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Session 24PD Risk Management for Health Insurance

Track: John W.C. Stark

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Panelists: Kara L. Clark
Thomas R. Corcoran
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Summary: Just like the life insurance industry a few years ago, health insurers are beginning to experience more scrutiny on the appropriateness of their risk-management practices and procedures. Industry panelists provide a basic, but comprehensive overview of the subject.

MR. JOHN W.C. STARK: Kara Clark joined the Society as a staff member in 2000, and she's the staff fellow for the health benefit systems practice area. She provides staff support for the three health-related risk management groups, and she gets involved in the Risk Management Task Force. She's a fellow of the Society and a member of the Academy.

Tom Corcoran is a principal with Tillinghast in its Hartford office. He consults on various aspects of insurance, especially long-term disability and short-term disability, special risk and A&H. One reason it's good to have Tom here is, when we start talking about risk management, we tend to focus on medical and forget our brothers and sisters in the LTD and long-term care (LTC) areas. Tom has been involved in product development, rate filings and valuation for a lot of the traditional and nontraditional products.

We also have Sudha Shenoy, who works for Anthem Blue Cross and Blue Shield in Connecticut. She's responsible for rate development for PPOs and other indemnity products, Medicare Plus Choice and Medicaid, and rate filings for other products. She has a lot of experience in profitability analysis and developing strategies for

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different types of programs. She has also done merger and acquisition work, and, if you've kept up with Anthem and Wellpoint, that's probably a good thing. She has also been vice president of the Actuaries' Club of Hartford and done a lot of work in the Society in various capacities. Our first speaker will be Kara Clark.

MS. KARA L. CLARK: Just to give you a sense of what I'm going to talk about today, I want to first provide a high-level overview of enterprise risk management (ERM), as far as what it is and where it came from. Then I'm going to talk a little about the SOA's activities related to risk management.

What is ERM? It's an emerging discipline, and you may see it described in different ways. I'm going to give many examples in this talk that come from James Lam's book, "Enterprise Risk Management: From Incentives to Controls." In that book, ERM is described as "a comprehensive and integrated framework for managing credit risk, market risk, operational risk, economic capital and risk transfer in order to maximize firm value."

There are two major takeaways from my perspective. One is that ERM is all about a holistic viewpoint and an integrated viewpoint. That goes beyond a siloed approach to looking at risks, but it's not intended to replace the specialized approach. It's about coordinating the specialized perspectives. It's also not just about mitigating risk. It's about leveraging opportunities within a particular risk appetite. The Tillinghast–Towers Perrin study describes it as "not simply a process to mitigate risk. It's also a formal discipline that enables companies to make robust decisions about which growth strategies are most likely to produce the greatest reward given the risk profile in their organization."

What are some of the risk categories that are included in the ERM framework? I've included one perspective here that came from an article in *Best Review* last year, as well as some other perspectives from the COSO exposure draft document. They outlined internal factors of infrastructure, personnel, process and technology, as well as external factors of economic, business, technological, natural environment, political and social risks. In his book, James Lam explores the categories of credit risk, market risk and operational risk more fully. He defines credit risk as the economic loss suffered due to the default of a borrower, market risk as exposure to potential loss that would result from changes in market prices or rates, and operational risks as risks of direct or indirect loss resulting from inadequate or failed internal processes, people and systems, or from external events. ERM cuts across many different disciplines and industries. Ours, as well as some others, would also include insurance and underwriting risk.

What are the benefits of ERM? Dave Ingram outlined those in his Chairperson's Corner in the *Risk Management Newsletter*. James Lam summarizes the benefits as increased organizational effectiveness, better risk reporting, that is, increased risk transparency throughout the organization, and improved business performance.

I wanted to include some illustrative examples that maybe are more diverse in terms of the benefits of risk management. I found a couple that were, again, from an article in *Best Review* last year, one having to do with reducing workers' compensation claims. They gave the example of the United States Marine Repair, in formalizing return-to-work programs, adding incentives to meet safety goals, and also implementing an employee review board. They reduced their workers' compensation spending from 3-4 percent of annual revenue down to 1 percent. Another example of using risk management to evaluate potential risks of mergers comes from the same industry. In the longshore business, hearing loss is a real concern, and so companies without strong hearing-loss prevention programs could potentially face very high workers' compensation claims down the line. Their risk management department, in looking at mergers, acquisitions and potential acquisition targets, was able to consider the risk that may not have shown up by just doing pure due diligence on the financials.

A very powerful example of operational risk comes from James Lam's book in a Disney example, where he says in 1998 they had a 17-year-old Disney employee who was accused of assaulting a 16-year-old tourist at one of the hotels. At that time Disney did not do background checks on all of their employees, but just for some jobs, such as those that were going to be more directly related to working with children. That's a very powerful story in terms of an operational risk that can certainly have an impact on reputation and firm performance.

In *Harvard Business Review* from February 2004, the editors were searching for the best new ideas related to management. They had 20 ideas listed. ERM is one of the ideas that they address in that article, and they explain the benefits of ERM by saying that it allows "companies to make decisions with greater speed and confidence... It's like driving a car. You can only go fast if you know you have good brakes."

Where did ERM come from? A number of specific regulations have served as catalysts for the ERM movement. Many of those regulations initially impacted the banking industry, which led naturally into the life insurance field. It has also started in other countries, which often have a head start on us. The United States is behind Britain, for example, where the majority of Britain's 100 largest companies already have a chief risk officer (CRO) or some kind of director of risk management.

