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RESERVING FOR AIDS

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- o This session will focus on the potential implications of actuarial requirements for small, medium and large companies, as well as on the possible strategies for dealing with the financial implications of AIDS, including reserve calculation methodologies and cash flow testing.

MR. DAVID J. CHRISTIANSON: Our panelists are Harold Phillips, Thomas Reese, and Dennis Stanley. Harold is Senior Life Actuary at the California Department of Insurance. Prior to that he was employed for 29 years at Aid Association for Lutherans (AAL) and for one year at the Executive Life Insurance Company. Tom Reese has been a consultant with Tillinghast for three years and prior to that also worked at AAL. Tom chairs the SOA Committee on HIV Research and prior to that served on the SOA Task Force on AIDS (the Holland Committee) and on the Society of Actuaries Task Force on the Financial Implications of AIDS. Dennis Stanley is a Consulting Actuary with Milliman & Robertson. His activities include a variety of financial analysis areas, including the implications of AIDS, pricing margins, and reserve adequacy. I'm David Christianson, Vice President and Actuary with Lutheran Brotherhood. I served on the Holland Committee and went on to chair the SOA Task Force on the Financial Implications of AIDS.

Our program is divided into several sections. First will be preliminary comments. Then we will go through case studies on four hypothetical companies analyzing concerns and possible responses regarding AIDS. Then we would like audience reaction to these cases. Did we take the right approach? Also, people may want to talk about their own company and its approach to AIDS. Then we will examine a survey on AIDS reserving that was conducted prior to the April 1990 Hartford SOA meeting. Following a review of the second draft of the AIDS standard, we will have more comments from our panelists and then throw it open for discussion again.

Tom Reese will provide background on where the HIV epidemic currently stands. What has changed, and what has not? How valid are the projections that have been made so far?

MR. THOMAS W. REESE: In reviewing the current status of the AIDS epidemic in the U.S., I want to look at four areas: (1) the characteristics of the persons diagnosed as having AIDS; (2) trends in the number of diagnosed cases; (3) updated projections of the epidemic released by the U.S. Centers for Disease Control (CDC) compared with the projections released last year by the SOA Committee on HIV Research; and (4) the increase in the U.S. population mortality rates due to AIDS.

PANEL DISCUSSION

EPIDEMIC CHARACTERISTICS

The February 9, 1990 issue of *Morbidity and Mortality Weekly Report* contained an update about AIDS case trends. Let's review several aspects of these epidemic characteristics to observe current case rates and trends in the changes of those rates.

Chart 1 shows that there were 25.8 reported AIDS cases for males in 1989 per 100,000 population versus 3.1 cases for females. The average reporting rate for all classifications was 14.1 cases per 100,000 population.

Thus, the prevalence for males is more than eight times higher than for females on a reporting basis in 1989. However, we must consider a significant trend toward a higher proportion of female AIDS cases.

Chart 2 shows that the percentage of AIDS cases diagnosed in each calendar year that are female has risen from 7.0% of 5,926 cases in 1984 to 11.5% of 22,901 cases in 1989. If we take this measurement after first subtracting out persons identified as intravenous drug users (that seems more appropriate when considering the insured population), the percentage increases from 4.7% of 4,420 cases in 1984 to 8.6% of 16,246 cases in 1989.

Table 1 shows the AIDS case characteristics by HIV exposure group. For this table, and others like it, the right hand column shows the percentage increase in diagnosed cases from October 1, 1988 through September 30, 1989 compared with the cases one year earlier, adjusted for reporting delay by the CDC.

TABLE 1

U.S. AIDS Reporting Characteristics

Risk	1989 Reported	Diagnosis Change
Homo/Bisexual	19,652	11%
IVDU	7,797	20
Both	2,138	5
Heterosexual	1,562	36
Other	2,068	11
Not Identified	1,848	N/A

The category that is growing the most rapidly is "heterosexual spread," which consists of actual heterosexual contact only. Persons born in countries where heterosexual transmission predominates (often referred to as "Pattern II") are included in the "Other" category. Heterosexual contact cases grew 36% over the year described above.

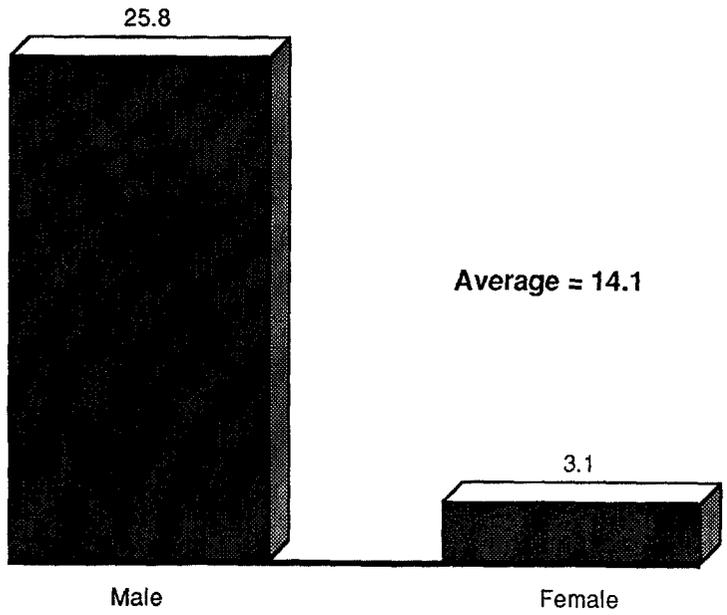
The second category that is increasing faster than average is intravenous drug users, growing at 20% from the previous year.

A comment should be made about the 1,848 cases that are in the "no identified risk" category. These are cases that will be studied by the CDC in the future. Many of them will be redistributed among the other risk groups when determinations are made.

RESERVING FOR AIDS

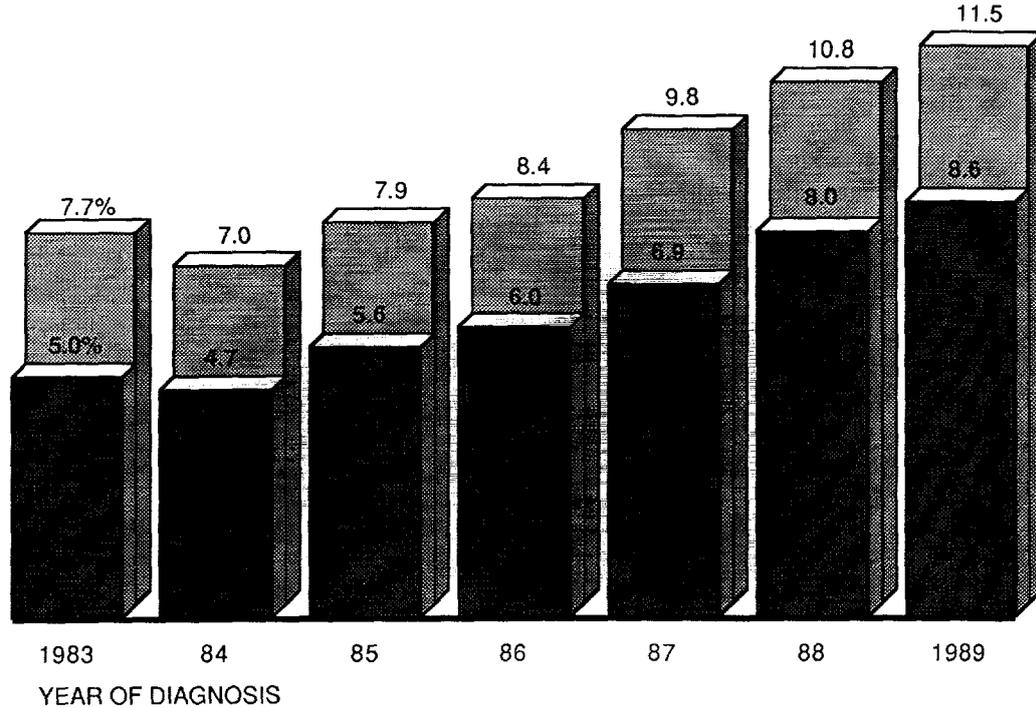
CHART 1

1989 REPORTED U.S. AIDS CASES
Rate Per 100,000 Population



FEMALE AIDS CASES PERCENT OF TOTAL

All Cases, Reported 12/89
Non-IVDU, Reported 12/89



RESERVING FOR AIDS

Chart 3 shows that the incidence of AIDS cases per 100,000 population by age at the time of diagnosis changes from 16.8 for persons in their 20s, to 39.1 for persons in their 30s, to 25.8 for persons in their 40s, to 11.3 for persons in their 50s, and 2.5 for persons 60 years and older. The rate is 1.0 for persons younger than 20 years.

Table 2 shows that the growth rate for persons younger than 20 years was 19%. This is a composite of a 34% increase for ages younger than 5 years, which make up two thirds of the reported cases of those younger than 20 years, and decreases of about 4% for persons 5 through 19 years.

TABLE 2

U.S. AIDS Reporting Characteristics

Age, Year	1989 Reported	Diagnosis Change
< 20	767	19%
< 30	7,002	11
< 40	16,270	15
< 50	7,637	19
< 60	2,525	12
60 +	1,037	3

The number of diagnosed AIDS cases is increasing faster for persons in their 40s and those younger than 5 years. The slowest growth rates are for persons 60 years and older and then for persons in their 20s.

Chart 4 shows that the prevalence of AIDS cases reported in 1989 was 9.8 per 100,000 population for whites, 36.4 for blacks, 26.4 for Hispanics, and 4.1 for Asian/Pacific islander and American Indian/Alaskan native.

Table 3 shows that the highest growth rates are for AIDS cases among blacks and American Indian/Alaskan native. The lowest AIDS increase rate is among whites.

