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## Session 131PD
## Underwriting Strategies in the 21st Century

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*Summary: As the new millennium unfolds, the design, pricing, and delivery of products must meet marketing needs and generate new sales. Underwriting, the essence of risk selection and classification, must become a more flexible and seamless component of the issue process. How can the process be expedited without surrendering required mortality margins? What different information is needed? Where will this information come from? Who will obtain it and how will it be delivered? How will the actuary assess the real value of these new sources?*

Mr. Richard L. Bergstrom: The first speaker is Hank George, a Fellow of the Academy of Life Underwriters. Hank wears four professional hats. First, he's senior vice president of the world's largest insurance testing laboratory, LabOne, and has spoken many times to actuarial, underwriting, and marketing audiences literally around the world for the last 12 years. Second, he is founder and editor in chief of *On the Risk*, a quarterly professional underwriting journal with 4,000 subscribers in more than 55 countries. Third, he's the founder and chair of the International Underwriting Congress, and I will let Hank explain a little bit more about that to you. Finally, he's the author of a bimonthly medical newsletter known as *Hank's Journal Scan*.

Dick Van Maanen is our second speaker. Dick is general manager of Calypte Biomedical, a California operation which is based in Oakland. He's also director of marketing, sales, and business development. Dick has a B.S. in biology and has been involved in the biomedical and diagnostics industry since 1980. He has been with Calypte Biomedical since early 1993, and, as a function of the company's interest with urine/HIV testing, has been involved with the insurance industry since then. With that, we will launch into underwriting strategies of the 21st century.

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Mr. Hank George: My vignette is called "The Critical Line." I'm going to talk about the concept of redesigning risk appraisal for life insurance. This could apply to kindred products as well, but it's mainly about life. There really are two subsets here—the young and the old—and we need to underwrite them differently. Our tradition of using the same tools in both subsets probably is not going to be effective in the millennium. I will give you some examples of how I think this might change.

The basic concept here is that things are going to change more in the next three to five years than they did in the 20th century. Factors will include the impact of genetic testing, the distribution of products, and the use of technology.

How we underwrite, how we prevent antiselection, and how we make products available on a cost-effective basis needs to change and be reshaped. There are old ideas, some of which underwriters cling to with bloody fingernails, like insisting on a physician's report on all medical impairments. These are going to have to change or we're not going to be able to compete and thrive in the 21st century.

The existing model that characterized the last quarter century is driven by that hybrid entity called the paramedical (where a nurse or technician goes out and does some basic physical measurements, gathers bodily fluids, and takes a medical history). That core entity is going to be modified in the future. How will it be modified?

I already know companies that are moving away from having the front half of the paramedical done by the paramedical providers. They are arranging to take the Part II (the medical history) either at an Internet site or over the telephone, rather than have it done by the paramedical technician. Thus, the paramedical of the 21st century will concentrate mainly on physical measurements and on gathering bodily fluids, especially blood, which, unlike urine and oral fluid, is not amenable to collection by producers.

The paramedic will change. There will be new physical measurement strategies. For years, I've been saying how we need to augment "build" by doing "waist-to-hip" ratios and calculating the body-mass index. We also need to explore the feasibility of doing ankle/arm blood pressure ratios. If you could take a blood pressure on the arm, why can't you take it on the leg? If you build a ratio of arm-to-leg blood pressure, you have a very sensitive and specific indirect marker for peripheral arterial disease, coronary heart disease, and cerebral vascular disease as well.

We're going to be switching away from only paramedicals taking medical histories. These will be done mainly on the telephone and at Web sites. The new model will feature increasing reliance on Web site-mediated application taking and drill-downs with underwriting questions. We will also rely heavily on the use of the telephones to do what we call the personal history interviews, which will become the dominant risk-gathering tool in the next five years.

The agent or broker (or whatever genre of producer we're talking about) will gather the vast majority of the urine and oral fluid samples that are collected. In many

environments, especially agent and broker meetings, they will bare and grit their teeth, plant their feet stubbornly, and say, "We're financial planning professionals. We're not going to collect urine or oral fluid from our clients. That's not what we do!" Here is a news flash! At $30 per collection, which is the superimposed average fee of having someone else come out and do it in these days of acquisition cost anxieties, I suspect many companies will say, "Yes, you will." We need to. This is a team effort, and if you're out there with the client and you're in a position to have them do an oral fluid or a urine sample, then I suspect that we will ask you to do it.

The urgency of turnaround time and the concept of teleunderwriting will impact us powerfully. Let me talk about turnaround time. There was a very interesting article in the *National Underwriter* a short time ago, written by a fellow who was a consultant working with banks. The gist of the article, from my perspective as an underwriter, was that we are in a catch-22 situation. In order to issue the coverage in some proximity to the time that the client seeks it, we need to either (a) eliminate underwriting, or (b) do it in a manner that is much faster.

Now, the first alternative, which is to stop underwriting, is contraindicated by common sense. Bankers and others out there who don't understand insurance fantasize that you can have your cake and eat it too. You can issue insurance in large sums, not protect yourself against antiselection, and still make money. The bottom line is, like it or not, you have to have underwriting in most product domains or it will be a disaster! The solution is not to eliminate underwriting; the solution is to make it friendly. Enter the concept of turnaround time.