Despite the catalysts on the regulatory side, insurers now are adopting ERM primarily because it is a good business practice. In talking with some other people who are involved in this area, we talked about how ERM probably took hold in life insurance because of asset/liability management (ALM) and its fit with the actuarial profession, and how ALM is only one component of ERM. In our experience, ERM really has not hit the radar screen of health actuaries quite as much as with some of our professional colleagues in the life and finance industries. One reason for that is that ALM is not as much a part of the work that we do.

However, health actuaries bring a unique perspective, particularly with regard to operational risks. I think ERM is, in some ways, a natural extension of what we do as a general rule. As health actuaries, it's important to have a strong understanding of your business environment, even in one sense to do what would be maybe more traditional actuarial work. But just to give you a sense of awareness, in 2003 the SOA conducted a membership survey and asked a few questions that were common to actuaries in all areas of practice. One of the things we asked was for the actuaries to evaluate the priority of certain activities for the SOA. For the activity "increasing membership awareness and actuarial knowledge about the issues of ERM," about 25 percent of the respondents in the finance and life practice areas placed that activity in their top three priorities, compared to only 5 percent of the actuaries in the health and retirement practice areas who did so.

We asked about promoting opportunities for actuaries to become chief risk officers, and again, about 13 percent of the actuaries in the finance and life practice areas ranked that as being in their top three priorities, compared to only 5 percent for health and retirement. It's not necessarily an issue that has become prominent on the health side, but, as you can see, in terms of why employers are adopting ERM, and the fact that it's good business practice, I think there's a tremendous opportunity for this to spread throughout the health industry as well.

I wanted to provide some additional background and perspective from the Tillinghast survey. According to results from 2002, 49 percent of survey respondents had an ERM process. These are insurers, by the way. Another 38 percent were considering implementing ERM, and, I think of significant note, 38 percent at that point had appointed a chief risk officer, up from only 20 percent just two years prior.

When insurers are looking for people to assume chief risk officer opportunities, to whom do they look? Within the insurance industry, they are looking to the actuarial profession for internal recruits when they're recruiting for a CRO. The Tillinghast survey indicated that 47 percent look to the actuarial discipline. Sixteen percent come from a finance background. The rest come from a variety of other places. Again, this is across all insurance companies, and it may not hold true in the health industry. There may not be as natural or as obvious a connection in terms of thinking about health actuaries assuming a CRO role because of not necessarily having the strong ALM link, but there are a lot of opportunities here, and I think there's a need for education of health actuaries that this is a natural extension of some of the things that we've been doing already, as well as communicating the value of what we can bring to our employers from an ERM perspective.

Externally the Tillinghast survey indicated that 33 percent of recruits for the CRO position came from the actuarial profession, 27 percent from banking, and 13 percent from risk management. Again, this is from the insurance industry's perspective. The SOA's research from the marketplace suggests that outside of the insurance industry (we asked specifically about employers in the broader financial

services industry), employers do not typically consider the actuarial credentials when hiring for positions such as this. This is both a challenge and an opportunity for us as a profession as we look to expand our roles and our influence.

In terms of ERM in the SOA, Dave Ingram outlined the development of this initiative in his Chairperson's Corner in the Risk Management Section's newsletter. An original volunteer group brainstormed for about six months and ended up with a list of about 10 projects of high professional and personal interest. At that point they solicited volunteers from the membership and received more than 150 responses. Those groups have been very active since about 2001.

From the health side, there are three subgroups within the Risk Management Task Force focused on a specialty guide, solvency and modeling. The specialty guide group has really been the most active of those three during the past several years. It has already drafted a health risk mapping document, which addresses in more detail specific risk categories that are relevant to health entities and also gives examples of the risks associated with each. That document is available on the SOA Web site. Sudha is going to talk about that later.

It has been quite a success story for these volunteers and for the SOA, and it's just beginning. It's true for all the volunteer groups, especially the health lines, that we want to know about your areas of interest, and need your ideas and your enthusiasm to help us define projects and initiatives that are going to add value to this emerging discipline and, in particular, its application to the health area.

MR. STARK: Also in the audience is Rajeev Dutt, who is the leader of the specialty guide subgroup. How many of you know anything about risk management? How many think you're an expert? Novice? Beginner? Don't know what you don't know? Like Kara said, we found that among the health folks, there are some who are knowledgeable, but many barely know how to spell ERM, and they're just getting up to speed.

With that, I'll turn it over to Tom Corcoran.

MR. THOMAS R. CORCORAN: My presentation addresses some of the specifics of risk management for health insurance, and I will draw some comparisons to individual insurance. As Kara mentioned, the life and annuity areas have done some fairly sophisticated things with risk management, especially in terms of risk modeling. As a result of that, we're seeing questions from both health actuaries and external parties. What the life people are doing has helped them understand their business a lot better and helped them make better decisions. Health actuaries and health management are looking at the health side and don't see the same activity. They ask if we are doing what we should be doing. Is there more we could do? Are some of these sophisticated techniques we're seeing in life applicable to health insurance? The same questions come from outside. Rating agencies, analysts, and even senior management ask, "Well, if they're doing all this stuff, what are you

doing? Are you so caught up in your day-to-day risks, looking at morbidity, that you're not looking at anything else?" We'll address some of those questions. In particular, how applicable are the advanced modeling techniques that we've seen on the life and annuity side? Are health risks so much different than life and annuity? Are there opportunities to advance health risk modeling?