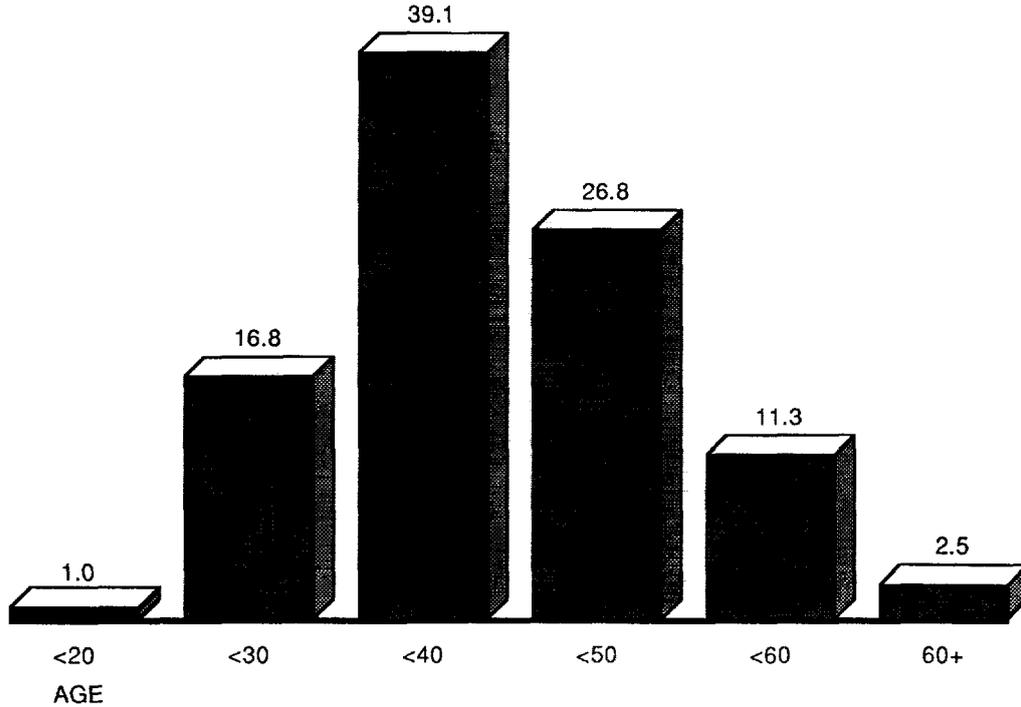
TABLE 3

U.S. AIDS Reporting Characteristics

Race	1989 Reported	Diagnosis Change
White	18,689	10%
Black	10,316	22
Hispanic	5,813	14
Other	290	32

Chart 5 shows trends broken down by geographic region. During 1989, the Northeast continued to have a higher incidence of AIDS cases at 21.3 per 100,000 population compared with an average of 14.1 for the U.S.

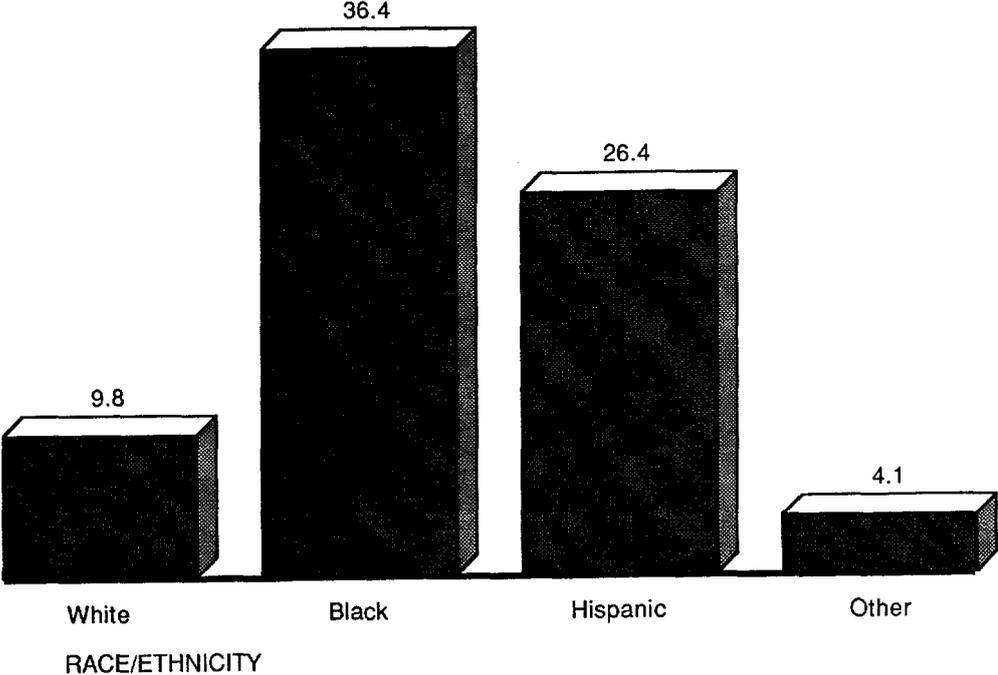
1989 REPORTED U.S. AIDS CASES
Rate Per 100,000 Population



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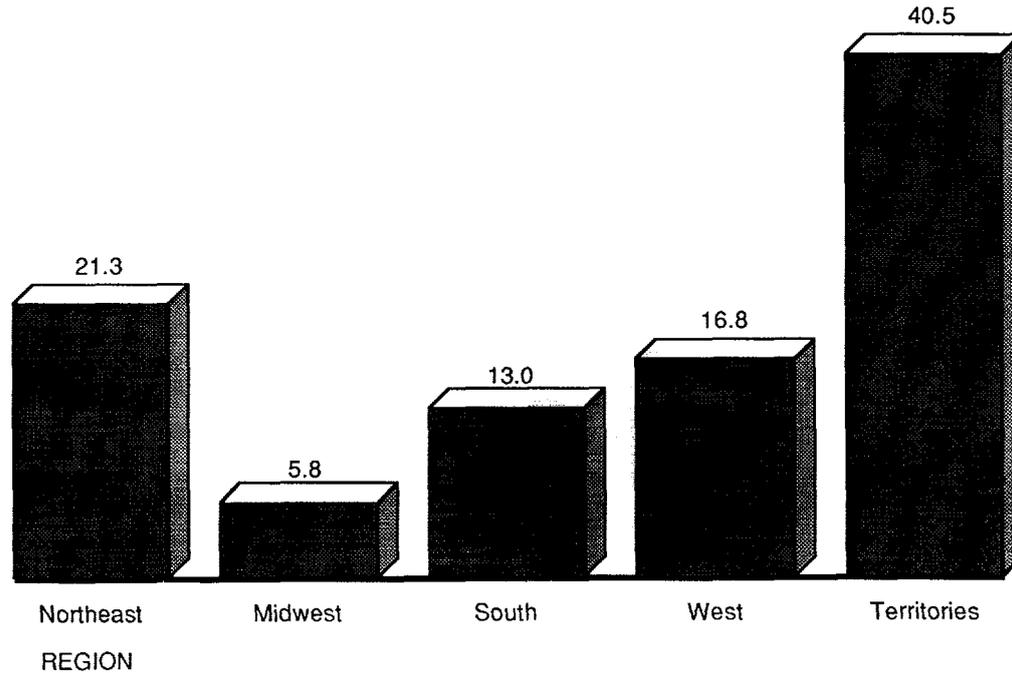
PANEL DISCUSSION
CHART 3

1989 REPORTED U.S. AIDS CASES
Rate Per 100,000 Population



RESERVING FOR AIDS
CHART 4

1989 REPORTED U.S. AIDS CASES
Rate Per 100,000 Population



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PANEL DISCUSSION
CHART 5

RESERVING FOR AIDS

The Midwest continued to be lowest at 5.8, the South was 13.0, the West region was 16.8, and the U.S. territories had a rate of 40.5.

As has been noted in the past, however, the AIDS epidemic seems to be growing fastest in the areas where it is the least prevalent. Table 4 shows that the Midwest and South regions are growing at the fastest rate, 22%. The Northeast region is growing at the slowest rate, 6%.

TABLE 4
U.S. AIDS Reporting Characteristics

Region	1989 Reported	Diagnosis Change
Northeast	10,718	6%
Midwest	3,436	22
South	11,053	22
West	8,515	12
Territories	1,516	19

The same effect can be seen when measuring statistics by size of the population in which each AIDS patient lives. Chart 6 shows that the rate is lowest at 5.1 cases per 100,000 population for metropolitan areas under 100,000 population and nonmetropolitan areas. The rate increases to 8.1 for metropolitan areas up to .5 million in size, 10.8 for metropolitan areas up to 1 million in size, and 22.9 for metropolitan areas of a million or more population.

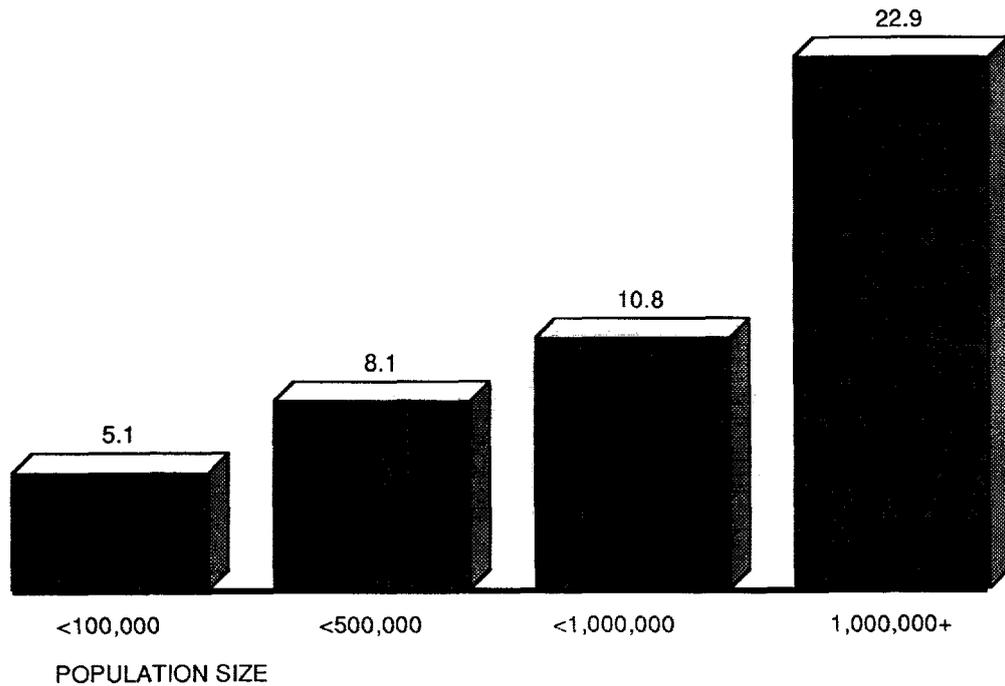
Just as for region, the rate of growth in diagnosed cases is roughly inversely proportional to the prevalence rate. Table 5 shows that the fastest growing segments are those that live in populations of less than .5 million people. The slowest growing category is metropolitan areas of 1 million or more.

TABLE 5
U.S. AIDS Reporting Characteristics

Population	1989 Reported	Diagnosis Change
< 100,000	2,799	31%
< 500,000	3,758	39
< 1,000,000	3,968	29
> 1,000,000	24,713	8

This shows that there is some "leveling out" occurring in the AIDS epidemic, in that the prevalence rate for different regions and population sizes are growing closer together. There is certainly no indication, however, that the incidence of AIDS cases will ever become anything close to level across these different populations.

1989 REPORTED U.S. AIDS CASES
Rate Per 100,000 Population



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PANEL DISCUSSION
CHART 6

RESERVING FOR AIDS

AIDS Case Trends

The February 9, 1990 *Morbidity and Mortality Weekly Report* article also released the CDC's statistically smooth monthly diagnosed AIDS case figures. These figures were adjusted for reporting delays and were smoothed from actual monthly reporting data.

Chart 7 shows the smoothed number of total AIDS cases reported in the U.S. each month from January 1983 through September 1989. Figures are not shown past September 1989, since these cannot yet accurately be adjusted for reporting delays.

