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Session 7PD
Millennium Underwriting

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Panelists: H. MICHAEL GAINES†
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Recorder: RICHARD L. BERGSTROM

Summary: This session focuses on how life and disability risk assessment and management might be directed in the first decade of the 21st century. Specifically, the panelists address:

- *Designing and implementing a virtual insurance company using today's technology, expert systems, and outsourcing services;*
- *Understanding the "insurability profile" concept and how it applies to the concepts of "fast, accurate, and cost-effective"; and*
- *How to determine and assess the real value of the tools needed to streamline and redesign the underwriting process in the next millennium.*

Mr. Richard L. Bergstrom: I'm a consulting actuary with Milliman & Robertson based out of the Seattle office. I'll be acting as moderator, and I'll be presenting our two panelists. I will also have a few comments at the end about the concept of millennium underwriting.

Hank George has been both a client and a personal friend of mine for over ten years now. Hank, in the underwriting industry, wears a variety of hats. He currently works for LabOne out of Lenexa, Kansas. LabOne is one of the clinical reference laboratories that does work in blood testing and urine testing, etc. Hank is also an author. He has coauthored a book called *Getting It Issued* with John Krinik. If

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you've ever wanted to learn about the dynamics of how a policy goes from application through the new business systems to issue and the variety of paths it might take in that process, give Hank a business card and I'm sure he'll send you a copy of *Getting It Issued*.

He also is editor-in-chief of *On The Risk*. *On The Risk* is the journal of the Academy of Life Underwriters. It's a 100-page publication that comes out 4 times a year. It's well done, featuring many current topics. Hank insists that everything be fresh, with no repeat articles. It features underwriting concepts and actuarial papers, just a variety of topics that affect the new business issues. What's the fourth hat you wear, Hank? Oh, yes, *Journal Scan*. I'm going to let Hank talk to you about *Journal Scan* himself, but it's another endeavor that he has gotten himself into to promote the knowledge of medical literature in the world. Hank probably gives 150 presentations a year. The last thing, and I'm going to let him do this, too, but just to make sure that he knows that I haven't forgotten all of the hats that he wears, he is the founder of the International Underwriting Congress, the first meeting of which was held in Mexico City last year. The second one will be held in London next year.

Our second speaker, Mike Gaines, is chief operating officer (COO) for a company called PMSI. Mike has been in the insurance industry for about 18 years. He started out as a general manager for Meditest and then moved to the presidency of ASB Meditest which is a national paramedical firm. He was president from 1989 to 1994. He has a B.S.B.A. degree from Kansas State and an MBA from Rockford. Mike is from Kansas City originally but apparently is currently working in Waco, Texas, which is a small suburb of Dallas. Mike is instrumental to a number of initiatives in the insurance industry, and I'm going to let him tell you about that. He is part of Task Force 72, of which there are several members in this room.

Mr. Henry C. (Hank) George: What the three of us are going to do, is to give you three vignettes on the subject of how life insurance and related risk management activities—health insurance, disability, long-term care, critical illness insurance—what we think we project, envision, or perhaps fantasize—will be done in the 21st century. We have chosen to call this topic millennium underwriting simply because why should everyone else but us abuse and overuse the word millennium? So, here it is for the one thousandth time, and I will defer my discussion of the worldwide congress to the end, but I won't leave this room without inviting you to London. If you think Maui is fun. . . .

The forces that are changing the life insurance and allied industries today and well into the next century include: alternative distribution systems, a synonym for banks; compliance of market conduct, international markets, the entry of insurance

companies as real players, not just doing business offshore bootleg business but being licensed for doing joint ventures in international domains; the specter of genetic testing; and finally, the concept of teleunderwriting. All of these forces are operating as we speak to change the life insurance risk milieu. I'd like to characterize a few of these and build onto Rick's and Mike's comments—Rick's about actuarially focused things, protective value, etc., and Mike's about technology, neither of which I am competent to talk about.

I think that all of the estimates that I have heard from all of the industry pundits about the impact that alternative distribution systems will have on this industry in the next century, if anything, understate the magnitude of how this change will affect us. the Internet, site sales, and direct mail distribution (which is not new, but growing), we're going to radically change how life insurance is sold, and that's going to have some watershed implications for risk management. In reflecting on this issue I see two things that will change as far as the paradigms or models that we use historically in risk insurance. One, I think the concept of uninsurable will largely disappear. I don't think that banks will be likely to tell a person with a savings account, a checking account, a CD, and a mortgage loan that he or she is uninsurable just because of something as trivial as recently diagnosed infection with HIV. I think what you will find is that anyone who doesn't have a priest putting anointing oil on their forehead during the application process will get an insurance policy. We will design products to serve these markets so that 99.9% of individual insurance seekers will walk away with coverage. I suspect that if the South Africans can successfully sell insurance to HIV-seropositives that there'll be more than one lonely Illinois company doing it in our domestic marketplace, not to mention all the other pseudo-uninsurables out there.

Two, we will radically change our emphasis on turnaround time. The new distribution systems will be faster and more efficient than our traditional agent-mediated distribution system. We will talk in terms of hours and not days. In fact, when Mike talks about technology he'll introduce to you a little activity that he and I have been intimately involved in since, spring of 1997, called Task Force 72. The name Task Force 72 derives from the belief of the members of our group that the average turnaround time for a life insurance policy from electronic application input to electronic policy issue will be 72 hours in the 21st century.

How are we going to achieve all this? Well, we're going to maximize our use of technology, and then we are going to epitomize and maximize the use of underwriting tools that are consistent with this goal of getting business issued as quickly as possible. I'll leave it to Mike to talk about such innovations as electronically generated application input, state-of-the-art, front-end systems. I'm not so sure that expert underwriting systems acting as underwriting surrogates or

surrogates for humans will play as big a role as some might have thought, but I do believe that front-end systems that integrate all the information and present it to home office underwriters, much like sitting in a three-dimensional video game at an arcade, will become the rule, and companies that don't have front-end systems will not be competitive in the future. I think that we will transmit all underwriting information electronically, or virtually all of it, and that we'll be virtually paperless. And, finally, I think you're going to find a lot more companies following our brethren in the property and casualty (P&C) side of the industry and making more selective and aggressive use of outsourcing of functions that historically have been retained within the home offices.