There are some sophisticated issues being addressed on the life side. The first is stochastic-on-stochastic modeling, or a stochastic scenario where each point in the scenario becomes the starting point for a new stochastic scenario. Next are stochastic scenarios for hedging the tail exposure on guaranteed minimum death benefits on annuities, which has been a hot issue lately. Risk return positioning, asset/liability efficient frontier, and credit risk on assets backing interest-sensitive products are major risk management issues on the life and annuity side.

What do those issues have in common? If you're familiar with NAIC risk-based capital (RBC), there are four components: C-1 is asset risk; C-2 is mortality and morbidity risk; C-3 is asset/liability matching risk and C-4 is general business risk. RBC components differ between life insurance companies and health insurance companies. The NAIC collected RBC data from 2001 by C-component. The data represents 1,200 life companies and 750 health companies. A chart identifies them on a weighted basis, i.e., after covariance. The process weights the contribution to total RBC of the different C-components. It is quite interesting because the C-1 and C-3 risks represent 89 percent of the contribution to RBC for life and annuity companies, and almost exactly the opposite profile, 88 percent, represents the C-2 and C-4 risks for health companies. We start to see that there is, in fact, a large difference between the risks of the two sectors.

Why is health different? Is it really that risky? The point is that health is a very complex business. There are a lot of different factors that affect health costs. It's a complex interaction of many different variables. It's a lot different from some of the mortality and asset exposures you might see on the life and annuity side. Health clearly has a complex environment, and it's a lot different from what life and annuity people would be looking at.

What's the life and annuity actuary's view of health insurance? You know what they say about health insurance: the business is one-year term, you can change rates any time you want and your reserves are based on your own judgment. How hard can that be? Life actuaries think they would love to be in this environment.

We compare the two. On the life and annuity side, they don't really understand the nature of health insurance. Their clients want to have as few claims as possible; on group health, clients often want to have as many claims as possible. Mortality gets better every year; morbidity gets worse every year. Life claims are objective; everybody knows when somebody has died. Health claims are subjective; your claim entitlement is what you want it to be. Individual lives are underwritten; group lives are very seldom underwritten. You know exactly whom you're covering on the

individual side. There's little information about the people you're covering on the health side. My favorite part: the rates are fixed on individual life; every rate is a number calculated by the actuaries. On health side, rates are negotiated, and, not only that, they're negotiated by people other than the actuaries.

I'm going to digress here. So far we've been talking about health as a monolithic profile. We need to look at health as different products with different types of risks. I have picked five health products (one of which is not really health). I picked group health, long-term care, individual disability insurance (DI), group disability, and group life/AD&D. The reason we've included the group life/AD&D is that group life/AD&D, from a management, modeling and risk point of view, looks a lot more like group health insurance than like individual life insurance. Later, we'll get into some of the reasons why that's true.

For group medical, claim volatility is quite high. Margins are very thin as a percentage of premium. Premiums aren't guaranteed. You don't guarantee coverage for any long period of time, so you don't have much risk there. Claims are short-tailed. There is some catastrophic risk, which I'm going to discuss a little later. You don't have interest rate risk; you don't have premiums being invested in the future that you have assumed interest on now. You don't have much asset/liability risk. You do have significant risks around reputation, litigation, or claim management.

For long-term care, claim volatility is in the middle. We're going to talk about long-term-care claims in more detail later, so I won't go into the detail here. Your margins are pretty good. You do have premium guarantees, coverage guarantees, long-tail claims, interest rate risk, asset/liability risk and some reputation risk. This is almost a mirror image of group medical, yet they're both health products.

Individual DI looks a lot like long-term care, except the claim volatility is considered to be considerably higher. Premiums are generally fully guaranteed, as opposed to long-term care where they're guaranteed renewable, but it's very difficult to get rate increases. You have long-tailed claims. You have coverage guarantees. You have interest rate risk; you are collecting premiums that you're assuming the interest rate on now but that you're going to collect in the future. You need complex strategies to handle that. You have asset/liability risk. In addition, you have significant claim litigation and reputation risk. All-in-all, DI is a risky product. Lately, however, companies have been able to put in some pretty healthy margins for DI policies, so that may make up for it.

Group LTD is, in some ways, like individual disability. The claims look similar, but it is just the opposite on the margins. LTD is very competitive; the premium margins are very thin. On the other hand, you're not making many guarantees in your contracts. You do have some long-tailed claims. You do have some asset/liability risk and some reputation risk. Claims for LTD, of course, are subject to ERISA, and so it is a less litigious environment and thus has less downside risk than DI.

I've included group life/AD&D because it is managed like group health. This is the first line of business product in which we address a catastrophic risk. Catastrophic risk is one of the things people think of most in terms of risk management, and later I'm going to talk about the catastrophic risks of group life.

What we'd like to do next is pick out a couple of products and go through them in a more detail. You can see how specific risks are defined and how they might be modeled. In particular, I will be stressing some of the modeling aspects and how they differ from life and annuity. I have selected medical/managed care and long-term care as the two products. I will also talk very briefly about two novel approaches to health and group risk management.

We went through medical/managed care briefly. The premiums are not guaranteed. The claims are complex; they're an interaction of many drivers, and the drivers are dependent variables. One thing that has kept health from being modeled as much as individual life and annuity is that the risks are not independent variables, which is an implicit assumption in many stochastic simulations. Dependent variables don't work as well. There are techniques you can use, but that limits utility to some extent.