Looking at the graph closely, it can be seen that there is a change in the shape of the curve beginning in the middle of 1987. At that time, the curve changes, fairly abruptly, to a slower growth pattern. It is the observation of this change in the growth pattern that has resulted in the CDC cutting back its estimates of short-range future AIDS cases.

The CDC's announcement of this reduction in short-range AIDS case estimates has received considerable publicity. I will now analyze this changed AIDS case trend and then examine the new AIDS case projections from the CDC, comparing them with the projections made by the SOA Committee on HIV Research.

We are fortunate to have the cooperation of the staff at the CDC in charge of projections and modeling of the AIDS epidemic. John Karon, with the CDC in Atlanta, has been most helpful to us on several occasions.

Dave Holland and I met with John Karon in his Atlanta office in February. During that meeting we discussed the change in AIDS case trends that seems to have occurred in 1987. To understand the trend change better, it is helpful to break down the total cases by HIV exposure group.

One of the easiest groups to understand is AIDS cases resulting from blood transfusions, shown in Chart 8. These cases have been essentially level since the middle of 1987.

The reason for this seems obvious -- the medical industry was able to identify and prevent the spread of HIV infection through blood transfusions. The leveling off of cases is a real reflection of reduced numbers of HIV infections by this method.

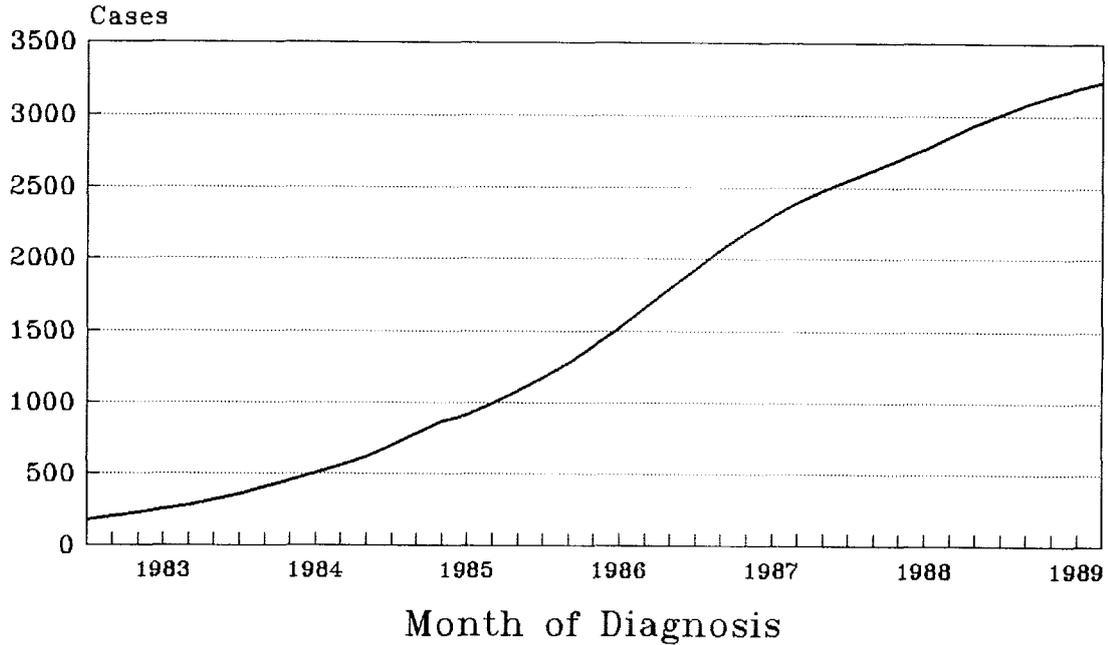
Chart 9 shows the trend for homosexual and bisexual males. This graph shows a sharp reduction in the rate of increase in cases beginning in mid-1987. We will discuss the reasons for this later.

Chart 10 shows a similar pattern for intravenous drug users who were not homosexual or bisexual males. For this category, however, the reduction in the rates of increase did not occur until later in 1987. Perhaps this is due to the CDC's change in the definition of AIDS cases in September 1987. This change identified proportionately more new cases of intravenous drug users than for homosexual or bisexual males. This produced a surge of reporting for intravenous drug users in late 1987 and 1988, perhaps changing to a higher proportion of intravenous drug users with AIDS diagnosed than under the current system.

U.S. AIDS Cases Each Month

Total Cases

Adjusted for Reporting Delays & Smoothed

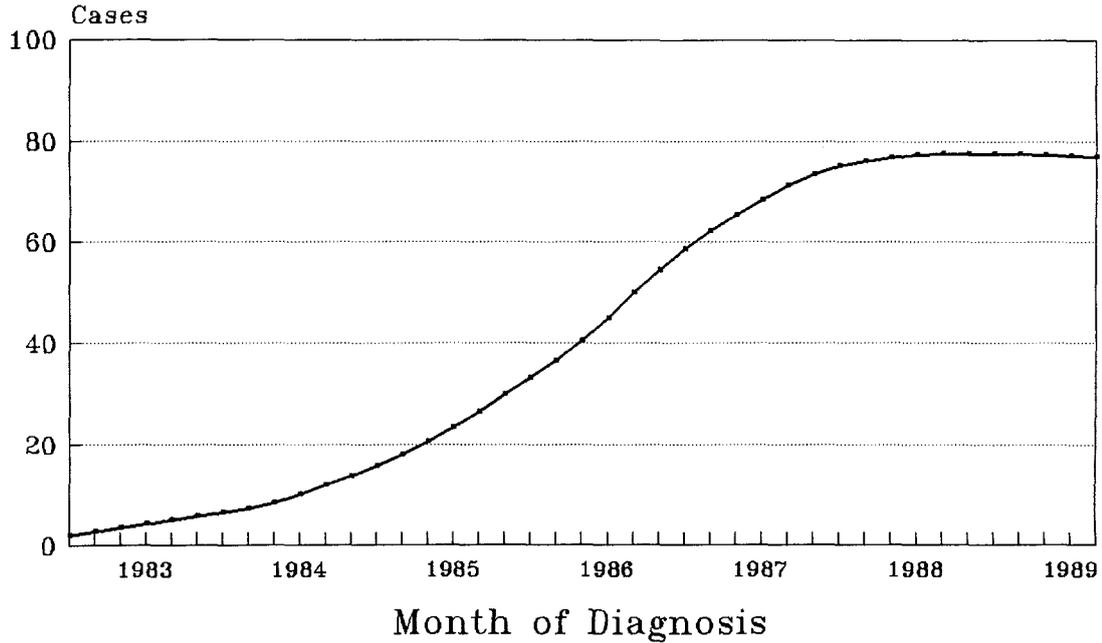


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PANEL DISCUSSION
CHART 7

U.S. AIDS Cases Each Month Blood Transfusions

Adjusted for Reporting Delays & Smoothed

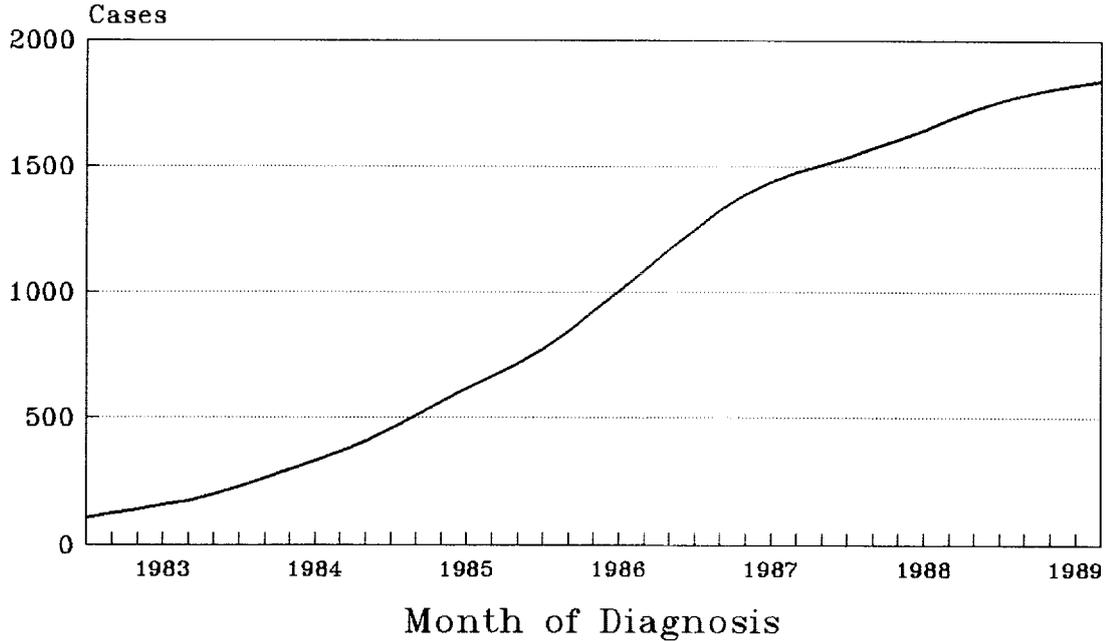


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RESERVING FOR AIDS
CHART 8

U.S. AIDS Cases Each Month Homo/Bisexual Males

Adjusted for Reporting Delays & Smoothed



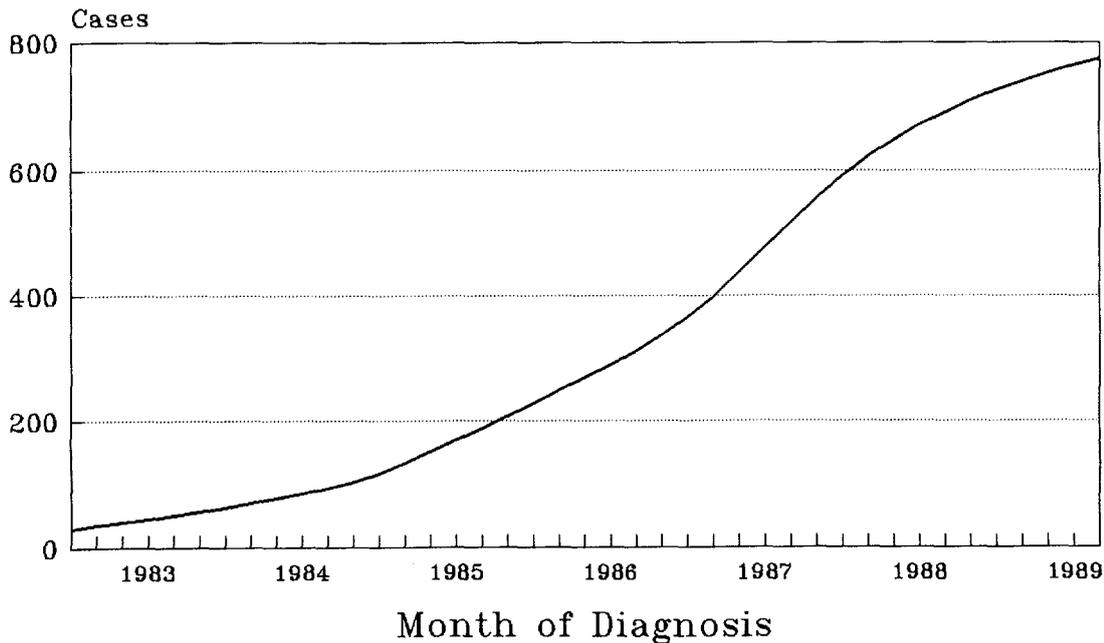
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PANEL DISCUSSION
CHART 9

U.S. AIDS Cases Each Month

Heterosexual IVDU

Adjusted for Reporting Delays & Smoothed



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RESERVING FOR AIDS
CHART 10

PANEL DISCUSSION

Chart 11 shows smoothed and adjusted CDC monthly AIDS case reporting data for heterosexual contact, not including "Pattern II" cases that are persons born in countries where heterosexual transmission predominates. There seems not to have been much decline in the increase rates for heterosexual contact cases for either males or females.