Now getting into my domain of some expertise. Underwriting requirements, the tools that we use to select risks, are going to shift, and they're going to shift rather dramatically. Some underwriters are going to lose a bladder function over the stress of these changes, but the changes are inevitable. When I did a series of lectures across Asia, Australia, and New Zealand in March 1998 I told the audiences then that I believed the single underwriting tool that would most dominate the life insurance market in the 21st century was an entity that came into being about two decades ago. It goes by various names, the most common of which is personal history interview (PHI). It's a telephone interview with the client wherein one might do everything. You can take the actual Part I and Part II and do a series of drill-down questions on a variety of topics—medical, financial, occupational, avocational—thus deriving a substantial amount of underwriting information. Companies that use either outsourced or in-house PHIs from state-of-the-art providers or with outstanding internal programs tell me that they are amazed and in awe of the amount of valuable protective information that can be gathered through this medium. Having seen all the existing products, I now believe with all my heart that these state-of-the-art PHIs remain to be designed, and one of my few remaining goals is to achieve that.

I think you're going to find an increasing use of laboratory fluids. At least my employers would like to think that. I think you will find that the use of motor vehicle records on insurance buyers is going to become essentially universal. I think instead of getting motor vehicle records (MVRs) when people have a remembrance of a drunk driving violation or multiple moving violations it's going to become as second nature as searching the Medical Information Bureau (MIB), and we're going to get universal MVRs on adult applicants both sexes. And then, of course, there's the question augering back to my early career at Dunn & Bradstreet about whether or not we will be gathering income and credit type information and using it as a surrogate for traditional underwriting information. Some bank underwriting types believe that this is a new avenue of gathering mortality valid information.

Just as some requirements will come into their ascendancy, others will move toward extinction. The abomination we call the chest X-ray, which has really had no place in life insurance risk management for years, will disappear, as well as exams by doctors for all but the largest policies. Electrocardiograms will decline in use, mainly for the young and middle-age groups where they provide precious little protective value anyway. The part that is most stressful for underwriters to grapple with is that we're going to have a substantial turndown, a reduction in our reliance on attending physician statements (APSs) as routine underwriting tools, whereas in my career of some 20-odd years in life insurance underwriting we have used the APS as our staple underwriting requirement. I think you're going to find in the years ahead for a variety of reasons in aggregate that will compel us to turn to other more accessible, cost-effective, and time-efficient tools for life insurance underwriting, and we'll turn away from APS reports until we reach a point where we get physicians' records on three groups of insurance applicants: the old, the sick, and the rich. For people in their 60s and beyond, APSs are simply unavoidable. For very large policies and people who have known potentially life-threatening diseases or are suspected seriously of having those diseases, the surveillance value is irresistible, but in that large cohort of ages 18–55 through $1 million dollars I think physicians' reports are going to be increasingly the exception to the rule.

We had a very interesting piece of news two weeks ago. The Food & Drug Administration (FDA) gave its blessing to the Western Blot Confirmation Test for HIV infection. For some time now Calypte Biomedical of Southern California had been pursuing approval of the confirmation test so that we would create an absolutely level playing field within insurance testing between the three testing modalities—blood, urine, and oral fluid—and that level playing field state was achieved with FDA approval of the urine Western Blot. It's now possible to screen life insurance applicants for HIV and confirm with the Western Blot on all three bodily fluids. There are a number of states that have not yet acted to approve this, but odds are that number will decline substantially now that the FDA has given thumbs-up for the Western Blot. So, insurance companies will increasingly have flexibility in how they decide to do surveillance for HIV, smoker's amnesia, and evidence of subclinical chronic disease or flat-out memory loss.

I think you'll find that either oral fluid or urine, perhaps both, sharing this abundant market, will dominate the screening picture at ages 18–45 for amounts through a million dollars. On September 15, 1997, John Hancock shocked the known universe by announcing it would approve up to a million dollars up to age 40 with an oral fluid specimen tested for cocaine, nicotine, and HIV, plus a telephone inspection report # or PHI and a MVR in lieu of what had been traditional underwriting requirements within that age range and that amount of insurance. I

think you will to find more and more companies moving in that direction. I think you can test with urine or oral fluid through about age 40 or 45 and pick up enough protective value and offsetting underwriting information to survive without routine blood testing. That scenario, of course, shifts abruptly when we get past age 45.

At present on oral fluid we are limited in what is possible: basically HIV; cotinine which is a metabolite of nicotine, testing for people who smoke but transiently forget that they do; and cocaine testing for people who use nose candy. We have a potential to do tests for other drugs of abuse, although they're seldom done for a variety of reasons. The people who do the oral fluid product, Epitope Corporation out of suburban Portland, Oregon, tell us that they believe the technology will be available and approved to screen for both hepatitis B and C and to have an effective diabetic marker on oral fluid in the next two or three years. Whether that's true or whether the FDA and other problems will supervene to make this a longer waiting period is problematic, but clearly oral fluid has considerable potential to expand horizontally as a screening tool for a variety of insurance-related areas of concern.

I think the one thing that some people are having a hard time accepting, but, nonetheless, will come to pass, is that virtually all, if not literally all, oral fluid samples collected for insurance purposes will be collected by producers. Right now at LabOne we're averaging well in excess of 90% of the oral fluid samples collected not by paramedical vendors but by agents, brokers, TPAs, and other salespeople. This very feasible, very manageable, very efficient, and, amazingly, a fraught-with-few-difficulties approach to the problem. Why will this continue? Because it's too slow and too expensive, and the unit cost of oral fluid testing accelerates too steeply when we use intermediaries to collect the sample, making oral fluid not competitive with blood testing.

In the area of urine, two weeks ago both Rick and I had the privilege of speaking at a one-day seminar put on by Calypte Biomedical, the people who own the patent on urine HIV. One of their presenters, Dr. Toby Godfrey, who is himself a research scientist on their payroll, told us that there were several testing modalities that might be available on urine in the next few years, the most exciting of which to me is a test that none of you probably, with the exception of a few of my underwriting friends who are strategically hidden in the audience, may recognize— that's a test called lipoprotein LPa. This is an area of considerable activity for me, blood lipids and screening with lipid parameters for coronary heart disease, and I would not hesitate to call lipoprotein LPa state-of-the-art in identifying occult coronary heart disease. It's certainly far superior to cholesterol or HDL or triglycerides, or any of the available modalities. If it were possible to put lipoprotein LPa on a cost-effective urine screen, it would give urine a leg up on blood testing as far as identifying individuals with occult or subclinical coronary heart disease. It's also

quite possible, I think, to do hepatitis B surface antigen and antibodies to the hepatitis C virus on urine. There's no reason why the urine modality will not accommodate testing for both species of hepatitis. If these were built into the urine product, along with its existing stable of screening tools, urine could easily be a protective value rival for blood testing. I even envision an alcohol-specific marker on urine in the years ahead if we can direct the resources to the research necessary to bring that up and running. So, the bottom line is we could go back full circle to where we were when I entered this business in the early 1970s as a urine-based industry rather than blood or oral fluid. That's a charming thought.