There are many flavors of medical insurance. Each has its own risks and risk modeling issues. Rate competition is fierce with very thin premium margins. However, the validation of cost management strategies is integral to a company's ability to compete. What I mean is that medical carriers compete on their ability to manage costs. Interest rate risk and asset/liability risk are not issues. Regulatory risk, litigation risk, and reputation risk not only are issues, but they can also fold back on themselves. Not only can litigation create financial problems for you, but it can also create operational issues with your provider network. These risks may exacerbate each other.

What are the modeling implications? What does it look like when you try to model risk? One of the most interesting things about medical insurance is that because the interaction of drivers is so complex and you don't have any long-term guarantees, simple models may be more effective than complex models. Rather than trying to model each of the drivers and how they interact accurately, it's more important to just react quickly. If you're having a problem, you must take corrective action as soon as possible rather than waiting until you can pin down the specific drivers. It's a lot different from most actuarial techniques. As a result, people have tended to use tracking mechanisms more than sophisticated models of medical cost. One exception is using stochastic techniques for predictive modeling.

Predictive modeling may be critical to validating a company's competitive strategies in medical care. You give a pricing discount in advance based on your models. It's critical that you know quickly whether your models work. If you have a disease management strategy that allows you to control cost better than your competitor,

then you have to know when it's working or when it's just coincidence, since that's the basis for your competitive advantage. You can use stochastic analyses to help you with that and, in particular, to let you know when it's your management techniques that are making the difference as opposed to some other factor.

Can sophisticated modeling approaches help medical companies? One of the keys that I identify is that even if the drivers are not independent variables, there are still significant statistical fluctuations. What we found as a best practice with some companies is how they quantify a threshold of statistical fluctuation. They are basically saying that variances in experience up to a certain level are within an acceptable frame of statistical variation, and they do not spend a lot of time and effort trying to track down what's going on. In medical care, the mind-set is often that since drivers are not dependent variables, everything that happens has to have a cause. What you find is that, within the statistical fluctuation point, variances may not have a cause, yet people may be spending enormous time and effort trying to track causes down. As a result, people may tend to go along with some adverse trends longer than they should because there's no clear threshold between when something is a problem and when it isn't. Best practice is almost a time management model. You're not investigating everything that happens, but you have clear criteria about when you have to investigate something and expect an answer.

Better models can also identify where interaction of risks cross product lines. If you're bringing health products into your modeling, you can compare that to the non-health products and see where you might have some specific situations in which your risk overlaps. You could get losses in two different lines of business from the same event, i.e., clash. One good thing about that type of modeling is that it's usually pretty easy to get protection for clash events. If you've identified it, you can find mitigation.

There are also new ways to hedge risks, such as securitization. We have an example of this that I'll talk about later. Also, understanding how different exposures (e.g., reputation risk, litigation risk or credit risk) can exacerbate each other can be improved. In particular, there are not much data around things like litigation risk, reputation risk and certain types of credit risk. Just the effort of modeling and trying to understand those risks better can drive changes in behavior that will start to mitigate those risks.

In the interest of time, let's shift to long-term care, which is at the opposite end of the spectrum. Long-term care has a multitude of pricing exposures. The claims have a long duration and claim costs are not very well understood at the higher ages. Premium rates are not guaranteed but they are heavily regulated, so you have very little opportunity to change rates. You've assumed certain interest rates and will have to come up with ways of modeling and hedging those rates. Your risk drivers are largely dependent variables on the morbidity side; it's likely to be a

trend problem rather than a statistical problem if you have problems with claims on long-term care.

Catastrophic risk is not really a major issue, so we'll just drop that. Differing from medical care, your interest and asset/liability risks are both critical. Your interest rate risk is exposed to a drop in future interest rates. You can't get rate increases to offset inadequate interest; you can only get rate increases for differences in morbidity. You can mitigate this risk through forward hedging; however, this is a complex modeling issue. It's much more complex on the asset side than on the liability side. We'll get into some of the modeling issues.

Other characteristics include the fact that your liability flow is not sensitive to interest rates. Unlike annuity products, for instance, there's no disintermediation risk. You have no cash values, so people can't get their money out. That desensitizes the liability flows. LTC is a lapse-supported product, which creates a type of risk that's foreign to life and annuity products.

What modeling approaches are used for LTC? You need sophisticated model office approaches and systems. These are usually the same systems as used for life and annuity products because the interest rate risk is similar. The fact that you've assumed interest rates in the future means that you have to use forward hedging strategies for investments, which requires stochastic modeling. On the asset side, LTC models look very much like life and annuity models and use similar techniques. Scenario testing is often used for the liability side because the liability flows are not interest-sensitive and statistical volatility is not that big of a driver. On the liability side, companies tend to use scenarios. A few companies create stochastic models for LTC.

I want to introduce the concept of economic reserves. Economic reserves are what you need to cover your risk. Several companies believe that in long-term care your statutory reserves are significantly higher than economic reserves and that there's a statutory strain that's unneeded. (This differentiates LTC, for instance, from individual disability income, where people feel that, even though the statutory reserves are high, they probably are not so excessive that there's a big margin over what you really need.) However, if you believe that you're holding much higher reserves than you really need, it opens up opportunities for financial reinsurance, securitization, or other financial transactions that can increase the efficiency of your use of capital. These strategies create new types of exposures that, of course, require more sophisticated models. There are some companies, especially as regards the long-term-care side, that have used sophisticated modeling or financial reinsurance to improve their return or improve their use of capital. We'll have the opportunity tomorrow to discuss some of those in Session 65.