Now we consider some of the reasons for this slower general trend in the increase of AIDS cases. These reasons come from the discussion that Dave Holland and I had with John Karon of the CDC.

What we all hope for is that the main reason for reduced AIDS case diagnosis trends is a real reduction in the rate of HIV infection from what had been earlier hypothesized. For example, this probably explains the leveling of cases from blood transfusions. It probably does not, however, fully explain the decrease for most other exposure groups. There are two other powerful factors at work.

The second reason for the slower increase trend in AIDS case diagnosis is the effect of various patient treatments, such as the drug AZT. Such treatment has the effect of delaying an infected person's progression to AIDS. Assuming that these treatments are delays rather than cures for AIDS, this means that many AIDS cases are only being delayed, not avoided. This effect would produce a shallower AIDS trend curve now, but perhaps a steeper one in the future.

There are some data tracking the persons for whom AZT has been prescribed. A study is being performed that seems to indicate that the numbers of people being treated have been large enough as early as 1987 to account for much of the drop in the AIDS trend curve that we are seeing. If this is true, the decreased trend in AIDS case increases is not nearly so positive a sign as it appears on the surface.

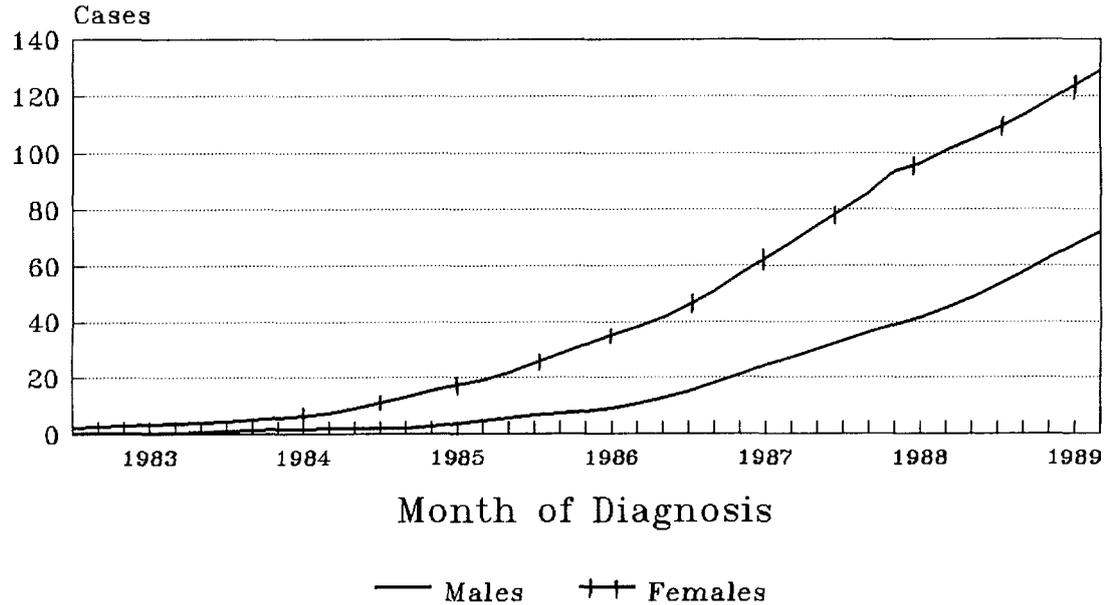
The third significant factor causing this change in trend is an observed deterioration in reporting. The CDC believes that, in many ways, AIDS case reporting is getting worse, not better. The CDC has revised down to 85% its estimate of the number of AIDS deaths being reported. Earlier, it was estimated that 90% of AIDS deaths were being reported. The CDC has also noticed deterioration in reporting live AIDS cases. One of the reasons for this is the increasing use of outpatient care for treatment of persons with AIDS instead of hospitalization. It is through the hospitalization system that the CDC's reporting systems are set up. Persons being treated on an outpatient basis often do not enter the reporting system. Further, there seems to be growing nonreporting due to concerns about confidentiality and privacy.

Increased Difficulty for AIDS Projections

This makes modeling a lot more difficult! Consider the back-calculation method used by the SOA Committee on HIV Research in the projections released in 1989. This modeling process is illustrated in Chart 12, starting in the top left-hand corner. The back-calculation method applies a trial and error model of historical HIV infections to assumed rates of progression from HIV infection to AIDS. This results in a modeled set of AIDS cases each year.

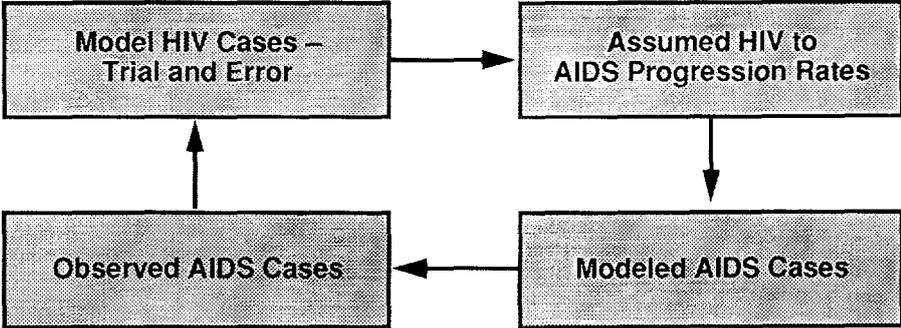
U.S. AIDS Cases Each Month Heterosexual (Not Pattern II)

Adjusted for Reporting Delays & Smoothed



RESERVING FOR AIDS
CHART 11

BACK-CALCULATION AIDS PROJECTION METHOD



PANEL DISCUSSION
CHART 12

RESERVING FOR AIDS

These modeled cases are then compared with historical observed AIDS cases. Where there are discrepancies between the modeled AIDS cases and the observed AIDS cases, a new set of trial HIV infection cases is hypothesized that will better reproduce the observed AIDS cases. The modeling method is a repetition of these trial and error infection models until the modeled AIDS cases appropriately reproduce observed AIDS cases.

By producing an appropriate model of HIV infections, the future AIDS cases can be projected by continuing these infection trends and applying the assumed progression rates from HIV to AIDS diagnosis.

The changing effects of AIDS treatment and the deterioration in reporting, however, have severely complicated this process. The modeling staff at the CDC believes that, in many ways, the back-calculation method is no longer feasible.

First of all, the progression rates from HIV infection to AIDS diagnosis are changing in unknown ways over time.

Second, the reporting of observed AIDS cases cannot be fully relied on. It is difficult to estimate the actual incidence of AIDS cases in the U.S. using data based on changing reporting standards.

The result is the introduction of several new variations in the back-calculation projection process. We used this "macro"-type approach to avoid all the many variables that must be estimated in a "micro" AIDS projection model. Now, however, there may be too many variables even for a macro-type model to work well.

The CDC makes its projections using a statistical "momentum" basis. This is appropriate for the short-range, i.e., five years, projection basis over which the CDC must make projections. It would not be suitable for long-range projections such as those required for life insurance industry purposes.

Revised CDC AIDS Projections

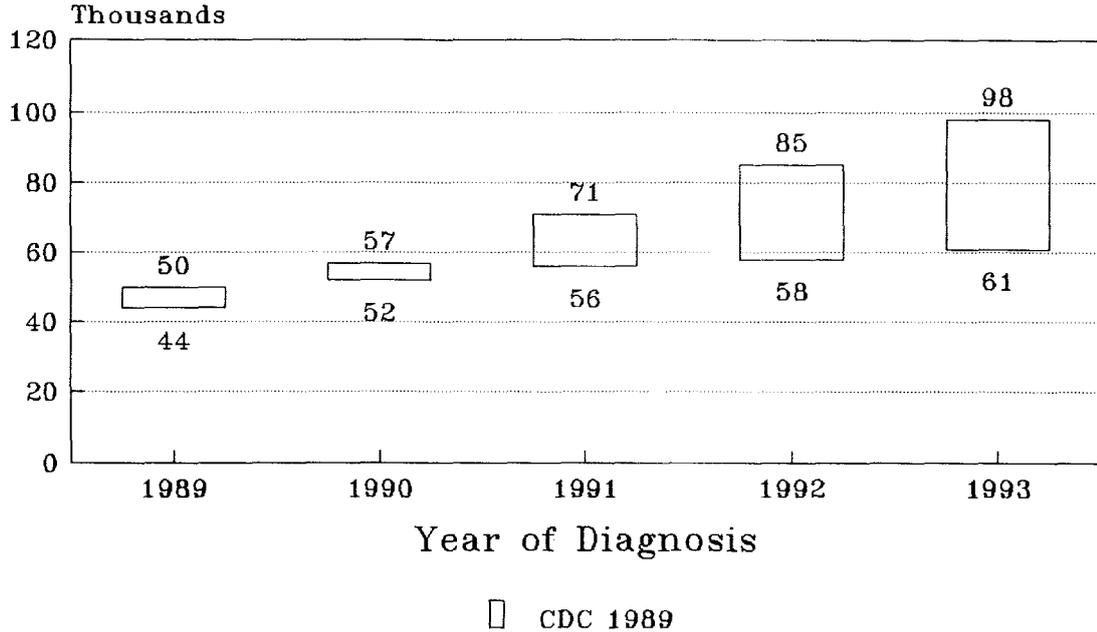
The February 23, 1990 *Morbidity and Mortality Weekly Report* contained an article giving the AIDS projection results of a CDC-sponsored workshop held in Atlanta in the fall of 1989. These new projections replaced and extended to 1993 the projections made at the Charlottesville conference in 1988.

The projections include adjustments for reporting delays and underreporting. They are projections of the number of cases that could be diagnosed under the CDC's AIDS case definition.

The range in number of AIDS cases is expected to increase from 44,000-50,000 diagnosed in 1989 to 61,000-98,000 diagnosed in 1993 (Chart 13).