Of all the things on blood testing, the one that has most people pumped up today is hepatitis C. Oh, I wish I could launch into a soliloquy on this subject on which I think I approximate the status of expert at least in the insurance industry. I spend about a third of my time now reading incredibly dull world literature on hepatitis C. In fact, in my own publication, *Journal Scan*, the lead article is on hepatitis C. I thought I'd bring one or two copies in case anyone is either hypochondriacal or just flat-out curious and would like to read about it. Hepatitis C testing has become very big with life insurance companies. Probably about 40% of our clients now are screening for infection with hepatitis C using an antibody test on individuals who present with elevation of a liver enzyme called ALT, which is the principal liver enzyme used to identify nonalcoholic liver disease. The positive rates of 5–15%—I don't want to put words in the mouth of an actuarial expert—might extrapolate to the single, biggest, protective value payoff of any test that we've ever come out with in insurance. That's very exciting when you consider that virtually anybody with hepatitis C is probably for all intents and purposes uninsurable.

Now, on the subject of preferred risk I'm very pumped up. I just came back from, as I said before, a month in Asia, Australia, and New Zealand, and it amazes me how much clamoring there is in these environments for modeling products after America's tremendous success with preferred risk. While I was in Asia 2 Japanese companies introduced nonsmoker coverage, which should be novel in a country where 65% of the males smoke. One company in the Philippines is about to launch it in the second quarter and asked me not to discuss the subject from the podium lest I encourage their competitors to jump on the bandwagon. In both Australia and New Zealand they were quite keen to move along the path of introducing these client-friendly products. I'm sure many of you saw an excellent article in *The National Underwriter*. Kathy Anderson, Jay Biehl, Paul Schuster, and Jim Sweeney, who are prominent reinsurance actuaries, talked about preferred risk under the title "Preferred Term Mortality Pleases Reinsurers." I thought the points made in this article were excellent; that persistency is good, that we are attracting healthy buyers which, after all, is what we're supposed to be doing to sell insurance, attract buyers, make people happy, that the early mortality results were

favorable, and in the words of my friend, Jay Biehl, at Lincoln, just one caveat. The underwriters can't shave off the edges of the underwriting criteria and negotiate down to preferred risk individuals who do not belong in the preferred risk group. So long as we are vigilant in this area and maintain the validity of our underwriting standards, I think preferred risk is very exciting, as do a lot of other people.

I think as we do more preferred risk and move into these exciting domains, we're going to see more and more of a shift in underwriting in both life insurance and certainly health insurance and definitely in other product lines toward what I call a health habit focus. I've been arguing this from podiums across the world for the last decade or better. Basically what it involves is looking at issues over which the insured has some control. The classic would be tobacco, drugs of abuse, excess alcohol, obesity, drug compliance, and past driving record, which has always been perceived in our environment as being outside the domain of the underwriter. Oh, that I could use the epidemiologic data that I review daily in my work on patterns of exercise! There were recently two excellent papers that showed a strong correlation in people in their 50s and beyond between patterns of daily activity from sedentary to vigorous and strong, reproducible, and absolutely mathematically valid correlations with mortality risk. Imagine a scenario where we don't have interested parties in funny-looking clothes acting as information-gathering intermediaries, and we can actually ask people about dietary choices, exercise patterns, stress levels, etc., and factor that into the risk equation. I think in the future with the coming of teleunderwriting, the last thing I'm going to talk about, we'll be gathering information we never dreamed of and using it as surrogates for, as I say, tweezering our way through medical records, something that has always been an anathema to insurance buyers.

Teleunderwriting is a very interesting concept. Here is how we underwrite today. The agent sells the insured on the concept, takes an application, and sends it to the home office. The home office says get me this, this, this, and this. The agent then acts as an intermediary or information gathering gofer, working with the client through a series of back and forth transactions. We produce, hopefully, a policy. With teleunderwriting the agent basically gets an indication of interest in acquiring insurance, asking two questions: Are you alive? and Do you intend to remain that way? That information is passed to the head office, and the next time the agent is involved in the transaction he or she delivers a policy on which the applicant has been fully Mirandized. All information gathering is done by the insurance company or by outsource surrogates.

The agent removed from the underwriting process is now what he better be if he expects to survive in the 21st century; that is, a full-time salesman. In too many insurance companies producers spend 30–50% of their time in nonselling activities,

acting as information gatherers, etc. I don't believe that model will survive the onslaught of alternative distribution systems. So, after a meeting of my study group in Savannah in February 1998—I'm chairman of a 25-company study group that meets every year, comprised of major companies and chief underwriters—there was almost a unanimous buy-in that the teleunderwriting concept, in some variation, would dominate the industry as far as information gathering, which, of course, is bad news for my book *Getting It Issued* which was written to help agents who no longer will need to buy the book.

The last thing I want to do in my waning two minutes is to invite everyone in this audience to attend a historic event. On June 6–9, 1999 at the Royal Lancaster Hotel in London, we are going to convene the Second World Congress of Life, Health, Disability, Critical Illness, and Long-Term Care Underwriters. The first congress was in Mexico City in February 1997, and 644 delegates from 43 countries participated. In London, with 24 organizations sponsoring, including virtually every major reinsurer in the world, we are anticipating upwards of 700 delegates from over 50 countries. We expect to have the largest life insurance risk management meeting ever convened in the world in one of the most beautiful cities in the world in, arguably, the best month of the year to be in that city. So, I would like to invite all of you to consider this in your planning for 1999. If anyone in this room would like to receive in late August the registration kit for the Second International Underwriting Congress (IUC), as chairman I would be only too happy to instruct our parent organization to send a no-obligation kit—we're going to mail 4,000, what's 4001? You can take your time, leisurely look at the program, look at all the attractions, and decide if this would be a reasonable allocation of tight travel dollars for the year 1999. So, if you give me a business card with IUC on it, you will receive the registration kit or you can e-mail or contact Larissa Vigue. Larissa is the registrar of the Vermont Insurance Institute. Alternatively, she'd be happy to add you to the list. At this point we will defer questions. I'll turn the podium over to the second speaker and get ready to take off into the wonderland of technology. I won't understand it, but I'm sure I'll enjoy it.

Mr. H. Michael Gaines: I'm going to give you some of the mechanics of what we've been doing, and then Rick's going to talk about the actual actuarial process. My notes are primarily on alternative data sources and decisioneering, but as I looked at the group and as I read about your Society and the things that you do, I threw in a couple other topics. I'm going to talk just a little bit about PMSI, the company that I'm with, and Task Force 72, the preferred provider network which is an electronic pipeline from point-of-sale into the home office. I will talk about this point-of-sale background teleunderwriting process as it's done today. We see the products of Task Force 72 in the year 2000 and beyond. There's lots of work ahead of us in trying to make these particular products industry acceptable. It may not be

that long, but there are obstacles. A preferred provider network is being introduced as we speak. A number of companies have tried to do clearinghouses, and I want to talk about why now the industry is ready for it and the technology's ready for it. And, finally, I want to talk about something that we've been doing for several years, and that is the teleunderwriting process. We process in Waco about 5,500–6,000 applications a month currently through that process, and I know Principal's here. Principal has a teleunderwriting unit. Prudential does. So, it's unfolding in the industry. We do about eight companies' application processes, clear up to full underwriting.

PMSI was owned by PMFC until May 1998 when it was bought by EMSI. EMSI is a paramedical company. We were bought by the holding company and the sister company through their paramedical operation. Our main business is collecting medical records, and we collect a ton of medical records. We collected 1.5 million medical records last year for insurance companies for life, health, disability, and long-term care. We have the only jet that comes into Waco, to pick up our records and sends them to your offices, but we know someday those medical records are not going to be on paper. In fact, we're in the midst of transition where you really get into some absurd things. Stanford Medical Center in Stanford, California is a totally paperless environment except for one area, their release-of-information (ROI) area in their medical record department, and that ROI department has a printer, for people who request medical records, and we request them as do attorneys and other companies. They get a request for a medical record. They print it out. In California a lot of companies like us have to use copy services to get those records.

So, a copy service goes into that hospital and takes that record that was printed out, scans it into their equipment, uploads it onto their machine, takes it into their office, gets it prepared to send to us by downloading again back onto paper, and sends it into Waco. We get it, and for a half a dozen companies we scan it back up again and send it into the insurance company. It's ridiculous. But we do it because there's just not enough companies or not enough facilities using electronic medical records yet. We got into a project where Task Force 72 evolved, and we thought at some point that underwriters will be able to hit a button and pick up an electronic medical record. There are a ton of software vendors out there producing electronic records, and we felt we could be the gatekeeper where we build the technology to take that software and that record, translate it into the insurance company's language, and get it up to the insurance company.

As we researched and got into it, we found, that the world's not ready for electronic medical records to the scale that we need yet. There are too many different forms and fashion of it out there. There are areas that they've not been able to overcome in terms of making these records electronic. And primarily the physicians resist

having to do an electronic record. It'll be there. In the next five years there will be a lot more going on in terms of electronic records. But what we did find, as we got into that, were some other sources of medical data that underwriters could use to underwrite a policy, and those were medical claim clearinghouses and pharmaceutical clearinghouses. That's where Task Force 72 came in, because as we looked at it, we felt that there was some data that's now available that can be used that we can provide information to the insurance, the new business department, that can be used to process a policy faster, better, and cheaper than before.

We formed the task force. Hank George is the chair of that task force. Mary Bahna-Nolan of TransAmerica belongs to the task force. We have actuaries, Bob Holliday from Winterthur Life; chief underwriters, Ron Culligan from Jefferson Pilot and Bob Hague from Mass Mutual; and a life insurance and disability provider, Paul Hankwitz, the chief medical director for TransAmerica. Other members include Alice LaVigne from Aetna; John Krinik from Underwriters Perspectives; Ken Prillaman from BYSIS, the old agency in Scranton, Pennsylvania that does a huge amount of processing in the brokerage community; Linda Shumilas, who's in charge of the new business underwriting process at Allstate; and Barbara Stansberry, who has the underwriting services at Northwestern Mutual. We have a dynamic and powerful group, and we've met four times. We've limited the number of people within PMSI who can go to that because it's their meeting. They're looking at it from their angle. We brought in providers and vendors to present what they have and what's out there.

We had a company called Rodeer that is the third largest medical transcription company in the U.S., and they also have developed software where they can go into a transcribed recording and pull out key words. Using key words, they can pull out paragraphs that are relative to the requester so that an underwriter can build a set of questions, and we can go out and pick up from an electronic transcript the relevant information that the underwriter may want. We brought in TransUnion, which is one of the three credit bureaus, and they felt they could model the mortality estimates based on credit history the liability of the individual, and a number of other areas. We also brought in a company called National Data Corporation (NDC). They're one of the largest clearinghouses, along with Envoy, and they do medical claims clearing. They do pharmaceutical clearing. We had them present to the group because it is new and something that we have to get comfortable with.

The Task force looked at these companies—I'll get into some of the ups and downs of what we found in that process—and the various dynamics that are going on today that have a bearing on why we need to look at alternative ways of getting

information. I won't go through a lot of them, but you know that the banks are coming in, as well as new technologies that allow access to larger markets and increased automation, and the P&C side is way ahead of the life side, and we did have presentations on P&C and what they're doing, and I'll get into it a little bit in a minute, concepts of green-lining, which I'll talk about in a little bit as well.

We need to reduce production cost, to improve the efficiency and productivity of that underwriter, and to reduce the dependency on costly information. We do APSs, and it's a $44 charge to an insurance company to pick up that APS. It's a 16–18 day wait to get that APS. It's costly. It's time-consuming. It's all-bread-and butter, but if it isn't economically viable to do it, then we shouldn't be doing it. We're trying to find alternatives for it to reduce the time from "closed" sale to issue. Another need is to increase the availability of certified data and devise a different way of dealing with low-face business, clear up to $300–500,000 policies.

There are some observations that the task force talked about. The information that we get that all the vendors pull out to issue a life insurance policy probably would be unnecessary if the applicant were accurate, if they had total recall of the medical events or the things that they do, and if they were truthful, that the adverse information is really the tail wagging the dog. Ninety percent is issued standard or better, 4% issued nonstandard, and 6% rejected, and, yet, for that 10% we do a heck of a lot of work and have a heck of a lot of expense. Of the information that's gathered in the policy, especially low-face policies, 50–60% is a clean application, and the information through the paramed the lab, is clean as well. If you have a question, why do it? Twenty percent to 30% substantiate the accurate information. The applicant said this is what it was, and, by golly, it is. And 10–30% result in some kind of discovery.

Is all of this necessary that everybody go through this? Our vision was to complete the processing in 72 hours rather than what it takes today, four to six weeks, to reduce the time and cost and still not jeopardize the protective value. We want to do it in incremental steps because we're getting into databases, data warehousing, and data mining, and there's a natural tendency for people to be concerned and afraid of privacy and confidentiality issues, and it's not something that you—even if the information is there—jump into full blown. We wanted to focus on green-lining, and green-lining as opposed to red-lining. You know in the mortgage industry, in red lining, that you just write in a certain area. What we're focusing on are the clean records, not the records that would require action.

