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TRENDS IN UNDERWRITING STANDARDS AND MORTALITY EXPERIENCE

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Panelists: GARY Y. LEE*
JAMES W. PILGRIM
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Recorder: MARK A. DAVIS

- Discussion of emerging trends in underwriting and their impact on mortality experience:
  - -- Preferred risk -- classification and underwriting
  - -- Lab testing -- impact on risk selection
  - -- Reinsurance perspective

MR. MARK A. DAVIS: We're all familiar with the AIDS threat and our session, although it won't specifically address AIDS, will certainly reflect that concern. In addition, I think the general profit margin squeeze experienced by almost all insurers has led to a critical assessment of all aspects of operations. Thus, underwriting and mortality experience seem to be a bit more at the forefront than maybe they were a few years ago.

Our first panelist is Gary Lee. Gary is the Vice President of Underwriting at Winterthur Life Reinsurance in Dallas, Texas. Gary has responsibility for coordinating Winterthur's life reinsurance activities in North America. Prior to joining Winterthur, Gary was with North American Re for 10 years, and that is where the bulk of his training came from.

MR. GARY Y. LEE: I would like to first give a brief underwriting overview of the last 20 years followed by my comments on preferred risk classification, preferred risk underwriting and my conclusions based upon my observations over the past 20 years. In the 1970s, the life insurance industry possessed certain features which enabled our companies to produce profits much more easily than in the current market environment. With fairly rigid life plans, such as conventional whole life and higher premium term, the industry was blessed with high profit margins and conservative underwriting. The competition was present, but competition was not savage. Replacement activity had not yet become a problem. The insurance consumer was not as sophisticated as the consumer of today, and purchased insurance primarily for protection purposes.

Towards the end of that decade and extending into the early 1980s the increasing level of sophistication developed by the American consumer coupled with structural changes in our economy transformed our industry. The consumer's emphasis began to shift away from protection towards the investment aspects of the products that we have to offer. Our markets became increasingly segmented. Different subgroups emerged, with different interests and different needs. Our customers were no longer satisfied with

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earning 4% on their money. Banks and savings and loans began paying much more competitive interest rates to attract capital. Our industry responded with new vehicles like universal life, interest-sensitive life and low-cost term plans. Tough competition between companies began to heat up which produced downward pressure on premium rates and lower profit margins. During that same time period we began to see liberalization of underwriting standards in certain areas as a result of improvements in medical treatment for various impairments. In the case of hypertension, liberalization was amply justified. In other areas, underwriting leniency may not have been well warranted. A good example of this was a trend toward liberalizing build tables. A simple comparison of some of the build tables that are currently in use today with the summary of experience found in the Society's 1979 build study will illustrate my point.

Let's talk a little bit about reinsurance. The fierce competition between reinsurers in the early 1980s did little to reverse the trend of continued liberalization in the underwriting arena. As a result of aggressive underwriting combined with aggressive pricing, several reinsurance operations suffered heavy losses. Many are still attempting to restore profitability while others are considering exiting the business altogether. Throughout this entire time period, mortality continued to improve. In reviewing the 1965-70 and 1975-80 Intercompany Basic Mortality Tables, the trend is clearly for improving mortality. But have you considered the possibility that improved mortality and issue-amount inflation may have partially disguised the combined effect on profit margins from reduced mortality charges and liberal underwriting?

We have begun a new decade. Profit margins are thinner than ever. Price competition is stronger than ever before. Consumers are smarter. Competition is growing from other sectors of the financial services industry. Disintermediation becomes a real threat if interest rates should drop or if interest rates should rise. I think a good example to illustrate my point is an article from the October 11, 1990 edition of *The New York Times*. In a front-page article entitled, "Life Insurers Also Weakened by Downturn in Real Estate," the following passage was included. "Until the last decade, life insurance was the most predictable of financial industries. Much premium income was invested in bonds, mortgages and real estate, all of which were susceptible to fluctuations in value. But the death benefits and minimum investment returns promised to policyholders were based on such conservative assumptions, that honestly managed insurance companies ran little risk of being unable to pay their obligations." Some questions I ask you to consider are: Do the current market rates for preferred products justify liberal underwriting? Will the current pricing assumptions for preferred products considering AIDS, enhanced policy options, selective lapsation and so on, provide an adequate return so that companies can meet obligations to policyholders?

Let me now turn back to underwriting. For the purpose of my discussion, I would like to make a distinction between the specific task of risk classification and the broader functional responsibility of underwriting. Risk classification is a process by which potential insureds are separated into relatively homogenous groups due to certain characteristics possessed by those risks. These risks are assumed to have similar probabilities of loss and therefore are charged a similar premium for insurance. Originally, all risks were either standard or rated. We then, as an industry, developed a smoker/nonsmoker split of the standard class. From this split the preferred risk class

evolved. Some companies at this point are even going further, splitting that end of the spectrum into preferred nonsmoker/nonsmoker/preferred smoker/smoker.

Let us now try and define a preferred risk. Rather than reinvent the wheel, I took the liberty of reviewing published literature on this topic. During the past year, two articles concerning preferred risks were published in *On The Risk*, the Journal of the Academy of Life Underwriting. Both were written by respected, professional, reinsurance underwriters. Both were fine articles on the selection criteria for classifying and underwriting the preferred risk. But the criteria for defining a preferred risk, although similar, were different for the two companies. It is safe to say the industry as a whole at this point in time does not have a consistent standardized definition of a preferred risk.

One question we might ask ourselves is, do we need a standardized definition of preferred? I will come back to this question later. Allow me now to shift your focus away from definitional issues towards a more critical issue.

Life underwriters are students of medical literature. We understand all too well the risk factors for an endless number of impairments for risk classification purposes. We also understand reasonably well what constitutes a preferred risk. But where underwriters may need your help is in effecting a change of focus with respect to what is truly important in identifying and classifying the preferred risk. This process began in the early 1980s when Federal Kemper instituted the routine use of blood profiles in the underwriting process. This event will ultimately be recognized as one of underwriting's biggest contributions towards increased profitability in our industry.

Dr. Richard Braun, Medical Director for Lincoln National Life, in an article in the latest issue of *On The Risk*, defined the fundamental benefit of a good screening test as its ability to achieve mortality savings. Hank George of Home Office Reference Laboratory (HORL) has been advocating the benefits of blood testing for many years. Dr. Gary Graham of NIS delivered the same message to the Society along with Hank at the New Orleans meeting in 1985. Richard Bergstrom of Milliman & Robertson has produced a fine report on the protective value of testing. If you haven't read it yet, I suggest that you do. My fellow panelist, Gregg Sadler from Home Office Reference Laboratory will address this topic in more depth later in this session. Clearly, more research needs to be done in the area of quantifying mortality savings from specific individual risk selection criteria.

Returning to my earlier question, do we need a standardized definition of preferred? I would suggest to you today, the answer is no. The process would probably take too long and I'd be surprised if a consensus could ever be reached among companies. A preferred risk is not the same for every company competing in the preferred marketplace due to different distribution systems, different target markets, spread of risk and most importantly, quality of underwriting. A preferred risk program must be custom tailored to fit each company that utilizes selection criteria to produce the greatest mortality savings per dollar spent.

In the absence of a widely accepted definition of preferred, and a lack of research on mortality savings from various testing protocols, it is critical for companies to develop

excellent internal communications and coordination between pricing, underwriting, marketing and management. Do underwriters know what level of mortality the actuary expects to achieve? Are they aware of the percentage of nonsmokers versus smokers the actuary assumes in pricing?

Earlier I made a distinction between the task of risk classification and the broader function of underwriting. The underwriter today is faced with many pressures from different sources. The pressure to produce favorable mortality results, satisfy exceptional producers, improve productivity and efficiency and reduce expenditures can be overwhelming. Let us not forget about dealing with reinsurers, keeping abreast of the latest medical information, training staff, and so on. What about travel? Management meetings? Industry functions? My point is that the underwriting function is much more than risk classification.

To illustrate some of the pressures that underwriters face, I'd like to give an example from my experience. Several years ago, a vice president of underwriting at a rather large company called me looking for capacity on an $11 million life. The woman was 68 years old and had suffered a stroke sometime within the past three to five years. I say sometime because on a routine CAT scan an abnormality was detected within her skull. There was no follow-up done, there was no treatment for it and my first concern was that nobody gets a routine CAT scan at the age of 68. Something was going on and I had to find out. Ordinarily, if an underwriter couldn't find out the full facts of a case, he or she would decline it. In this particular case, and with the particular pressure we were facing in that market, my medical director and I decided that we could rate the case Class F, 250% mortality. So we came from a declination down to Table 6, 250% mortality. My client complained about that. He said his agent could only place a Table 3, 175% mortality. So now we were down from a decline to a Table 3. I refused to go along. The client eventually filled the line -- $11 million at Table 3 with other reinsurers. Given the current level of market rates for preferred products can we afford this type of erosion in underwriting standards? And all of these pressures that I have described to you, can and often do result in erosion of underwriting standards.

