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TOBACCO USE: CONTEMPORARY ISSUES IN RISK CLASSIFICATION AND RISK SELECTION

Instructors: HENRY C. GEORGE*
KEVIN A. SEGLEM
Recorder: KEVIN A. SEGLEM

It is time for tobacco user/abstainer approach to replace cigarettes-only definition of "smoker?" How long before consequences of long-time smoking abate in ex-smokers, (i.e. when is an ex-smoker a nonsmoker)?

MR. KEVIN A. SEGLEM: Our speaker is Hank George. His professional designations include Fellow of the Life Management Institute (FLMI) and Chartered Life Underwriter (CLU). He's a Fellow with distinction of the Academy of Life Underwriting. He is a past president of the Home Office Life Underwriter's Association (HOLUA) and a frequent speaker at many industry meetings. He has spoken at quite a few Society of Actuaries seminars. He was, prior to his stint with the Home Office Reference Lab (HORL), a home office underwriter for nearly 20 years. He has published papers too numerous to mention and too difficult to pronounce. He's here to talk about issues relating to underwriting and tobacco use.

MR. HENRY C. GEORGE: Why are we doing this session? Because there has been much interest in ways we might modify tobacco-related pricing of insurance products. In fact, I would hesitate to say that if we had thought about this 10 or 15 years ago and began uniform tobacco-based pricing of health insurance, we might not be in the predicament we're in today with the president struggling to eliminate health insurance and replace it with something with the ambiance of the Internal Revenue Service and the efficiency of the post office at Pentagon prices. I guess what I'm saying is, this issue should have been brought up in health insurance years ago. It is now being addressed more and more by life insurance companies and it's very contemporaneous with the fact that there's a great initiative going on. All you have to do is read the *Journal of the American Medical Association* to appreciate this issue of tobacco toxicity and tobacco's contribution to accelerating health care costs and early deaths among Americans. If you read the newspapers, you know that the tobacco industry clearly is on the defensive these days. There are even people talking about things as radical as FDA control over the distribution of tobacco as a controlled substance. All of that makes this a very timely subject.

TOBACCO USE AND ITS CONSEQUENCES

I thought I would start out with a quotation from King James I of England, who was reported to have said in the 17th century, "Smoking is a custom loathsome to the eye, hateful to the nose, harmful to the brain, dangerous to the lungs and in the blackstinking fume thereof nearest resembling the horrible stygian smoke of the pit

*Mr. George, not a member of the sponsoring organizations, is Vice President, Technical Services of Home Office Reference Laboratory in Greendale, WI.

that is bottomless." Clearly he was a nonsmoker. I'm sure the tobacco companies will disavow this and say that it is premature. It is one historic characterization of tobacco smoking and its consequences.

I should explain to you now that I'm not a physician, but because I speak on medical subjects, I find it necessary, for my own peace of mind, to put citations on the corners of all my slides that show that I obtained the information from real doctors. My charts and tables will have a source listed, if in fact they contain data taken from the medical literature, which I read laboriously. Now you could actually, with that information, track down these papers at any medical school library.

According to a *New England Journal of Medicine* article published just recently, there are 46.3 million adult American cigarette smokers, 12.5 million, roughly 1 in 4, 1 in 3 or 3.5, are heavy smokers, defined as more than a pack a day. The highest prevalence of cigarette smoking is in young adults age 25–44.

It is interesting that there was a citation in 1993 in the *Mortality Morbidity Weekly Review*, (a statistical publication for physicians that covers epidemiologic topics) that said for the first time since the Surgeon General's epistle of 1964, there was an increase, albeit a small increase, in the percentage of American adults who smoke cigarettes. Between 1990 and 1991, these epidemiologists conclude that cigarette smokers went from 25.5% of American adults to 25.7%, a 0.2% increase. An article in *Drug Abuse Update* from Brown University, cited a nonscientific article in *Prevention Magazine*, which is a major popular publication covering subjects of interest to health conscious Americans. They said that the percentage of smokers actually increased from 25% to 30% and that now we have increases, particularly in college-educated people, which seems paradoxical. Those are the people with salaries in the individual insurance-buying range. I don't know how reliable that citation is. I haven't seen any more data, epidemiologic or demographic, on the percentage of American adult smokers since these studies or reports were issued.

At the minimum, I think we can say that former Surgeon General Everett Coop's dream of a smoke-free 21st century seems unlikely. I doubt that we will get down much below 20% of American adults smoking cigarettes by the end of the 20th century. That doesn't include other forms of tobacco. FDA control over tobacco distribution would be the most radical example. I think it's fair to say that the people who smoke today, especially the people who are middle-aged, deserve the prize for persistency because these are smokers from whose fingers the cigarettes will have to be pried. They are a very addicted group compared to the prevalent larger group of smokers from the 1960s.

John Slade wrote a wonderful review of the toxicities of cigarette smoking in the *Journal of Psychoactive Drugs*, which by the way was published in San Francisco back in 1989. In fact, it was so good, I reprinted it in *On the Risk*. The one citation that I take from John is his comment that nicotine addiction has the macabre distinction of causing the greatest epidemic in the 20th century. One fifth of the people now living in developed countries will eventually be killed by tobacco. They will lose an average of 15 years of life expectancy per death, say epidemiologists

who, two years ago, reported on the mortality of tobacco in the world's greatest medical journal, *The Lancet*, from Great Britain.

McGinnis and his colleagues in the *New England Journal of Medicine* in 1993 examined what they called the actual causes of death in America. They looked away from disease pathologies or trauma pathologies and looked instead at the underlying etiologic or causative agents of premature death. They ranked these agents by the estimated numbers of deaths that they produce. Tobacco clearly was the winner. Even eating donuts and drinking whole milk couldn't hold a candle to tobacco. They said in their report that roughly 19% of all deaths in America are directly linkable to the consumption of tobacco products—a fourfold greater death rate than that which results from alcohol abuse, fire arms, sexual behavior, etc. Isn't it interesting that illicit use of drugs produces about one-twentieth of the deaths that the use of America's most prolifically consumed licit drug produces?

In addition, we have to observe that there are people who now believe that as many as 50,000 Americans die prematurely due to the effects of passive smoking. Passive smoking is a mechanism by which your family members, relatives and coworkers systematically kill you by blowing tobacco smoke in your face in a confined space. The data on the dimensions of the medical consequences of passive smoking are still not clearly defined out of deference to the Tobacco Institute, but they are becoming fairly convincing. There are statistics that strike me as being reliable that link cigarette smoking to as many as 5,000 or 6,000 passive smoking deaths from bronchogenic carcinoma, or if you prefer, lung cancer.

We know that passive smoking exacerbates respiratory diseases in children. It is now fair to call parents smoking in a car with children with the windows rolled up, a motorized gas chamber.

I think it's also true that people who have things like stable angina, chest pain or coronary disease, whose spouses smoke, have a lower threshold for induction of chest pain symptoms, and they have many more, severe episodes. The data on the toxicities of passive smoking are accelerating and making a very convincing case. Passive smoking may be almost as bad as actually smoking.

Oftentimes, when I talk about this subject, as I do both to motivate and to educate insurance folks, I get questions about the toxicities; what are the adversities of tobacco smoke, particularly cigarette smoke? This is, as you can imagine, a very complicated subject about which we're still learning a great deal. For now I think it's safe to say that the four major factors that contribute to death and morbidity associated with cigarette smoke (or in fact with tobacco smoke of all kinds) are the presence of many known carcinogens. Most recently, much attention has been directed to one particular carcinogen, the nitrosamine or NNK, which is associated with cigarette smoke.

Second, in addition to cancer induction capacity, cigarette smoke is loaded with carbon monoxide. One could characterize cigarette smoking as similar to sucking on the tailpipe of a car when the engine is running. That would be a reasonable analogy. Carbon monoxide is 200–300 times more likely to bind with hemoglobin and red

blood cells. If the body has a choice between carbon monoxide and oxygen, it will preferentially bind the carbon monoxide to the hemoglobin and thus transport it to the tissues. Carboxyhemoglobin is a poison.

Tobacco smoking promotes what we call platelet aggregation. Think of platelets as tiny little fragments of blood cells that resemble Chicago Bears' linebackers in their behavior. (I'm a Packer fan.) They pile senselessly on defenseless Green Bay Packer running backs causing what we call a clot to form, a thrombus which then becomes a clot. Platelet aggregation is probably the most important immediate cause of a myocardial infarction or heart attack.

Nicotine, the psychoactive ingredient in tobacco smoke (some would argue, the most addicting chemical consumed by humans or laboratory animals) is paradoxically both a stimulant, it raises the heart rate, and a vasoconstrictor. In fact, the last thing many people do who die of cardiac sudden death is light a cigarette of their choice because it causes the heart rate and oxygen demands of the heart to increase while it simultaneously constricts the arteries or reduces the blood flow to the arteries. It's not a very desirable scenario.

Finally, there is some question on the part of many epidemiologists and experts about whether or not tobacco is really America's leading gateway drug. Tobacco is the first drug to which adolescents and preadolescents are exposed which becomes, in fact, a mechanism leading to alcohol, marijuana, or harder drugs. One can make a convincing case that tobacco is the premiere gateway drug in our society.

Table 1 shows the tobacco-related mortality data—the relative risk of dying data from America's second most famous epidemiologic investigation ever. The most famous, of course, is Framingham; everybody knows about Framingham. Most of you have never heard of the second most famous. It's called the multiple risk factor intervention trial. It involves the long-term follow-up of one-third of a million American men, so the body count is adequate actuarially. They followed these individuals for more than a decade. This particular part of the study shown in Table 1 was published by Jim Neaton in *The Archives of Internal Medicine* in 1992. They looked at the relative mortality risk of people smoking one-and-a-quarter packs of cigarettes or more a day. They compared it to a baseline risk of one being a lifetime cigarette abstainer. They broke it down into roughly quinquennial age categories and what did they find? Just what you would expect. Cigarette smoking kills people. There is about a 2–2.5-fold increase in relative risk which peaks around the early 40s and then declines somewhat. People who smoke more than one-and-a-quarter packs a day should probably have, in addition to a rating for tobacco, a flat extra premium for a suicide attempt.

There was a very interesting study done by an actuarial group in the United Kingdom. It was reported in *On the Risk* by Alan Lockie who is an actuary with NRG Victory Reinsurance Company in London. Let me show you what Alan reported in our journal.

TABLE 1
CIGARETTE MORTALITY
MRFIT STUDY
ADJUSTED RELATIVE MORTALITY RISK (RR)

Cigs/Day	35–39	40–44	45–49	50–54	55–57
0	1.0	1.0	1.0	1.0	1.0
1–25	2.4	2.7	2.2	2.1	1.8
>26	4.0	3.5	3.1	2.7	2.2

Source: Permission to reprint by Neaton, James, *Archives of Internal Medicine*, Volume 152(1992): pages 56–64, American Medical Association, Chicago, IL.

He looked at smoker/nonsmoker actual-to-expected mortality. Table 2 is a comparison of the smokers versus the nonsmokers. You can see that male smokers had 172% of expected. The females did okay in the premenopausal group, as they usually do. They hardly ever die, unless they smoke and use birth control pills, but that's a separate situation. Then from about age 45 on, the women clearly exceed the men in terms of their tobacco-related mortality, so they more than make up for their lag time in mid-life.

TABLE 2
RATE OF SMOKER A/E TO NONSMOKER A/E

Age Group	Males	Females
31–45	165%	107%
46–60	180	217
61–75	172	208
>75	161	242
	172%	188%

Source: Lockie, Alan, *On the Risk*, Volume 10, Number 2(1994): pages 57–8.

Alan is an actuary, so I'm sure this is all valid. He made three observations at the conclusion of his study. He said that women who smoke are like men in terms of their mortality. Men who do not smoke have a mortality similar to all women, and most significantly he said, the difference in mortality between smokers and nonsmokers is worse than most of the pricing assumptions currently used by life companies in the United Kingdom. That, I think, was the take-home message of greatest interest to his audience. They were underpricing the mortality of tobacco smoking in Great Britain. As one could argue, some companies still are in the U.S.

One last epidemiologic indulgence and then we will get on with issues in insurance. There is another very interesting study. I think you would find this very intriguing to read independent of this lecture. It is called the Nurses' Health Study. Most of you have probably heard of or read in *USA Today* or some health conscious magazine about the Physicians' Health Study. In the Physicians' Health Study, Meyer Stanford

and his colleagues produce such interesting tidbits as, "An aspirin a day keeps the M.I. away." Many Americans now, mid-life and older are taking prophylactic, preventive aspirin. They're taking a baby aspirin a day to block platelet aggregation and thus to reduce their risk of a myocardial infarction. It was determined by following a large cohort of doctors, that the doctors who were on the aspirin prophylaxis, as opposed to those who were not, had fewer fatal heart attacks. Another part of the Physicians' Health Study that is not as well known is that they gave exogenous, that is in pill form, vitamin supplements of antioxidants, like beta carotene, to one cohort of physicians and deprived the other cohort of physicians. Those who received the antioxidants had significant improvements in certain mortality parameters, a subject I would love to be forced to discuss. I'm a big believer in the fact that free radicals, little oxygen molecules, are really the most important etiologic agent, both in the aging process and in the induction of disease.

In the Nurses' Health Study, Kawachi and his colleagues followed 117,001 nurses for a long time. I'm not good at numbers as I told you. They organized these nurses, among other ways, by their tobacco affinities. The mortality results are shown in Table 3. Total mortality (relative risk) is broken down by never smoked, former cigarette smoker, and current cigarette smokers which refers to all current cigarette smokers, not fractionated by consumption. There are four categories of consumption: 1–14, 15–24, 25–34 and 35 or more cigarettes a day. Predictable, right? Not dissimilar from many other investigations of only men or studies done without regard to sex. Ex-smokers have a statistically significant difference in mortality because the toxicities in people who smoke a pack a day for 20 years or longer never completely wear off. Current smokers have a quantum leap in the mortality. But when we break it down by tobacco consumption, we see little difference between one cigarette a day and 25 or even 34 cigarettes a day. Then there is a little bump at roughly two packs a day or more, suggesting that they are a very special group of people who should always eat first and speak first because they don't have as much time as the rest of the people.

TABLE 3
NURSES' HEALTH STUDY

Smoking Status at Entry	Total Mortality (Relative Risk)
Never smoked	1.00
Ex-cigarette smoker	1.29
Current smoker	1.87
1–14 cigs/day	1.51
15–24 cigs/day	2.02
24–34 cigs/day	2.09
35+ cigs/day	2.63

Source: Reproduced with permission from Kawachi, "Nurses Health Study," *Annuals of Internal Medicine*, 1993, 119:10, page 992.

Epidemiologists say our data suggest that previous studies of the relationship between smoking and risk for total mortality in women have underestimated the risk. Studies

in women in the 1950s and 1960s showed relative mortality risks in smokers of about 33–40% greater than in nonsmokers. Now they are nearly at a 1.9-fold increase. This suggests that as the numbers of smokers decline and as we have this smaller and smaller subset of more addicted, more dependent smokers, we have a poorer mortality risk group and we will continue to have it and we will have to adjust our pricing in the future for that group.

Overall, 37% of all the deaths reported among these nurses during the follow-up period of the study were attributable to tobacco use. That is an awesome statistic. Thirty-seven percent of these deaths were unnecessary and were caused by tobacco abuse.

Here's the part that I find really interesting; it's completely an aside. I want to suggest that someone ought to do a paper on this. Maybe it will have to be me. Of course, the math will be useless. They found that the relative risk of trauma-related death, not disease, was over four times greater in the nurses who were smoking roughly two packs a day as compared to the lifetime tobacco abstainers. True, the trauma deaths in all smokers as compared to nonsmokers were significantly higher, but there is a quantum leap in traumatic, externally caused, nondisease deaths in the heavy smoking nurses. That's a very interesting statistic. Why would that be true? Table 4 shows the unnatural death rates per thousand person years by tobacco use status. This is from a different study by Arthur Klatsky who is from Kaiser Permanente, a big California, Washington, and Oregon health maintenance organization. It was published in *Alcoholism: Clinical and Experimental Research*. Klatsky did a study that was different than the Nurses' Health Study, but it also asked, is there an association between heavy smoking and trauma? Is heavy smoking, for want of a better term, one of the spokes of a very significant and unevaluated wheel called high risk for trauma death? Klatsky concluded, yes, the unnatural trauma deaths in individuals, both men and women, who smoke more than a pack a day, were significantly higher than in nonsmokers, ex-smokers and lighter-volume smokers. Klatsky came to the same conclusion that the Nurses' Health Study did. If you isolate the heavy smoker, you have a bad piece of business.

TABLE 4
UNNATURAL DEATH RATES

Tobacco Use	Unnatural Death rate/1,000 persons yrs
Never Smoked	0.33
Ex-smoker	0.36
< 1 pack per day	0.39
≥ 1 pack per day	0.63

Source: Reprinted with permission from Klatsky, Arthur, *Alcoholism: Clinical and Experimental Research*, 1993, 17:6, page 1156, Williams & Wilkins, Baltimore, MD.

This is not a new concept. In 1989, Bernard Marti and his colleagues in the *British Medical Journal* already presented the concept of the hard-core smoker as a high-risk

individual. This concept was presented like the nucleus of the concept was; there is increased risk of trauma-related death and death from certain medical causes like lung cancer. Then surrounding this were a variety of unfavorable health and lifestyle behaviors, one of which was heavy smoking. Let's call that two packs a day.

We have a citation from a few years ago in the *Journal of the American Medical Association* that says, "Today (this was the late 1980s to early 1990s) one out of four American adults who smokes two packs a day is an alcoholic." The projection was, "If the present trend lines continue in the year 2000, one out of every two adult Americans smoking two packs or more a day will clinically meet the American Psychiatric Society's criteria for an alcoholic addiction." That's a very staggering statistic that fits right in with this particular concept. Then they identified a variety of other behaviors, one of which was not wearing a seat belt. Then they said maybe we can identify, some behaviors that are measurable for insurance, and some that obviously are not. If we had a seat belt question on Part 1, certain individuals would be counseling everybody to check, "Yes, I wear a seat belt," so that would sort of neutralize the value of that question. There are many people now in epidemiology looking at tobacco, etc., arguing that there are a constellation of behaviors that predict trauma death, and if we could ever quantify those and find ways to measure them, we could identify probably the biggest Achilles' heel of insurance mortality, at least in my experience, which is those five- and ten-year premature deaths that are associated with trauma as opposed to disease.

TOBACCO USE AND INSURANCE RATING

Let's get into my domain. Let's talk about an area I have some expertise in—tobacco use and insurance. Let's look at current practices and speculate about how some of those might be modified. Let me make you a virtual expert in the surveillancing of tobacco habits among American insurance buyers.

Let me begin with a quote from a good friend of mine. Back in the mid-1980s, after we'd become accustomed to cigarette user versus noncigarette user pricing in life insurance, just when it was becoming a reality across the North American market, Bill Lyons, who at that time was in charge of marketing for Cologne Life Reinsurance Company, made an observation in Cologne's newsletter. He said, "We've made some progress in identifying the problem thanks to Mike Cowell and many people like Mike. We have good data from a half dozen companies showing us that cigarette smokers die sooner and should be charged more. Now it's up to us to pick up the ball and run with it. We need firm underwriting and claims practices to make sure that the data and insight we have are applied in a rational way in the selection and the pricing of risks and in the handling of claims." I would submit to you now, a decade after Bill's prophetic calling for this to evolve, that we have a mixed score.

We're getting about a B− as an industry. We have, it is true, succeeded in challenging a fair number of claimants who misrepresented their tobacco use status. We have got some interesting court decisions that find for the insurance industry. As you are aware, we could talk about those but the subject of this discussion is not claims; it's underwriting and we've made some changes in how we underwrite. I think there are some things left to do, and I think the credibility of the risk selection process in the eye of the consumer and maybe in the eye of regulators, administrators and

others is at stake. People who affect public policy might be watching us. There might be some interest on the part of people in how well we do this because it is arguable that of all underwritable and assessable factors contributing to death or disability, none is as uniquely in the control of the individual as tobacco use. I have never seen anybody held down and forced to smoke against their will. If people smoke or put tobacco in any orifice, legal or otherwise, they are making a voluntary decision, and if we don't have the brains to charge those people more, then maybe we don't have the right to charge people more who develop diseases which we can't explain. Multiple sclerosis befalls people. Cigarette smoking induced diseases are acquired voluntarily by people. There's a big difference.

TOBACCO USE AND SURVEILLANCE TECHNOLOGY

Let's talk about the surveillance technology and then branch out to all the things I want to say about the issues. You do know that we have surveillance technology in insurance. First, I will explain what I mean by cotinine. Nicotine is the psychoactive chemical in tobacco smoke. Nicotine is why people smoke. You may see low tar and ultra-low tar cigarettes, but trust me, you will never see a denicotinized cigarette, because then there will be no reason to light it. In fact, it would be probably to our advantage in some ways if cigarettes were as high as possible in nicotine and as low as possible in everything else, because as a toxic ingredient, nicotine is probably not as important as carbon monoxide or carcinogens, etc. Nicotine is difficult to measure in bodily fluids because it has a very short half life. We need to have something that stays in the urine, like the man once said in the candy bar commercial, "For a good long time." We need something we can measure three or four days out. We don't really do a "nicotine" test. I put the word nicotine in quotes because it has become common parlance in the insurance industry to refer to the surveillance test done on urine and saliva as a nicotine test, but it's not. It's a cotinine test. Nicotine is quickly metabolized in the human body into a nonpsychoactive intermediate metabolite called cotinine. Cotinine remains longer and thus its measurement is acceptable for screening people who may have stopped smoking for a day or two in an effort to beat the system. In a study done by the underwriting community two years ago, a survey was taken of some 313 chief underwriters in large and medium-sized U.S. and Canadian companies. It was clear that the vast majority of life insurance companies obtain cotinine tests probably dominantly but not exclusively on urine in an effort to determine if someone smokes.

Why do all these companies do the test? Well, I guess the safest way to say it is there is a very disturbing "illness" which I'll call "smoker's amnesia." It's a transient psychological disorder. It appears to have neurologic roots. It is induced by fact finders, nonmedicals, and paramedical exams. During that transient interval, the individual disavows any knowledge of tobacco. The individual who uses tobacco, temporarily forgets that he or she does. Smoker's amnesia is epidemic in the insurance business, and obviously if all the amnesic smokers were moved into the nonsmoker category, their propensity to move like lemmings to an early death would damage the pricing.

What percentage of cigarette smoking or tobacco using insurance applicants have this amnesic disorder? That's an interesting question. I honestly do not know. I have never seen a really good scientific study of a large population of applicants, either in

one company or in a large number of companies. I can show you a couple of citations where the chief underwriter at Berkshire Life, Larry King, reported in an article on a study that was done by one major laboratory. They looked at 32,000 insurance applicants, matched the cotinine results to the application part one or part two question on smoking and came away with this conclusion. Six percent of individuals who had positive cotinine tests disavowed tobacco use. If this statistic is reliable, then that would suggest that the prevalence of smoker's amnesia is around 6%.

An interesting study in the *American Review of Respiratory Disease* looked at Hispanic-Americans who were given a health and nutrition survey. One of the questions on there is, do you smoke or use tobacco? This is a survey that had nothing to do with purchasing insurance; there were no financial consequences related to lying. The only reason for lying would be pure obstructive behavior or the embarrassment that one is a tobacco user. Some 6.3% of those who said they were tobacco abstainers had a positive cotinine test that could not possibly have occurred in the absence of tobacco ingestion. Even in this scenario where there was no motive to misrepresent their intentions, over 6% of the individuals who were surveyed were found to be lying presumptively. There may be an odd exception here, but most all of them were lying about their tobacco use.

There is a study that will be published in *On the Risk* in September of 1994. It was done in Great Britain by NRG Victory Reinsurance Company. It's called the U. K. Cotinine Study; it's a very timely study. John Ormandroyd, who is with NRG Victory, wrote the report of the study which will be published. They looked at 1,000 life insurance applicants in the United Kingdom who had urine samples collected and tested for cotinine. These 1,000 people said, "I do not smoke; I do not use tobacco in any form." The purpose of the study was to determine how many U.K. applicants had smoker's amnesia. They used the same cut-off, by the way, for a positive test that my company and our sister companies recommend, which is a half microgram o cotinine per milliliter of urine. At that cut-off level, I submit to you that it is essentially impossible for an individual who is not using tobacco to test positive, and I will explain to you the ramifications of that statement in a moment. It's essentially impossible for an individual to have a positive cotinine test and not be a tobacco user or a recent tobacco user.

Seven percent of the males and 5% of the females who were surveyed said they didn't smoke but had cotinine results compatible with smoking. Nondisclosure was highest in the young, 8% in the under-age-30 group, and tapered down to roughly 4% or 5% in the over-age-50 group, suggesting that the propensity to lie decreases with age. Brokers had only one-third as many positives as career agents, suggesting something else I won't give articulation to. Career agent associations seem to be affiliated with adverse outcomes. When you break it down into three face amount categories, you find that the largest nondisclosure rate was in the smallest face amount which is consistent with data from my own company. But what's paradoxical is there is a significantly greater nondisclosure rate in the large policies than in the intermediate category of policy size. Roughly 4.9% of the people buying large policies in the U.K. were lying about their tobacco use. I think it would be very interesting to see what it would mean in terms of mortality consequence if you

assume that 5% of your nonsmokers in the U.K. were smokers, and if you took the four tables or so difference in mortality and measured what that impact was in terms of that block of business. It would probably be devastating.

What can cause more than half a microgram of cotinine per milliliter of urine in humans? There are four causes. We'll address the favorite fifth cause that producers like to testify to, called passive smoking, in a moment. Passive smoking is conspicuous by its absence on the list of causes. There are four ways one can have a positive cotinine test. One is to use any kind of tobacco, in any form. Second, to be on a nicotine surrogate. A nicotine surrogate would be any nicotine delivery system used to aid in tobacco addiction withdrawal. Currently, in America, we have nicotine polycrylics, nicorette gum, and we have at least four FDA approved proprietary variations of the transdermal nicotine patch. Instead of inhaling, you just put the patch on. There are researchers who have developed and obviously will seek approval from the FDA of both a nicotine nasal spray and a nicotine oral spray. There may be as many as four different ways of delivering nicotine as a surrogate for smoking in the future. The nasal spray is particularly attractive because absorption from the highly vascular nasal mucosa might be a better delivery system than the rather tedious transdermal delivery route. Obviously, nicotine surrogates are going to be a very big part of our lives for years ahead. There's also the remote possibility of being exposed to an herbicide. That is the predominant etiologic agent for positive cotinine tests in people who disavow tobacco use.

This is a question that comes up frequently. I was in Anchorage, Alaska, and I spoke to the Anchorage Association of Life Underwriters. The most common question that we get from those audiences is, can passive smoking cause a positive cotinine test? You obviously understand what their wish is—they want to blame a positive test on passive smoking; they can say the wife smokes and the husband and the wife live in a cave and thus he breathes her smoke and he has a positive cotinine test. Let's answer once and for all the question, can a passive smoker have a positive cotinine test? No, a thousand times no.

Let me be sure you understand. If I take a passively exposed person who breathes pipe, cigar and cigarette smoke of other people and I test his urine, can I detect nicotine metabolite? Yes, by using tests that measure a fraction, a minuscule fraction of the level that we require as a cut-off for a positive insurance test. If I measure in nanograms or pipograms, yes, I can detect cotinine in the urine of virtually every person who lives in an urban area of America and has a carbon-based life system. It's not a problem. But to say that I can detect cotinine in the urine of almost every urbanized American is not the same as saying that one will have a sufficient amount of cotinine to be called positive by insurance criteria because we have the small requirement of a half a microgram. Three investigators, Mike Cummings at the Roswell Park Memorial Cancer Institute in Buffalo, Hariharan and Van Nord at U.C.L.A. and Cook in London have looked at the highest cotinine level they could find in an aggregate of well over 700 passive smokers voluntarily submitting themselves for testing. The highest level in the United States ever achieved by a passive smoker was 0.08, roughly one sixth of my company's line in the sand. In Great Britain, it was 0.12, which is slightly higher.

What's the take-home message? It is biologically impossible for a passively exposed individual to have a positive cotinine test. It only happens in the imagination of producers, never in human experience. I have never seen a documented case in the world literature, and I've written most of the things ever published on this subject in the insurance literature, where any passively exposed individual has ever had half a microgram of cotinine per milliliter of urine.

You'll find this amusing and some day it may save your life. Very recently, Peter Domino and his colleagues in the *New England Journal of Medicine* made the startling discovery that vegetables contain nicotine, raising the ugly specter that well-intentioned parents have made hopeless addicts out of their children when they said, "You stay and finish your vegetables before you go back and watch The Flintstones." Will vegetable junkies have a positive cotinine test?

A version of this was published in one- and two-syllable words in *USA Today*. Some producer read it. About three months ago I did a presentation to a group of agents from a large southern company. This guy told me he had a client who was a 300-pound vegetarian. He had this 300-pound vegetarian client who had a positive cotinine test but, of course, he didn't smoke, didn't chew and didn't go out with women who did; therefore, by inference, it was a false positive. We hate that term at the lab. Is that possible? Could one consume sufficient vegetables to have a positive cotinine result? A researcher at the National Institute of Drug Abuse investigated that question, tested the hypothesis and found the following association: one half a cigarette equals 100 kilograms of tomatoes. Therefore, any individual who says he has a positive cotinine test because he is a 300-pound vegetarian, would be issued nonsmoker coverage, but would be rated a minimum of Table 6 for a severe obsessive/compulsive disorder because anyone who can eat 220 pounds of tomatoes isn't normal. Another opportunity bites the dust. One cannot have a positive cotinine test from eating vegetables unless one is a brontosaurus. Let's put that to bed.

If you have any other questions about this cotinine surveillancing, do ask me. It's one of my specialties.

CIGARETTE SMOKING VERSUS TOBACCO USE

Let's talk about pricing. By the early 1980s, most insurance companies in the United States and Canada and increasingly outside North America were pricing cigarette smokers differently than (1) lifetime tobacco abstainers, (2) people who hadn't smoked cigarettes for at least 12 months, and (3) people who used tobacco in other creative ways—pipes, cigars and orally. We had cigarette-only pricing. I would suggest to you now, and this is by no means news, that we ought to be thinking in terms of a cleaner, more significant split. Either you use tobacco (or perhaps you should say nicotine) or you don't. At this writing I will tell you that it's my estimation that half of the top 200 U.S. and Canadian companies, more in Canada than in the U.S., are currently using user-abstainer pricing.

In the September 21, 1992 *National Underwriter*, Donald Britton, Executive Vice President at First Colony Life said about some of his company's underwriting practices, "Equity demands that you place people in the proper category. No matter how it is consumed, tobacco does physical damage." I would add that it is

voluntarily consumed, and it's the one thing no one can criticize us for pricing (other than perhaps the Tobacco Institute). In the ACLI's Monitoring Attitudes of the Public surveys, the only risk classification question where we get better than 50% affirmative responses is when we ask if it's appropriate to charge cigarette smokers more than nonsmokers. In every other area, the majority of respondents are unhappy with the insurance industry, but lo and behold, at least two out of three think smoker pricing is correct. Mr. Britton says and I agree, maybe it's time we just extended this to tobacco use per se, which raises the specter, is there extra mortality in pipe and cigar smoking? Would we, in effect, be offering up the pipe and cigar smokers, so to speak, sacrificing them for the sake of a clean separation between tobacco use and tobacco abstention?

There were other studies published at the time of Mike Cowell's landmark study at State Mutual. In this case I'm speaking about the study at Sun Life of Canada published in *Transactions* way back in 1980 [Michael J. Cowell and Brian L. Hirst, "Mortality Differences Between Smokers and Nonsmokers," *Transactions* XXXII (1980) p. 185]. Sun Life data showed a statistically significant increase in mortality (you'll understand all this language better than I will) in pipe and cigar smokers as compared to tobacco abstainers. It wasn't as high as in cigarette smokers, but it was certainly significantly higher than nonsmokers. We have data going back a decade and a half that is insurance-data-compatible with putting pipe and cigar smokers in the user category.

TABLE 5
CIGAR AND PIPE SMOKING MORTALITY
SUN LIFE (CANADA)
STANDARD ISSUES OF 1965–76
EXPERIENCE BETWEEN 1973–77 ANNIVERSARIES

Smoking Classification	Nonsmoker	Light Cigarette Smoker	Heavy Cigarette Smoker	Pipe or Cigar Smoker
All Ages	1.00	2.06	2.47	1.48

Source: Charles Watchorn & Dikran Ohannessain, *Transactions* XXXII (1980): page 224

Let me show you something you have not seen because you probably don't read the Scandinavian-based *Journal of Internal Medicine*, one of the world's best medical publications. In 1992, Rosengren and his colleagues in Goteberg, Sweden, did a very interesting study. I think you'll find these numbers most instructive. They took two cohorts of Swedish middle-aged men, followed one for seven years and one for almost 12 years, prospectively, and looked at all cause mortality at the end, fractionated by tobacco smoking proclivity. Table 6 shows, as is always the case, the winners are the lifetime abstainers. The ex-smokers have a slightly increased mortality because there is some residual long-term adversity. Once you smoke so much for a long time, you never return to baseline. I find this very interesting. There is almost no difference between 1-4 and 15-24 cigarettes; in fact, if anything, there is an advantage to smoking 15–24 cigarettes.

TABLE 6
SWEDISH STUDY RESULTS

Tobacco Usage	All-Cause Mortality
None	5.8%
Ex-cigarette smoker	6.5
1–4 cigarettes/daily	12.3
5–14 cigarettes/daily	13.2
15–24 cigarettes/daily	11.6
25+ cigarettes/daily	21.9
Cigars only	10.1
Pipe only	9.7

Source: Reprinted with permission by Rosengren, *Journal of Internal Medicine*, Volume 231 (1992), pages 357–62, Blackwell Science Ltd, Oxford, England.

You're almost better off with a pack a day than just the odd cigarette. So much for the individual who says, "I only smoke one cigarette a week." That's much worse. Go to a pack, and you'll make a big improvement, especially if you're Swedish. Then when you get to two packs a day, mortality doubles so that's another reason for a flat extra for a suicide attempt. Then look at cigars and pipes. Look at how they are significantly higher than ex-cigarette smokers and lifetime tobacco abstainers. Notice how cigar smokers and pipe smokers had mortality that approximated a pack of cigarettes a day.

There is another study by Hine and his coworkers, also in the *Journal of Internal Medicine*, also from Scandinavia. This time it was done in Copenhagen where, for a larger group, the same results were produced. To avoid redundancy, I have not reproduced that study data here. Both of these studies followed large populations for a long time and they both show exactly the same result. There is a significantly adverse outcome for pipe and cigar smokers as compared to tobacco abstainers and ex-cigarette smokers. I should think that this should give us some justification.

What about oral tobacco? Let me give you a quick primer on oral tobacco. There are three kinds, basically loose leaf in foil pouches, snuff and the plug, most of which is placed between the cheek and the gum and left there to cause periodontal disease. Those are the ways people consume oral tobacco in America.

There have been a variety of studies on the toxicities of oral tobacco or so-called smokeless tobacco. Benowitz did a review in *The Annals of Internal Medicine* about four years ago and he said, "Smokeless tobacco raises the heart rate and the blood pressure as much as smoking tobacco. It doesn't matter if you smoke or not, your heart rate goes up and your blood pressure goes up. It promotes the release of

chemicals called catecholamines, which are basically the chemicals that fuel the adrenergic branch or the fight-like branch of the adrenergic or autonomic or automatic nervous system."

Oral tobacco contains carcinogenic nitrosamines and other carcinogenic chemicals, increasing the numbers of mutagenic changes in urine samples consistent with damage to cells. More recently, in *Drug Abuse Update*, the authors who reviewed the toxicities of oral tobacco made this statement: "Users of oral tobacco receive ten times the amount of cancer-causing substances as do cigarette smokers." All of these malignant neoplasms have been implicated as being caused by oral tobacco use. Multiple sites in the mouth, like the tongue, have very poor survival rates. There's also the larynx, the nose, the esophagus, the pancreas, the bladder and the kidney. Obviously lung cancer is conspicuous by its absence. I suppose unless you swallow the plug and suck it into your airways you won't get lung cancer although cancer of the esophagus and pancreas have survival rates that make lung cancer look good. You could probably fit all the five-year survivors of cancer of the esophagus in San Francisco in a phone booth and still have room to dial.

Over the next 15 years, Americans will experience an epidemic of mouth cancer resulting from the use of smokeless tobacco and in particular snuff dipping. I've already seen pathology reports on three or four cases of teenagers and young adult males who have died from poorly differentiated and undifferentiated carcinomas of the head and neck region all associated with only one causative agent, snuff dipping since preadolescence.

There is only one study that I have been able to unearth in all of my research that looks at morbidity consequences. I can't find any good prospective mortality data. Bolinder and his colleagues in Stockholm took 97,000 Swedish, middle-aged construction workers and followed them prospectively to determine what caused them to become disabled. They looked at three categories that were common causes of disability: cardiovascular diseases, chronic high blood pressure and diseases of the musculoskeletal architecture. Nontobacco-using consumers were used as a baseline. They looked at the relative increase in the risk of these three forms of disability associated with cigarette smoking versus oral tobacco. Two out of the three categories, hypertension and musculoskeletal diseases, were more strongly associated with disability in people who used smokeless tobacco than in people who smoked cigarettes. This is obviously not one on one relatable to mortality, but I would suggest that where hypertension goes as a cause of disability, death will follow from myocardial infarction and stroke. This was the only study I was able to unearth, but it makes a decent additive, inferential argument for putting oral tobacco users in the user category.

NICOTINE VERSUS TOBACCO USE AND THE TIME VALUE OF ABSTENTION

What about nicotine-based pricing? What about user/abstainer pricing with the additional caveat that if you use nicotine in any form, you are a smoker or, if you prefer, a user. I suggest to you, if an applicant is on a nicotine surrogate, the patch, the gum, and perhaps soon the nasal spray or the throat spray, he or she should be treated as smokers, as users. Let me show you why: the current FDA approved

proprietary surrogates are: Nicorette gum, and transdermal patches such as Nicoderm, Habitrol, Prostep and Nicotrol.

There are two sets of data available on long-time patch users. Tonnesen and his coworkers at *The New England Journal of Medicine* followed a population of highly motivated cigarette smokers. After six weeks, 47% had relapsed. At twelve weeks, only four out of ten remained abstinent. After a year, 83% of the enrolles had relapsed. So much for the success rate of the transdermal patch. More recently, Sax and his colleagues achieved a one-year abstinence rate up to one out of four.

That's the most impressive one I've seen yet. Of 220 young nonsmoking adults, one out of four remained abstinent after a year; actually two out of three had already relapsed after just six months. In fact, four out of ten had relapsed before they could barely get their clothes clean. Clearly, there are going to be many relapses from people on nicotine surrogates. If you take an individual who is on a nicotine surrogate who says he quit smoking more than 12 months at the time of the application, that individual should be treated as a user. I would define nonuser as an individual who has not been on tobacco or a nicotine surrogate for 12 months. As long as he remains on smokers' methadone, he is at great risk for relapse.

Some people continue smoking while on the patch—talk about double your pleasure, double your fun. Mike Fiore and his colleagues at the University of Wisconsin find a fair number of individuals now are wearing the patch and holding a cigarette. That's got to be a suicide attempt. Talk about a high dose of nicotine.

How soon after tobacco cessation is one a legitimate nonuser? My argument there was if you're on the patch, if you're using a surrogate, you're a user. Tobacco use should consist of all forms of tobacco consumption and a user should be anybody who has been on the patch within the last 12 months. Now let's attack the 12 months. I'm trying to put this together historically because I've been in the underwriting business for the whole time that we've had nonsmoking pricing. Somewhere in the early 1980s, a marketing actuary made a deal with the producers in some large company. He's probably been torn apart by an angry mob since then. We don't know who he was, but he said something like this. "If you guys won't give us a hard time about charging cigarette smokers more, we're going to make the most ludicrous, absurd medically undefensible decision in the 20th century. We are going to pretend that if you quit smoking for 12 months, you're a nonsmoker, and all the things magically go away. If you quit for 12 months we are going to allow you to be reconsidered. We're going to spend a couple of hundred dollars of our company's money and make you a nonsmoker. All you have to do is send in the statement that says, 'I did it,' and that's it. In HOLUA's 1993 Procedures and Cost Committee's survey, 94% of American companies were still using 12 months later as if it had some validity. Five percent had gone to 24 months and there were the odd one or two companies that were experimenting with intervals that will guarantee them no new applications.

This is that definition of a nonsmoker: a 50-year-old man who smokes 40 cigarettes a day for 35 years, has the respiratory capacity of a tree shrew and blue lips, but stops because his doctor tells him he's going to die, and if he lives 12 more months,

he is considered a nonsmoker who never smoked. That doesn't make any sense. That is patently absurd.

Let's discuss what Lee and D'Alonzo reported in *The Archives of Internal Medicine*. They looked at the world literature on the long-term consequences of tobacco smoking, measured from the time the individuals in these studies became tobacco abstinent or cigarette abstinent. They found that the cancer risk normalized in the next decade or decade-and-a-half. The cardiovascular risk, of course, very quickly normalized. It took only 60 months for the men to return to baseline in terms of cardiovascular risk and it took 24 months for females to return to baseline. More recent studies have shown it's probably ridiculous to think in terms of five and two years, it's probably much longer for both sexes than what Lee and D'Alonzo have reported. The more we learn about tobacco toxicity, the more convinced we become that if an individual smokes a pack a day for 20 years and then stops and never smokes again, he or she can't live long enough to have the same mortality as the lifetime abstainer. Many people use as a rule of thumb 20 cigarettes a day for 20 years as a divider between those who may eventually, if they live long enough, have the same mortality as the life-time abstainer.

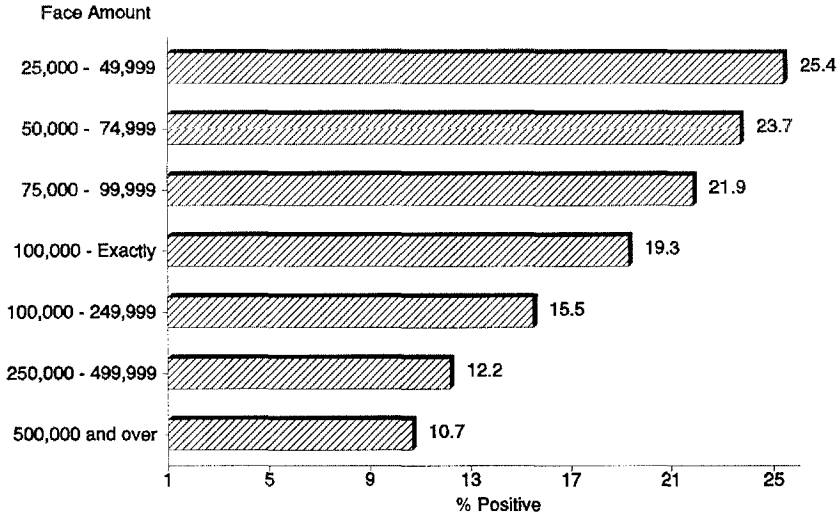
How then can we possibly justify 12 months? The argument in those days was that it was a marketing concession so the field wouldn't complain and resist our cigarette-based pricing. That's ancient history now. There is no justification for the field complaining about moving that interval to 36 months or 48 months or perhaps where it belongs which is 60 months. I doubt if you'll achieve 60, but certainly some longer interval than 12 months is clearly medically and logically indicated.

Chart 1 shows the 1992 cotinine testing results of Home Office Reference Laboratory. My company does about two-thirds in the United States and four-fifths in Canada of all the urine tests done for cotinine for insurance purposes. We broke down our cotinine positives by face amount of insurance. Being somewhat knowledgeable in the demographics and epidemiology of tobacco smoking, I can tell you, if you will accept the logic, that as the face amount increases, so does the relative socioeconomic standing, affluence and years of education of the individual. Then I can tell you that these numbers are generally consistent with the data we have when we break down cigarette smokers by years of education or prevalence of cigarette smoking by income or according to occupation classes starting with white collar executive and professional and moving down to day labor, etc. You find the distribution not dissimilar to this. At a face amount of $500,000 and over, only slightly over one out of ten of our insurance applications tested positive for a nicotine metabolite; but at face amounts well under the prevailing testing threshold, there are substantial increases in the percentage of individuals who had positive tests. Another way of saying it is, you find more cigarette butts in a bowling alley than on a polo field.

What's the take-home message? Our cotinine testing levels are grossly too high. Of course, my company feels that way as much as anyone since we sell the testing. I have never done a study nor has anyone else that I know of, but I bet you that if you did a protective value study and assumed that 4% or 3% of applicants were misrepresenting their tobacco status and that their extra mortality equalled four tables and

then matched the extra mortality cost against the cost of doing urine testing for cotinine, you would find a return on the cotinine testing so awesome that it would dwarf the protective value of anything ever done in the history of life risk selection in North America. I think the cotinine testing levels need to be much lower and for support I offer that the only protective value study I have ever heard articulated from a podium took place less than a month ago in Nashville. I don't mean the only protective value study; I mean the only protective value study on laboratory testing. There have been many done by companies, but most are deemed proprietary and not published.

CHART 1
1992 HORL RESULTS
NICOTINE



This one was done by the Independent Order of Foresters in suburban Toronto, Ontario. The Independent Order of Foresters does most of its business in the United States. It is a fraternal benefit company with an average face amount well under $100,000 in U.S dollars. The reporting executive, Bonnie Jensen, who is chief underwriting officer for that company, found that, based on its most recent data, cotinine levels could be justified as being $25,000 as opposed to the current testing level that they use which is very progressive at $50,000. I think if you take these demographic data and these results from our testing, and you apply them, you would find that the one thing companies could do to improve their mortality results immediately is collect cotinine samples on applicants of face amounts in the $25,000–$50,000 range. That payoff would, by inference, be huge.

My epilogue is simple. It's increasingly clear from what's going down in society that the euphemism or the phrase, smokers' rights, is inherently oxymoronic. It is increasingly clear to me that as this trend progresses in our society, as smoking becomes unheard of in public places, as more and more people abstain and as we finally get down to that last group of really medically addicted individuals, that it would be incumbent on the insurance industry, if it wants to continue classifying risks, to maximize our use of this public perception and to charge these people more and put them in the right categories. That's what this whole presentation was about.

MS. SUSAN M. BENJAMIN: What level of smoking is your 0.5 microgram cutoff commensurate with?

MR. GEORGE: What level of smoking does that represent? I have no idea. Let me tell you why I have no idea. This is something that you need to know, especially if you work with underwriters. There is a tendency on the part of underwriters to make an extrapolation. That is to say, if we report cotinine between 0.5 which is the cutoff and 4.9 or 5.0 which is the upper limit (we don't report amounts beyond 5.0 because they are irrelevant) sometimes underwriters will see an applicant who has a single urine specimen that has a 4.9 microgram level, and they'll assume that they smoke three packs of cigarettes. Then they'll see somebody at 0.6 and they'll assume that they smoke a quarter of a pack of extremely low tar cigarettes. That inference is invalid. Probably the biggest factors that determine the cotinine level in the single-voided urine collected randomly are the state of hydration of the individual at the time. If he's dehydrated, the cotinine is going to be higher. Don't tell this to agents. If he's well hydrated, if he has just guzzled a quart of a nice diuretic fluid like cranberry juice, the level is probably going to be at it's low point. State of hydration and style of smoking are very important.

My father, who died of emphysema after 150 pack years, inhaled so deeply that we were assigned orifices to see if the smoke ever came out. He would have a higher cotinine level than my mother-in-law. My mother-in-law is one of these individuals who doesn't inhale. Her function is just to stink up my car. How you smoke and how well hydrated you are, are more important. You cannot infer or predict the level of smoking exposure in a single voided urine because of those limiting factors.

FROM THE FLOOR: This actually isn't a question, but I just wanted to point out that we went from the 1.0 to the 0.5 level at our company. We looked at the statistics that were available primarily through Hank George and found that there wasn't really an appreciable mortality difference between people who tested out at the 0.5–0.9 level versus the 1.0 level.

MR. GEORGE: Many companies use the 1.0 level in the industry. You'd be amazed if I told you some of the companies because that's such an old-fashioned way of doing it. All I can tell you for sure, if you're taking individuals between 0.5 and 0.9 and issuing them nonsmoker policies, is they'll all be smokers who beat the system. One cannot have a 0.51 level unless one is a tobacco consumer or is on a nicotine surrogate. They may be lighter smokers, on average, but they are definitely smokers.

MR. IAN M. CHARLTON: I married a woman 12 years younger than myself who smokes. According to the Cowell study and the one that came out later, we now have the exact life expectancy. She is like your mother-in-law, a puffer. She also has some physical disability and when coming here I had to wheel her about a mile and a half from the gate to outside the airport so that she could have a cigarette. She is addicted. There's no doubt about it. You've got points there with respect to passive smoking which indicates that it really is a very small matter. I believe that our country has gone too far to protect the nonsmoker. You point out it doesn't really matter. I've been married to one of several smokers since 1948 and I find myself at age 68 better off than a female at 56 who smokes.

MR. STEPHEN A. HARDACRE: A question on your 1992 nicotine split by face amount. People are being tested, and they're saying they're nonsmokers at issue, right? You don't test the smokers?

MR. GEORGE: They segregated out the data. This is a percentage of individuals who tested positive. This isn't the percentage of people who said they didn't smoke who tested positive. I'm just giving you the percentage of people who smoke in these face amount categories.

MR. HARDACRE: Anyone who applies for insurance, whether claiming to be a smoker or nonsmoker, is tested?

MR. GEORGE: I only know of one company that runs the test on people who answer you no. Most companies just run the test. You could, of course, with our computer technology say, run the test only if the individual answers no, but most companies run the test on all urines and do not segregate by what the Part 1 or Part 2 smoking question answer is. This says, 25.4% of the urines tested at HORL on policies that large were positive for cotinine and the vast majority of those obviously were in people who said they smoked and then proved it with urine samples. That's what that means.

MR. WAYNE G. MILLER: What's your definition of an ex-smoker, because they seem to have very good mortality experience versus smokers? Is it 12 months? How do you define ex-smoker in those studies?

MR. GEORGE: It's different in each of those studies that I showed you.

MR. MILLER: They're all different. They all seem to say that ex-smokers have reasonable mortality experience.

MR. GEORGE: They do. Once they stop smoking for a period of time, they get much better.

MR. MILLER: But you're also saying that if somebody says that they haven't smoked for 12 months, they're not that much better of a risk than somebody who is currently smoking?

MR. GEORGE: I didn't show you this statistically because there is not much data to support it; it's well known in smoke-ending clinics that the recidivist rates in people who quit for 12 months is about one in two. Twelve months doesn't guarantee anything so the fantasy that they've stopped smoking and will not relapse at 12 months is basically hogwash, not to mention the fact that the toxicities have not yet begun to wear off. We're putting the cart before the horse. Most of these nonsmokers, I'm sure, if you took the average in most of these studies would have quit smoking for a decade or more by the time they were factored into the outcome. Most of them are not just recent ex-smokers.

What do we gain as an industry by saying if you quit smoking for 12 months, you're a nonsmoker? We had one advantage. The marketing people did not bite us in the toe when we went to cigarette pricing. That advantage is ancient history. Right now we're doing these expensive reconsiderations of business. It's costing us money, manpower, time, and in some cases, urine collection, which we appreciate. Why are we doing it at 12 months when 12 months is not a sensible interval? I guess that's my point. That interval is obsolete and it sends the wrong message to people in terms of the medical literature. If I were a nonmedical person and you told me that I would be considered a nonsmoker when I quit smoking for 12 months, I would infer, from your wisdom, that you must know something that all the effects wear off and I'm home free and I no longer have to worry if I cough up blood. That's hardly true. That is what I'm suggesting.