Long-term care requires a combination of health, liability scenario-type modeling and life asset modeling approaches. There are opportunities to enhance the

understanding of LTC risks and to potentially leverage financial results. When you're trying to do that, sophisticated models are absolutely critical.

We want to also address two unusual approaches to risk management. The first is a new approach to life and AD&D risk management that Swiss Re developed at the end of last year. Group life is subject to catastrophic risk; the nature of employee groups is that you have a concentration of risk by definition. Separately, as a result of September 11, 2001, the capacity for catastrophic protection in group life dried up substantially. For a while, the Treasury Department was looking at including group life in the TRIA catastrophic risk pool (the pool that was established for property and casualty coverages), but ultimately that was turned down. Group life insurance companies and especially group life reinsurance companies were left with the problem that they could not get the levels of coverage they needed at any price, and the levels of coverage they could get were very expensive.

Swiss Re obtained \$400 million of mortality risk coverage through securitization. They transferred the risk of mortality to the securities market by issuing bonds where the bond principal was at risk if a mortality index exceeded 130 percent of a baseline. The baseline was 2002 experience for a combination of five countries. This index is the general mortality level, not Swiss Re's own specific exposure. The coupon rate for this was the three-month London Interbank Offered Rate (LIBOR), plus a spread of 135 basis points. The people who were buying this bond got an extra 135 basis points to cover the risk that they could lose some or all of the principal. A 30 percent increase in general mortality for a weighted average of five countries is pretty significant and pretty low probability, and, of course, it didn't match up exactly with Swiss Re insurance exposure. Stochastic modeling was used to determine that the 135 basis points was, in fact, a reasonable price for this coverage. However, I understand it also established, at least to Swiss Re's satisfaction, that there's a significant correlation between Swiss Re's risk and general mortality levels. Swiss Re felt that this provided them with substantial catastrophic protection.

Another new approach is on the medical risk side. Readiness Re is a catastrophic reinsurance facility aimed at providing catastrophic protection to medical plans—in particular, to regional medical providers. The issue here is that, by definition, managed care or medical care is a concentrated business. They make money by having sufficient market share in an area to negotiate price and providers more effectively. Because there are few guarantees, margins are thin as a percentage of premium. Also, capital is relatively low as a percentage of premium. It doesn't take much of a claim variance before you start to strain the capital and, potentially, the solvency of the company. The idea of Readiness Re is that a terrorist event can test surplus, especially for a regional company, which does not have a multitude of areas to spread the risk over. Regional companies are concentrated in a few areas. Again, coming out of September 11, 2001, companies recognized this exposure and wanted to buy protection. However, there was no protection available to cover those types of risks, so a new company was formed. It's sponsored by America's

Health Insurance Plans and is supposed to be launched some time in late summer. The arrangement is to provide catastrophic protection through a carrier-owned plan. It is true reinsurance, not a pool, but it's actually owned by the companies that are being reinsured.

On the liability side, medical cost models differentiate between the type of coverage and the type of risks associated with those (i.e., capitated risk versus the Medicare risk versus managed care risk, and the associated risk profiles). That determined one set of input. The other set of inputs were the stochastic models used by the property casualty industry to generate terrorism scenarios. As a result of combining the scenario-type health models with the stochastic-scenario models, Readiness Re was able to price the terrorism coverage.

MS. SUDHA SHENOY: I'm going to talk to you about the last piece of risk management. Before I do that, I want to share with you a story, a little practical example of risk management that I listened to last week in New York. I had the privilege of listening to Rudy Giuliani, and he was talking about the six principles of leadership. The third one that he talked about was relentless preparation. He talked about his life as a prosecutor and how he had to prepare a lot for the legal briefs and obviously to present the case when he was presenting the cases and trying to convict some of the mob in New York. His point was that his superior told him, and I quote, "If you can anticipate everything that can go wrong and prepare for it, you will be prepared for the unanticipated." In other words, despite all the risk management preparation that you do, you may not have that exact scenario come to pass. But your general state of preparedness will reduce your reaction time, and your response to any risk management variation will be superior to your competitors', and you'll get competitive advantage.

The third piece that I'm going to talk about is really the "how-to" piece. Let's say you want to visit an exotic place, and you've heard a lot about it from people who have been there and have come back. You call your travel agent. You book your trip. You've gotten there. The next step that you would take is to get a map. I'm going to be talking about a risk map and putting together an ERM program.

The first component of your ERM program would be to define the risk culture, or the risk policy. Each company's organization has its own risk culture. Understanding the risk culture of your organization would be a first step. The next step would be to compile a risk inventory. Last year in the Risk Management Symposium, a unanimous conclusion reached by most CROs was that compiling a risk inventory, something as basic as that, brings a lot of things to light. It is one of the most powerful steps in putting together a program.

The next step you would take would be to develop the risk metrics. How are you going to measure your metrics? Assess the risk appetite in your company. Formulate a threshold or limit of acceptable risk that will be a guidepost to your ERM program. You would perform stress testing and scenario analysis, and that will

be your application, leading to risk monitoring and risk mitigation. These will be the basic components of an ERM program that you would undertake.