It isn't impossible to issue the vast majority of life insurance policies, up to reasonable sums, at reasonable ages, without a protracted interval. I would wager that most of this can be done in 72–96 hours (and in fact, we're going to hear a pervasive argument for doing it in 72 minutes from Mr. Van Maanen). Turnaround time will drive this industry. Decisions will be made; underwriting strategies will be adopted; underwriting-actuarial synergies will be created, which focus first and foremost on getting it done in the first two to five days, measured from the time the application is executed. Good! It's about time.

The second thing will be the embracing of the model created by the Prudential, the concept we call teleunderwriting. I am chairman, among other things, of a study group of some 30 chief underwriters from large and small companies. It's called the North American Underwriting Study Group. We meet once a year. At our last meeting, I asked the chief underwriters of these companies, "How many of you are either actively implementing or studying for consideration for implementation a model more or less similar to this model?" Twenty-six of the 30 raised their hand and testified to the fact that they were moving in the direction of teleunderwriting. Enough said.

Teleunderwriting's basic concept is that the producer cannot continue to be delegated to gather information on behalf of the home office. That is incompatible with our traditional distribution system remaining viable in the 21st century. We must make salespeople more productive. You reduce this equation to the agent

identifying the presumptive buyer and asking a couple of questions, such as, "Are you alive?" "Do you intend to remain that way?" Then he or she sends in a request to buy insurance to the home office. The next time the producer is actively involved in the process is when it's over, after the client has been informed about the decision of the underwriters concerning the type, price, and amount of coverage the insurer is willing to offer based on the underwriting results. Then, the policy is made available to the agent to deliver. I think this paradigm is going to emerge, and as it emerges it's going to be good news, because it's going to speed up the process and save our traditional distribution system.

The most recent data available in my area of interest, which is clinical medicine and epidemiology, on what killed Americans in any given year is for the year 1995. These data were published, rather exhaustively, in a publication of the American Cancer Society called *CA: A Cancer Journal for Clinicians*. When I saw these data, I said, "Hallelujah." Table 1 shows the five leading causes of death in American males at ages 20–39 and at ages 40–59. In the young group, ages 20-39, there are five times more deaths because of accidents than from all forms of heart disease combined. The dominant causes of death at young ages are accidents, trauma, HIV, suicide, and homicide.

TABLE 1
LEADING CAUSES OF DEATH
U.S. MALES ONLY

| | **Ages 20–39** | **Ages 40–59** |
|---|---|---|
| No. 1 | Accidents | Heart disease |
| No. 2 | HIV | Cancer |
| No. 3 | Suicide | HIV |
| No. 4 | Homicide | Accidents |
| No. 5 | Heart disease | Cirrhosis |

If this is true, and if our real concern is the shorter duration death claims, then maybe we need to refocus how we underwrite to put the emphasis where it belongs.

Historically, most life insurance underwriting has spent 70¢ out of every dollar in the diligent search for occult heart diseases. Occult heart diseases don't make much difference to our bottom line at ages 20–39 or even maybe to age 45. They are no greater than the fifth leading cause of death. Maybe the paradigm needs to change.

Recently John Hancock announced new underwriting guidelines that have shocked some people, hopefully, in a positive way. It is embracing an alternative bodily fluid in lieu of blood, at substantial face amounts. Some old underwriting tools will disappear or at least decline. The abomination of a chest X ray is an example. I say abomination because exposing someone to ionizing radiation to create a financial arrangement makes about as much sense as having people's hands x-rayed when they apply for checking accounts.

Clinical medicine has abandoned screening chest X rays for a decade, and the insurance industry still does it. It makes one wonder what the reasoning process is. Inspection reports by street inspectors who knock on your door and medical exams by doctors (except for the oldest ages) are history. The use of physician's records is the most controversial subject of all. Many underwriters cannot handle the concept of underwriting a medical impairment without having doctor's records. Doctor's records are our albatross because they are so slow.

I foresee a time when we'll get attending physician statement (APS) reports routinely on three groups: the old, the sick, and the rich. Are these reasonable categories? I can underwrite a 50-year-old man with Type II diabetes just as well (and seven times faster) if I use a telephone personal history interview or an Internet-gathered personal history profile and a blood and urine sample, as someone can who has a physician's report.

By using these tools, I'll know for which cases I need to get a physician's report. It is about 10–15% of all the cases. For the other 85–90%, I'm going to have my policy on the street two to three weeks before the company that says it must have a physician's report has even seen the report from the recalcitrant physician.

We need to have in underwriting a paradigm shift. It must be one that allows us to underwrite things historically relegated to obligatory physician's records, using intelligent questions, augmented by bodily fluids. As we move into the future, we're going to place more and more attention, especially at younger ages, on risk-taking behaviors. Risk-taking behaviors drive mortality. They cause those glitches of excess mortality related to aviation, automobile accidents, and what have you. We know the factors that predict for individuals who are at high-risk for these kinds of outcomes. What we have to do is rearrange our underwriting so that it's focused on gathering this kind of information.

At one of my study group meetings last year, I was watching two of my underwriting executive peers sitting and talking to each other over a doughnut at the beginning of the continental breakfast. One chap said to the other, "Did you see that article in the *National Underwriter* where some company is offering a discount to geriatric applicants who own a pet? Isn't that the silliest gimmick you ever heard?"