It is important to understand that these projections are of a much different nature than previous CDC projections. Instead of using one projection method, the Atlanta workshop projections are based on seven different projection methods.

Projected U.S. AIDS Cases Adjusted for Underreporting



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PANEL DISCUSSION
CHART 13

RESERVING FOR AIDS

The ranges shown in Chart 13 are the range and best estimates from the seven different methods.

As a result, it is important to understand that these ranges are not showing any confidence interval estimates. For example, the new projection for 1992 is a relatively narrow range of 58,000-85,000 cases. The 1988 Charlottesville projections, however, showed a confidence interval of only two-thirds likelihood, producing a range for 1992 of 13,000-119,000 cases.

Confidence interval ranges are not available for the new 1989 CDC projections. Some of the seven methods had confidence interval projections with them, but others did not. Thus, no attempt was made to expand these ranges for any sort of confidence intervals. It is very important to remember that the ranges must be far wider than they look in order to have any kind of statistical probability.

The CDC's projection method, which projects past trends, would fall below the middle of each of these ranges. Chart 14 shows that this is a significant reduction from their 1988 Charlottesville projections. In fact, it has been widely published that the CDC expects about 15% fewer cases over the period 1989-1992 than was projected at Charlottesville.

Chart 14 also shows the 1986 Coolfont projections that extended to 1991. The Coolfont projections had a much steeper slope, rising from 45,000 cases in 1989 to 74,000 cases in 1991, than the 1988 Charlottesville projections, rising from 49,000 cases in 1989 to 71,000 cases in 1991. This decrease in the slope of the CDC projection is what caused the sharp reduction in AIDS projections for the 1989 SOA Committee on HIV Research compared with the 1987 Cowell and Hoskins article, which was based on the 1986 Coolfont CDC projections.

Chart 15 compares the SOA Committee on HIV Research 1989 scenarios with the CDC projections. In this usage, I have adjusted the SOA's projections to match the CDC's estimate of underreporting adjustments. The SOA Committee on HIV Research projections applied only to cases that would eventually be reported. Thus, I had to increase them to make them comparable to published CDC projections.

The middle projection is at the high end of the CDC projection ranges from 1989 through 1991, coming back toward the middle of the range by 1993. The middle and low scenarios are within the CDC projection range, but the high scenario is significantly above the CDC projection range. It must be remembered, however, that the CDC projection ranges would be considerably wider if they included confidence interval estimates. A two-thirds confidence interval would surely encompass the high scenario projection.

Chart 16 shows the CDC projected AIDS deaths instead of cases. Again, the SOA middle and low projections fall within the CDC projection range, while the high projection is higher than the CDC projection range.

Another interesting aspect of the 1989 Atlanta workshop is the estimate of the number of living persons who are HIV infected in the U.S.

Projected U.S. AIDS Cases Adjusted for Underreporting

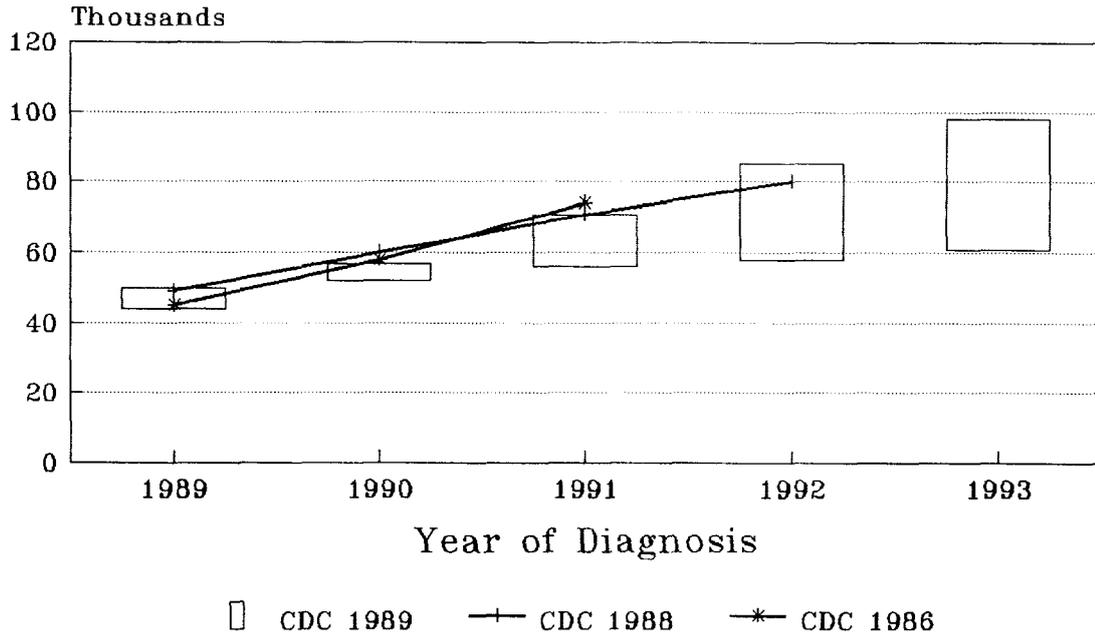
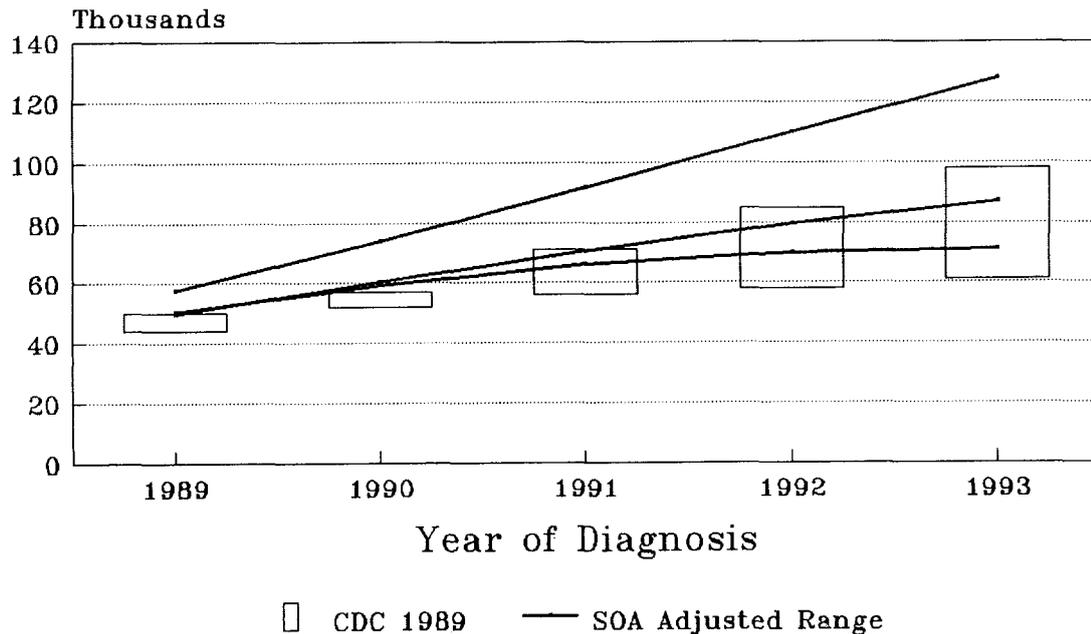


CHART 14

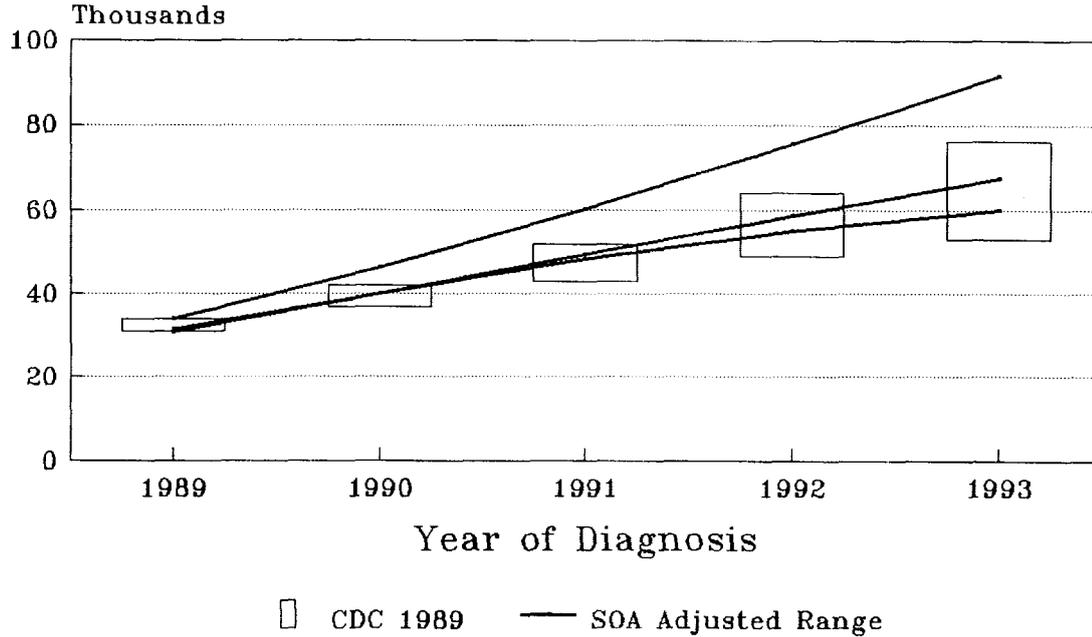
PANEL DISCUSSION

Projected U.S. AIDS Cases Adjusted for Underreporting



RESERVING FOR AIDS
CHART 15

Projected U.S. AIDS Deaths Adjusted for Underreporting



RESERVING FOR AIDS

The CDC estimates that there were about 750,000 HIV-infected persons alive in the U.S. in January 1986. This number increased to about 1 million people in June 1989.

Both of these estimates are lower than the often quoted 1-1.5 million infected individuals in both 1986 and 1989. It is now clearly interpreted that the original 1986 estimate was too high. The new estimate of 1 million persons living with AIDS is at the low end of the range estimated in 1988.

Chart 17 compares the ranges of living HIV-infected persons from the SOA Committee to HIV Research with the CDC estimates. Again, the SOA's figures are adjusted for underreporting effects.

It can be seen that the middle scenario is fairly close to the CDC projections. The number of persons living with AIDS at the beginning of 1986 in the middle scenario, adjusted for underreporting, is 668,000 compared with 750,000 estimated by the CDC. By the middle of 1989, the adjusted middle scenario results in 1,025,000 living HIV-infected persons compared with 1 million estimated by the CDC. The low and the high scenarios produce a significant range, from mid-1989 cases of only 661,000 for the low scenario to 1,945,000 for the high scenario.

In short, the SOA Committee on HIV Research projections made in 1989 still seem to be quite appropriate when compared with the new CDC projections. There is some possibility, however, that there should be some slight downward adjustment in the projections. At this time, the Committee has no plans to revise its projections.