Let's talk about risk mapping. There is a document developed by Rajeev and his group that's on the SOA Risk Management Web site. It's a matrix that talks about risk mapping for a health company. It has risk categories. It has subcategories under those, correlation between risks, and definition of each of these terms. I'm not going to go into depth in terms of definition, but I'm going to touch upon a couple of examples for you. The risks included in the risk mapping are environmental risk, financial risk, operational risk, pricing risk, reputation risk and strategic risk. You can see that this spectrum of risks now spans your entire organization. As actuaries, we probably have been involved with some steps of some of these risks, but not most of these others.

Let's first talk about environmental risk. One of the first subcategories is customer environment. Has your target market changed? Are your customers forming association groups in order to buy insurance? Has that changed? What is your competition doing? Have there been more price wars? How is the economy affecting the affordability of your products? Fraudulent provider billing can be an example of external risk, legal risks, maybe from your utilization management program. Regulatory environmental risks are another key piece to keep an eye on in terms of mandates and in terms of limits on the premium that you can charge. Last, but not least, are suppliers. Cost-shifting from your providers can be one of the examples of these.

Moving onto financial risk, there is asset default, or liquidity risk. I'm not going to go into detail because I know Kara and Tom have talked about this, but basically the question is, can your assets be converted to fair market value when you need them? This is what asset default risk would be about.

Let's talk about model risk. Do you have the right data? Do you have the right parameters? Are you interpreting the data and results correctly? Reinvestment risk would refer to cash flow from your investments. Are your results less than adequate? Excessive? There's interest rate risk. There's financial viability. Can you undertake the risks on behalf of your customer and still be financially viable?

Operational risk is probably an area where we actuaries have not been involved to a large extent. There's billing and collections (cash flow) and claims processing. Incorrect adjudication of claims can lead to legal financial exposure. There's technology. What percentage of the technology should we adopt? How much business should we channel through e-business? What are we going to do in terms of inadequate systems or systems failure? Do we have a policy in place for that? Internal fraud can also lead to risk exposures for the company. Can they be delayed in hiring? Will you have adequately trained personnel to do your work? The same goes for training. Do you have the right type of vendors in place? Can they meet your standards? Have you checked to see if they have financial penalties or

performance guarantees in their contracts? Do you have an excessive amount of business that has been given to one vendor? Do you want to put policies in place? There are administration costs, the cost of labor and the cost of doing business. There's compliance risk. Extend this one between Medicare, the Health Insurance Portability and Accountability Act of 1996 (HIPAA), etc. We have to be in compliance to stay in business. Medical management is also obviously another operational risk.

As far as pricing risk, are mortality and morbidity different from expected in the pricing? What kind of regulatory and legislative risk can we expect? Can we increase the premium when we want to at a rate that is enough to cover the risks that we are taking? There are anti-selection and underwriting risks. Are the benefit design and the pricing misaligned with the market that they're going to be covering? Trend is a huge risk for health companies, whether it's inflation, technology (new technologies that could be there), utilization, intensity and severity. Are any of these different from what was expected in the pricing? This can all impact your health care costs.

Let's talk about reputation risk. So policyholders' expectations are different from a corporate decision that was made. You've all seen enough instances of managed care companies that set a real example. Rating agencies may view a company's actions negatively that can impact the rating and, therefore, your company's reputation. The same goes for stock analysts. There could be impatience with the company's strategies and how they come to fruition, and, based on their analysis of the company, it can affect the volatility of your stock price. If you have the corporate board being viewed negatively, that can impact you. Regarding financial misreporting, there are several examples in the world of business. I don't need to go into that one.

The interesting question in some of these is, what are we going to use as metrics? Are we going to come up with early warning signals and then have a policy in place? Is it possible to measure these? Do we have red flags that go up that we can then look at and react to and have a policy in place to address these? Those will probably be some of the actions we would take.

As far as strategic risk, there are mergers and acquisitions. Did we do that due diligence? Is the strategic fit as good as we expected it to be? Management failure could be another one where you may not have enough success in planning. Are your incentives aligned with the corporate strategy? Do you have a network in place in order to handle excessive growth? Do you have the resources that you need? I think Tom talked a little about getting appropriate reinsurance coverage at adequate rates to cover your risks.

I've gone through this very quickly because there is more detail there. I want to just walk you through the steps you would take. You can take these things and add to them as you wish. You can add more things like business interruption and other

kinds of risks that are not in the document. Make them your own. Go through a detailed inventory and what it means for your company. Customize it so that you can come up with your own.

What are critical factors for success? We just talked about what to do with your ERM program. Companies that have had a cross-function risk management team have talked about the importance of good communication and things coming to light that they never thought they should share with the actuaries. As a result of that, they're taking timely action and feel that they have been able to close some of the loopholes. In order to have an ERM program, obviously it's going to cost you, and you need the data in order to have your risk metrics and risk reporting. You also need training and education to get everybody on board and to make sure people realize that some of these have implications for other places in the organization.

Coordinate the roles of risk management, compliance and internal auditing because of the obvious synergies amongst the three. You have to have senior management buy in. Risk management impacts strategic planning and operational initiatives. Have your risk measurement and your risk management separate so that you can have objectivity. Conduct surveys and look at best practices to keep improving the risk management program.

To recap, look at the risk culture, do an inventory of risks, assess your own metrics, assess the appetite, find your own threshold of acceptable risk, perform stress testing and scenario analysis, and conduct risk mitigation and risk monitoring.

MR. STARK: Has anybody heard of the NAIC Risk-Focused Surveillance Framework? If you think risk management is not around the corner, it is, because what the NAIC is looking at is having their folks come in and look at your legal risk, your market risk and your credit risk—everything you've heard here—so that they have a more real-time look at your business. Several groups are commenting on it. That's something to be aware of that's coming. If you've got some risk management plans on the back burner, you might want to move them a little forward.