I can show you an article in the *Journal of the American Geriatric Society*, a peer-reviewed, state-of-the-art journal, that shows that activities of daily living (ADLs) deteriorate more slowly and that normal functioning is maintained longer in geriatric adults who own large pets. I don't care what the reason is. What I care about is that the ADLs are more important to geriatric mortality than cigarette smoking or high cholesterol.

I think giving a discount on geriatric pricing of life insurance to people who own a pet is smart like a fox. I think you're going to see things like food choices, leisure time, and physical activities work their way into the equation because the information gathering will be done in a way in which it won't be influenced by parties who want to turn our heads in one direction or another. I just think there is

infinite potential there. I think you're going to see two preferred-risk models emerge here. One will be a young adult model, driven by things that correlate with excess mortality in the area of accidents, suicides, homicides, and HIV (the four leading causes of death). There is a more traditional model driven by blood chemistries at ages 40 and older. I think that's appropriate and overdue.

Mr. Dick Van Maanen: The last time I spoke at an SOA meeting, Calypte Biomedical was still awaiting FDA approval for the second part of its urine/HIV algorithm, which was the urine western blot test.

Fortunately, since June 1998 the FDA did approve the western blot for urine testing, and I'm pleased to say that since that time over 100 U.S. and Canadian companies have adopted urine-based underwriting for some portion of their business.

I'm pleased to say that they've embraced that, and I'll talk a little bit about why that might be the case. It's fair to say, first of all, that I'm not from the insurance industry per se. I'm not an actuary. I'm not an underwriter. I'm from the biomedical industry, so if I don't quite talk the talk, I hope you'll forgive me. I think that the challenges that are faced by this industry are not unlike the challenges that are faced by so many other industries. We do see in all kinds of areas intense competition and very demanding customers. The objective is to gain as much business as you can at the lowest possible cost per unit.

What are some of the challenges that are being faced right now? One challenge in the insurance industry is to reduce the turnaround time. This is something that Hank was talking about. In the process, of course, you have more satisfied customers, and hopefully fewer policies that are not taken, and since processing costs money, you can reduce the unit cost of processing. Obviously, customer satisfaction is important. It drives our business acquisition methods today. We're dealing now with a much more sophisticated customer base in almost any area that you care to mention than we did five or ten years ago. But we have a challenge in this industry, and that is to provide faster and better service at a lower cost without damaging our ability to properly underwrite these policies. We can't afford to process these applications without the appropriate vigilance and protective value. One of the objectives that is stated pretty much industry-wide now is the 72-hour policy. I believe there's a group called Task Force 72, which is looking at ways that insurance companies can, in fact, offer policies in that time frame.

In order to do this, you almost, by definition, have to involve some sort of point-of-sale activity in the underwriting process and that, at this point in time, means producer-collected sampling at the point of sale. If you require a paramedic to go out and collect a sample, it may take them 72 hours just to make contact with the proposed insured, let alone get the sample, get it to a lab, have it analyzed, and then have it reviewed by an underwriter.

There are a couple of different approaches that are available today. They are noninvasive collection that agents are capable of managing. Obviously, I'm a proponent of urine testing, but a number of these things apply to oral fluid as well.

But why urine? First of all, because it's safe. Obviously, we would never have producers collecting blood. The beauty of urine is that not only does the fluid not contain the infectious virus; it only contains the antibodies produced by the body against the virus. It's a safe fluid to deal with, and we're also eliminating the risky part of sample collection, which is usually needles, lancets, and that sort of thing.

It's a familiar process. Most of us urinate several times a day. People are familiar and somewhat comfortable with the process of providing a urine sample, and most people of insurance-buying age have provided urine samples to their physicians, and possibly to their employers. Some people have even collected their own urine samples to do home testing. It's not something new or novel to people. It's something quite familiar and well-understood. It should be a painless process. If it's not, you have other medical issues to be concerned about. Of course, it is cost-effective because you can eliminate significant costs associated with the timing. With the third-party collection, all of that money goes to the bottom line. Finally, because we have to do all of this and yet maintain a high level of protected value, it's important that you're using a sample that has a comprehensive battery of tests that are pertinent to the underwriting environment.

That test menu for urine is expanding. Of course, the traditional urinalysis has been available to us for many years, and now a new component of that is urine microalbumin, which has tremendous value in identifying possible nephropathy and cardiovascular problems resulting from diabetes.

The three cardinal tests, which everybody, or almost everybody, is interested in testing for are HIV-1, cocaine, and cotinine, which can be done on urine. Essentially, for all abused and therapeutic drugs, urine has always been the sample of choice, so there's a vast number of commercially available assays for that.

Finally, there are some emerging markers. These are markers that are either in development by biotech companies now or that are in-house efforts undertaken by the testing labs that we all use. They include some infectious diseases of interest, like hepatitis B, and hepatitis C. We know that these can be quite reliably identified in urine, and the laboratories are developing in-house methodologies for these. For alcohol use, beta hex is one of the assays being developed there. Homocysteine in urine is an independent marker of lipid profile and Alzheimer's. Now the Alzheimer's test is probably not developed to the point yet where you can use it as a screen, but it can be used as an adjunct to an on-the-spot personal evaluation. It may sway the decision one way or the other if you already have reason to suspect that somebody does have Alzheimer's. These are all urine tests that are available today or will be available soon. If taken together, these do cover the primary causes of death that Hank described in his talk, which include infectious diseases, like HIV, as well as tobacco use, abuse of therapeutic drugs, diabetes, renal and cardiac disease, and hypertension. With a single urine sample, you can cover a lot of areas of importance to the life insurance industry.