AIDS Mortality Rates

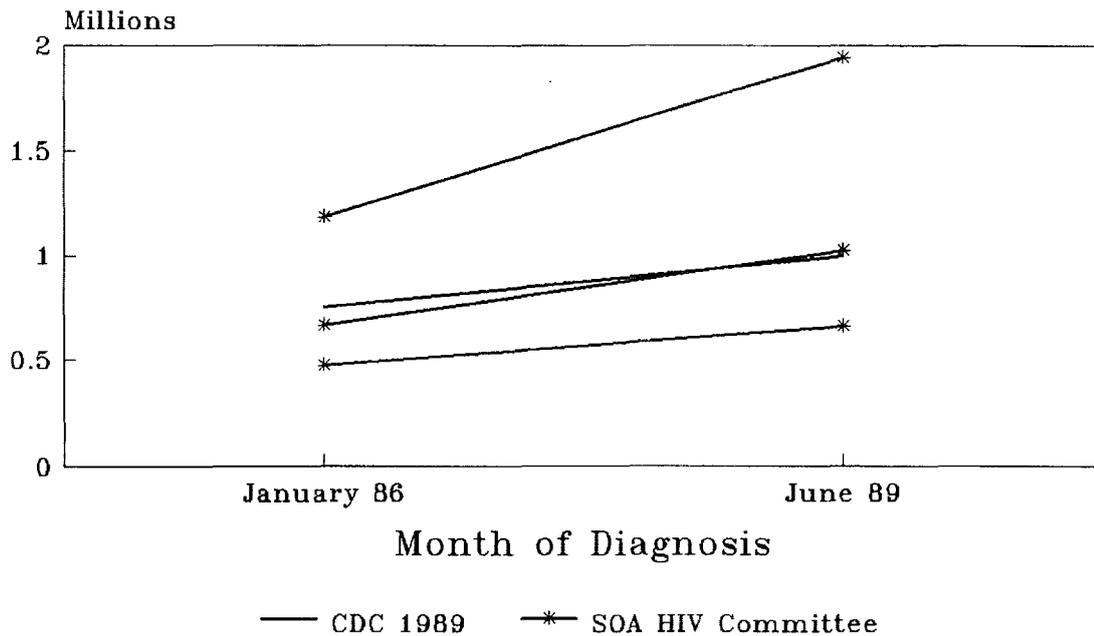
My final comment about the current status of the AIDS epidemic is that we must continue to look into the future rather than at the current level of reported cases. No matter what scenario is used for the AIDS epidemic, the number of cases is still rising for at least the near future.

Further, actuaries must be careful not to make generalizations that may not apply to specific populations. For example, Chart 18 shows the 1990 increase in the U.S. male population death rate due to AIDS as projected by the 1989 SOA Committee on HIV Research's middle scenario. Based on 1983 population and mortality estimates, the average increase in the death rate will be about 3.7%. This is an increase for the general population. The insured population will likely experience lower AIDS deaths on top of a lower base of non-AIDS mortality.

We may look at a statistic like this and say that the 3.7% increase in the mortality rate is at an affordable level. However, the increase for males aged 30-34 years is 38%, 10 times higher than the average increase. A population skewed heavily toward that age group will have quite different mortality results than one distributed like the general population.

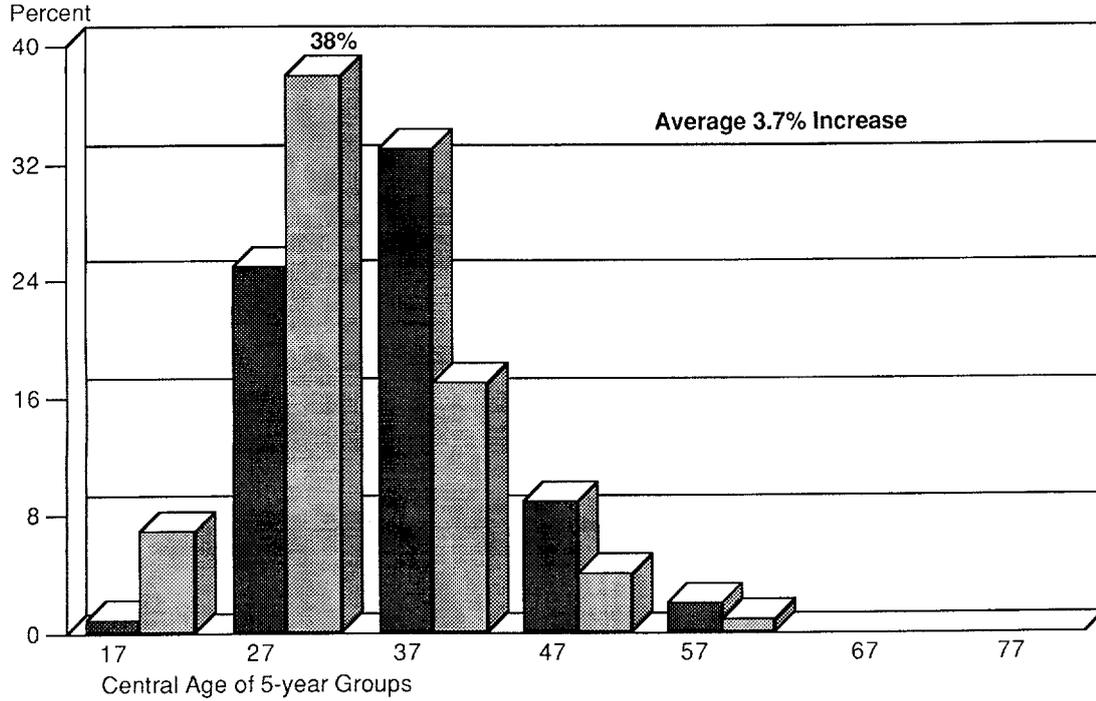
By 1995, the average increase in the U.S. male mortality rate would be 7.2% (Chart 19). The increase for males aged 30-34 years, however, would have increased to 80%.

Estimated Living U.S. HIV-Infected Persons



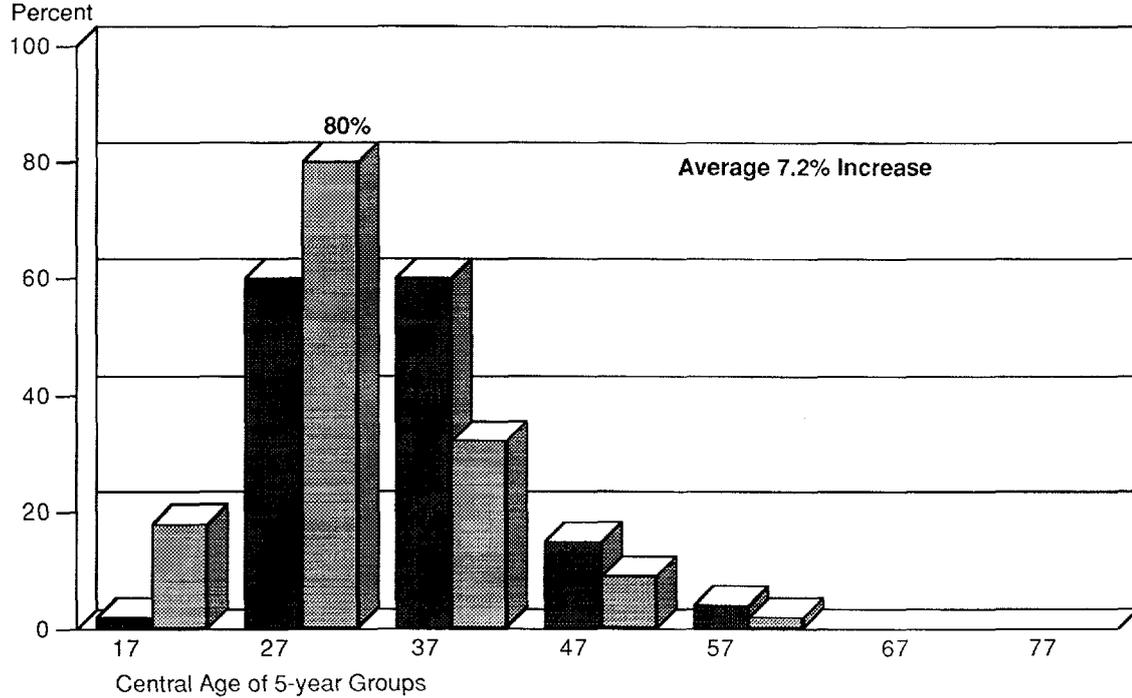
PANEL DISCUSSION
CHART 17

AIDS MALE POPULATION
Death Increase Rates: 1990
SOA 1989 Middle Scenario



RESERVING FOR AIDS
CHART 18

AIDS MALE POPULATION
Death Increase Rates: 1995
SOA 1989 Middle Scenario



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PANEL DISCUSSION
CHART 19

RESERVING FOR AIDS

By the year 2000, this projection shows an 8.4% increase in the U.S. population male mortality rates (Chart 20). The increase for males aged 30-34 years, however, has increased to 104% of normal mortality.

As the AIDS epidemic unfolds, it can be expected that there will be revisions in projections of AIDS mortality effects. The tools that actuaries currently have in place, however, seem appropriate for the present time. Actuaries should use those tools to set appropriate reserves and surplus amounts for the protection of insureds and company owners.

MR. CHRISTIANSON: It was important to see where things have changed and to examine the validity of current projections. Early this year, the State of Minnesota revised its estimate of HIV-infected people in Minnesota from 20,000-10,000. When one hears such reports, one wonders if other projections are overstated. I used the model that Tom's committee prepared and estimated 7,000 are infected in Minnesota, based on cases and deaths reported to date. So, that downward revision just put us in line again with the SOA projections, rather than indicating an overstated projection. It is important to validate information, not overreact to reports in the media.

I believe that actuaries are now beyond arguing over models, and they are ready to look at reserving and other actions. The foregoing discussion should reassure us and keep us on that track.

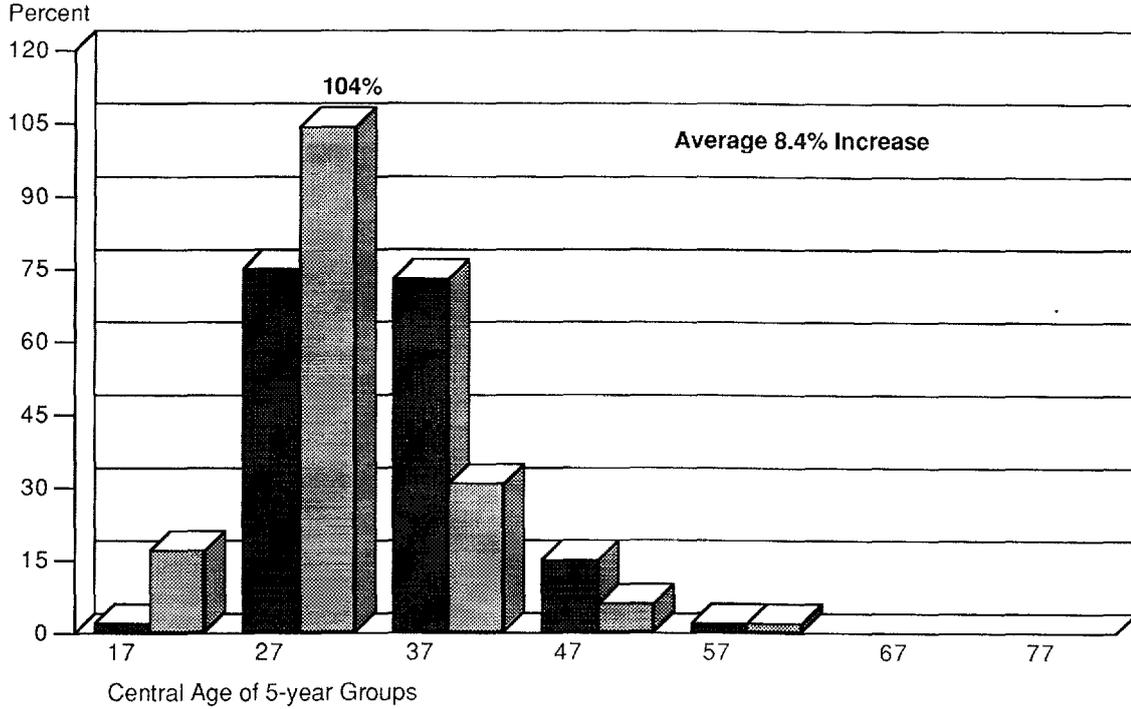
We will quickly review two more items. One is the 1989 report of the SOA Task Force on the Financial Implications of AIDS. The first conclusion was that the valuation actuary has a key role in analyzing the financial implications of AIDS and ensuring that the company has adequately provided for this risk. This comes mainly through the reserving process, making sure that reserves are good and sufficient. In this regard, it is important to evaluate the cost of AIDS under various scenarios and examine reserve adequacy in light of those projections.

Various tests need to be performed, including, as mentioned in that report, cash flow testing. The reason why cash flow testing is needed was highlighted again by Tom who showed the range of AIDS cases across ages and the year-by-year change in the AIDS cases expected. One must look each year to see whether the risk is covered, not just look globally at the longer period of time.

If the valuation actuary's analysis indicates that additional provision for AIDS is needed, it is preferable to put up additional reserves; but if additional reserves are not maintained, documentation should be provided to indicate why reserves were not put up. This documentation could identify an allocation of surplus and any plan of action to fund the AIDS claims. This might include changes to premiums, dividends, or adjustable charges.

The Task Force report gives much guidance on making projections. For example, it suggested that inforce blocks and new business be projected by year of issue and by the level of testing. Mortality rates from the Committee on HIV Research are recommended for use, although other projections may be considered.

AIDS MALE POPULATION
Death Increase Rates: 2000
SOA 1989 Middle Scenario



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PANEL DISCUSSION
CHART 20

RESERVING FOR AIDS

Finally, many company specific adjustments are recommended to be used recognizing things such as geographical distribution, type of products sold, distribution systems, blood testing limits, type of underwriting, and selective lapsation (that is that persons with AIDS may be less likely to lapse than others).

The Task Force also issued a disability insurance (DI) report in December 1989 that had many of the same findings, with a few differences. The adjustments recommended therein were closer to the general population statistics than were the life insurance adjustments. Also, reserve patterns for AIDS are quite different than usually found in DI. Active life reserves probably need to be higher. The average duration of persons on claim will be longer for AIDS than for most causes, but after about six months, the expected duration is much smaller than most other claims at that stage, so you get a different claim reserve pattern.

The second item is that a first exposure draft of a standard on AIDS was released in October 1989, quite quickly after the Task Force report. Twenty-seven comments were received, and as a result, a second exposure draft was prepared with a date of April 1990. We will review that draft a little later in the program.

Case Studies

With that background, we will consider case studies on four hypothetical companies. I caution you that these are completely hypothetical companies. Any resemblance to actual companies is accidental. I will describe the company. Then the panelists will react to each hypothetical company situation, raising concerns and suggesting responses they would make. Each of the panelists will take the lead on a different hypothetical company and Tom will take the lead on two of them. First is Company A, shown in Table 6.

TABLE 6
Company A*

Small stock company
Assets: \$75 million
Domiciled in Georgia
Surplus ratio: 3%
Distribution system: Direct response (mail and telephone), banks
Primary products: Term, graded premium life, credit life
Licensed in 15 southern and southeastern states
Increasing claims in recent years
AIDS claims: unknown

* This is a hypothetical company.

MR. WM. HAROLD PHILLIPS: I have three categories of comments, observations, implications and actions suggested. Georgia, the state of domicile, is a higher-risk state. We would be interested in knowing what proportion of their business was in Georgia, Florida, and Texas, all higher than average AIDS states. They are into direct response marketing. I suspect the underwriting is rather minimal. Whatever underwriting is done

PANEL DISCUSSION

is probably ineffectual. This should be verified. It appears that they are susceptible to a lot of antiselection. Apparently they haven't studied the extent of their AIDS claims and this needs to be corrected.

The level of surplus appears to be too low, \$2.25 million, to cover the AIDS risk as well as all other risks of being in this tough business of life insurance. The company is close to being under regulatory concern and perhaps being put on the NAIC Watch List. Has AIDS been recognized in pricing? The AIDS epidemic is a time bomb. With so little surplus, will the company be able to provide for future unanticipated AIDS claims, not to speak of the current need to reserve for future claims?

Is there any reinsurance to share the risks? Likely, very little, with its below-average size. What is the average size of sale? Does the direct response applicant have a choice in the amount of coverage? The greater the choice and the larger the amount sold, the more likely the company is susceptible to antiselection. Georgia does have a life guaranty fund which may be some small comfort.

There are several implications. The company needs to study claims by cause of death, to isolate AIDS and AIDS-related claims. Future expected AIDS claims need to be modeled. They need to review the product pricing. Is there an explicit AIDS element or adequate margin to cover it? They should review their underwriting requirements. Can these be strengthened without destroying their marketability? They might consider an AIDS exclusion if permitted. They should establish additional reserves to provide for the extra future AIDS claims.

Under actions, I have concern about the future solvency and viability of this company. I believe much should be done with the company on the AIDS question. The situation cries out for in-depth analysis and far-reaching response.

MR. DENNIS L. STANLEY: I do not think it is appropriate for any company to not do a cause of death analysis. If they have much life insurance business, they could have AIDS claims. I think it's very comforting, if you're signing the Actuarial Opinion, to know where you stand relative to industry and general population deaths. Knowing what percentage of your claims are AIDS related is very important information. In addition, the business written is likely to be term insurance. The \$75 million in assets related to the quarter million dollars of surplus is a very slim margin, and there must be a lot of insurance in force there. It would not take a lot of claims to deplete that.

MR. CHRISTIANSON: Now we will consider Company B in Table 7. We have intentionally designed the companies to have contrast between them to illustrate the different concerns and implications that exist.

MR. REESE: At 5%, the surplus is a relatively good surplus ratio, on the positive side, for dealing with AIDS claims. The relatively low life insurance growth during those early 1980s is perhaps a sign that there was not much replacement activity and maybe lower antiselection. If this is a company serving a specific market, there may be a lower than average antiselection risk. It is located in a low-risk state, but we need to see where its entire market is, especially since their AIDS claims are 1.5% in 1988.

RESERVING FOR AIDS

TABLE 7
Company B*

Medium-sized stock company

Assets: \$1.5 billion

Domiciled in Kansas

Surplus ratio: 5%

Distribution system: Independent agents and brokers

Primary products: Whole life, UL, term, small group life, substandard lines, annuities

Licensed in 35 states

Life new premium growth: 5% per year since 1983

Annuity new premium growth: 10% per year since 1985

Life retention limit: \$500,000

AIDS claims: 1.5% of total claims in 1988

* This is a hypothetical company.

The industry average was around .9% or 1% in the ACLI/HIAA survey, so even though they are located in what seems to be a low-risk midwest region, their claims are on the high side.

The retention limit of \$500,000 is definitely higher than the testing limit and, combined with the distribution system of independent agents and brokers, we would certainly want to see how this company reduced its testing limits beginning in 1986. It might have been lagging behind the industry quite a bit. I know that quite a few companies reduced testing limits at the initiation of their reinsurance company. Since this company did not have that kind of push, and since independent agents and brokers are more difficult to deal with than with other distribution systems, they may have been slow to lower testing limits and had some antiselection.

They are in the small group life business. The AIDS claims of 1.5% of total claims is not split out by lines, but I certainly would want to see an analysis of the small group life business. There has not been much price change in that business so far. One of the problems in that business seems to be that the simplified and guaranteed issue rules are a main aspect of competitive position, so I suspect that this insurer has not been able to change underwriting rules to watch out for AIDS properly. Theoretically, the company has the ability to increase rates or get out of the business, but it is difficult to increase rates and retain and attract business. Withdrawal from the market as a stop-gap measure is a possibility, but we will want to find out how willing and able the company is to give up this block of business.

AIDS claims at 1.5% of total claims is a little bit high compared with the industry. Considering projections that AIDS claims will increase in the future, we would want to understand the incidence of the claims. There is reason to look at field underwriting to see how committed the independent agents and brokers are to writing quality business. A non-AIDS issue is, will there be enough funds to pay AIDS claims in the future? We would want to look at other needs for capital. Their stronger annuity growth might

PANEL DISCUSSION

mean that they have a junk bond problem or asset/liability mismatches. Other drains on profits and capital should be considered.

We don't know whether reserves are conservative or liberal. This is an important factor. This company has relatively good surplus and could possibly put up AIDS reserves, if needed. This seems to be a catch-22; the companies that do have enough surplus seem to be the ones that probably do not need the reserves so much, and the ones that need the reserves are the ones that probably cannot afford to set them up.

MR. CHRISTIANSON: Any other comments?

MR. PHILLIPS: You asked about the commitment of brokers to good, sound, clean underwriting and, of course, they're fully committed to that until it impacts income. Regarding replacements, I'm having trouble with the relationship of replacements to AIDS exposure. Is replacement business prone to AIDS?

MR. CHRISTIANSON: I don't think that replacements carry any higher or lower AIDS risk unless they were carried out with limited underwriting programs or occurred in a period when AIDS testing was not in use but at-risk people were aware of AIDS. We will now discuss Company C, shown in Table 8.

TABLE 8
Company C*

Large stock company

Assets: \$12 billion

Domiciled in California

Surplus ratio: 2.5%

Distribution system: PPGA for individual products, group insurance brokers

Primary products: UL, term, group life, group A&H, individual DI, medical expense, SPDAs, GICs

Licensed in all states except New York

Sales growth: Life new premium growth 20% compounded annually 1983-1987, flat since

AIDS claims: Some early, large death claims. Overall 2% of death claims in 1989.

Other claims: Increasing DI and medical claims (overall loss ratios 80-95%).

* This is a hypothetical company.

MR. STANLEY: There have been a lot of good comments made thus far, so I will try not to repeat those. The thing that catches my attention first is the big growth from 1983-1987, combined with the apparent antiselection and large early death claims. Their overall AIDS death claims are higher than the industry, so I would want to look a lot deeper into the life insurance business. Are they heavy sellers of term insurance or just where was the 20% growth coming from? Obviously, there is a lot less margin for future AIDS claims in term insurance premiums than there is in universal life or whole life premiums. The other thing, if it was in term insurance, they very well may have been

RESERVING FOR AIDS

coming through a wave in which term insurance rates were not as adequate as you might have liked in relation to lapses that occurred. There are theories that mortality, in general, is going to increase for term insurance, due to lapse antiselection.

Their surplus level of 2.5% is not very strong by itself. In other lines of business how risk adverse are they? There seems to be a potential for riskiness in the life insurance side, but you must balance that across all lines. If they are in the GIC business, how good are the margins there? If they are in single premium deferred annuities (SPDAs), how have they been managing that block of business? You can't come to any conclusion but you need to jump in and make a better analysis of the life insurance.

Make projections of the AIDS claims. Given it is a stock company with a relatively low surplus level, a real benefit from the projection is analyzing the effect of AIDS claims on the ability to support future shareholder dividends or growth plans. Maybe the holding company itself can infuse capital into the life company, but it may be potentially running into a low surplus level, too. I think the shareholders could very well have some interest in the profile of this company.

MR. CHRISTIANSON: For a stock company, what would the focus be, short-term earnings or long-term viability? I think management would be inclined to take the short-term view. For this case, cash flow testing would be very appropriate. There are many different factors, including AIDS claims, asset/liability matching concerns, and C-3 risks.

MR. REESE: Cash flow testing here might be appropriate, for reasons other than finding out if funds are adequate to pay out claims in all years. Through cash flow testing you can examine when and how much you can pay back in dividends to stockholders of the parent company. You don't want to dividend out all your earnings in your earlier years, if you are going to need them later.

MR. CHRISTIANSON: Now we will move on to Company D, shown in Table 9.

TABLE 9
Company D*

Large mutual company
Assets: \$35 billion
Domiciled in Maryland
Surplus ratio: 3.5%
Distribution system: Career agency field force
Primary products: Whole life, variable annuities, fixed annuities, term, group life, disability insurance
Licensed in all states
Growth: Overall sales growth of 7% per year. Relatively greater growth in group life and SPDA. Little replacement-fueled growth.
Life retention limit: \$5 million
1989 AIDS claims: 1% of individual life claims, 2% of group life, 1.5% of DI claims
Experience factors: High expenses, average persistency and mortality
* This is a hypothetical company.

PANEL DISCUSSION

MR. REESE: Since this company has very little reinsurance, it is bearing practically all of its AIDS risk. Thus, I would look at underwriting and testing limits pretty seriously.

Their 1989 AIDS claims seem to be about average, but again we would want to find out where those AIDS claims were coming from and focus a little bit on group underwriting, where AIDS claims are 2% of total claims.

As in Company B, we need to know what the reserves are. How conservative are the current reserves?

How conservative are the dividends? I will assume that this is a mutual company with fairly high dividends, so we could probably do a projection and find out that any AIDS claims, even at a high scenario level, could be covered by a dividend adjustment. The question is, what are the practical limitations of that dividend adjustment? I will assume that dividends will stay positive, but there are certainly constraints on dividend adjustments. Other pricing factors that may not be favorable, such as their relatively high expenses, compound problems that the additional AIDS claims cause, making it difficult to change dividends as much as is needed. Fixed annuities and variable annuities are other areas that may have needs for surplus and capital, especially considering any asset/liability mismatching.

The field force is a career agency field force, so it may do a better job of field underwriting than a noncareer agency field force. Although this company may have a big margin in its dividends and believes it does not have to set up specific reserves, it should at least model the AIDS claims to determine the future impact on the dividends. Current underwriting limits should be reviewed. This company is operating everywhere and so they probably have underwriting limits that are more severe in the highest AIDS-incidence states than in other states.

Pay-as-you-go AIDS funding might be fully appropriate for this company, if it can be demonstrated that the dividends would not have to be cut very much and there is a good margin. However, we need to determine how practical that might be. In fact, the company might consider some kind of a delayed flow type of dividend scale, where they are paying out less now but having higher dividends at later durations. Then the money is not paid out if a serious AIDS scenario turns up. Delayed flow dividends could add the value of dividends back in the future if the AIDS epidemic does not turn out to be as bad as planned for.

Regarding appropriate actions to take, it might be overkill to suggest that reserves, based on level funding, should be set up for a company that may have this much margin, but it depends on the nature of future claims and some of the other expense and experience factor problems. The response needed might be less than for the other sample companies.

MR. CHRISTIANSON: I have heard several industry people say dividends at their company are quite high so AIDS claims can be absorbed in their company's dividend scale, yet I have not heard mutual companies saying they are too competitive in the marketplace and they want to cut dividends. On the contrary, a company like this that

RESERVING FOR AIDS

has expense problems has probably been working hard to cut its staffing and get its expenses under control to fit within its dividend margins. Where would extra margins come from to allow dividend reductions and remain competitive in the marketplace? Thus, I believe it is important to consider the cost of AIDS and how to fund it. This is also one of the major thrusts of the Task Force Report.

FROM THE FLOOR: Regarding Company A, there was a comment from Mr. Phillips that the surplus ratio of 3% might invite regulatory attention, but no such comment was offered on Company C which had a surplus ratio of 2.5%. Are there general guidelines that the regulators use in terms of how small reported surplus can get for a company before regulators begin to take steps? Is it a matter of a year-to-year change in the surplus, if it's declining in such a way that it looks like it's going to get zero within the next year and a half? Are there some guidelines for when regulatory intervention might be accomplished?

MR. PHILLIPS: Well, I'm going to pass on that. I'll tell you, I'm new to the department and that type of thing is handled in another division.

MR. JOE W. HARDISON: I just wanted to note that Mr. Reese commented on Companies B and D, that one of the first things they need to look at is the conservatism of their basic reserve. I think you want to make that same comment even stronger for Company A since it is in the home service business operating in the southeast. Basically, before we determine whether our reserves for AIDS are sufficient, we need to determine whether our basic reserves are sufficient. Especially in the southeast, mortality rates are anywhere from 5-15% higher than they are in the rest of the country. This should be factored in for any AIDS reserve testing, not just what would happen with 80 CSO mortality plus AIDS extra mortality.

FROM THE FLOOR: Please comment on the high loss ratios in Company C.

MR. STANLEY: I'm not a DI or health insurance expert, but they tell me that 80-95% is a fairly high loss ratio.

MR. CHRISTIANSON: I think you would really want to do a claim study and see where the extra claims are coming from. In DI over the last 2-3 years, loss ratios have increased quite a bit. For many companies, the premiums cannot be adjusted and coverages cannot be canceled. Medical expense business is a different matter where often the business can be canceled or premiums can be raised.

We will now review a summary of the AIDS Reserving Survey prepared by Timothy Harris of Milliman & Robertson, prior to the Hartford meeting in April (see Table 10). This survey of chief actuaries was conducted in the first quarter of 1990. There were 146 respondents; 95 from stock companies, and 51 from mutual companies. It spans from three companies below \$25 million in assets to 64 companies that have more than \$1 billion in assets (see Chart 21). Most (84%) of the survey respondents said they read the July 1989 SOA Committee and Task Force Reports, so there is fairly good knowledge of the problem. Most people (88%) said they read the first draft of the AIDS Standard.

PARTIAL SUMMARY OF AIDS RESERVING SURVEY

SHOWING THE COUNT OF RESPONSES TO QUESTIONS BY COMPANY OWNERSHIP AND BY ASSET CATEGORY

	COMPANY OWNERSHIP				
	MUTUAL				
	> 1 Billion	> 250 Million < 1 Billion	> 100 Million < 250 Million	> 25 Million < 100 Million	> 25 Million
Read July, 1989 Aids Committee Report	22 Yes 2 No	12 Yes 2 No	7 Yes 1 No	2 Yes 2 No	1 Yes
Read ASB's draft "Guidance on Estimating and Providing for the Cost of HIV-Related Claims Covered under Life and Accident and Health Policies"	23 Yes 1 No	13 Yes 1 No	8 Yes	4 Yes	1 Yes
Projected impact of AIDS on existing business	15 Yes 9 No	10 Yes 4 No	4 Yes 4 No	1 Yes 3 No	1 No
Projected impact of AIDS on new business	14 Yes 10 No	8 Yes 6 No	3 Yes 5 No	1 Yes 3 No	1 No
Company's exposure to the financial implications of AIDS existing business	9 - Little or No 15 - Moderate	4 - Little or No 8 - Moderate 2 - High	4 - Little or No 4 - Moderate	3 - Little or No 1 - Moderate	1 - Moderate
Company's exposure to the financial implications of AIDS new business	10 - Little or No 14 - Moderate	3 - Little or No 10 - Moderate 1 - High	5 - Little or No 3 - Moderate	2 - Little or No 2 - Moderate	1 - Moderate
Companies that have incorporated the impact of AIDS in pricing	12 Yes 12 No	6 Yes 8 No	2 Yes 6 No	1 Yes 3 No	1 No

PANEL DISCUSSION
TABLE 10

PARTIAL SUMMARY OF AIDS RESERVING SURVEY
SHOWING THE COUNT OF RESPONSES TO QUESTIONS BY COMPANY OWNERSHIP AND BY ASSET CATEGORY

	COMPANY OWNERSHIP				
	MUTUAL				
	> 1 Billion	> 250 Million < 1 Billion	> 100 Million < 250 Million	> 25 Million < 100 Million	> 25 Million
1989 Permanent HIV testing limits for a male age 25-40	19 @ 100,000 4 @ 100,001 1 No Response	1 All Business 4 @ 15,000 5 @ 100,000 1 @ 100,001 1 @ 250,000 5 No Responses	5 @ 100,000 1 @ 100,001 2 No Response	2 @ 100,000 2 No Responses	1 No Response
1989 Term HIV testing limits for a male age 25-40	1 @ 50,000 1 @ 50,001 17 @ 100,000 3 @ 100,001 2 No Responses	1 All Business 1 @ 15,000 5 @ 100,000 1 @ 100,001 1 @ 250,000 5 No Responses	5 @ 100,000 1 @ 100,001 2 No Response	2 @ 100,000 2 No Responses	1 No Response
Established additional AIDS reserves or allocated surplus for Individual Life	4 - Reserve 13 - Reason #1 1 - Reason #2 2 - Reason #3 2 - Reason #4 1 - Reason #5 1 - Reason #6	1 - Surplus 4 - Reason #1 2 - Reason #2 2 - Reason #4 1 - Reason #5 4 - