically necessary physician and hospital procedures on a reasonable access basis. Those core services must be entirely publicly funded and patients are not allowed to pay directly for them. This prohibition is felt to be necessary to protect the public plan by avoiding shifting of health care resources to private care.

A central concept in the Health Act is that relative medical necessity, rather than ability to pay, should determine access to the health care system.

Most physicians operate out of small private clinics and are paid on a per-service basis based on fixed and negotiated provincial fee schedules. And with very few exceptions, Canadian hospitals are public and operate primarily on preset annual budgets. Usually, no private clinics are allowed to compete for core services provided by hospitals.

This effectively means that the public Medicare plan has a monopoly on the delivery of core medical services. However, with that monopoly position comes accountability and performance—the key issues in the recent Chaoulli Supreme Court case.

Chaoulli Supreme Court Decision[1]

Dr. Chaoulli and his patient Mr. Zeliotis launched a legal challenge against the Canadian and Quebec governments after Mr. Zeliotis was forced to spend a year on a waiting list for a hip replacement in 1997 because he was prevented from paying directly to get faster service. His doctor, Dr. Chaoulli, had also long argued for the right to set up his own private medical business. Failing to get relief in lower courts, they asked the Supreme Court of Canada to hear their case, and in 2004 their case was heard.

Chaoulli argued that Quebec's ban on buying private health insurance to cover, or for Mr. Zeliotis to pay for directly, services insured under the Quebec Hospital and Health Insurance Acts ran afoul of the Canadian Charter of Rights and Freedoms as well as the Quebec Charter. Quebec's and Canada's attorney generals argued that such violations were justified under the charters since both charters place limitations on those same rights for the common good and public order of all its citizens in a free and democratic society.

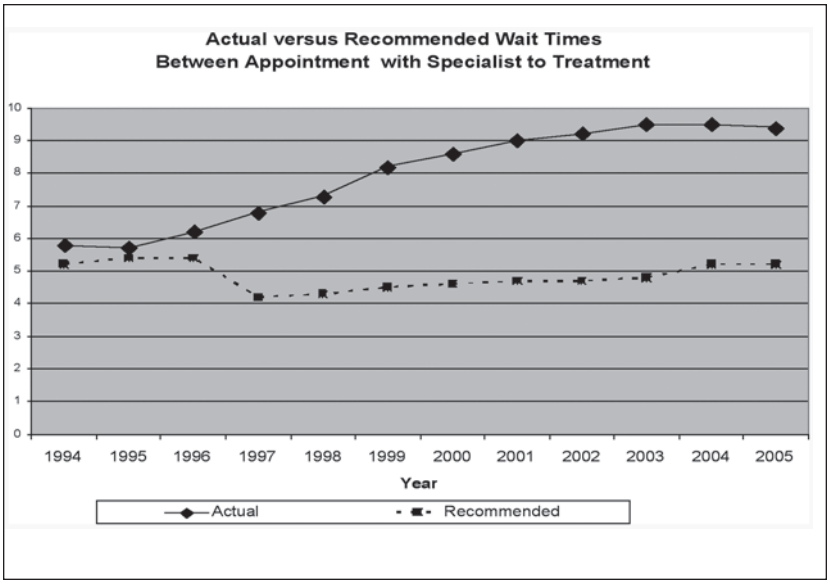
In the summer of 2005, the Supreme Court found that the prohibition against private health insurance violated Mr. Zeliotis's right to life and to personal security under the Quebec Charter.

In essence, no public, social or health program can have a monopoly unless the government is prepared to deliver. And secondly, if it can't

perform, it can't limit a person's right to solve the problem with that person's own money. While the decision was specific to the province of Quebec, political practicality means that it really applies across Canada.

Wait Times for Medical Procedures

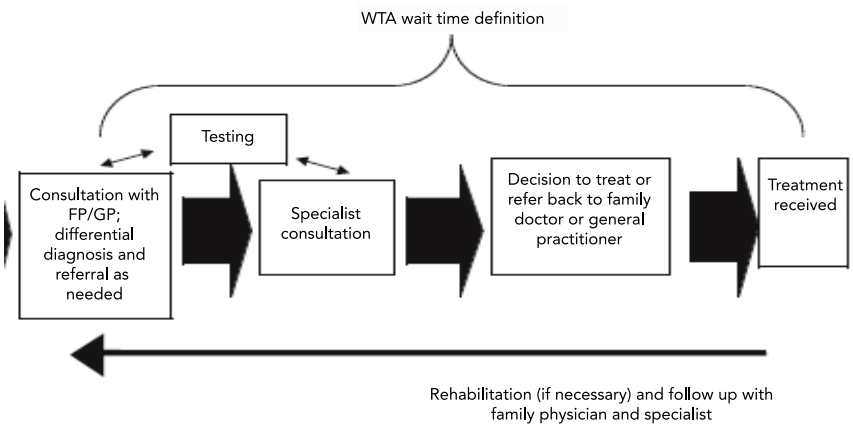
Even before Chaoulli, wait times had been identified as a serious problem in Canada as seen in the accompanying chart taken from a 2005 Fraser Institute report.[2]



At the September 2004 First Ministers Conference (prime minister together with all provincial premiers), reducing wait times was identified as a Medicare priority. Since then, a number of initiatives and studies have been launched to recommend wait time benchmarks. However, in order to set benchmarks one needs to define wait times.

When does a wait time begin? The Wait Time Alliance (WTA)[3] has recommended that wait time be defined as shown in the chart to the right. The WTA is comprised of the Canadian Medical Association (CMA) along with Canadian medical specialists associations.

Others, typically governments, start the wait time clock once a specialist has made a recommendation for a specific medical treatment. This choice is easier to track and measure because one just links the last specialist appointment with the procedure.



The WTA concluded in its 2005 report[2] that wait time benchmarks must:

- be fair, equitable and transparent from a patient's perspective,
- be based on best available medical evidence along with clinical consensus,
- be dynamic and evolve to recognize new technologies,
- recognize different needs and capacities by province,
- be sustainable and not be achieved at the expense of reduced access to other health care services.

The WTA developed wait time benchmarks according to three urgency categories:

- **Emergency** – immediate danger to life, limb or organ,
- **Urgent** – situation that is unstable and has potential to deteriorate quickly into emergency admission to a hospital,
- **Scheduled (or elective)** – situation with minimal pain, dysfunction or disability.

While the clinical evidence on wait times is still quite limited, the WTA recommended benchmarks for radiology, nuclear medicine, joint replacement, cancer care and cardiac care. The emergency wait times are all within 24 hours.

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Factors Affecting Wait Times

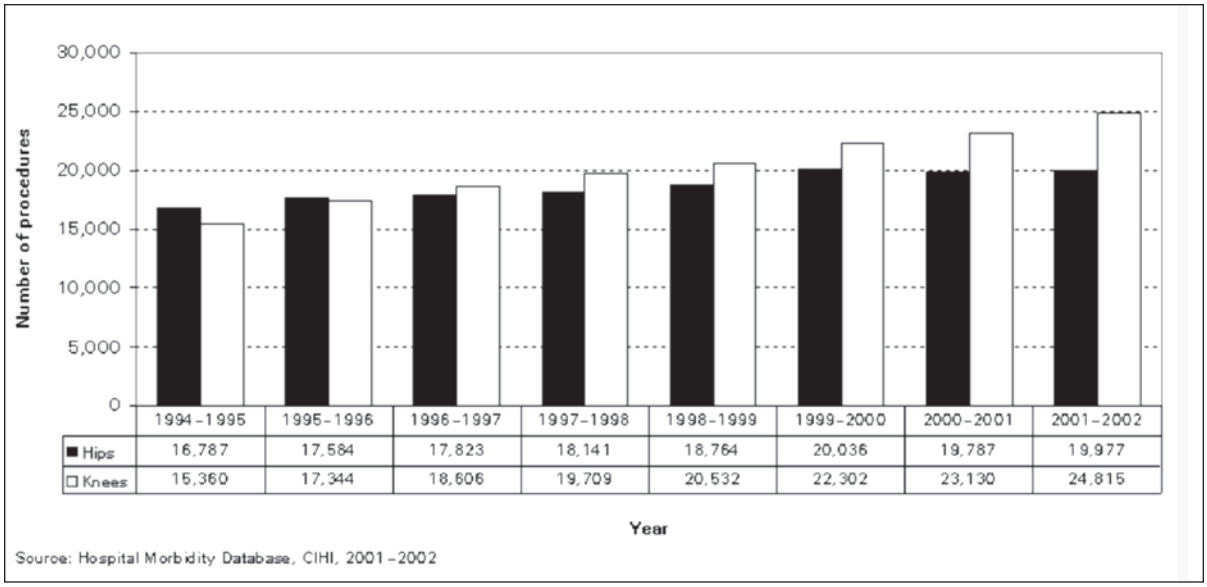
According to the Institute for Clinical Evaluation Sciences (ICES)[4] in its second 2005 report, measuring wait times can be tricky, particularly for one patient, because many factors may affect wait times for a surgical procedure or diagnostic exams that are unrelated to the efficiency of a particular hospital, a particular surgeon, or the availability of resources. At this point in time, there is no way to capture all of these potential factors in the information that hospitals are currently measuring. Although these factors (see below) may have significant impact on the wait time for an individual patient, overall wait times are still a good reflection of the current situation for a typical patient at that hospital.

- **Patient Choice –** a patient with a non-life threatening condition may choose to delay treatment for personal or family reasons to a more convenient time.
- **Patient Condition –** treatment may be delayed until a patient's condition improves sufficiently that surgery or an exam can be performed.
- **Follow-up Care –** a patient with an existing condition may be pre-booked for a follow-up treatment or exam a long time in advance.
- **Treatment Complexity –** specific resources may be required for a patient with special requirements, resulting in a delay until these can be scheduled.

Joint Replacements

In order to understand the magnitude of the wait time issue, I will now focus on total hip and knee replacements—the source of the Chaoulli decision. Here, the number of completed joint replacements has increased significantly over the last few years (see chart below), but is still not fast enough to keep up with demand.

Chart 1: Number of Total Hip and Knee Replacement Procedures Performed in Canada (1994-1995 to 2001-2002)



	1994-1995	1995-1996	1996-1997	1997-1998	1998-1999	1999-2000	2000-2001	2001-2002
■ Hips	16,787	17,584	17,823	18,141	18,764	20,036	19,787	19,977
□ Knees	15,360	17,344	18,606	19,709	20,532	22,302	23,130	24,815

Table 1: Number and Distribution of Total Hip Replacement Procedures by Age Group and Sex in Canada (2001-2002 compared to 1994-1995)

	Males			Females		
Age Group	1994-1995	2001-2002	7-year % change	1994-1995	2001-2002	7-year % change
<45 years	489	553	13.1%	475	484	1.9%
45-54 years	716	1,055	47.3%	630	943	49.7%
55-64 years	1,609	1,753	8.9%	1,659	1,966	18.5%
65-74 years	2,475	2,789	13.1%	3,746	3,748	0.1%
75-84 years	1,470	1,976	34.4%	2,798	3,547	26.8%
85+ years	194	315	62.4%	526	839	59.5%
Total	**6,953**	**8,450**	**21.5%**	**9,834**	**11,527**	**17.2%**

Source: Hospital Morbidity Database, CIHI

Table 2: Number and Distribution of Total Knee Replacement Procedures by Age Group and Sex in Canada (2001-2002 compared to 1994-1995)

	Males			Females		
Age Group	1994-1995	2001-2002	7-year % change	1994-1995	2001-2002	7-year % change
<45 years	104	136	30.8%	155	206	32.9%
45-54 years	282	648	129.8%	397	1,067	168.8%
55-64 years	1,292	2,181	68.8%	1,684	3,030	79.9%
65-74 years	2,754	4,008	45.5%	4,170	5,884	41.1%
75-84 years	1,564	2,559	63.6%	2,597	4,321	66.4%
85+ years	117	261	123.1%	244	514	110.7%
Total	**6,113**	**9,793**	**60.2%**	**9,247**	**15,022**	**62.5%**

Source: Hospital Morbidity Database, CIHI

(continued on page 30)

Chart 1: Obesity rates, by age group, household population aged 18 or older, Canada excluding territories (1978, 1979 and 2004)

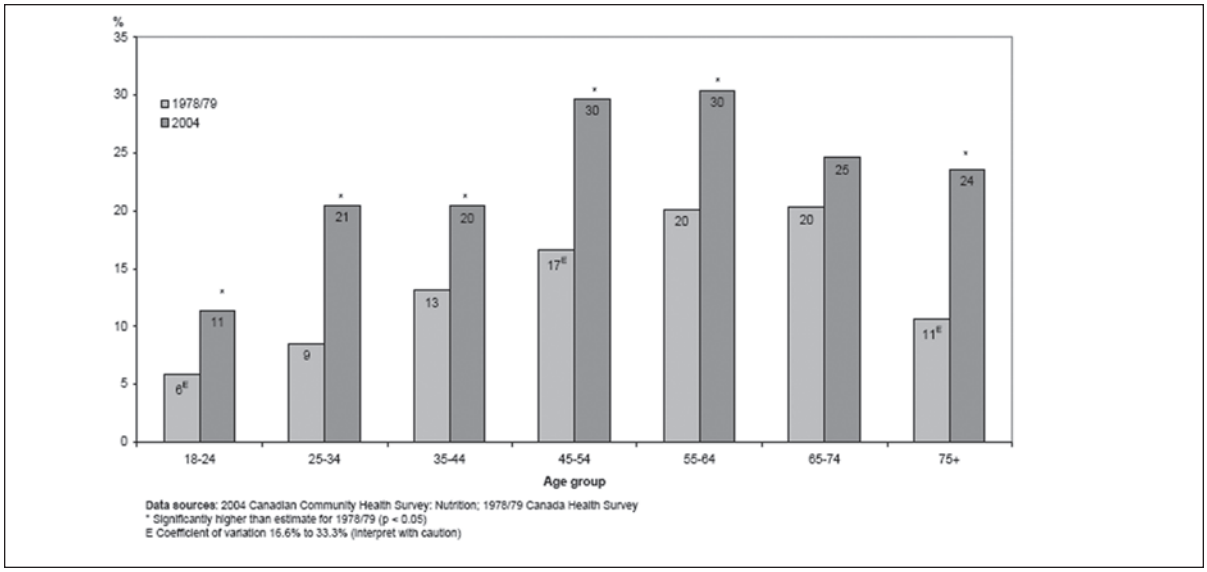
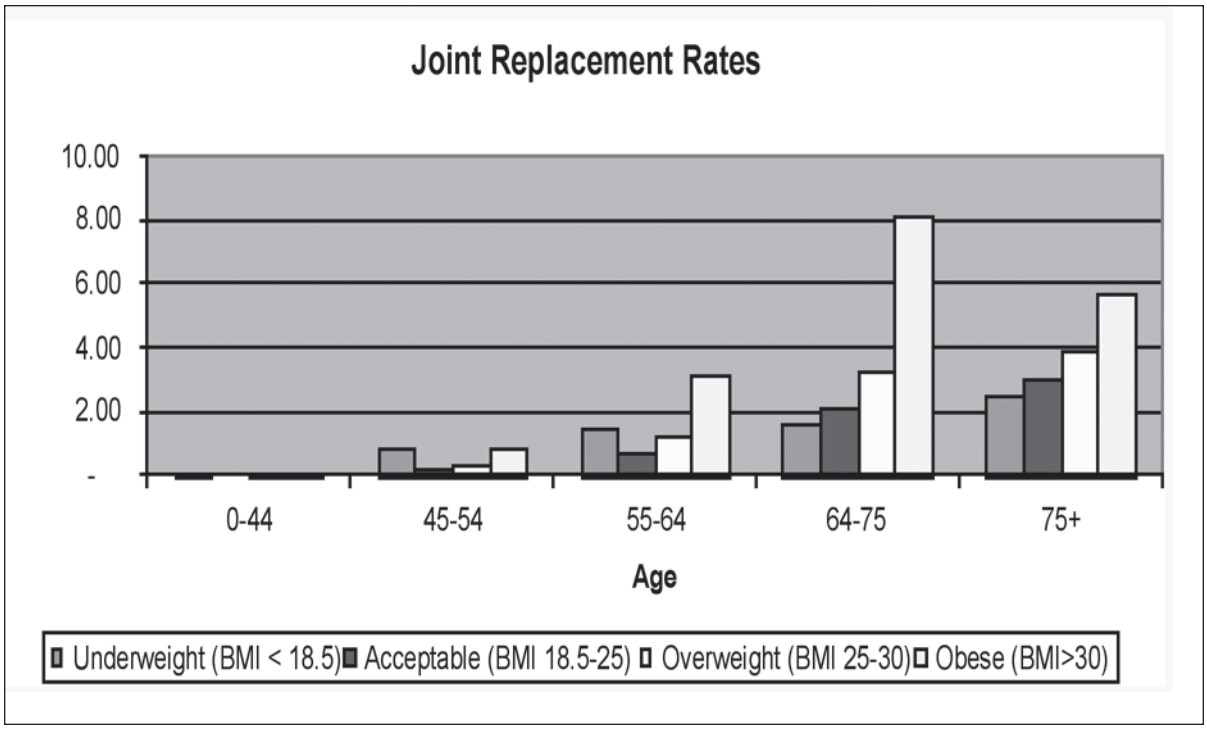


Chart 2: Joint Replacement Rates – By Age and BMI Index – Stats Canada 2004



According to the Fraser Institute[2], the median wait time to see an orthopaedic specialist has increased from four weeks in 1980 to 12.5 weeks in 2005. In addition, the median wait time for the operation has increased from eight weeks to 30 weeks. In total, wait time has increased from 12 weeks to 42.5 weeks, compared with a median acceptable wait time of about 20 weeks.

Increases in number of hip and knee replacements are caused by a number of factors aside from an increasing and aging population:

- Availability of new and improved medical technology, thereby increasing number of effective procedures. The large increases in procedures in age groups 45-54 and over age 75 bear this out (see Tables 1 and 2).
- Significant increases in Canadians' average body mass index (BMI) (see Chart 1) since, aside from age, the need for joint replacements is highly correlated with someone's BMI (see Charts 2 and 3).
- Increasing patient awareness and expectation.

The WTA recommended wait time benchmarks according to a severity rating that can be applied on a universal and objective basis by assigning a priority score to each patient within a patient wait list. Emergency cases (see categories define above) would be treated within 24 hours while urgent cases would be treated within 30 to 90 days, depending on whether the situation could deteriorate quickly or the patient just has some pain and disability but is unlikely to deteriorate. Scheduled (elective) wait time benchmarks were set at three months for consultation plus six months for treatment.

In setting those wait time benchmarks, the WTA[2] reviewed similar benchmarks in other public health care plans in the Sweden, New Zealand, Finland, Spain, Australia and United Kingdom.

Next Steps

With the Canadian federal election over, it is now time to implement the promised health care guarantees. In essence, maximum wait times would be set for the five medical procedure categories identified above. Once those wait times are exceeded, Medicare would pay all expenses, including travel, for the patient to have the medical procedure performed immediately in another province or country, if necessary.

At time of writing this article, Quebec, Alberta and British Columbia all have proposals for public comment and the federal government is developing its own position. Key issues are funding of the guarantees and the possibility of allowing private specialty clinics to perform joint replacements, normally only permitted in hospitals, thereby avoiding the extra costs of sending patients outside Canada for treatment.

References

1 Chaoulli v. Quebec (Attorney General) 2005 SCC 35.

2 Waiting Your Turn: Hospital Waiting Lists in Canada, 15th Edition. Fraser Institute, October 2005.

3 It's about time! Achieving benchmarks and best practices in wait time management, Canadian Medical Association, August 2005.

4 Access to Health Services in Ontario—ICES Atlas, Institute of Clinical Evaluation Services, April 2005.

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Medicare versus Private Health Insurance: The Cost of Administration

by Mark Litow

One of the most common, and least challenged, assertions in the debate over U.S. health care policy is that Medicare is much more efficient than the private sector. Critics of the private sector health insurance industry like to boast that Medicare administrative costs are about 2 percent of claims costs, while private insurance companies' administrative costs are in the 20 to 25 percent range—or more.

That assertion is nearly always followed by a policy recommendation: Switch everyone to a government-financed health care system, or just put everyone in Medicare, and the country will save so much in administrative costs that it can cover all of the 46 million uninsured with no additional health care spending.

Milliman, Inc., recently completed a study on behalf of the Council for Affordable Health Insurance (CAHI) that compares the administrative costs of Medicare to that for the private insurance industry on average. The full report is available by contacting CAHI via phone at (703) 836-6200 or by e-mail at *mail@cahi.org*. This article summarizes the results of the study.

Medicare costs include those reported by Medicare, plus an allocation of some overhead costs that are included in other parts of the federal budget, but are estimated per this study to belong to Medicare. Private market costs recognize the aggregate average cost as estimated across all three private markets (individual, small group and large group). All overhead costs are included as private companies must allocate costs by function. Private market costs for commissions, premium taxes and profit are shown separately as government does not have such costs.

The study estimated that Medicare administrative costs during 2003 were lower as a percentage of claim costs than private health insurance administrative costs for functions that were readily comparable. Medicare administrative costs were estimated at 5.2 percent of total costs (benefit payments plus administrative costs) and private insurance administrative costs were estimated at 8.9 percent of total costs (premiums). But this comparison does exclude some significant differences between Medicare and private health insurance.

In 2003, the average medical cost for Medicare was estimated to be about $6,600 per person per year (because of the nature of Medicare's beneficiary pool: older and disabled people), while the average medical cost for private health insurance, excluding out-of-pocket cost, was $2,700 per person per year. Because of the higher cost per beneficiary, Medicare's method of calculation makes administrative costs higher as a percentage for commercial insurance, but lower when calculated as a PMPM. The right answer is somewhere between a percentage of premium and a PMPM, but the point is an important one when trying to make comparisons.

The chart on page 29 summarizes estimated administrative costs on this same basis under Medicare for selected years from 1967 through 2025 and compares them to private health insurance administrative costs (note that private insurance costs as a percentage of total costs are expected to remain constant). Private costs are shown without and with commissions, premium taxes and profits (this is discussed later).

Administrative Costs as a Percentage of Claims plus Expenses

Medicare						Private Health	
1967	1985	2003	2010	2017	2025	No commission, premium tax, profit	With All Expenses
17.0%	7.2%	5.2%	3.3%	2.4%	1.6%	8.9%	16.7%

Some comments on the comparisons above are as follows:

- Administrative costs are higher than reported in the Federal budget (about 2 percent).

- Medicare administrative costs are expected to decrease over time because Medicare benefit costs increase at a higher rate than administrative costs. Annual benefit costs have typically increased at a rate about double normal inflation (CPI increases) whereas administrative costs have typically increased closer to the CPI rate.

- The private market administrative costs are expected to remain at about 9 percent of total private insurance cost, excluding premium taxes, commissions and profit. With such items, private costs would be slightly under 17 percent. While we have not studied private costs at various points in time, a look at costs in the early 1990s indicated administrative costs in roughly the same place, although there have been changes in certain markets.

- Other significant differences exist between Medicare and private health insurance, which could significantly alter the comparison if recognized as discussed below.

One significant difference between Medicare and private health insurance is that the accounting is fundamentally quite different, making comparisons of costs under each program very difficult. Medicare uses pay-as-you-go funding, meaning that costs are not funded until they come due. When due, some of Medicare's funding comes from the Federal Treasury, which may need to borrow some of this money. On the other hand, private insurance has to prefund costs through reserves backed by hard assets. It may raise capital to do so, and profits can effectively be a return of this capital. This means any costs to raise capital are immediately included in the total costs of running a private health insurance business.

Another significant difference is that private programs may have administrative functions not applicable to Medicare. These can include commissions, premium taxes and profits. Some private programs have such costs where others do not. In the study, commissions, premium taxes and profits are shown separately and comparisons of Medicare to private health insurance can either include or exclude such costs.

Specific functions applicable to potential administrative costs are briefly described below. The initial group includes those applicable to both Medicare and private health insurance. Functions applicable to Medicare or private health insurance only are shown in separate groupings.

Medicare and Private Health Insurance Administration

- Claim payment administration/adjudication: This represents the payment of claims, including the various functions related thereto.

- Policyholder services: This represents addressing consumer questions regarding policy or coverage administration.

- Marketing: Advertising, printing, related mailing costs and general selling costs. Commissions are excluded.

- Systems: Setting up and maintaining reporting systems for the business.

(continued on page 30)

- Actuarial and accounting: The necessary maintenance of the business relative to funding, estimating, reporting, etc.

- Compliance: Process to verify, confirm and implement the following applicable laws and rules.

Some of the revenues used may include funds emanating from monies borrowed by the federal Treasury.

- Peer review: The review of administrative processes, including functions above.

- Overhead: Building costs, salaries not included elsewhere, and other costs not included elsewhere.

Medicare Only (excluded from study)

Potential costs related to funding shortfalls: Medicare in general pays providers and others as costs emerge. Some of the revenues used may include funds emanating from monies borrowed by the federal Treasury. These borrowed amounts are effectively unfunded liabilities until the day they are funded. Should potential costs related to this borrowing be attributed to Medicare? This question is beyond the scope of this article and the study presented, but is anticipated to be addressed in a subsequent study.

Private Insurance Only (reported in the study separately)

Commissions: They apply only to private health insurance. Self-funded plans within private insurance do not have this component. Commissions are included or excluded as indicated.

Premium Taxes: These are amounts charged by states to, at least in theory, cover the costs of regulating private insurers. No such cost applies to the Medicare Administration. Premium taxes are included or excluded in the study as indicated.

Profit: This item applies only to private insurance. Profit is included or excluded in the study as indicated.

The administrative costs as shown in the article are on a best estimate basis only. Sensitivities are discussed in the study itself.

Medicare costs in the study are based on the federal budget, Medicare trustee reports and other government reports. Private industry costs are based on national health care expenditure data, Milliman data, and experience and judgment of the authors.

For a better understanding of the results and limitations of the study, the entire report should be read.

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Sound Bites from the Academy's Health Practice Council

Save the Date

A full day of sessions, including a health track, is planned for the American Academy of Actuaries Spring Meeting on May 16, 2005, Grand Hyatt Hotel in Washington, D.C. More information is available on the web:
http://www.actuary.org/springmeeting/index.asp.

What's New

Dale Yamamoto led a work group that recently published the final version of the practice note Attestation of Actuarial Equivalence for Plan Sponsors Accepting a Federal Subsidy under the Medicare Drug Program. The practice note is available on the Academy website:
http://www.actuary.org/pdf/practnotes/health_part_d.pdf.

Ed Hustead penned the article Medicare Financing and the 2004 Technical Panel in the January/February 2006 issue of *Contingencies*
http://www.contingencies.org/.

Steel Stewart led a subgroup of the Academy Uninsured Work Group that published the revised issue brief Health Coverage Issues: The Uninsured and the Insured in December 2005. The issue brief is available on the Academy Web site :
http://www.actuary.org/pdf/health/uninsured_dec05.pdf.
This is an update of the 2003 issue brief and it includes revised information on Medicaid and the number of uninsured.

Joeff Williams led a subgroup of the Academy Health Practice Financial Reporting Committee that published a revised practice note, Medicare Supplement, in March. The practice note is available on the Academy Web site:
http://www.actuary.org/pdf/practnotes/health_medsupp06.pdf.

Bob Beal led a subgroup of the Academy Health Practice Financial Reporting Committee that published a revised practice note, Statutory Reserves for Individual Disability Income Insurance, in March. The practice note is available on the Academy Web site:
http://www.actuary.org/pdf/practnotes/health_disability06.pdf.

Ongoing Activities

Several new groups have been formed under the Academy's Health Practice Council this year. These groups include:

Individual Medical Market Task Force (Mike Abroe, Chairperson) – This task force is considering issues to include in an issue brief that will examine how the current individual market operates. They are also reviewing legislation that could affect the individual market.

Small Group Market Task Force (Karen Bender, Chairperson) – This task force replaced the AHP Work Group and has an expanded charge to look at not only AHPs, but other issues in the small group market. They are currently working on an issue brief on risk pooling in health insurance and reviewing health insurance legislation that would affect the small group market.

HPC Extreme Events Work Group (Jan Carstens, Chairperson) – This work group is developing an outline for an issue brief that will examine health care issues associated with natural disasters and pandemics. They will be looking at issues including the types of extreme events, types of risks, and risk mitigators.

Medicare Outreach Work Group (Mark Litow and Bob Shapiro, Co-Chairpersons) – Under the direction of the Medicare Steering Committee, this work group is developing messages to raise the visibility of issues related to the Medicare program such as Medicare's financial condition.

Long-Term Care Principles-Based Work Group (Bob Yee, Chairperson) – This work group will be discussing current principles-based methodology and the implications of the Academy's Life Practice Council's work on the area of long-term care.

The Health Care Quality Work Group is discussing potential topics for a follow-up paper to their October 2005 issue brief Pay for Performance: Rewarding Improvements in the Quality of Health Care (which is available on the web at:
http://www.actuary.org/pdf/health/pay_oct05.pdf.

The Medicare Steering Committee is busy forming groups to look at ways to approach Medicare's financing problems and lessons learned from Part D.

The Medicaid Work Group plans to do a projection and analysis (i.e., development of an actuarial model) of Medicaid enrollment and costs over the long term (e.g., 25 – 30 years).

The Health Practice International Task Force continues to solicit volunteers who are interested in keeping abreast of international issues with potential health implications.

The Stop-Loss Workgroup continues efforts to update its previous report on risk-based capital to the NAIC.

Other issues that the Academy continues to monitor at the NAIC includes LTC, retiree health, health insurance issues, Medicare Part D, and principles-based methodologies.

Upcoming Activities and Publications

A practice note on actuarial equivalence for PDPs and MA-PDs under the Medicare drug benefit is slated for publication this year. Margaret Wear chairs the work group that plans to make available for comment in the next month an exposure draft of the practice note *Actuarial Equivalence for Prescription Drug Plans and Medicare Advantage Prescription Drug Plans under the Medicare Drug Program*.

A practice note on Disease Management is currently being drafted by the Academy's Disease Management Work Group, with an expected initial exposure by summer.

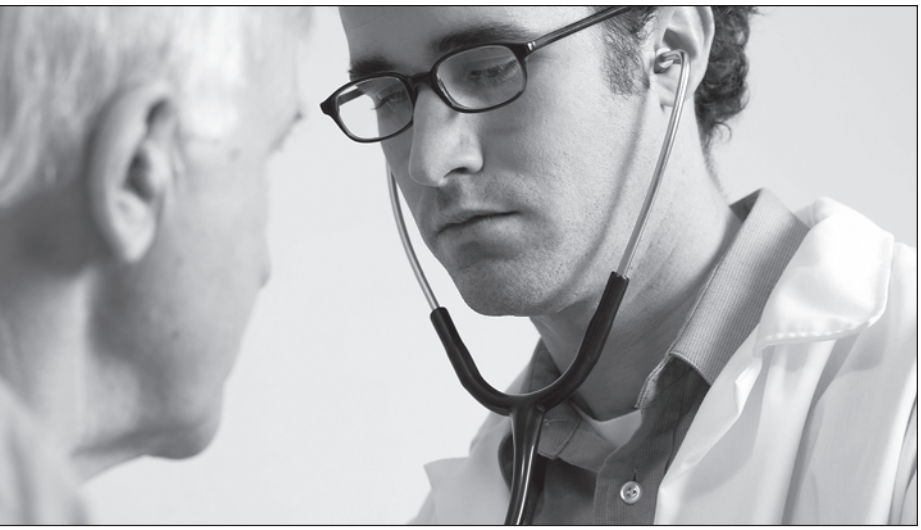
The issue brief *Medicare's Financial Condition: Beyond Actuarial Balance* will be revised upon release of the 2006 Medicare's Trustees' Report in March or April.

A white paper on premium deficiency reserves is under consideration by the Academy's Health Practice Financial Reporting Committee, with a proposed completion date by the end of the year.

If you want to participate in any of these activities contact Holly Kwiatkowski at *Kwiatkowski@actuary.org* or Geralyn Trujillo at *Trujillo@actuary.org*.

Hospital Contracting Best Practices

by David V. Axene



Overview

This article presents information from a recently completed client-sponsored survey of hospital contracting best practices. Individual health plans were evaluated using a structured survey document. The primary objective of the survey was to identify best practices that the client sponsor could implement to improve its already better-than-average hospital contracting practices. Surveyed health plans included plans covering members throughout the United States.

The survey included several sections covering the following contracting topics and issues:

- Organization and people
- Reimbursement methodologies and administration
- Negotiating tactics for working with hospitals
- Negotiation tactics for data and analysis.

All aspects of the hospital contracting process were included in the survey, resulting in a complete summary of observed best practices.

Definition of Best Practice

For purposes of this survey, we defined best practice as "best observed practice." Observations include the responses of the surveyed health plans, in addition to the author's experience with hospital contracting as a consultant and working for contracting organizations. A best practice might involve a solution to a long-standing contracting challenge that was quite creative and one that other plans wished they were doing or were trying to develop. Or, it could be a differentiating practice (e.g., commitment to collaborative contracting). Another option is that it may be a practice that other plans specifically commented on and others were working to improve it and one or more plans were already doing it.

Organization and People

For the topic of organization and people, the following three key areas are noteworthy: actuarial reporting structure, assignment of duties and incentives. With regard to the actuarial reporting structure, it's clear that the organizational best practice has actuaries directly involved with the hospital contracting process. Two distinct variations emerged, one referred to as an "integrated" model and the other as a "parallel" model. The integrated model had actuaries embedded in the provider contracting department reporting up through its leadership. The parallel model similarly embedded actuaries, but maintained reporting through the chief actuary. The differentiation was the use of dedicated actuaries to support the contracting and medical economics activities.

The best practice for the assignment of duties was identified as a plan where contracting personnel were responsible for contracting all providers within a specific region, as compared to responsibility for contracting just hospitals across broader geographic areas. The primary advantage of this was a greater awareness of the scope and characteristics of the network. For incentives, the best practice included specific financial incentives for provider contracting staff meeting specific objectives.

Reimbursement Methodologies and Administration

Reimbursement methodologies and administration includes four attributes consisting of the use of a model contract, the length or term of the contacts,

the reimbursement methodology and the fully adjudicated hospital payment rate.

First, the best practice for the use of a model contract utilized a standard "model" contract with extremely limited exceptions (i.e., less than 5 percent of contracts involve exceptions). This approach led to streamlined, more efficient and less costly contract administration.

Second, the term of contacts' best practice was identified as longer term contracts (i.e., at least three years, preferring as long as five years) with automatic adjustors from year to year.

Third, the best practice for methodologies was identified as case rate reimbursement utilizing DRGs. The results were equally split between CMS DRGs and AP-DRGs, although internal severity adjusted analysis was based upon either APR-DRGs or R-DRGs.

And fourth, fully adjudicated hospital payment's best practice was identified as more than 95 percent of hospital claims being fully adjudicated by an automatic system.

Negotiating Tactics with Hospitals

The third contracting topic relates to negotiating tactics when working with hospitals. This category has a number of areas for comment, which are outlined as follows:

- **Collaborative contracting.** The best practice was identified as a collaborative contracting process where health plan and providers worked together in a non-confrontational basis. As a result, relationships were more satisfying along with better results and longer term contracts.

- **Benefit design.** The best practice was identified as flexible and able to handle new products (i.e., tiered networks, consumer driven health plans, etc.)

- **Hospital systems.** The concentration of bargaining power by hospital systems and provider groups causes challenges for all health plans. Thus, the best practice was the "divide and conquer" strategy wherein each individual hospital is considered on its own.

- **Process during contract change.** Several surveyed plans have executed major contract changes in recent years. Multiple approaches were used to introduce the changes; however, the best practice and most effectively reported process are characterized as a "just do it" method. Although any change causes concern among providers, it appears that getting it over with as quickly as possible gets the best results.

First, the best practice for the use of a model contract utilized a standard "model" contract with extremely limited exceptions.

- **Negotiation timeline.** The best practice has been defined as the plan with the consistently shortest process. The shortest timeline was a consistent period at or below 60 days. This also occurred with the plans utilizing the collaborative process. The plans with the highest self-reported antagonism with providers also reported the most extended timeline.

- **Contracting incentives.** The best practice involved the use of contracting incentives that rewarded providers for early adoption of changes or signing bonuses for shorter negotiation time periods. The negotiation timeline was the shortest for those offering signing bonuses.

Negotiation Tactics for Data Collection and Analysis

The final topic within negotiation tactics has three elements for best practices of data collection and analysis. These are renewal contracting analysis, sharing of data and monitoring of results.

For the first, the best practice included the development of a standardized renewal package for each hospital contract. This process is fairly similar to standardized underwriting processes, but applied to the hospital contracting process. The renewal package includes a set of standard reports and analysis to facilitate a consistently structured negotiation process. Plans utilizing this approach also exhibited results more consistent with their objectives.

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Next, the best practice for sharing of data was open distribution of information with hospitals ensuring the consistency of data between the plan and the provider. The most effective processes were observed with plans with the most collaborative contracting styles.

In terms of monitoring of results, the best practice was an integrated database tool that enabled stakeholders to obtain real-time information on both expectations of contracting (i.e., assumed trend rates) and actual results (i.e., actual trend rates and costs). The most innovative approach was labeled a "checkbook," where finance and the actuarial department initially identified the targets, and actual results were updated in real-time presenting a "gap" analysis. This active two-way communication process provided quicker updates to the pricing actuaries if rates required revisions and, at the same time, provided meaningful information for negotiators to strive for improved results (as necessary).

Additional Observations

Although there wasn't a plan that exhibited all of the above-mentioned best practices, many of these practices are, or could be, interrelated. The key observation from the survey is the benefits or advantage of collaborative contracting. Many health plans believe a "tough guy" approach will achieve better results. However, our observations and experience in the market suggests the counter-intuitive collaborative approach achieves the best results.

Consider a situation where the provider and the health plan are mutually pursuing a "win-win" contract as in a contract that achieves appropriate revenue for the hospital and a contract that is in line with competitive premium objectives for the health plan. This will likely produce a long-term contract, bringing about reduced contracting expenses. This will also likely motivate additional collaborations where the provider and health plan could work together to achieve further benefits for both organizations such as integrated care management, improved disease management programs and more favorable relationships with physicians.

As far as analysis is concerned, the broader introduction of actuarial science (preferably integrated with clinical insights) improves the financial viability of contracting efforts. More plans are recruiting additional actuarial resources to provide leadership in contract analysis, medical economics, medical informatics and other areas. Introducing skilled actuaries to other aspects of analysis desperately needing their expertise can vitalize the actuarial profession, often bored with traditional pricing and reserving analyses.

As the cost of care continues to rise, the provider contracting effort becomes even more important to a plan's success. As the plan recruits the best underwriters, care managers, pricing actuaries and sales staff, the plan must also consider the value of introducing highly skilled professionals to add to the plan's sophistication in reviewing, analyzing and negotiating its provider contracts.

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The SOA 2006 Annual Health Spring Meeting

Society of Actuaries Health 2006 SPRING MEETING

The Society of Actuaries Health Spring Meeting will be held in Hollywood, Fla., June 20-22, 2006, at the Westin Diplomat Resort & Spa. The SOA and the Health Section have worked diligently to develop this year's event to provide key industry data and information you need to succeed in today's marketplace. Please make plans to join us as the SOA Health Section celebrates its 25th anniversary of encouraging and facilitating professional development of actuaries in the field of health insurance and health benefit plans.

A wide range of experts spanning many health care industry disciplines will present at this year's meeting. Attendees will learn the latest news on health policy issues, enterprise risk management and industry trends that will affect the way organizations do business. Solid actuarial principles will be discussed in the context of current events and emerging markets.

The 2006 Health Spring Meeting has evolved into an event that provides keys to addressing the most complex health and long-term care issues facing actuaries today. Re-engineered by you, this event promises to offer real-world applications that will have measurable effects on your business. With more than 50 sessions available to attend, this year's meeting has been designed to provide an exceptional learning experience with comprehensive information on topics of interest to you.

Session topics will include:

- Medicare (three sessions covering MMA, Bid Audits and Part D)
- Provider Contracting (three sessions covering Renegotiations, Measuring Metrics and Outside Influences)
- Enterprise Risk Management for Health Actuaries
- Health Policy Implications for Actuaries
- Predictive Modeling Applications
- Health Benefit Systems Consolidation Trends
- Disease Management Topics
- Emergence of MinuteClinics and their Implications for Health Plans
- And many more!!!

From these sessions, attendees will be able to gain a clear understanding of the ever-important and emerging roles actuaries play in shaping the economic future of the health care industry. Participants will learn management techniques to navigate the complexities of the industry as well as how to guide their company in evolving to remain successful in the future. Harnessing the strengths of every facet involved to enhance business operations will be key to the success of any enterprise. Understanding information technology infrastructure along with acquiring sound actuarial decision-making skills, knowledge of the health policymaking process and medical management techniques will be key components to achieving these successes.

Keynote Speakers at the 2006 Health Spring Meeting

To mark the 25th Anniversary of the SOA Health Section, two keynote speakers will deliver talks on some of the most pressing issues we face in the industry today. Mr. Richard H. Anderson will address the successes and failures of the airline and health care industries and the lessons learned from both. Dr. Michael T. Osterholm will speak on preparedness for an influenza pandemic and what this means for our

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The SOA 2006 Annual Health Spring Meeting

Society of Actuaries Health 2006 SPRING MEETING

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businesses. Both speakers are sure to engage the audience with their knowledge and expertise.

Richard H. Anderson

Richard H. Anderson, executive vice president for UnitedHealth Group, will serve as a keynote speaker at the 2006 SOA Spring Health Meeting. Mr. Anderson also serves as the CEO of UnitedHealth Group's health technology subsidiary, Ingenix, Inc. Prior to joining UnitedHealth Group, Anderson served as chief executive officer and a member of the board of directors of Northwest Airlines Corporation. Anderson brings a wealth of experience as a former airline industry executive and will address parallels between the airline and health industries.

Anderson holds a law degree from South Texas College of Law and a Bachelor of Science degree from the University of Houston. He serves on the Boards of Directors of Medtronic, Inc., Xcel Energy, Inc. and is a trustee for the Henry Ford Museum and Greenfield Village in Dearborn, Mich.

Michael T. Osterholm, PhD, MPH

Dr. Osterholm is director of the Center for Infectious Disease Research and Policy (CIDRAP), associate director of the Department of Homeland Security's National Center for Food Protection and Defense (NCFPD), and professor in the School of Public Health, University of Minnesota. He is also a member of the Institute of Medicine (IOM) of the National Academy of Sciences. In June 2005 Osterholm was appointed by Michael Leavitt, secretary of the Department of Health and Human Services (HHS), to the newly established National Science Advisory Board on Biosecurity.

Osterholm has been an international leader on the critical concern regarding our preparedness for an influenza pandemic. His recent invited papers in the journals *Foreign Affairs,* the *New England Journal of Medicine* and *Nature* detail the threat of an influenza pandemic and steps we must take to better prepare for that event.

The longer format of the 2006 Health Spring Meeting has allowed the SOA to offer more in-depth sessions on hot topics of great importance and interest to increase the value of your attendance. We hope you'll take the value added and do what you do best—turn risk into opportunity!

More information regarding the 2006 Health Spring Meeting can be found at *http://healthspringmeeting.soa.org/.*

2006 Academy Health Annual Research Meeting, June 25-27, 2006

AcademyHealth's 2006 Annual Research Meeting (ARM) will be held June 25-27 in Seattle, Washington. This year's meeting will provide a forum for health services researchers to present cutting-edge research and engage with top health policymakers and practitioners. The meeting agenda will feature 17 themes and more than 130 sessions covering a broad spectrum of health services research. For more information, visit *www.academyhealth.org*.