Taken all together, the protective values, the ROI, and the low break-even threshold of urine testing has already been discussed from an actuarial standpoint by Rick Bergstrom in *On the Risk*.

We have quite a large number of companies who have adopted this urine-based, underwriting approach. The only questions now that are really relevant from a decision-making process, and in the implementation of logistics perspective, are, how are you going to collect the sample? What do you do about preferred policies?

Many companies that are using urine as the only collected bodily fluid are still using paramedics to collect the samples. I think the reasoning behind this is fairly clear. It's always desirable that you use an independent and somewhat disinterested third party to collect these samples if it's possible and if it can be done cost-effectively. Of course, the downside of that is, it comes in terms of time and cost. The corollary of that argument applies to the producer. They can do the job inexpensively, generally speaking. They do it properly and in a very timely basis, but there's always the issue that is related to possible fraudulent behavior. I think every company has to decide where they stand on that issue, relative to producer-collected samples. Whether it's urine or oral fluid, the issues are the same.

One of the newer approaches that's being looked at now is sending urine collection kits directly to a proposed insured for which they can provide a sample, put it in the mail, and send it back to a lab. This is the kind of thing that can be done, for example, if you're selling insurance by direct mail, by phone, or by the Internet. The question that frequently comes up in regard to this kind of approach is, "How do you know that the proposed insured is going to send his or her own urine sample?" I think experience tells us that, by and large, the public is relatively honest, and that taking this approach, at a very low unit cost of testing, has to be better than not doing any testing at all. It's an approach that can be done very, very cost-effectively.

In terms of preferred policies, obviously there are certain policy face amounts and certain ages where you do need a more complete workup; but at least for certain ages, in certain policy amounts, it's conceivable that you can still issue a preferred policy without collecting blood. The protective value that you can get from blood versus the protective value that you can get from alternate fluids, such as urine, is closing. And as Hank mentioned, there are always new tests being developed.

Ultimately, we can say that if our objective is a 72-hour policy issue, the use of alternative fluids and point-of-sale sample collection is contributing to our achievement of that objective. Looking ahead to the 21st century, believe it or not, I do believe that a 72-minute policy might be conceivable.

Now this is where I get to abandon fact and start to speculate on what might happen in the future. I don't think that this is out of the question. I think if we look at our lives today, we look at technology today, black-box technology and so on and so forth. There is the emergence of the Internet and our ability to communicate. Our innovation in the area of biotechnology tells me that what I'm about to propose is already feasible. It's just not available yet.

Obviously, if you're going to do a 72-minute policy, you have to do it all at the point of sale. It has to be a totally electronic process. We use wireless encrypted data transfer from the location of the proposed insured. We would have to do on-the-

spot urine analysis, and it would obviously have to be easy. All of that, along with motor vehicle records, gets collated by the home office, and ultimately there is an on-the-spot policy issue. I think that can be accomplished with something like this, which is a product of my imagination. It looks alarmingly like my own laptop, and there's a reason for that. Adobe PhotoShop and Illustrator are wonderful things to have, but for the lack of a better term, I'll call this the Etherlab 2000. It is conceivable that an agent, any kind of producer, could bring this with him or her to the client site to process an application. Basically, the components, other than the printer, include this thing that looks like a laptop. To a great extent, it functions like a laptop, and it has a few extra doodads on it.

This, for example, is a card swiper that can be used to read either a driver's license or a credit card. It's the same kind of card reader that is available today for ATMs and the like. It can also capture a signature electronically. That technology is already in use in department stores.

The part of the laptop that is a CD-ROM conveyor, in this case, is where you put the sample. There is a bay with a slot for a test cartridge and a calibrator cartridge. What these cartridges consist of is the black-box technology space. A lot of different tests include traditional wet chemistries, but there are also things like so-called lab on a chip. These are silicon-based diagnostic tools that are already being used for infectious disease and biosensors. In a very small space, we can put all of the testing requirements that we would reasonably have in an underwriting situation.

Much of the chemistry analyzers that are available today have bar codes on them that contribute to the high quality of a result. The bar code basically ensures that you're using reagents and test cartridges that are of proper dating. They haven't expired. You always run these with a calibrator to make sure that the whole system is functional and that the results they're generating on the proposed insured are, in fact, accurate.

What's the process? The producer sits down with the proposed insured and they talk about policies. They select a policy type and amount that they want to apply for, using either a touch screen on the Etherlab or a keyboard. The agent will basically fill out the application. Then you call up onto the screen the informed consent document. The applicants read the informed consent document, and ,if they agree to provide a urine sample, they then sign on the signature capture pad of the Etherlab.

They provide a urine sample. They bring the void back in a cup with a lid on it that has a special dispenser so that the agent can then add two or three drops to the cartridge. Nobody ever actually touches the sample.

I'm not proposing here that the agent or the producer is going to generate test results and then look at them and say, "Oh, I see your cholesterol is too high," and so on. What the system will do is convert all of that information into raw data, which then gets sent off to the home office.

Now the agent asks for the applicant's driver's license, checks the photo, verifies the identification, and then swipes the drivers license on the card reader. He or she transmits the information to the home office mainframe computer. What is being sent, basically, is the information contained on the magnetic strip in the driver's license, the application itself, as well as the raw data from the testing that he or she has performed.

This is basically how the system would work. You go from the home or office of the proposed insured and send the data to the mainframe at the home office. It splits off the portion that's pertinent to the driving record and sends the request to the department of motor vehicles. They send it back with the appropriate driving information. Meanwhile, based on preset terms and conditions, the policy will be reviewed automatically, based on the answers that are provided in the application. Then, of course, you have communication back to the site.

It may be possible, or it may be necessary, to have some kind of medical interview, depending on which answers get flagged automatically. If that's the case, then the producer steps out of the room for confidentiality, and you're connected live with an individual from the home office who then explores the issue at hand. Then, they add their two cents' worth to the application process.

When all is said and done, the home office will render a decision and determine whether or not the policy can be issued. If so, it will determine what the rating is and what policy amount is acceptable. The proposed insured can then signify that they accept those terms and initiate payment on the spot with a credit card. The last download from the home office is basically going to be something like John Q. Public, who applied for $100,000 of coverage term insurance, and it was issued a standard rating.

The company's disposition was that it was approved at this premium level. One of the nice things about this is now that you have the information, and the applicant is still on the line, you can also tell them it's possible to buy more insurance than requested at a certain amount per $1,000. Based on the application that was submitted, the driving record, the medical history, and the laboratory information, you can then, on the spot, increase the amount of coverage. The applicant either agrees or disagrees to that, and swipes the credit card to begin the process. Once the credit card is accepted, you print out a hard copy right then and there, and you're done!

All of these things can be done with technology that exists today. While our current objective is a 72-hour policy issue, we know we must bring more of the process to the point of sale. To accomplish that, I do believe that something like this is possible. It is probably the wave of the future.

Mr. Bergstrom: I approached this a little differently. I wanted to look more from the mortality perspective. One of the first issues that I felt was important to address was, should we continue as actuaries to use historical experience to forecast the future? There are probably many of you who would like to say, "Of course not. We should not do that." But the flip side is, if we don't, what do we

use? It's kind of a paradoxical question, but I think it's a legitimate question. Should we continue to use historical experience to forecast the future?

If we look at the ever-loved, well-embraced, 1975–80 tables, I would venture another guess that many of you still use this today when pricing new products. How many do not use these somewhere in their marketplace of pricing products? About 20 people raised their hand. Does that mean by default the rest of you do? The only problem with these tables is they're 20 years old. The experience was of an exposure period that was prior to laboratory testing being commonplace. The labs existed back in the mid-to-late 1970s, but they weren't being utilized until insurance amounts of $1 million or more were applied for. It just wasn't considered significant underwriting information to lab-test. In addition, the 1975–80 basic tables do not have smoker-distinct tables. We have created some delineation in the interim. We've made some decisions about how to do that, but the experience is not that way.

Back then there were marginally incredible female experiences. Further, there was very little data over issue-age 70. In fact, I don't believe the original tables had issue-age experience listed over age 70. I've seen some extensions since then. We have tried to, again, take this table and move it in the direction that we've wanted to go. There was certainly no AIDS experience back in 1975–80, and just the construction of the tables required some discontinuities to be smoothed out at the select durations as they ran into ultimate. We have loved this table and used it, but I think it's time to move on. Where do we go?

The 1985-90 tables were published last year. Published is not quite the right word, but they are on the SOA Web site. The data are ten years more recent, and certainly there is a lot more business that was lab-tested, at least in the early durations. The tables do have more credible female experience, but like its counterpart, the 1975-80 tables, there's still no smoker/nonsmoker experience. There are some AIDS claims coming through. How many of you looked seriously at the 1985-90 tables? Did you notice anything unusual? If you don't look at the Q's (mortality rates) but instead look at the mortality ratios, 1985–90 to 1975–80, did you notice anything strange anywhere?

One of the things I noticed is there tends to be, at least for younger males, a bubble in mortality as you go through the middle durations. It is between about six and 15 at the early issue ages. Clearly, in my mind, it's probably an AIDS issue. In fact, there are certain Q's in 1985–90 that actually are higher than they are in 1975–80, which doesn't make any real sense. We think we know why. The question is, we have the table, and it's an experience table. It's designed to be an experience table. Should we use that going out into the future? Now that we are generally lab testing for HIV, should we want to use a table that has this bubble or this wave in it?

Finally, nobody seems to quite know what the real select period is. The table was graduated on a 15-year select period. We've generally expected 15 years to be the appropriate number. In reality, it's longer than that, at least at certain ages. My sense is that it's probably shorter at the very young ages and the very old ages, but

longer in the middle ages. There might be a 25-year select period at the middle issue ages. That's 1985–90. Where do we go from here if we don't use that?

Probably in spring 2000, the new 1990-95 tables will be published. They will certainly have tobacco-distinct experience for the first time; and they will certainly have more recent experience. My sense is that there will still be an influence of AIDS claims in the pre-lab-testing underwritten era, of which there is credible experience, so we will still have a hump or a bubble to deal with. Bragg certainly has a set of published tables, if you want to use his 1997 experience. Many larger companies probably have their own internal studies and tables, and maybe there are some other sources, like reinsurers, for example.

The question I'm really asking is, in any event, does one size fit all? Will one size fit all in the future? Can we be expected to take a table and use it in all of our collective markets? I think the answer really is no, but I'm not sure what the right answer is. What I'm leading up to is, before we decide what to use in the 21st century and before I get into some of my underwriting strategies, I think there needs to be some more research done. I think we need to look at, for example, causes of death. What are people dying of? Why is the insured population dying and at what ages are they dying?

I think we need to talk with our underwriters, our medical directors, and our laboratories to see if there are ways that we can help identify, or at least look into, the predisposition of people having certain impairments that will eventually cause a premature death, based on the various markers that they have in urine and blood and other things. Can you understand the relativeness of this?

I think we need to consider talking to our medical directors to discuss possible therapies or cures for things that cause people to die now. By doing that, we might be able to actually reduce the mortality or some early duration mortality in our new tables that we use. I think we need to look at claims. Most companies don't do a lot of decent claims analysis. The claims department is the last department anyone wants to talk to. They write the checks, you know? But I think in the early durations, in particular, we should be able to find out what causes a premature death. I have looked at a number of companies' experience. Experience would be really good in the first two years during the incontestable period, but at duration three the mortality jumps up about threefold and then settles back down. Why is that? What are we missing in the underwriting process to cause that?

In any event, we need more research into ways in which we can modify whatever table it is that we choose to use.

Preferred proliferation. We didn't even have sex-distinct pricing 40 years ago, and then we finally did. We called it a three-year setback for females. Then in the mid-1970s, the NAIC allowed us a six-year setback for females. We got into tobacco-based pricing in the late 1970s. Today we're into preferred pricing and that seems to be quite a proliferation to me at least. There seems to be no end, at least as to how finely we want to choose to dice and slice the mortality table. Is it wishful thinking or is it insanity?

Let's assume it's not insanity and see where something like this might lead us. Let's assume that we will continue to proliferate with the preferred tables. What might need to happen in order to do that? One thing would be a risk classification system, which would now be based upon the underwriting protocols employed. It would not be based on the traditional paramedic, non-medical, and medical. Instead it would be based on pricing and mortality and the evidence that's actually presented in the application. The evidence would not just be squeezed into an existing mortality table.

I would suggest that substandard issues, where substandard is anything not issued as a standard, incidentally, or even as applied for, would be unique to an applicant's personal profile. An appliance would not necessarily have a Table B rating, for example. Instead, we would say, "This is your rate." Table ratings would likely disappear. If table ratings disappeared from the substandard perspective, the preferred risk classifications would also disappear. We would end up with a rate for your personal risk profile. The traditional, probably now archaic, paradigm of medical, paramedical, and nonmedical would cease to exist.

The new protocol combinations would dictate the underlying mortality assumptions. What I mean by that is, that underwriters don't use the variety of underwriting tools that they have, like applications, medical histories, fluid tests, paramedical and personal history exams, medications, the APS, and motor vehicle records. They're not necessarily all supplied on any given application, but you can combine these together in different ways to give you different pieces of evidence for specific markets. How you put this together in packages is going to determine the turnaround time and your mortality assumptions.

Let's discuss substandard. This is interesting because I'm really a proponent of trying to issue as much business as we can. I really think we can issue business to people who are highly impaired. I don't think we do enough to that market, and yet people say, "Well, it's a small market. About 4-6% of the people are issued substandard or they are declined." It's really closer to about 15% because many people who know their real health situation don't even bother to apply. I think one thing that we need to do is to look more closely at our highly impaired substandard market. On the flip side, you have three preferred classes in your policy portfolio right now. An applicant who applies for "Superman-preferred," but only gets preferred will think he or she is substandard. If a policy is not issued as applied for, that individual thinks he or she is substandard. Why not just eliminate it and come up with your own personal rate?

How would we accomplish something like this? Clearly, it's not going to happen on January 1, 2000. It would be a slow process if we choose to even go this route. It would take years to really develop credible mortality experience; of course, that never stops actuaries from coming up with assumptions, I might add. But clearly, it would take many years to validate those assumptions. We would need to do a lot more mortality research.

Earlier I asked, why do people die? How do we use these markers to help us determine premature mortality? What we're really doing is "cubiclizing" mortality.

We would be turning life insurance more into casualty insurance. Is that a direction we want to go? I don't know. Is that a direction we're kind of heading? Yes, it is. At what point will we stop again? I don't know. But these are the issues I think we need to think about.

We need better and more cooperative experience studies to get the job done. Would there be roadblocks going on here? Yes! Time is one of the big roadblocks! Would the regulators have anything to say about what we're doing? No! They may be very curious though, right?

Would we have a problem with confidentiality of medical records? Likely. The health insurance industry has been battling that for a long time. Yet there's a wealth of information out there on databases. Would we have access to that? And ready access to that? I don't know. But it's an issue we'd have to address.

Finally, we'd have to have a public and agent acceptance of the changing paradigm of life insurance into a more casualty approach. But what we do have going for us is technology. As Dick says, the technology does exist. There are ways to get the information fast. For example, there is the ease of recording APS information. The medical community is probably one of the bigger hang-ups of this because they have ways to create an electronic file of an APS that we could easily get access to, and yet they choose not to do it for whatever reason. Maybe 5% of the doctors in the country do this electronically even though the preprocess does exist. We could capture it quickly.

If you're the type of company that prefers to go into new markets without stretching yourself too thin, there are many outsource-type vendors out there that can do underwriting, policy issue, and all those types of things. The real advantage of outsourcing, incidentally, is that it is a variable cost: you don't have to create this huge infrastructure of new administrative situations. You don't have overhead. You pay for what you use. Of course, the vendors would have me say that outsourcing is faster, and to a degree, it is. Some of the outsourcers getting APS, for example, are really tenacious. Underwriters don't like to be tenacious. It may take four to six weeks to get an APS in a home-office environment, but an outsourcer is not going to let that happen.

Let's discuss equity considerations. I'm just trying to decide how we would handle cash values and things like that if we had individual policy premiums for everybody. I don't know. It's a question that we'd have to address. I think it probably is a question that we can answer satisfactorily. Finally, would this be a marketing enhancement? Agents love new stuff. We'd have to teach them how to do it right, of course, and that would be both an underwriting scenario and an illustration scenario. We'd have to teach them how to do that. I think it initially would be a marketing enhancement. Look at what has happened to the preferred class. Has that been a real boon to some agents? You bet!

From the Floor: First, Rick's presupposition was correct about the upcoming 1990–95 basic tables and issue ages 20-plus. In later durations, there are evidence of AIDS cases. The experience actually goes above 100% of the 1975–80

tables; that is the experience. It will be left in the tables, and people should be aware of it if they want to use that table.

The question that I have is this: What is the relative cost and breadth of tests available between urine and dried blood-spot testing?

Mr. George: Dried blood-spot testing has some enormous limitations. In fact, if I may be so bold as to suggest that the day when it ceases to be a factor in this business, I shall throw a party for everyone. The dried blood spot came into this business some years ago as an alternative to forearm venipuncture. An entrepreneur, long gone from the business, held that it was a faster, easier entity. It's none of those things. It is not necessarily faster. It's not less painful. It collects a very modest sample, in my view; it is one on which we can do only a very limited number of tests. It's its own self-limiting force. The dried blood spot was an innovation for the hour, from a marketing point of view. It's simply overwhelmed by either traditional forearm venipuncture-collected blood samples, which are state-of-the-art, or by urine sample or oral fluid sample. It is dead on the vine when competing with urine or oral fluid or traditional blood collection. That's good news for mankind.

Mr. Bergstrom: The cost of the collection has to be done with a paramedic.

Mr. George: Right. You can't have an agent doing dried blood samples or it could be disastrous.

From the Floor: I'm aware that more urine tests have been approved. Are there any results that dried blood spots can give you that the current urine sample can't give you?

Mr. George: In a theoretical sense, you can do anything on dried blood that you can do on a traditionally collected forearm venipuncture liquid sample. Methodologically speaking, you can do just about everything. The problem you've got, though, is that it's very technical; you have a very finite amount of analyte to study. In many cases, you need more analyte than what you have available because of the inherent drawback to dried blood spots. Ask how often clinical medicine uses the dried blood collection technique? The answer is only when it's impractical to collect blood in the traditional manner. Nobody on the clinical side would ever think of using that technology in lieu of the more abundant amount of serum that you collect when you draw traditional blood samples.

Now one of the nice things about urine is that you have an *n plus 1* amount of analytes. That would apply to all but those with end-stage renal disease. It's a no-brainer. The more analyte, the more fluid, and the more you can do. The less fluid, the less analyte, and the less you can do. The dried blood spot has in itself, the seeds of its own destruction, in my opinion.

From the Floor: This question is for Hank. Your references to ADLs and the geriatric habit of owning a pet reminded me of an article that I read some years ago. Actually, it was a clinical study entitled, "Type A Behavior Patterns and Your

Heart." I recall reading that and thinking that there is probably a way to design a questionnaire or an interview that would profile a person's behavior. If you are interested in that at age 40 and older, you could probably do a noninvasive interview that would identify whether a person was predisposed for heart disease. Are you familiar with that? Has a time come to consider that or is it just a fairy tale?

Mr. George: On behalf of all Type A's, let me say that we have identified that individual, and our people are following him day and night. They were out in Phoenix after that, and they have good data that suggests that there is a subset of A's, who have some pathology, but you know the type. If you're into typing, a bad type was identified in Belgium very recently as a Type B, a depressive contour personality.

The real people at risk are the people who have this sort of latent, endogenous type of depressed Alpha. We Type A's will dance on their graves. We have good data to support that conclusion. I agree with you. Having said that, I've defended my genre and my subpopulation. There's no end to what we can gather that's epidemiologically valid in this domain. We haven't done it historically because we've been sent elsewhere, and I think you're going to find a huge shift. I pray for that day. I just reviewed an article published in one of the leading medical journals in the world. We looked at a large geriatric population that was followed for five years. It looked at traditional markers of survival. The ADLs were the best predictor of five-year mortality in this cohort. Smoking was equivocal. Cholesterol was equivocal. Everything you've been taught doesn't pan out when all the smokers who were going to die by the time they're 65 don't die. The smokers who live past that age are the ones who drive us nuts; they are 102 and smoke three packs a day. What we're looking at now is a whole new genre of risk factors. We need to orient ourselves toward that because we're doing it wrong.