The other thing to think about is the opportunity for actuaries. A lot of these things apply directly to us. Now, do you want to be a CRO? I'll ask it another way. Who would you want to be a CRO instead of you? We heard talk about hiring people from outside the insurance business who probably have more experience on the asset side and less on the liability side. As you go through this, think about it. There are plenty of organizations that are staking out their turf already. The accountants want a piece of it, as well as the auditors. Then you have other risk management organizations such as GARPs and the PRMIA. Also, there is the campaign to have actuaries considered for a CRO's position. The life people are probably more ahead. Think of it from a health perspective. Would you want

somebody from banking to come into a health company and be your chief risk officer? That's something to keep in mind.

MR. GEOFF SANDLER: How would you compare the role of a chief risk officer of a company to the function of a company that performs the risk management function through, let's say, a senior-level committee? I have concerns when I think about who a chief risk officer would be. Along the lines of the question you just raised, who should it be? I can't think of a lot of people, even actuaries, who would bring all of the right kinds of disciplines to the table and be effective within an organization to try to manage those across different operational areas. The typical insurance company organizational structure isn't really amenable to that. In our company, we have a senior-level committee that collectively raises the kinds of issues that you talk about in risk management and, if you want to think about it that way, negotiates a response to each of the areas that are raised. What do you see as the advantage of concentrating on a person rather than having a multidisciplinary, senior-level committee in an organization?

MR. STARK: You bring up an excellent point. This is one that I'd like to drive home. You don't necessarily need a chief risk officer. How does enterprise risk management work in your company? It's not a one-size-fits-all. It's a cultural thing. If you have a company that likes to have C-level officers responsible for various parts of the company, then you'd want a chief risk officer. If your company is run more by committee, you would want, as Geoff said, some kind of risk committee that has some head to it, or a rotating head. One thing to keep in mind about this is that it's not a rigid structure. It's something that's supposed to fit your company and make business easier, not harder.

MR. CORCORAN: I would add two perspectives. One is that even if you have a chief risk officer, it is generally a committee-type role; no one person is always going to have all the expertise. The big advantage of having a chief risk officer is an accountability issue. It is also potentially an effectiveness issue because committees often have difficulty raising things to a high enough priority.

FROM THE FLOOR: Often they'll have the accountability but not the authority.

MR. CORCORAN: Yes. It's often down on their list of responsibilities.

MR. JIM TOOLE: I would add that there's a public relations standpoint of who is communicating this information to your external stakeholders, rating agencies, regulators and that sort of thing. A committee has a difficult time communicating with one voice.

MR. STARK: That's true. You bring up rating agencies. We've often wondered if rating agencies will begin to start asking about what's going on with risk management. Do you have a CRO? Do you have an ERM program? If you're a public company, that's another thing to think about.

MR. JEFF MILLER: I wonder how the chief risk officer role in an insurance company overlaps or coordinates with the appointed actuary role. Has anybody been exploring that relationship?

MR. CORCORAN: Yes, there's definitely an overlap. The valuation actuary is responsible for specific types of risk. Many of the things that the valuation actuary is measuring are things that would need to be measured by the chief risk officer or by the risk committee. Different companies structure in different ways. Many companies have the chief financial officer also be the chief risk officer, or have the chief risk officer report to the chief financial officer. The key here is that they're expanding the definition of risk and requiring coordination.

MS. VALENTINA ISAKINA: As Tom mentioned, an appointed actuary deals with a certain number of risks. The chief risk officer combines a lot of risks within the company, manages the profits, and advises the management on future strategy, how to not only measure and manage risk but how to exploit the risk in order to add value to the company. I think that's where the crucial difference is. You're not just managing a passive process. You are actively engaging the organization and influencing strategic decisions of the organization through this process. Of course, as Tom mentioned, having one person in place highlights the importance of this process for external parties. We have found it does add value to the company because of the transparency issue. A lot of analysts and rating agencies would put a transparency cost on a company that doesn't have a clear person in charge of a particular process or project.

MR. STARK: In James Lam's book, there's a discussion of the culture that you need to have ERM work successfully. It has to be a very open culture. See which one of these fits your company. Do people feel that they can admit mistakes and not be harmed, or do they feel like if they admit mistakes, something bad is going to happen? In risk management programs, all this stuff has to be public information within the company because otherwise you can't do anything about it. If there is an attitude that if I make a big mistake, I won't tell the CEO and I'll fix it myself, then risk management won't work. You've got to have a culture that supports it. Do you have a sense of which one describes your companies?

MR. CORCORAN: One observation I would make that has troubled me recently is that it appears to me that investment analysts, in particular, look for heads every time a company has a significant problem. When something goes wrong, they reward a company for saying, "Okay, yes, we had a problem. This is the person whom we fired because of that problem. It won't happen again." It seems to me that it's almost as simple as that. It's obviously the opposite of what you just said.

MR. STARK: I think that's true, but I think what happens is if you have a more open environment where people can make mistakes, then the mistakes won't happen again. Somebody will say, "I'm never doing that again." It encourages

other people to take more of a stance. One thing we as actuaries ought to feel good about is we have a code of ethics and a code of conduct. We do have to stand up, and we do have to take responsibility. This kind of environment seems a little more comfortable from that point of view.

Have your companies developed a risk appetite? Is there a policy that says that we will only sell this much of this type of business? Do you say, for instance, that you're only going to have 50 percent of your portfolio ASO, 25 percent group and 25 percent individual, and then if you start going over that, does anybody stop, or is the attitude that you need some more business and you need growth? Again, when you talk about ERM, there's supposed to be some discipline in the business. Sudha pointed out that growth is good. Rapid growth can cause all kinds of problems.

MR. CORCORAN: I have clients where that is, in fact, the case. Their business plan is not based on how much they need to sell but rather defines the most they can sell without coming back for additional authorization. It's an interesting perspective.

MR. STARK: Have you been in the situation where you have marketing folks come to you and ask, "Can you—just this one time—shave a little bit off so we can get this big group?" Then two weeks later, you have the same conversation. Is there a sense that someone is keeping track of all this in your company, or this is just kind of an ad hoc thing and six months later you might have done this 12 times? What about the squishy risks? These are the risks that cannot be measured easily and/or for which there is little or no data. Does your company keep track of these and have contingency plans, or if one of these actually occurs will it be an exercise in crisis management?

How many things have happened that are huge reputational risks that you think would happen again? Some of these are so well-publicized that they probably won't happen again. So, you don't have a data point to save your soul. However, in this type of problem it's just worthwhile to keep it on the radar, maybe to have a one-two-three scale or a high/low indicator. This is especially important for health companies with all the litigation. Disgruntled policyholders are a prime source of reputational risk. One interesting point I heard in a session was that you can have one person with a Web site do a lot of damage to your company; you're going to spend a lot of time refuting that and possibly taking your eye off your business. With these correlations to other risks, it's very important to look at it.

MS. CLARK: John, I have a comment related to the squishy risks. In the Tillinghast survey I thought it was interesting when they asked companies what risks they included as part of their ERM process. They found that a lot of the risks that were included were things that were quantifiable. They made the point that something may be included as part of their overall process not so much because of how significant it was but because of how quantifiable it was. Certainly there are improvements to make as people move forward with their ERM process. I also was

reminded of Sudha's comment in terms of ERM's success measures. One of those is to define your risks. Everybody is familiar with the saying that you can't manage what you can't measure, but then the follow-up statement is that you can't measure what you can't define. Even just taking the first step in defining some of those squishy risks will move you along this path.

MR. STARK: One thing that we as actuaries do is work on ill-defined problems. We'll take a very unstructured problem and solve it. These soft risks are a great example of something we could do and something we ought to be looking at. This speaks to how we can maintain our relevance, which has become a hot topic. Can we go beyond where we are now?

MR. JIM KELLEY: I'm a reinsurance broker. I have noticed that we're discussing with people the external factors of rating analysts, etc. for why they're buying the reinsurance now, because the impression that the rating analyst gets is that there's more control on the situation. Those kinds of reputational factors are starting to change people's way of thinking.

MR. STARK: That brings up an interesting point about reinsurance. We have several HMOs, and we reinsure them because our Bureau of Insurance wants some level of coverage on HMOs. It was more of a statutory requirement. Remember that several years ago, Lincoln, as well as several other companies, got out of the health reinsurance market. If you're an HMO looking for reinsurance, credit risk is probably a bigger deal now because there are fewer reinsurers. I can guarantee that that's not a common thought among folks when they get reinsurance. They think they've laid off the risk and life is good. Maybe so, but there is more of a credit risk. Those are the kinds of things to think about as well.

MS. SHENOY: One thing that I wanted to talk about during the scenario planning and the stress testing was looking at maybe more than one of the risks happening at the same time. You might want to look to see what might happen if you take the "perfect storm" analogy and look at two or three risks. If you juxtapose one or the other or if they happen simultaneously, what would your reaction be? Sometimes it may happen that for an individual event you would have a well-thought out plan, as well as for the other one in isolation, but both of them together is something that you might also want to think about.

MR. STARK: Yes, that's a good point. Think of a bad day that you've had. You get out of bed. You have a flat tire. Then something else happens. Since these things happen in threes you think, what is the third thing? That's just from a human point of view. It can happen to companies, and that's where the correlation again comes in. That's why when you look at the definition of "ERM," the term "integrated" is so important. Let's see. Does *everybody* in your company feel that it's their job to control risk? After all, the reason an insurance company is in business is to take on risk. Do all employees feel like that's their job? I think that if you talk to people at

Ford, they'd probably say their job is cars, and they have a very clear vision of what their job is. I think that in insurance, it's not quite as clear.

MR. SCOTT GUILLEMETTE: One of the things that I've noticed here is that ERM is really focusing on the negative aspects of the risk, but some of the key tenets that are part of ERM are the opportunities. To give a simple example, perhaps an HMO is struggling in their case management activities, or something of that nature, with respect to catastrophic risks. Maybe they'll entertain some type of HMO reinsurance where they can access expertise of some other facility, some other reinsurer and their abilities, to address not only this catastrophic risk that might be out there but also the ability to manage cases better because they're accessing some other expertise. In that respect, I think the CRO should be thinking not only of just managing those risks but also the opportunities. I think the actuaries tend to focus more on, how do we protect ourselves? What are the opportunities to grow and create the returns that we're good at finding?

MR. STARK: Thanks for bringing us back in balance because that truly is a piece of ERM. If you believe that you can manage the risks that you have better, then there are some opportunities to explore new risks or tighten up some of the risk. You're right on the money.

Note: See Session 65 for more in-depth information about this topic.