I've raised several questions for which easy answers are not available. In conclusion I would like to make the following two statements. One, in the absence of a widely accepted definition of a preferred risk, the situation itself is not negative. In a competitive marketplace, differences of opinion with respect to defining the preferred risk may be fruitful. Companies that recognize the need for better internal communications between pricing, underwriting, marketing and management, will ultimately prosper. My second point, and you're probably expecting this from me, is that prudent underwriting combined with prudent pricing must maximize the use of appropriate testing protocol. Our individual companies must design requirement schedules and testing limits that produce maximum mortality savings for their respective markets. This ultimately will create a sustainable, competitive edge in the years to come.

MR. DAVIS: Our next panelist is Gregg Sadler. Gregg is the Executive Vice President of Administration at Home Office Reference Laboratory. Previously he held various risk-appraisal positions in his 16-year career at BMA. Gregg is a frequent speaker and

has published many articles on underwriting and lab testing including four which were published in the 1988 and 1989 *Record.*

MR. GREGG R. SADLER: I'm going to address several different topics on the subject of laboratory testing. There are a number of new things that have come about in the last three or four months and by necessity I'm going to have to move quickly.

First, I will review the kinds of things we test for at HORL because there are some who may not be as familiar with the items that are included in the blood and urine testing now performed in the insurance industry. On the blood side we test for HIV antibodies. We also do a complete lipid profile -- cholesterol, high-density lipoprotein (HDL), alpha lipoprotein, etc. Testing is also done for a number of different liver enzymes that can indicate the presence of liver disorders, including alcohol abuse. We also give the glucose diabetic tests, fructosamine, hemoglobin, and A_1C. Lastly, we give renal function tests and prostate-specific antigen (PSA) which is a cancer marker that has been introduced recently.

HIV antibody testing is now available on urine as well. The cocaine and nicotine screens are also done on urine. There are some other tests on urine that are helpful to underwriters and medical directors in certain situations.

Chart 1 gives some statistics on cocaine testing. I thought you might be interested in some of the HORL results for the entire insurance industry. These are the number of positive cocaine results per 1,000 tests we ran last year. These are for ages 20-40 only and as you can see the top three are Puerto Rico and the District of Columbia followed fairly closely by New York. It's interesting to me that Hawaii and Alaska continue to rank high on the list in each quarter. In fact, each month that I look Hawaii and Alaska are up towards the top. Overall, at these ages our U.S. total is about 8.5 positives per 1,000 on cocaine.

I put together Table 1 to give you some insights on where the cocaine hits come from by age and geographic area. There are some companies that have different cocaine testing limits for different geographic areas and different ages. This might be useful information in setting some of those kinds of testing requirements. The high-, medium-, and low-incidence geographic areas are basically my own choosing (see Table 2). It's interesting to note that the high-incidence areas ages 40-49 had 4.3 hits per 1,000 which is almost as high as the age 20-29 group in the low-incidence states.

TABLE 1
1989 HORL Cocaine Positives by Age and Geographic Area

	Age Group				
Geographic Area	20-29	30-39	40-49	50-59	All Ages
High Incidence	1.37%	0.97%	0.43%	0.16%	0.78%
Medium Incidence	0.88	0.62	0.24	0.07	0.46
Low Incidence	0.54	0.29	0.12	0.04	0.24
U.S. Total	1.08%	0.74%	0.31%	0.10%	0.58%

1989 HORL Results

Cocaine Positives per 1,000 Tests
Ages 20 - 39

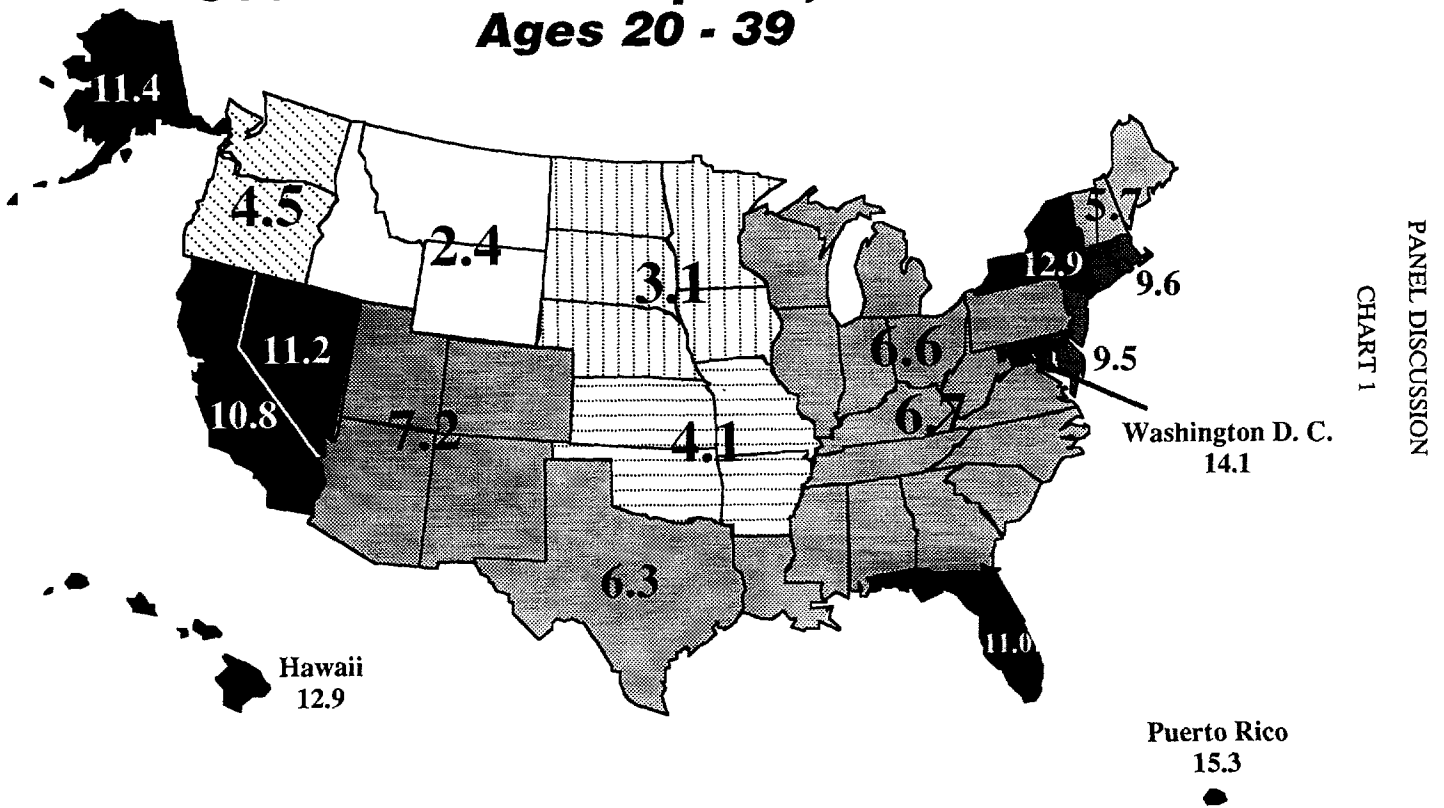


TABLE 2

1989 HORL Cocaine Positives

High-Incidence Areas (0.60% and greater)			
Alaska	D.C.	Illinois	New Jersey
California	Florida	Maryland	New York
Connecticut	Hawaii	Nevada	Puerto Rico
Medium-Incidence Areas (0.35 - 0.59%)			
Alabama	Maine	New Mexico	South Carolina
Arizona	Massachusetts	North Carolina	Tennessee
Colorado	Michigan	Ohio	Texas
Delaware	Missouri	Pennsylvania	Vermont
Georgia	New Hampshire	Rhode Island	Virginia
Louisiana			
Low-Incidence Areas (under 0.35%)			
Arkansas	Kentucky	North Dakota	Washington
Idaho	Minnesota	Oklahoma	West Virginia
Indiana	Mississippi	Oregon	Wisconsin
Iowa	Montana	South Dakota	Wyoming
Kansas	Nebraska	Utah	

Before I end the topic of drug testing, just a quick word on methamphetamine. Most of you probably read about the methamphetamine problem that has started in Hawaii and California and is moving eastward across the country. It may be the drug of the 1990s, but it's still too early to tell. I don't have a lot of experience with it but it apparently has several advantages over cocaine. It's cheaper and it can be produced in a basement. It doesn't have to be flown up from South and Central America to import it into the country. It also has a longer high than cocaine which has some obvious advantages if you're a user.

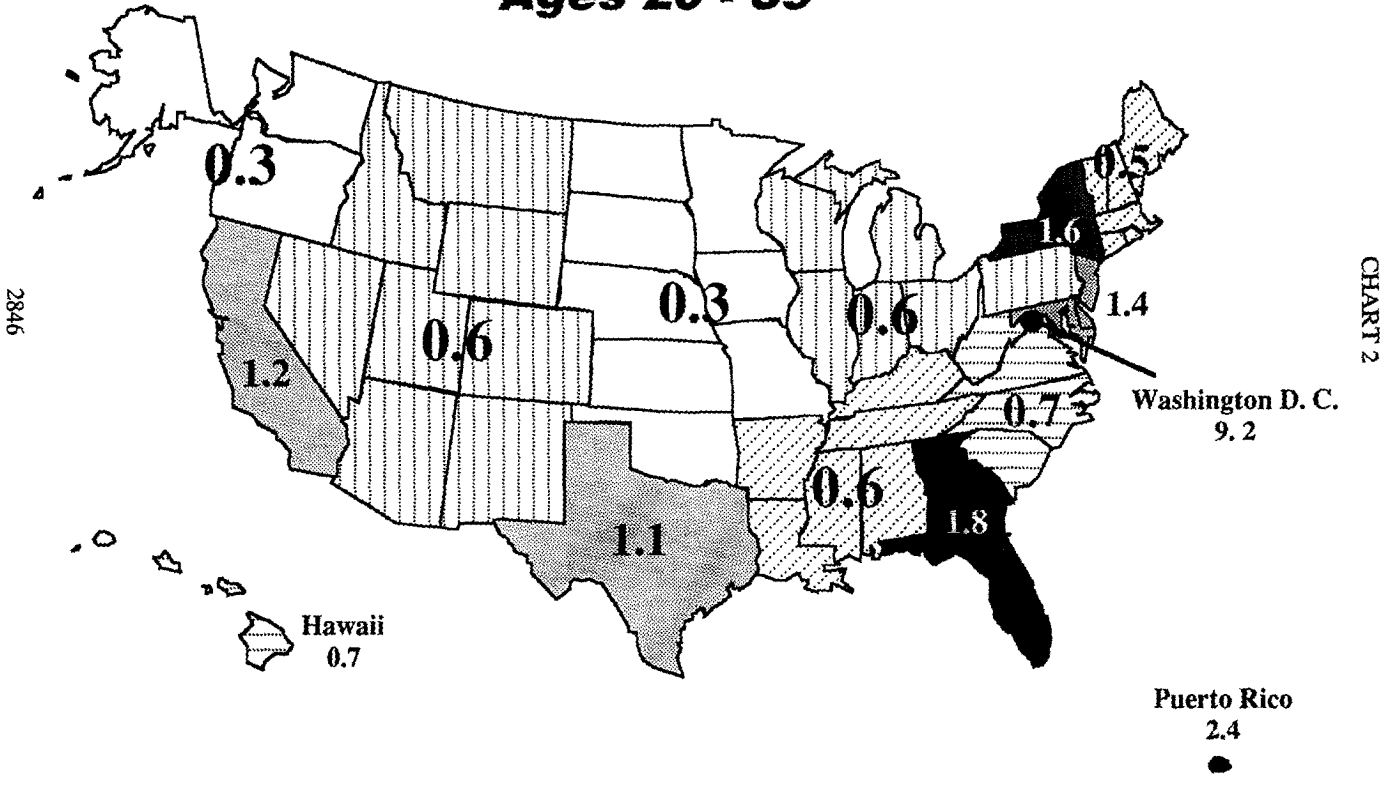
It may also have some additional mortality consequences or morbidity consequences if you're an insurance company. We tested a little over 100,000 applicants at random for methamphetamine just over the last couple of months at our company and got 96 positives, which is about .09%, which is still pretty low compared to the cocaine positives we're getting. This approximately equals the HIV positives that we get. But, if you look at only California and some of the West Coast areas in the study, the incidence rate is significantly higher than that.

Chart 2 shows statistics on HIV antibody results. Again, D.C. and Puerto Rico lead the list on positives per 1,000 tests. Florida actually edges New York for third and California is really a distant eighth and really isn't that much higher than the overall U.S. average of 1.0 positive per thousand. California is a big state and probably represents a better cross-section of the country than we might think. In addition, HIV antibody testing was banned in California for insurance purposes prior to January 1, 1989. So if you knew you were positive and wanted to get some insurance, you had several years to

1989 HORL Results

HIV Antibody Positives per 1,000 Tests

Ages 20 - 39



get a lot of insurance before 1989, and so possibly that's another reason why the positives we're seeing are a little bit less in California than might be expected. Like cocaine, a fairly similar pattern exists although obviously there are a lot less HIV positives than cocaine positives.

Table 3 represents one of the most powerful tools in showing the value of HIV antibody testing. The middle column represents HORL's 1989 incidence rate per 1,000 tests. Overall, we averaged a little less than one incident per 1,000 tests. If any of you have read the Milliman & Robertson Protective Value Study, you know there's tremendous value in this number. But there's even more value because if you look at an estimate of the HIV incidence in the insurance-buying public, there are several times as many HIV-positive individuals out there who choose not to purchase insurance or not to submit to testing because the test is there. The sentinel effect is one that's very valuable in HIV testing. That's the good news. The bad news is these individuals may be the ones applying under the testing limit of a lot of companies. I would love to know, but by definition can't know, the HIV-positive rate on untested business.

TABLE 3

HIV Antibody Positives by Age

Ages	1989 HORL Incidence Rate	Estimated HIV Positives in Insurance-Buying Public (Milliman & Robertson Study, August 1989)*
20-29	0.10%	0.50%
30-39	0.10	0.40
40-49	0.07	0.29
50-59	0.05	0.17
All Ages	0.08	

* The major reason these estimates are higher than HORL's actual experience is that most applicants who suspect they are HIV-infected would likely apply for amounts of insurance that would not require an HIV antibody test.

Table 4 shows the HIV antibody positives by year from HORL testing. The positives on blood serum have dropped each year. In fact, 1986 was even higher than the .14% for 1987. I think this illustrates that the people we have reason to believe are positive either don't apply for insurance or apply for insurance below the testing limit. The blood positives actually picked up a bit the first six months of 1990, but it's been running about .09% for some time. I suspect, and my underwriting peers around the industry concur, the positives we're seeing now on blood serum for the most part really don't know they're positive. And I think that the urine positives bear out that fact. Since we've introduced HIV antibody testing on urine, the incidence rate is almost double that of blood. I suspect one of the reasons is there are individuals who don't realize the test is being done on urine yet, and that may go a long way in explaining why the urine incidence rate is higher than the blood. It wouldn't surprise me to see the urine incidence rate go down over time as urine testing becomes more common.

TABLE 4

HORL
Positive HIV Antibody Percentages

	Blood	Urine
1987	0.14%	--
1988	0.09	--
1989	0.08	--
1990 (Thru July)	0.09	0.16%

Tables 5-7 are extracted from the M&R study that Gary talked about earlier. They show the present value of mortality savings from an underwriting perspective. For ages 30 to 39, you can see on Table 5 the value of urine testing alone. A paramedical exam and a urine test have a $64 present value. A cocaine test on the urine equals $18 in mortality savings, and the HIV antibody test on urine equals mortality savings of $152. So there is all but $52 of the $286 in protective value. The difference in cost between the blood and urine testing, if you added up the difference in the paramedical, the lab, etc., may be $10-15, which could be a significant savings. What you're giving up at these ages is about $52. So in setting your limit, those are numbers you can keep in mind. For ages over 40, the value of the cocaine and HIV antibody testing goes down and the other blood tests become the number one category. So companies may be more reluctant to substitute urine-only testing for blood testing at the higher ages. But you can see there is still considerable value to the blood testing.

TABLE 5

Present Value of Mortality Savings per $100,000 of Insurance

	Ages 30-39
Paramedical & Urine	$ 64
Blood	52
Cocaine	18
HIV Antibody	152
Total	$286

TABLE 6

Present Value of Mortality Savings per $100,000 of Insurance

	Ages 40-49
Paramedical & Urine	$144
Blood	179
Cocaine	15
HIV Antibody	110
Total	$448

TABLE 7
Present Value of Mortality Savings per $100,000 of Insurance

	Ages 50-59
Paramedical & Urine	$257
Blood	465
Cocaine	9
HIV Antibody	65
Total	$796

What's next? Some of you may have heard about HIV antibody testing on saliva. It's something we've been looking at for a long time. It looks like it might turn out to be a very viable test and might be one that could be attractive to some companies. So, assume the day will come when you can choose between blood versus urine versus saliva for the HIV antibody test. If you have the test on blood and urine, why worry about saliva? One reason that some insurance companies have expressed an interest in saliva testing is because they are interested in pursuing some form of an economic agent collection vehicle. Even though there are several companies right now doing agent collection on urine, some agents are reluctant to handle the urine. I can understand that. The saliva test is a very simple test, it's a lollipop on a stick and it's very easily administered and it's something that an insurance agent would have no trouble doing. The chain of custody might also be better on saliva, because the insurance industry is not yet at the point where someone witnesses someone giving the urine specimen; whereas the saliva on a stick is right there and the chain of custody is definitely unbroken.

A few comments on another new test. The prostate-specific antigen (PSA) test is a test that is now being commonly used with a number of companies in the insurance industry. It's obviously a test you'd only want to do on males (see Table 8) and probably over the age of 50 or 55, because that's where the prevalence of prostrate cancer is large.

TABLE 8
New Cancer Cases

	1988 (Male)
1. Lung	100,000
2. Prostate	99,000
3. Colon	49,000
4. Bladder	34,000
5. Rectum	22,000
6. Oral Cavity	20,000
7. Lymphoma	16,000
8. Skin	15,000
9. Leukemia	15,000
10. Stomach	15,000
Other	110,000
Total	495,000

This test is the first cancer marker that's available to the insurance industry. No doubt over time, there will be others. This is one that has some advantages in that it's very specific to a very specific form of cancer. This form of cancer in most cases is curable if detected early (see Table 9). So you may turn a substandard risk into a standard risk by virtue of the fact that the test was given and the individual received treatment. There have been actuarial studies done and if you want the complete study, I've got a copy of it.

TABLE 9
Prostate Cancer

Ages	Surveillance Epidemiology End Result (SEER) Relative Survival Rates	
	5-Year	10-Year
55-59	71.6%	55.1%
60-64	73.8	54.8
65-69	72.3	55.0

Basically it shows that the present value of mortality savings is very large (see Table 10). The cost of the test is around $10. Regardless of what limit you might test at for PSA, whether it be in the age groups 50-59 or 60-69, the return is very large.

TABLE 10
Present Value of Mortality Savings

Insurance Amount	Present Value	
	50-59	60-69
$25,000	$13.89	$ 30.87
50,000	27.78	61.73
100,000	55.56	123.47
150,000	83.34	185.20

Table 11 shows the return on investment for PSA testing in terms of an annual ROI rate that would equate the present value of annual mortality savings to the cost of the test. The ROIs, of course, are very large on that.

TABLE 11
Return on Investment

Insurance Amount	ROI	
	50-59	60-69
$ 25,000	18%	74%
50,000	60	193
100,000	157	531
150,000	276	1026

That brings me to the end of my remarks other than a plug for *On The Risk*. Gary mentioned *On The Risk*, the Journal of the Academy of Life Underwriting. I'm sure a number of you are familiar with it. It is an excellent publication and has a number of contemporary underwriting topics. If any of you are interested in getting a subscription to *On The Risk*, leave me your business card or give me a call and I'll make sure that you get on the list because it's an excellent way to bring up a dialogue with your underwriter and know what's happening in the underwriting area.

MR. DAVIS: Our next panelist is Jim Pilgrim. Jim is Senior Vice President and Actuary at Frankona America Life Reassurance. Jim has a great deal of experience in the reinsurance area. Before Frankona, he was with Connecticut General and subsequently CIGNA Re. Jim is going to give us the reinsurance perspective.

MR. JAMES W. PILGRIM: When Mark asked me to speak on this panel, I really was curious as to why he wanted to include a reinsurer. Because as a matter of fact, as you well know for most automatic reinsurance treaties, reinsurers really have to follow the ceding company's guidelines and practices. They may seek our advice for underwriting criteria, underwriting limits and so on, but by and large, we are truly following the fortunes of the ceding companies. They set the limits that are appropriate for their market and their distribution system. So for business reinsured with us on an automatic basis, we really don't have a say as to what they do.

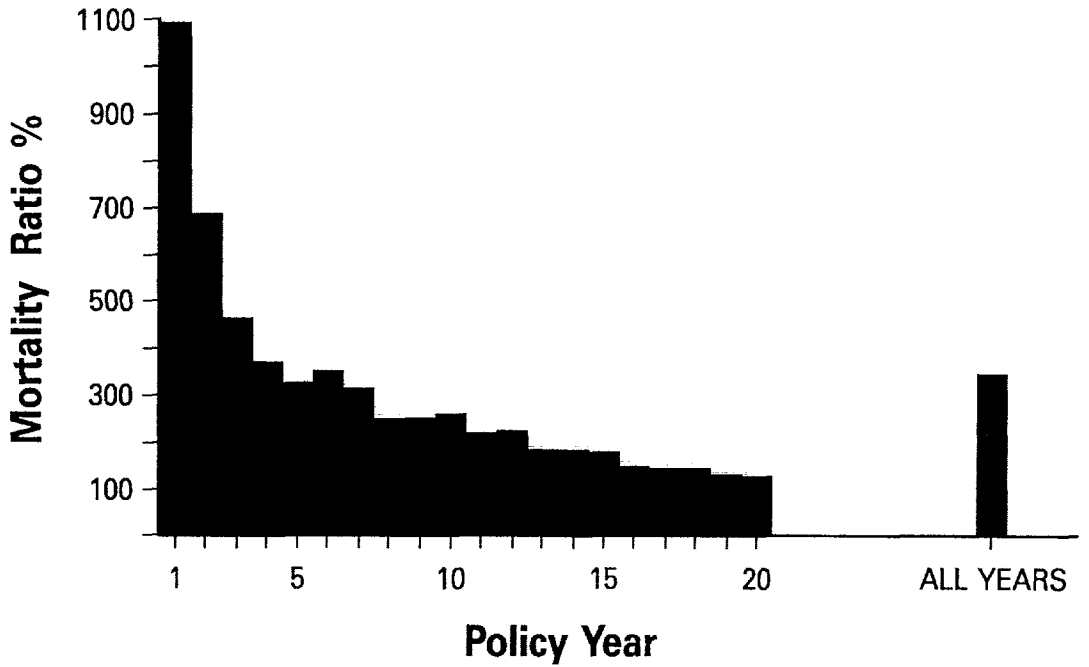
Now for facultative business, we can in fact say we need this test or that test, or this attending physician's statement and so on. We have free choice in determining the underwriting criteria that we would use. However, I would hasten to add that if we were going to ask for numerous additional requirements on a facultative case, that's the easiest way I know of to "kill a case," no pun intended, but the case will go away certainly, or the agent will take it someplace else.

One thing I observe in the current environment when I look at product development and pricing assumptions is that the mortality portion of the premium rate, or the cost of insurance rate, is the balancing item between where you are in terms of trying to cover your expenses and so on, and where you have to get to in order to be competitive. Now that's not too surprising if you think back to the beginning of the decade of the 1980s and the heyday of liberal underwriting and reinsurance price cutting and so on. We were all making great assumptions with regard to mortality improvement. Some of those assumptions have borne out to be true and others have demonstrated to be too aggressive for the situation. Many of us have had to change some of the ways that we price our business, particularly relative to the mortality element.

For my contribution to the discussion, I'd like to show you some examples of mortality experience on various different types of business with different degrees of selection, tell you a little bit about the selection criteria used, and relate the results to a standard that we all recognize. This will give us an idea of how underwriting, pricing and mortality experience all fit together.

Chart 3 comes right from an intercompany study. It shows group conversion mortality experience by duration. This is relative to the 1965-70 Intercompany Select & Ultimate

Group Conversion Mortality Experience



Expected = 1965-70 15-Year Select & Ultimate Table

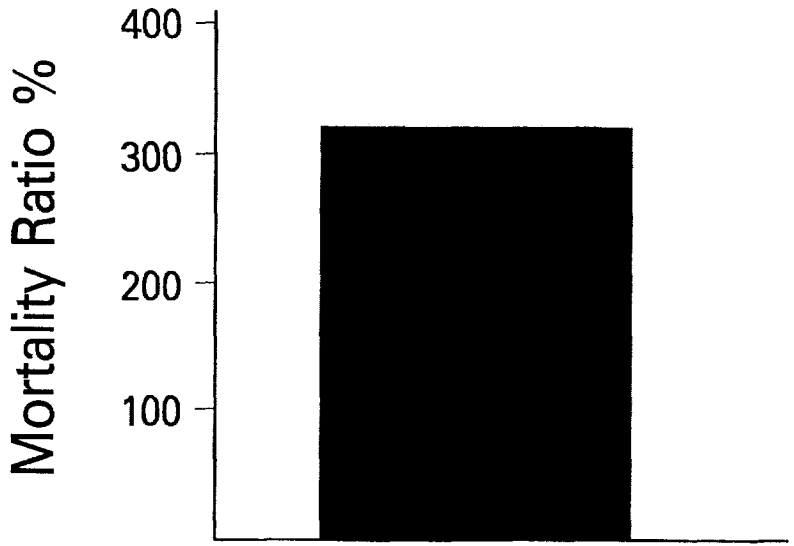
Table, as opposed to the 1975-80 Table. The ratios would be much higher relative to 1975-80. In the first duration, the mortality experience is about 1,100% and it grades down to slightly in excess of 100% by duration 20. For all durations combined it's slightly in excess of 300%. Now you say that's not surprising. Think about group conversion experience and how group conversions occur. It's a contractual right to convert group coverage to individual coverage. We all know that many of the agents in our distribution systems are aware when people leave groups for one reason or another. The agents will say to those people, "well let me see if I can get you standard coverage or preferred-risk-type coverage on an underwritten basis, or even just waiver-of-premium coverage and accidental death benefit coverage in addition." So they'll go through that process and many times what happens is the application comes back on other than a standard basis or even a decline. So the terminating employees will take the group conversion option obviously until they can find a better place to buy less expensive coverage. So this experience is reflective of a situation where there are really not any selection criteria applied; in fact it's a result of some severe antiselection.

Now let's move up the scale of underwriting selection criteria slightly (see Chart 4). I suspect the next level would be the old term of burial insurance coverage or otherwise known as preneeds coverage which is often characterized by it's decreasing death benefit feature. Now I do not have any personal experience either insuring or reinsuring this business; however, I can tell you that some time ago we reinsured a contract that had a modified death benefit with very liberal underwriting. In this particular situation, it was a very simple application. It asked a few questions about the applicant's current physical condition, a little bit about health history including questions about having major diseases and so on, but that was basically it. There was no medical exam and there was no use of an attending physician statement.

The experience was slightly in excess of 300% of the 1965-70 Ultimate Table. The average issue age was about 75. The situation was that the product was originally priced in the area of 200-250% of ultimate, so obviously we had a problem with regard to the actual experience versus the expected experience. The problem was so severe that we experienced losses on the business as opposed to even just modest profits. I should hasten to add that the persistency experience on this business after the first few years was phenomenal. We experienced first-year lapse rates in the 25% range and for durations two and later it was down around 2% per year. Now I suspect that the insured population that we had during that early period of time was shopping around for a better deal and when it found out that it was not the best class of risk or at least as good a class of risk as it thought it was, it thought it better keep the modified death benefit coverage and hope it could survive long enough to reach the ultimate death benefit level beyond the grading period.

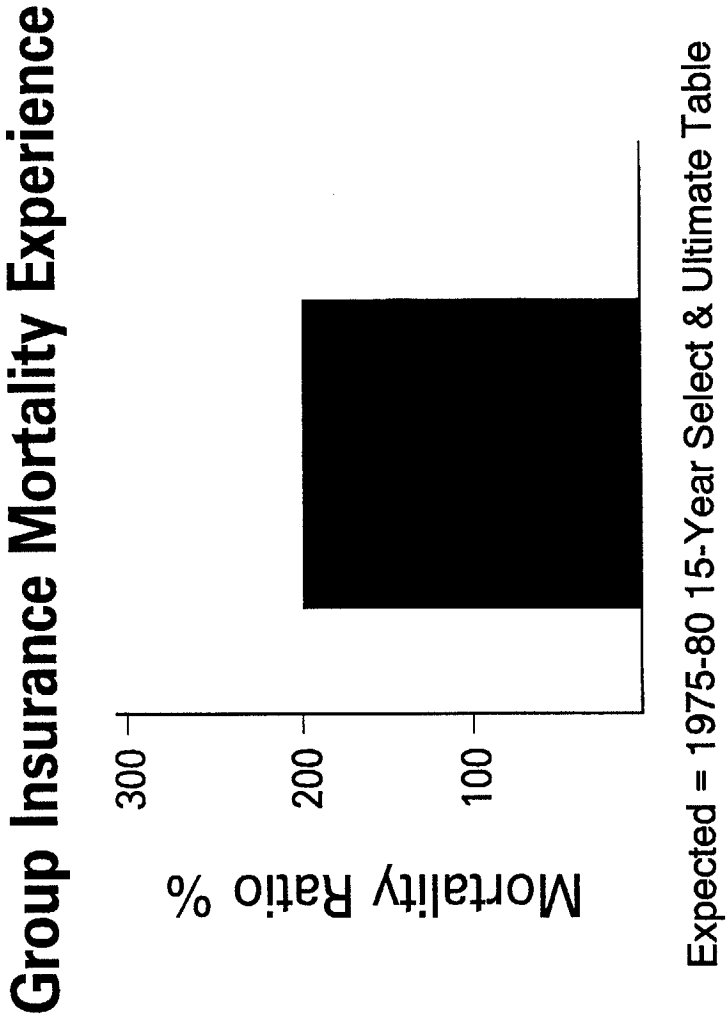
If we move again up the scale of increased selection, we come to group insurance (Chart 5). What I've done here is taken the group insurance mortality experience and related it to the 1975-80 Intercompany Select & Ultimate Table. Now you say that's not the appropriate thing to do. In the group insurance business you wouldn't expect to have select and ultimate mortality experience by virtue of the way employer/employee group insurance is sold. But my point in doing this is to try and relate mortality experience and the level of underwriting to a common basis. In the prior charts where we had older

Graded Death Benefit Mortality Experience



Expected = 1965-70 15-Year Select & Ultimate Table

CHART 5


Group Insurance Mortality Experience
Mortality Ratio %
300
200
100
Expected = 1975-80 15-Year Select & Ultimate Table

experience, they were related to the 1965-70 table and I didn't try to translate them. For these, I'm relating them to the 1975-80 table so that we have a common basis of comparison.

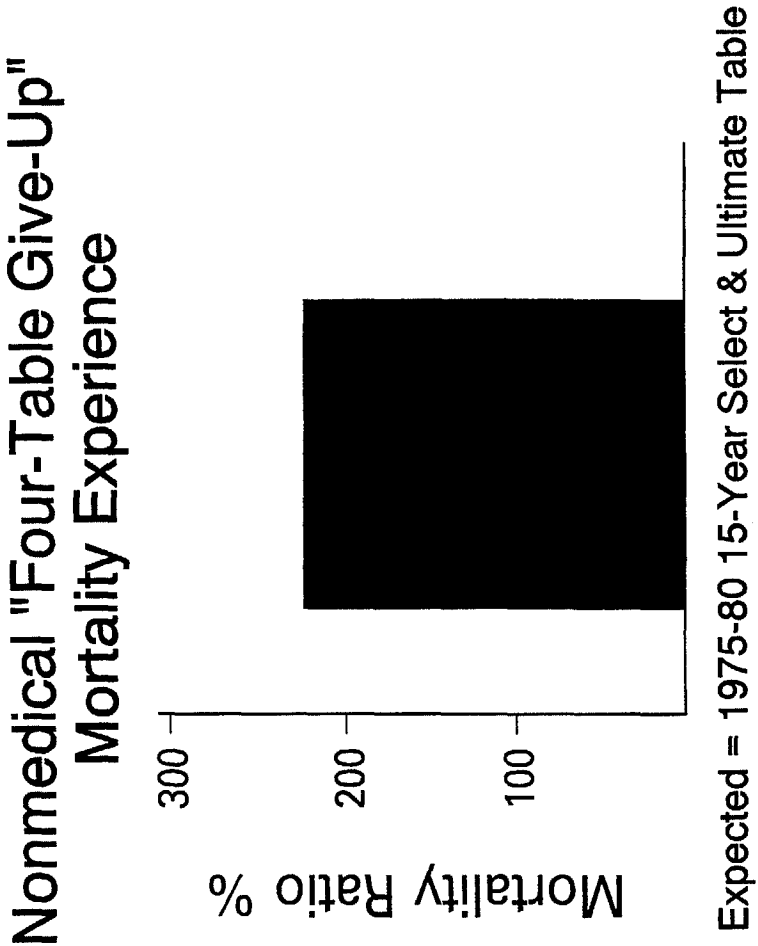
I find this information helpful too because we get a lot of questions from prospects and clients wondering what mortality experience they would get if they simplified the selection criteria, getting more toward a group style of selection. This is a way of indicating to them, relative to individual experience, what they might expect.

Now, let's move up the range (Chart 6). We get many requests for programs that are affectionately referred to as "table give-up" programs. In these cases, what the company is really doing is broadening its standard class. It is saying that it is going to underwrite everybody nonmedically. No current medical exams whatsoever. The company may use attending physician statements, and if it does, it will probably be on a limited basis. But it takes a nonmedical application that's fairly complete. It asks a number of questions a number of different ways so it gets pretty honest answers. Then, based on that nonmedical application, the case is rated, and if the case would qualify for a rating of table one through table four, table one being plus 25% and table four being plus 100% or a rating of 200%, the case would be issued on a standard basis. Presumably the product development and pricing actuary has accounted for this extra mortality when developing the product.

What's fascinating about this, particularly when using a nonmedical application, is the actual mortality experience turns out to be more than 200% of the 1975-80 table. You say to yourself, how can that be? Well, think about it. Number one, you're using a nonmedical application. If you look at intercompany experience, nonmedical experience has always been above medical experience, except for a slight blip in I believe 1985-86 experience. Number two, when you think about using a four-table give-up program, you're going to get a much higher percentage of people who were otherwise rated risks because those who would not be rated would go elsewhere to get their coverage. Even those who could get preferred coverage go elsewhere because they recognize that they are paying too high a premium for the product. Now some people like to think that for four-table give-up experience, you'd expect on the average 150% mortality or even less than that because there is a much smaller percentage of the potential insured population that's otherwise substandard. But the truth of the matter is when there is liberal selection criteria such as this it tends to attract the risks that can get the best deal from your product rather than more rigorous risk classification elsewhere.

Let's take this one step further (Chart 7). It shows the same four-table give-up scheme. Only this time we're going to use a medical exam. In this situation you get less than 200% mortality, you may get about 165% and so there is some real value in that medical exam. But if you relate this mortality experience to corresponding contemporaneous medically examined business where there is no table give-up, you find that you still end up with mortality experience that's roughly about 175% of otherwise classically underwritten business with no table give-ups. Again, my observation is that you're attracting the risks that are rateable in a higher percentage and a lower percentage of good risks because otherwise they could go elsewhere and pay a lower premium.

CHART 6


Nonmedical "Four-Table Give-Up"
Mortality Experience
Mortality Ratio %
300
200
100
Expected = 1975-80 15-Year Select & Ultimate Table

Medically Examined "Four-Table Give-Up" Mortality Experience

Expected = 1975-80 15-Year Select & Ultimate Table

If we move up the line to medically examined mortality experience (Chart 8), this is the experience between 1984-85 anniversaries, we can see that on an aggregate basis the experience is about 91% of the 1975-80 table. Nonsmoker experience was 84% and for smokers it was 180%.

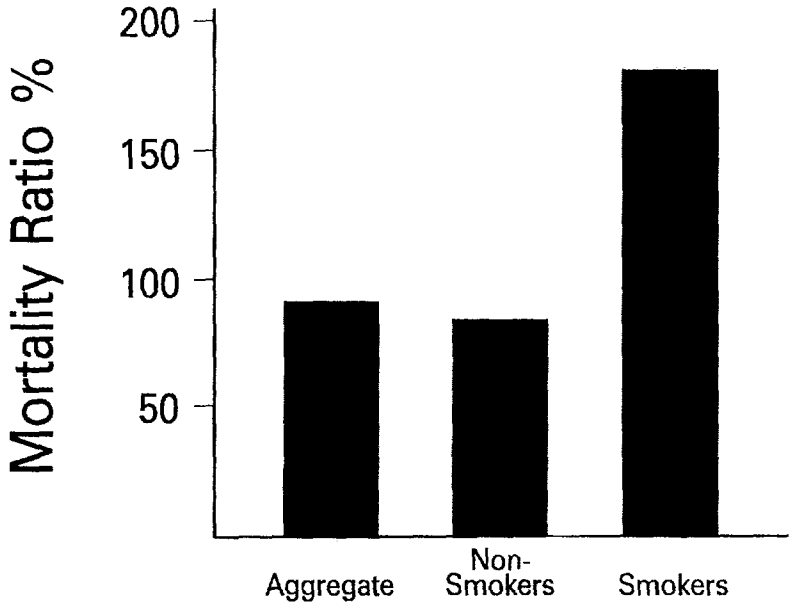
Keep that in mind and look at Chart 9. We have a slightly different percentage contribution of companies in this particular situation. Here we have 1985-86 experience with classifications of nonsmokers, smokers and unknown. And notice that the nonsmoker percentage is a bit lower than the smoker percentage. Why is there such a big difference between this and Chart 8? Well, when you look into the studies, you find out that you have a different percentage contribution by the respective companies. Any of you who have studied intercompany mortality experience are well aware of the fact that the range of mortality experience from the lowest company to the highest is at least 2:1 in many years. So it is possible to get this kind of variation even in an intercompany mortality study.

Now, let's go on and look at paramedical and nonmedical experience. First let's look at nonmedical experience (Chart 10) both for 1984 and 1985 anniversaries, and for 1985 and 1986 anniversaries split by nonsmokers and smokers. Here we have nonmedical experience that's higher than medical experience, as you might expect. However, looking back to Chart 8, we have an anomaly between the nonmedical and medical experience of smokers and nonsmokers for 1984-85. This is again a situation where there are different mixtures of exposures coming from different companies even in a population as large as the intercompany study.

If we move on and look at paramedical experience (Chart 11), you would expect just by looking at it that paramedical experience would come out somewhere in between medical business and nonmedical business. And once again, there are some instances where paramedical experience ends up better than medically examined experience. My contention is that this is due to different percentage contributions to the study by different companies and they operate in different markets and have distinctly different mortality experience. To the extent that contributions by company change from year to year, you may end up with overall results that are surprising.

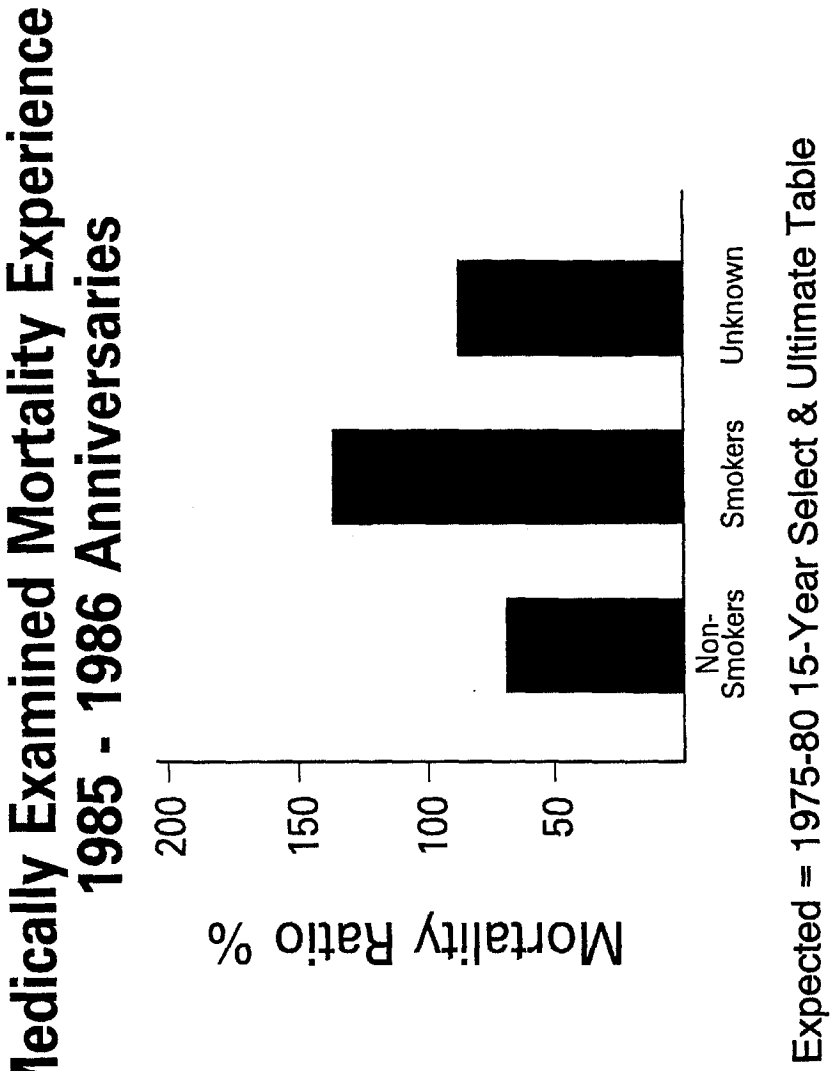
Now we will look at what I'll say is the penultimate of risk classification (Chart 12). If we look at the most recent large-amount mortality experience, it's from a time period that's older than the charts I just showed you; it covers the 1978-83 observation period. The study did not ask for contributions on a nonsmoker/smoker basis. You can see here that there wasn't much difference between nonmedical and paramedical or between nonmedical and medical business. Paramedical business was actually higher than nonmedical, but the interesting thing is, for the large-amount study, the actual results in total were about 89% of the 1975-80 table, and for the corresponding all-amounts study, the experience was about 94%. So the difference between the large-amount business and the all-amount business was only about 5 percentage points. I should add that in this study, a large-amount case was in excess of $100,000.

Medically Examined Mortality Experience
1984 - 1985 Anniversaries

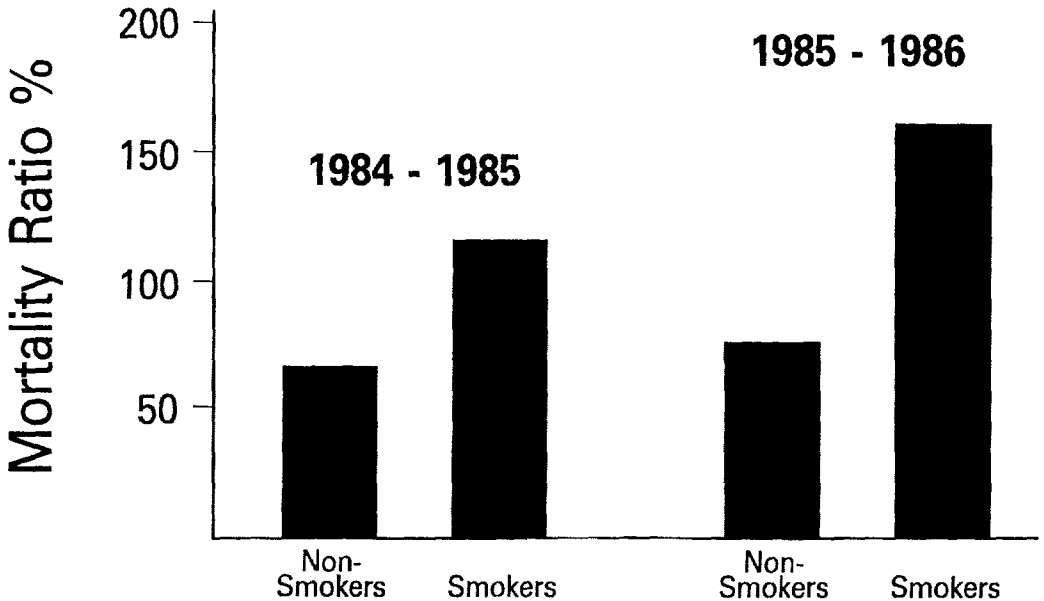


Expected = 1975-80 15-Year Select & Ultimate Table

CHART 9

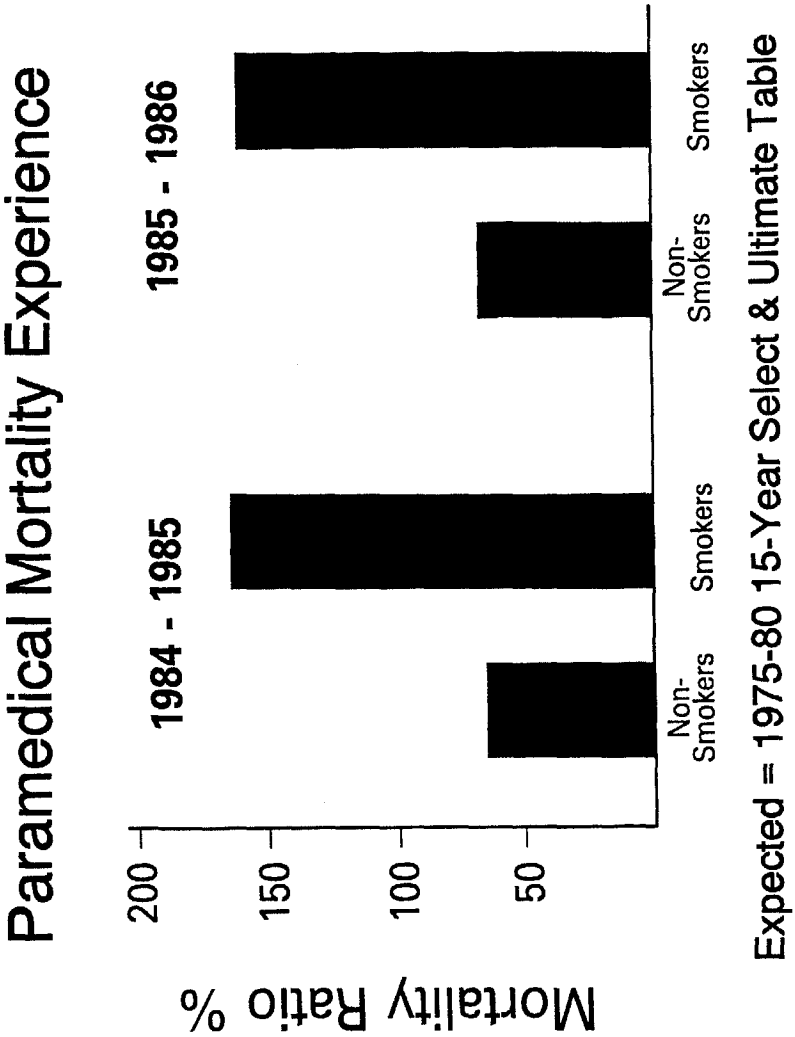

Medically Examined Mortality Experience
1985 - 1986 Anniversaries
Mortality Ratio %
200
150
100
50
Non-Smokers
Smokers
Unknown
Expected = 1975-80 15-Year Select & Ultimate Table

Nonmedical Mortality Experience

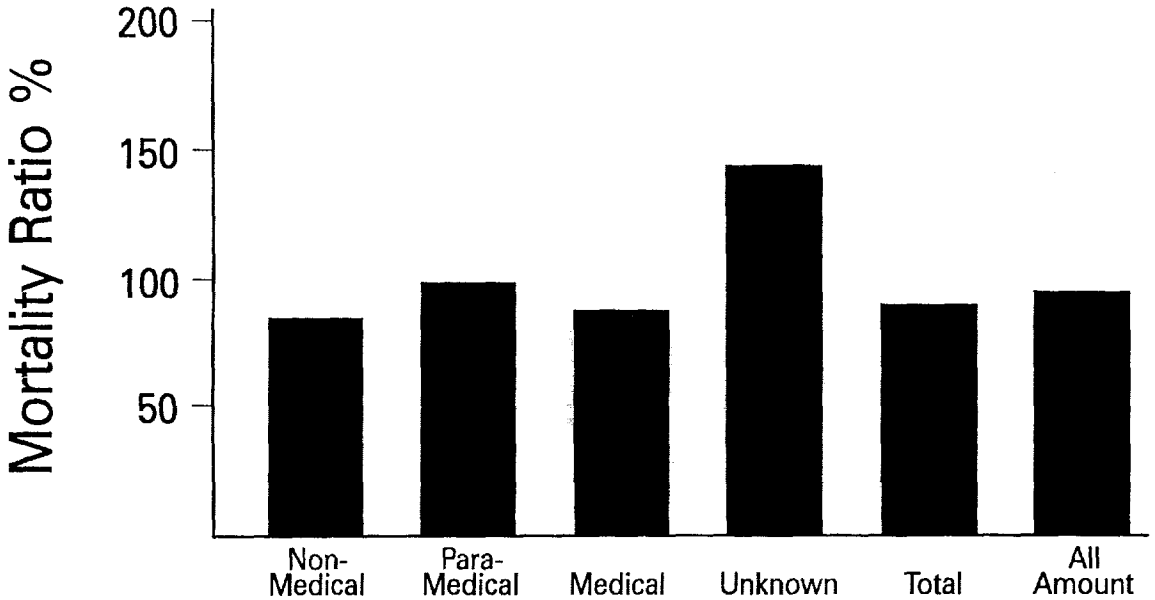


Expected = 1975-80 15-Year Select & Ultimate Table

CHART 11


Paramedical Mortality Experience
1984 - 1985
1985 - 1986
Mortality Ratio %
200
150
100
50
Non-Smokers
Smokers
Non-Smokers
Smokers
Expected = 1975-80 15-Year Select & Ultimate Table

1978 - 1983 Large-Amount Mortality Experience



Expected = 1975-80 15-Year Select & Ultimate Table

Now, where do we go from here? Given all this observation of actual experience and so on, what do we do now? Some companies are already using a nontobacco-user definition as opposed to a nonsmoker definition. And correspondingly, they may have discounted their mortality assumption to reflect that. Some companies have lowered their testing thresholds and additionally they may have discounted their mortality on the theory that they're getting a better class of risk as a result of the additional tests. I think you saw that from the prior charts.

In a report that was done for the Clinical Reference Lab by Harry Woodman entitled "A Report of Testing, Past, Present and Future," he indicated, and I quote, "the extent of mortality savings from the use of basic blood profile tests has not been demonstrated through mortality experience. However, there's specific mortality experience to support the value of all of the important elements in urine testing except for cocaine." Earlier in this same report, he wrote, "companies are increasingly recognizing that extensive information about insurability is needed to have a profitable product. Interest and expense savings are no longer adequate as a source of profit. Therefore, it's important to obtain mortality at a level at least as low as that assumed in product pricing. Testing provides this opportunity."

Now having seen these mortality ratios from intercompany studies, my guess is that some of you who are charged with the responsibility for making pricing assumptions for your products and don't have credible mortality experience applicable to your own company's business, are asking yourself the question, how do my pricing assumptions match up with this actual experience? Can I explain the differences in terms of different markets or segments of the population that we insure as compared to the markets insured by the contributors to the intercompany study, or are there other market-driven reasons for the differences? Clearly if we are going to have continued contributions to surplus from the mortality gain, we need to make sure that we establish mortality assumptions that are consistent with our anticipated experience and we need to have very good input from the underwriting community. I think it's very important that we treat our underwriting brethren with equal respect and when we develop new products and new selection criteria, we should seek their input and use it.

Concerning future mortality studies and selection criteria, there's a joint committee of medical directors and actuaries currently working on specifications for a study to determine what constitutes the standard range of values in blood and urine testing results. At the same time the committee wants to determine the extent to which quantities of albumin, nicotine, medications, and red and white blood cells in the urine affect mortality.

Before concluding my remarks, I'd like to make a couple of observations from recent publications and then mention a few sources of reference for you that you might consider using. First, I have a few quotations from recent publications. I think it's important that we make sure the risk selection criteria we use match the mortality assumptions used in pricing. In a recent article in the July 1990 issue of *Brokers World*, there was an article entitled "What Is the Best Policy?" by Michael Flynn, President of Flynn Associates in California. In it he says, "One thing is certain. Change. No policy sold today will perform exactly as its proposal illustrates. Most will not perform as well since the

actuaries have been driven to aggressive assumptions by marketing departments eager to compete."

My second example comes from the September 1990 issue of *Nation's Business*. On page 64 of that issue there's an article by Peter Weaver, a Washington-based columnist on personal finance and the article is entitled "Finding Coverage When You're Uninsurable." In this article Mr. Weaver cites insurance agent Roger Klessinger, author of *Insurance and Alternatives for Uninsurables*. In this publication Mr. Klessinger says, "You might be able to meet your financial planning needs with guaranteed issue life insurance offered by some companies. They don't care what you have." He explains that you can have cancer, heart problems, diabetes, or whatever and still be insured. There are limits in what kind of benefits will be available in the event of your death depending on how long you live. Some insurers, Klessinger says, "will guarantee issue up to $100,000 if you're a working person. It's quite expensive -- sometimes triple the premium for regular life insurance. But when you need the coverage, you need it."

In closing, I'd like to refer you to a number of reference sources. First is *Medical Risk*, Volume I and Volume II, which is in two sets right now. Volume II has just been printed. Volume II was 11 years in the making I guess, and contains a wealth of research information on different medical impairments and their impact on mortality. It contains experience not only from the U.S. and Canada, but also from other areas of the world for those of you in the international business. The *On The Risk* magazine has already been mentioned. The 1983 Impairment Study contains very valuable information, particularly if you're looking at appropriate selection criteria to set risk classification schemes to have various degrees of preferred or nonpreferred risk. The other one that I'd refer you to which I think is excellent is the *Journal of Insurance Medicine*. Ask your medical director or your medical consultant if you can take a look at some of the issues. I think you'll find some very valuable information in that publication. For example, the summer 1990 issue describes the medical risk selection practices in countries outside of the U.S. and Canada. It has a very large section on underwriting and risk classification for the older age groups.

MR. THOMAS G. COULTER: I have noticed that more and more U.S. life companies are aggressively pursuing business in Latin America. Would anyone on the panel comment on recent mortality trends or underwriting in Latin America?

MR. PILGRIM: In my prior company from 1975-83, my reinsurance sales territory was Latin America. I can tell you seven-year-old experience if you want to know that, but I can't tell you recent experience because we haven't been involved there. When I was selling business in Latin America, we found that Mexican mortality experience was only about a table to a table-and-a-half higher than U.S. insured experience. Venezuelan experience was very comparable to U.S. insured experience. It was slightly better than Mexican experience. Columbian experience was higher than either Mexico or Venezuela. For the other countries in Latin America, and we had business from a number of others, we did not have credible mortality experience. But that may give you a rough idea. What we found unfortunately is not atypical with reinsurance experience and that is that the violent deaths, not so much suicide, but accident and homicide, were a much larger proportion of the total deaths than in the U.S. But we found that's also true of

reinsurance experience in the U.S. If you compare reinsurance experience to direct individually underwritten experience, reinsurance experience shows a much flatter curve and a much higher incidence of violent deaths.

MR. ANDRÉ CHUFFART*: I have one comment and one question. My first comment is the emergence of new technology which creates antiselection. I will give you three examples. A few years ago in California, polymerase chain reaction (PCR) became commercially available and obviously that allows one to detect infection much before seroconversion. The second example is that HIV home tests are now available. The third example, which has been approved very recently by the FDA, is the saliva test. So there are a lot of examples of new technologies which create antiselection. The applicant might know a lot of things that you have no chance to know. So it might be interesting to consider changing the HIV testing limit.

We have seen tests on almost everything and we didn't hear anything about Hepatitis C. The test has been available now since June. The seroprevalence of Hepatitis C is 8-15 times higher than HIV. It is automatically tested for when you donate blood. The seroprevalence is between 1.0-1.5%. About 50% of the people infected become chronic carriers and a huge proportion of these develop severe liver problems within 13-17 years. I'm a little bit surprised that nothing is done in the United States. I don't want to say that it is done in Europe, but the U.S. is ahead of Europe regarding testing and I think it is an area which should be considered very rapidly.

MR. SADLER: There are insurance companies that have expressed interest in the hepatitis in North America and some of them are doing business in the Far East. We're now doing some studies with a couple of companies with that very test. Depending on what those studies show it may be something in the future here in the U.S..

MR. JOHN M. BRAGG: Bragg Associates has been issuing mortality reports for a number of years and we're working on trying to finalize our 1990 report right now. A large number of companies send us their mortality data every year and this year, for 1988 exposures, we will have about $400 billion of insurance exposed. I thought I'd give you some of the results and this is all measured against the 1975-80 select and ultimate table. It's all nonsmoker, smoker distinct. What I'm giving you is the whole ball of wax -- smoker, nonsmoker, male, female all combined. So if you take the 1975-80 table as 100%, here are the results. Now, 1980-85 was 88.1%. In 1986 it was 80.9%, for 1987 it was 79.6%. Now, for 1988, and this is just a preliminary number, it is 83.3%. So it has increased. We're trying to find out the reasons for the increase. Everybody immediately thinks of AIDS, of course. Well, AIDS has some impact. These companies send us their AIDS claims too so before we're finished we will be able to find out the effect of AIDS. I do not think AIDS is a main reason for that increase. Looking into it in greater detail, the medically examined business looks like 94% and is higher than the nonmedical business. This may be due to underwriting leniency.

* Mr. Chuffart, not a member of the Society, is Vice President of Swiss Reinsurance Company in Zurich, Switzerland.

MR. PILGRIM: Jack, can I just ask you a couple questions? Are these numbers you're quoting by number or by amount?

MR. BRAGG: By amount.

MR. PILGRIM: Have you looked at the proportions of the contribution by company for each year to see if they've changed dramatically among the companies contributing?

MR. BRAGG: There is some of that, Jim, definitely. We keep adding new companies every year. By the way, as you also mentioned Jim, we do see a tremendous variation by company in the order of two to one. It is really amazing how it varies like that.

MR. PILGRIM: But that's indicative of the markets the companies operate in.

MR. BRAGG: Absolutely, and the underwriting standards they follow, too. Anyway, that is part of the reason, but I think it's this large-amount medical business with underwriting leniency that is the problem. There is a surprising reason and this is astonishing. It's sort of like what you find at the top of Mount Everest. The percentage of smokers has actually increased and it looks as if the female smoking percentage is now slightly higher than the male smoking percentage. This is true when measured either by number or amount. It's higher in 1988 than it was in 1987, and how do I explain that? I believe I explain it in that maybe we're writing more of the smokers, but I think it's that we're catching more of them. So it seems to be a mixture. We also have this terrible large-amount medically examined business and I don't think that the reason is AIDS. It's underwriting leniency. Plus more of them are smokers.

We're also studying the preferred risk. I tend to call it super-select nonsmoker business. I am absolutely astonished by the amount of it going on. It almost seems like a majority of companies are either doing it or thinking of doing it. Some of them are going into the eight-way rates and some of them into the six-way rates. The six-way rates are four nonsmoker rates and two smoker rates. I'm astonished. There is a difference emerging. Preferred is better than the standard nonsmoker and it is showing up that way. Let me just end up with a question to these underwriters. Can you explain what's happening to my medically examined experience? Is it really worse? Are you noticing large claims?

MR. PILGRIM: Well, I'm not an underwriter Jack, but let me take a shot at it. Since your ratios are by amount, you might want to see if there was any impact due to a few large-amount claims, because a few large-amount claims might be enough to knock the ratio high. Many years ago I was on a panel with a very astute group of underwriters who were all about 25 years older than I was. I presented the fact that there were $40 million worth of claims that would never get in the intercompany large-amount study because they were issued by companies that don't contribute to the large-amount study. But if those claims had been put in the study, along with the corresponding exposures, the mortality ratios would have been significantly different. Perhaps that's your problem.

MR. BRAGG: We are trying to look at those large-amount claims that are reported to us and there are many of them. But there seem to be quite a number of medium-sized claims around the million dollar level, that I don't necessarily know about.