Mr. Mel Stein: I think some companies, a relative limited number at this point, have announced plans to have products available at very high issue ages. Do you think, based on the current state of the science, that there is a maximum issue age for product that could be prudently underwritten effectively?

Mr. George: Let me say it to you this way. There are certainly some companies that will issue life insurance policies up to age 95. They tend to be single premium and they cost about $999 per $1,000.

Mr. Van Maanen: But you get the tax benefit.

Mr. George: We always look at the six-month non-renewable term products.

Mr. Van Maanen: If you're asking whether there is underwriting information out there, then the answer is yes there is. Is there mortality information out there? No, there really isn't. I've seen many different extrapolations by different groups and they're not very convergent. The difference between the high and low is quite large. At this point, I think it becomes really more of an underwriter's educated

guess at where it might be. But is there a limit? No. There probably isn't, other than the practical limit of having a mature policy at age 100.

Mr. Bergstrom: My assignment is to read the world literature and translate it for underwriters. There are more and more articles published in the geriatric literature that are separating populations into, in actuarial terms, decennial age groups. I'm not sure what they mean. You're seeing more subsets. The study I just told you about was cohorted at 85 to 90. There is more data that are specific to the very, very old, and I'm going to say that I think anything is possible. I don't think this has been fully explored.

Mr. Van Maanen: There are certainly population data and so forth, but they are not insured data.

Mr. Bergstrom: Therefore, we have to be creative. That's why we have consultants.

Mr. Andrew D. Smith: One thing I thought that was really interesting was your emphasis on the different things you look at in younger ages versus older ages. In particular, we are looking at more immediate risk factors in the next five years or so. I wonder, based on that, if you might also recommend perhaps that there be less difference than there is now between underwriting of permanent versus term policies. In the first few years, that amount of risk is going to be pretty similar. Since you're giving a special emphasis, more than is given now on the immediate future after a policy is issued, that ought to be looked at. There really shouldn't be that much difference between them.

Mr. Van Maanen: That's an interesting question and I think the real answer is probably yes. I don't think companies are doing that because as we've priced term policies in the last decade they have gotten to the point where we're giving our ten-year guarantees. We virtually expect people to lapse after that. If we really wanted to put that into our underwriting protocol, we could do that, but I would not suggest that. I would say that the real answer is that they should be underwritten similarly, unless you had just a 10-year product period.

Mr. Bergstrom: I think that was a yes.

Mr. Jay M. Jaffe: Let's look at the flip side of this. There's more and more opportunity for customers and individuals to know about themselves and their health. All of the techniques that you've discussed here can be made available to the customers first. Can you talk about that problem?

Mr. Van Maanen: If you walk into any pharmacy today, you'll see home tests for many things. Is there going to be, for example, a home test to predict your own mortality? A home test to predict your own likelihood of getting a critical illness? What is the impact of this technology, which is virtually the same technology that you're talking about here, on the underwriting process? What impact might that have on the insurance market? Perhaps you haven't thought about it from that direction, and that's just as good an answer.

Mr. George: Home tests are escalating. Many of these are not really home tests. A home test is when you get the results at home. Home collection is when you urinate or spit or bleed at home and then send it in and somebody calls you. Home testing is still in its infant stages for most modalities. However, it is going to accelerate in the future. Whether it's going to be something universal that gives you some sort of a marker of your risk of dying that transcends all the causes of death is somewhat more problematic. Because of our work in the area of telomerase in cancer, within the next five or ten years we might see a home test for generalized susceptibility to dying of a malignant process. I can foresee that because cancer is my area of great interest and specialty. But beyond that, it's problematic, but I do think that we will move more and more in that direction, and that will facilitate the process.

I'm also interested in this whole area of antioxidants and alternative medicine therapies. I'm meeting with a chap who represents the most successful company in the world in developing strategies for identifying people who have an imbalance in oxygen-free radicals versus host-defense mechanisms. I think this is going to be a huge part of what we do in the 21st century. I hope I live long enough to see a day when we will measure serum or urine-based antioxidants as markers for risk in lieu of what we traditionally measure today. I foresee that day coming, and I welcome it because we can all control our serum antioxidant levels.

Mr. Van Maanen: What goes into home testing and even home collection? I think the stance taken by the regulators at this point in time is quite paternalistic in terms of what information consumers are allowed to generate themselves at home. There's a reason why you can't do a home HIV test. You can do the collection, but not the test itself. That's because the public can't handle it alone. It's not because the technology doesn't exist. There are rapid HIV antibody tests that are very simple. They will never be allowed on the market, and it is not because they're not reliable. It is not because some people might do the test wrong, but because the Food and Drug Administration (FDA) doesn't believe that we should be given the opportunity to have that information ourselves. We can only get that through medical intermediaries, such as a physician. My personal sense is that when it comes to really important medical information that might give you some sort of life-span projection, I don't think you're ever going to see an on-the-shelf test. I think you're always going to have to go through some qualified intermediary. While it may not be true that people, for example, who get an HIV diagnosis jump off a bridge, it's one of the myths that keeps HIV testing where it is today, which is, in the traditional laboratory medical environment. I personally don't see the day when consumers are likely to know more about themselves than we can learn very simply through some of the methods we've described today.