The benefits that we're after must center on fraud detection. Again, a person, knowing that you're accessing these privacy issues and personal records, will not mind so much if it's based on fraud detection. It will be more acceptable to them.

It reduces the time and inconvenience for the clean applicant. Issue the policy to the ones who don't have a history. Don't inconvenience them by going through all of this processing. This reduces the cost model because savings on not having to pay for that $44 APS.

What are we looking at? We're looking at pharmaceutical databases and health claims databases. About 35% of the records today in medical claims are electronic, and within that electronic medical claim, there are standards that we can access. One of them is an International Classification of Diseases–9th Revision (ICD–9-CM)) code, a five-digit code that pulls out a very specific diagnosis of that individual. There are also Common Procedural Technology (CPT) codes that are on this form which are the codes for the procedures that have been taken to treat that particular diagnosis and the medications used. So, you have on a medical claim form a diagnosis, a treatment, and medication. You ought to be able to do something with that record, and someday we will. We're not ready yet. Because it's 35% it isn't big enough to get enough hits for us to be able to rely on this as something useful. Also, we found there are mistakes in certification that have to be corrected. We thought at first, that physicians probably overcame so that they can get a better reimbursement, but it turns out that more often than not they undercode so, that they can run it through their fair eveys explorers and come up with a premium rating. They also look at MVRs for that process, and there are data warehouses of MVRs where you don't have to go out to the individual states to get a particular MVR. You just have to go to these data warehouses. ChoicePoint has them. A number of others have them. PMSC has them, where they are already in a standard format. An underwriter doesn't have to translate this state versus that state and the type of violation it is. It's all done for them. But where it's used in P&C, life insurance underwriters have chosen to get the individual MVRs and look over, and it's a much slower process.

Pharmaceutical. Again, the process is to define that database. If you are in a pharmacy or if you have a prescription card, there are seven years of data on you somewhere in some computer today, and if you're buying an insurance policy and give us consent to get that record, and we look, and we can see in that seven years you've had noncontroversial medications prescribed for you, we'll issue the policy. Let's get on with it. In 50% of the cases we'll be able to do that. We're not trying to underwrite on that data. We'll just push then out process and let them go through the traditional process thats done today.

Health claims. We still have a ways to go in identifying how best to use that in this process, but, again, it's the same concept. If there's a lack of adverse information, it just falls into the traditional process. In the long term this information can feed

expert systems. It can also be used as an industry standard. The models can be developed so that in a very fast automated process the policy is issued on the spot. That's the data and decisioneering process as we've gone through it in Task Force 72. Again, we have a lot of work ahead of us, but we think that you will be seeing this in the future because it's reaching that inflection point where technology, information, and needs are coming together at the same time to define what the future is.

I want to talk very briefly about, the preferred provider network. In the *Actuary,* the magazine that's out this month, the first couple pages talk about the changing world for you and the process of pushing you closer to that point-of-sale. Because of the Internet, we've developed a standard, and the Internet does some miraculous things. One of the things it's doing is allowing us now to hook up with an agent at the point-of-sale and provide electronic connectivity to all the vendors in the process, and we have that live today. We're testing it in a couple brokerages. We have the trust home offices nationwide in particular to build the same model in home offices where we take all the software from all the individual vendors, combine it into one program, and make it a seamless process so that information can be shared in multiple ways. As proof of the validity of the process, we've had all of the vendors sign up for this where clearinghouses that have tried in the past have been unable to. Essentially, we are at that point-of-sale with software that hooks through the Internet into a server in Waco, and an agent can, by the push of a button, order parameds, as well as other requirements like PHIs. It comes into an integrator. We've taken all of the software from all of the vendors. We've translated what comes off our server into their language, and it goes back out into that paramed, and once the paramed schedules that paramed exam the status comes back through us and back out to the agent so that you eliminate all the time involved in mail or the form sitting in an in-basket somewhere. It's very inexpensive using the Internet in the process. This information can be processed everyday, 24 hours a day. This is just the beginning. Ultimately we'll be able to transfer that application up. You can transfer it into the home office so they can see immediately what's going on in the field. We're taking that information already, and we're sending it to the laboratory. There's a common identifier that the agents assign as they go through this process. So, the same number tracks the paramed, and the laboratory. You eliminate the missing names on the slips that come into the laboratory. You eliminate data entry both at paramed and the laboratory. And everything happens faster and more efficiently than it's done today. We're real excited about this process.

Finally, I want to just talk about Hank's process of teleunderwriting, and one of the companies that's doing it today, General Life, located in Edwardsville, Illinois. It's a virtual company, a subsidiary of General American. There are 12 employees at General Life, and there'll always be just 12 employees. There's a CEO, a chief

marketing officer (CMO), a chief information officer, and a chief underwriter. The rest of the work is outsourced in total, and we do the new business process for them. We do it through a shared process I will go through with you. We have an operation in Jacksonville, Illinois. It happened to be the old John Deere Life Insurance Company. We took over their new business department, and we do the full new business process for General Life. Through that process we've reduced substantially the number of days it takes to issue a policy. We cut three weeks out of the process, and we've reduced the cost. We've changed the cost to them from a fixed cost, which your insurance company has, to a variable cost. All of their costs are variable. They only sell one policy today. They only pay for one policy. If they sell 500, they sell for 500. It's our worry to ramp-up for the peaks and to ramp back to the valleys. The processing. We do agent licensing. We do full underwriting. We do it through a teleunderwriting process where we're doing a telephone interview. We do the requirements ordering. We do agent statusing. We share the underwriting with General Life. Once the policy is underwritten to Cybertek, we turn it over to our sister company, for policy administration and customer service.

Shared processing works in multiple locations. In Jacksonville we do the actual underwriting up to $300,000. From $300,000 to a million General Life does the underwriting on those applications, and over $1 million, General American does. It's a totally paperless environment. We do it through sharing that information of documents not only through Edwardsville, Waco, Jacksonville, and St. Louis, but we also have remote underwriters. We have a remote underwriter in Cleveland, Ohio that General Life insists on using. So, we have them hooked up to the system.

Our technology. We have everybody connected with T1 lines. We use all kinds of different software in the process. We outsource some of that software pictorial for agent licensing and also for interviews. If an agent isn't licensed in a state, we can take them through the process rapidly. We do the telephone interview using Cybertek's application entry system and a lot of specialized software to assure that we have drill-downs. We have text encoding that forces the interviewer to use language that can feed an expert system in the description of the particular medical condition or the avocation that we're looking at. There's also imaging. We use Kodak Wang for imaging. That underwriter in Edwardsville can look at the same document as the medical director in St. Louis, the underwriter in Cleveland, and our representatives in Waco. At the same time, we also merged with FileNet which General Life uses.

Basically, the General Life agents and brokers use what they call a turbo application. It's a four-question application that an agent fills out and has the applicant sign, and then faxes to us. About 20% of the time we have to go back to that agent for more information. They missed a question or it isn't clear. They're

using the wrong policy for the wrong state. That's different from the home office where 60–85% of the time somebody has to go back to that agent client, or paramed to get better information. The turbo application's much shorter and takes a fraction of the time for the agent. It's also very client friendly because we've been through the process for Zurich Kemper as well. We find there's an incredible amount of replication in the new business process. Insurance companies didn't trust the agent, so they made that agent ask that question in two or three different kinds of ways, but it's the same question. Then the paramed would go out and ask the same questions, the telephone inspection company would call up and go through the same questions, and the APS company would do so as well.

We've eliminated a lot of that. The first attempt is made within 24 hours of the receipt of the application. We go through and ship it down to Waco and do the telephone interview. We're open from 9:00 a.m. to 9:00 p.m. in the continental U.S. We take phone calls from 9:00 in the morning, Eastern time, till 9:00 in the evening, California time. Some of the time we get them in the first day; 90-some percent in the first 4 days. We get that applicant on the phone. We go through that entire interview. And by the time we're done we've completed Parts I and II. We've completed the inspection. We've prescheduled the paramed exam. We have a window of time with all the parameds from four to ten days, when it's convenient for that client, that we'll schedule that paramed to go in. We've reduced all the contact by multiple parties. And we've got in that process complete and accurate information. You can't miss a question. The system just won't let you do that.

The application's printed in Jacksonville. It's overnighted to the paramed. The paramed goes out and gets signatures from the client after they've reviewed the application. They collect the measurement, send it into the laboratory, and then the laboratory sends the information to us. We are a branch office of the MIB for General Life. So, they have MIB. They have most of the application information on day one. They've got the paramed information and lab results by day ten at the latest. If an APS needed to be ordered, 30% of the time we can order it on day 1 so that 16 days later that underwriter's has that complete information.

We have standards from General Life where we have to get that policy back out. We have to make an underwriting decision within 24 hours. Actually they give us 48, but we're doing it within 24. And, as Hank mentioned, the agent then gets back involved in the process. They hadn't been involved since they first faxed that turbo application in, and now they're getting it because we're sending that policy out to them to get the signatures and collect a check. The entire process is virtually paperless, and, as I say, we're doing thousands of forms of this every month. With that I've taken you through the future in database and data warehousing. I've taken

you through some of the near-future in terms of electronic connectivity from the point-of-sale to the home office, and, finally, historical things that are happening today where we've knocked off a lot of time and a lot of redundancy out of this new business process.

Mr. Bergstrom: It's been an interesting experience for me personally being on Task Force 72. I think I can probably speak for the rest of us who have been on the Task Force that it has been a rather eye-opening experience seeing what's actually capable of being done with actuaries. I wanted to reinforce something that Hank had mentioned earlier and Mike had alluded to in his presentation as well. One of the goals that we should have as an industry is to place coverage. We currently place about 96% of applications somehow that are given to us. We should strive to get closer to the 100% goal. But, as an analogy, we do place 96% of the business somehow. It may not be on the basis applied for. It may be on a substandard basis but it's placed. If you look at the credit or the mortgage industry, they place about 80–85% of the people who apply to them. We'll write a mortgage policy on 96% of the people, 15% of whom can't even get the mortgage. So, I think that's something to say on our behalf.

I'm actually not going to get into a lot of actuarial theory today. I did that for you, actually. What I want to do actually is just raise some questions and discuss some cost-effective directions we might take and what some of the underwriting scenarios look like, in the 21st. century. This isn't a solution. This is a question. Could risk classification systems be based upon underwriting protocols employed? I'll explain that further a little bit later. Should, therefore, the pricing mortality by risk profile be based upon evidence submitted? Substandard issues could possibly be unique to an applicant's personal profile. It's possible that the traditional table ratings that we use for substandard issues might disappear, and, in fact, it's even possible that preferred risk classifications that we now employ so readily could also in and of themselves disappear.

If we look at the risk classification systems that we currently have, they're not really based upon evidence submitted. We define an underwriting profile. We call it basically nonmed, paramed, and medical from an underwriting standpoint, but think about what actually goes into each classification. Jack, if I say something incorrectly, tell me. When MIB, who does the number crunching for our experience studies, gets the information, they put it in a bucket called nonmed, paramed, or medical. Out of that bucket comes the reports that we get that update the intercompany studies each year, and we get it broken down by nonmedical, paramedical, and medical, but the homogeneity of the data that goes into each one of these buckets is very wide. There are companies that classify business as nonmed when they'll go out and take laboratory tests. They will do everything

except take the paramedical, yet it goes into the nonmed bucket because they classified it so. We tend to take these three buckets and come up with our pricing assumption, and we price based upon that more than what we're actually looking at, which is the evidence that we're getting from the individual applicant.

A new protocol might be to let the underwriting test, the combination of tests, actually dictate what the mortality assumption should be in the pricing mechanism. You always have an application. It's required legally. You would want it anyway, no matter who is taking it. But then let's look at possibly pricing our products based upon what we know about the person whom we're getting, not just what we knew about the people whom we used to have without knowing anything about what classifications were that made up these three. And I won't go through all of these in any detail because Hank has already basically gone through them, but I wanted you to realize some of the specific pieces of evidence that we have available to look at that might make up the new bucket.

Obviously there's the application. Part of the application is typically a Part II, which is the medical history. Irrespective of who takes the medical history, be it the paramedical, the agent, a teleunderwriter and so forth, we have a variety of the bodily fluid tests. Obviously we have blood, urine, and oral fluid, and each of those bodily fluids gives us different types of information about the person whom we're trying to classify. The paramedical exam itself, frankly, is limited to height, weight, blood pressure, and pulse, things like that, the physical measurements of the person. But the rest of these things have more medical aspects , not just the measurements. Mike talked about the PHI. I won't go into that any further. More tests. Medications. Urinalysis is a good example of a way to get information on medications a person is taking. A person may claim he or she is not hypertensive, yet a beta blocker shows up in his or her urine, and taking blood pressure medicine. You can find that out from urinalysis. There's a variety of medications we can look at through an analysis. You can also find out a lot about a variety of drugs that are in someone's urine. People aren't always honest when they talk about their personal habits, and certainly a urinalysis will help reveal the truth. We've already talked about the APS. The APS has been a real mainstay, as Hank has mentioned, but the problem isn't so much what the data shows. It's just getting it on a timely basis. We've talked about MVRs. Inspection reports tend to be more financial in nature, looking at tax forms and such. And then, of course, there's special testing that can be done at larger amounts—EKGs, treadmills. The reflex tests can happen. If a person has an elevated liver enzyme showing up in his or her blood, the company may ask the laboratory to do a CDT test, which is an alcohol marker test, or a Hep-C test, and Hank just talked about that as well. But the point I'm trying to make is we have, a dozen or so types of underwriting tools that we can get and should be able to do something with.

So, we might actually redefine the word substandard. In fact, I never have liked the word substandard, because in reality any policy that's not issued as applied for is substandard. OK? What might happen? Applied for policies issued with extra risk factors. Table ratings might still be around in the future. We all know they are things that are high risk. People with diabetes, they get rated Table II, Table IV, things like that. The premiums are adjusted accordingly. That may still be around. We currently do flat extras. People who have occupational hazards might get rated on a flat extra basis, $5 a thousand, $10 a thousand, something like that, even though medically they qualify for a preferred risk classification.

How about some other things? The disability writers have been doing this for years. Exclusions. People with back problems get excluded from disability policies. Could we do that with life insurance? We do now with aviation. Could you do that from a medical exclusion standpoint? I don't know. That's something we might want to look into. And different benefits. What if we can't get a term policy? Would we maybe offer a whole life policy? Or we can't get $1 million, but we could get qualified for $250,000. Those things are not commonly done yet. That is one way that we can use the evidence that we get to help control our costs.

How do we accomplish this? Well, first of all, even if we do accomplish this, it's going to be a fairly slow process. It's going to take years to determine what the true mortality is of the various combinations of things that we look at, and there are some movements in the industry to look at what is mortality based upon gradations of blood lipid and cholesterol. For example what is mortality based upon gradations of liver enzymes? We will have access to that information. We actually can do it now, but it's going to take time to actually flush mortality through. Does that mean we should not do it? No. I think we need to at least convince ourselves that if we do it, we do it right. We need to look at the problem, but we do want to go forward. We don't want to go forward, but we've made a decision based upon the evidence to either do or don't. So, my concern is that the actuarial profession will lag behind what the technical people can tell us and what the underwriting people can tell us, and I think we need to try to do our best to stay up with them.

We could study mortality by risk profile given 30 selected risk classifications or combinations and cubicalize, maybe even customize the pricing mortality for individuals or narrow set of individuals. We do that now with our preferred risk, and some companies have six preferred nonsmoker plans and so forth. So we still have gradations, but we've underwritten them on the basis of "let's restrict the criteria," and if they fall within a certain set of criteria, this is the rate they get. Let's say we have a series that we definitely want these underwriting protocols: blood, urine, whatever. Let's look at the mortality—what these protocols can tell us, not

just where a profile falls within the specific criteria. That way people would not be really considered substandard. They're just getting the rate that fits their risk profile. That would be a lot easier for an agent to go back and sell something like that than to say, "I'm sorry, but you're just not healthy." Nobody likes to hear that. If we do this, I really think we can get to the point of issuing 99.9% of the policies. We can underwrite, price, and make money on a new HIV positive individual. They now have life expectancies of 15 years. The life expectancy of a 65-year-old is 15 years. We write a lot of business aged 65 and over. Why can't we do it? There's just been an onus on not doing it. It is doable. We can price it. We just need to have a comfort level of what it is that we're looking for as far as mortality rates.

I think we need better, more cooperative experience studies. We should be able to know within 6–12 months, not 6–12 years, what the mortality looks like, and there are efforts being made to update that as quickly as possible. Admittedly, some of the problem is a company, because this is volunteer work, doesn't always get around to giving us the mortality when we need it. We need to look into how to make that process more efficient, and then, once we have it, getting the committee to do the reports on a timely basis as well.

Are there roadblocks to moving in this direction? Of course there are. There's a roadblock anytime you want to change something. Do we have time to do it? Do we have the resources, the money to do it? How much effort should we put into mortality research? Could there be regulatory issues? There can always be regulatory issues, right? Confidentiality of medical records, which Mike mentioned. This is an area that we really have to be careful with because as the Ralph Naders of the world push to not let us have access to information, that will minimize our ability to get that information, at least in some areas. So, we always need to be cognizant of the fact that confidentiality is always going to be an important part of the underwriting process. And then, of course, anytime you want to change your rating basis, your pricing basis, and your products, what effect does it really have on the public, your agent, and your field distribution?

We have the technology. We know how to do it. We don't have all the clearances yet, but the technology is moving faster than we are able to move. Internet connectivity, rapid access to database information, ease of recording the APS information, and ICD–9 codes. Are all things that are working in our favor. Mike mentioned outsourcing capabilities. Variable costs. We don't have to necessarily price now using a fixed overhead in our underwriting departments. If we outsource portions or all of our underwriting, we know exactly how much it's going to cost us per policy. We don't have this overhead thing to build in. Typically, the outsource vendors can get things turned around faster because that's what they do. In my mind the underwriter should underwrite. The underwriter shouldn't have to ask for

an APS or call up on these things. The field person shouldn't either. He or she should sell. That's his or her job. When they do that and do it efficiently, that's where things tend to work.

Equity considerations. I don't really want to get into that, although I mention it because I have some concerns myself about 15 preferred risk products. That can be a tough one to get over mentally, but at least that's what the casualty companies have done. There are probably 50,000 different rates. There's probably a rate for every one of us in the room, and it could be different, in an auto insurance situation. But they have the data. They have the technology. And they know how to do it. Should we go that direction? We should look into it at least. Finally, anytime you have a change there can be a marketing enhancement. The agents like something new to sell. They may not like it once they know what it is, but they like the idea that there's something new to sell.

How many of you have an idea what the sentinel effect is? How many of you do not have an idea what the sentinel effect is? I do a lot of work with companies in an area called protective value theory, and what that translates to is working with companies and helping them assess the cost benefit relationship of underwriting tools. At what point is it cost-effective for me as a company to order an APS? To ask for blood? To ask for urine? To ask for a paramedical? It takes the known cost of doing something like that, and together with a series of assumptions estimates the present value of potential excess mortality that you would uncover by doing the test. In other words, it tells me whether it make sense for me to test so that I don't lose money from the standpoint of spending too many up-front dollars to test.

One of the variables that goes into the equations that you use to do this study is called the sentinel effect. It is a rather elusive character. I thought it might be best to just show you some of the information that I received recently from LabOne on HIV, cocaine, and cotinine. These are the positive HIV hit rates for various amounts applied for. Let's just look at the low end, the $25,000 end. HIV serum tests have been out for 10–12 years, something like that. When they first came out, those numbers in the 8–20–29 column, 0.79 were closer to about three. People who were HIV positive didn't know they could get discovered through a blood test, and over time that bore out. People do, indeed, know they can. About two years ago the oral fluid test was first marketed, and there are now some credible statistics that we can pick up for HIV, cocaine, cotinine off oral fluid. That is agent-collectible. You can't collect blood with an agent, there's a paramedical cost to do this. That's why most companies can't afford to go below $25,000 to look at blood type tests. Remember these numbers, the 0.79–3.62. That's per thousand positive HIV. It goes through age ranges. If we look at oral fluid, the result is 15 times higher than

what they're getting on blood. The 14.39 is 4–5 times higher than what they're getting on blood. Somebody knows something.
The sentinel effect is a surrogate measure for dishonesty, and dishonesty can be people lying or simply not knowing about their condition. It tends to drive applicants to companies where they don't test, or it tends to drive applicants to amounts of insurance below which they don't test. But the sentinel effect has real value, and the real value is you don't issue a substandard policy at standard rates, and this in my mind is a real numerical example of what is missed. If you look at cocaine, age 30–39, 25,000, 1.62% of the people tested positive for cocaine. If you look at oral fluid, that same number is 3.68% which is higher. Almost 4% of the people tested for the oral fluid. I don't know if you can separate that from U.S. population numbers, but of 250 million people 10 million people are using cocaine. They can have it in their urine and get caught. If we look at Cotinine, smoking, the tobacco usage in general, age 30–39 for example, 27.5% of people tested positive for Cotinine. Now, in fairness, many people will admit on an insurance application that they use tobacco. We can't say 27% of the people because most of them may have admitted that they use it, but many of them don't. Hank coined the term smoker's amnesia. They currently forget that they smoke. They may put "no" on an application, and not being tested, you would not know it. You look at oral fluid—41% tested positive for Cotinine. The 27–41 difference is the sentinel effect.

Mr. Gaines: In terms of accessing these data warehouses, is it going to be happening soon or is it down the road? The MVR warehouses are there, and there is software that is used by P&C underwriters to standardize those MVRs that are available for life insurance underwriting. I know PMFC is planning to introduce that to their salespeople to bring into the home offices. In the pharmaceuticals it's more complicated because there are various places where this information lies. Not one of them has the mechanism to be able to do it immediately. There are a couple companies that buy this pharmaceutical information and resell it for commission and usage purposes. They're connected to all of the ladders of prescriptions and to the pharmacies, and they have a pretty good system of accurately pulling out that information because it's used to pay salespeople commissions, but they don't collect all the information that we need. They don't have histories in there. They don't have good patient identifiers. In fact, they strip off the patient identifier because all they care about is the medication that's being sold. The pharmacies have very good and accurate records. They've never been asked to provide those records to a life insurance underwriter. So, we've got work to do to provide the connectivity, pick up that information from the pharmacy, or to expand the information that's collected by sources today. Then we need to educate the pharmacies, but they're much closer than the health claim records, and we expect in the next 24 months to be well along the way of having that network available.

Mr. Bergstrom: I wanted to say that I went through the sentinel effect rather quickly with you. If you would like a more written description of what that meant, John Krinik publishes a newsletter called *Underwriter Alert*, and it comes out five-six times a year. My article is on the sentinel effect is in that newsletter.

From the Floor: I have a couple questions. First, for companies that you see moving today to this paperless environment, would they be working on systems that have agents' input, the application, or a telephone-type input method? Second, could you give an approximate number of what outsourcing the underwriting function costs and what the variable costs are?

Mr. Gaines: In answer to the first question, I frankly think the labs are probably in the most ideal position to create that paperless environment because all the parameds have to send information into them. The agents could as well. I know that LabOne and Osborne are both in the process of setting up imaging centers to do a lot of imaging. We do it too, and probably from a cost perspective we can do it as cost-effectively as anybody, but the good thing about the labs is they're in that stream of information, and, no pun intended, but it can be done quicker. In terms of costs of teleunderwriting, they really vary. Some companies just do the Part II and have the paramed company or us do a electronic Part II centrally rather than having the paramed examiners out there collecting it individually. There are 15,000 examiners who work on a part-time basis, and you can tell the accuracy and quality of those medical histories by the sheer number of people who do it, whereas if it's done centrally, it's done far more accurately, and those range from $20–30. We have competitors in the industry that do full teleunderwriting as we do, and the costs of that experience are customized depending on the size and the type of the policy, but they range from $75–150.

Mr. George: To repeat your question, you asked me if there was an industry reaction to John Hancock's radical change in their underwriting requirements in September 1997. I've talked to so many companies in the last eight months who have gotten the feedback loop through the brokerage side, where your company's very active, inquire with my organization about these changes. Were they excessively radical or is this something that would evolve across the industry? I think there's widespread interest, and as I go from company to company doing my itinerant preacher route as a public speaker, I find a lot of companies poised at the brink of making decisions similar in terms of broadly liberalizing their underwriting at the younger ages and going to these faster, more easily gathered pieces of information. I think John Hancock was a pacesetter, and I think everybody's going to follow that model next year.

Mr. Bergstrom: Did you reprice your products when you did that when you did the mortality rates thing? The underwriting criteria changed, and that was it? If you look at what drives value at the younger ages, say, under age 40, the oral fluid test covers most of them. What really drives the value is HIV. That's probably 75% of the value. Tobacco is probably 15% because at the younger ages there is not much differential in mortality due to tobacco. Cocaine is a piece there too. Other blood urine aside, those three things are picked up on oral fluid, and that's probably 95% of the claims right there.

Mr. George: I think you're going to see in the geriatric market, first of all, a lot more attention directed in underwriting toward functional markers. We historically have again, to use that much abused phrase that I love, tweezered our way through voluminous medical records on geriatric applicants and paid insufficient attention to things such as instrumental activities of daily living, and other functional markers. There's a mushrooming literature in gerontology that shows us that there are very instructive indicators of mortality and morbidity that have profound implications for life insurance, long-term care, etc., that are not the traditional medical history types of information. There was an excellent study *The British Regional Heart Study* on leisure activity levels in older people and the correlation with mortality, which was more impressive than most of the studies done on traditional diseases. Ditto for things like functional markers, etc. So I think you're going to see a bigger shift toward gathering meticulous information mostly over the telephone and using these personal history interviews or variations on that theme as the driving force in underwriting choices. I think we will underwrite with great scrutiny in the geriatric market because there's a lot of short-term mortality vulnerability, but I think you will see a shift away from electrocardiograms, chest X-rays, and medical exams toward either these kinds of questionnaires or functional data and/or to laboratory science. I think you will see geriatric-focused blood profiles in the next few years. They're going to look at markers for things like osteoporosis, measures of occult anemias due to undiagnosed cancers, etc.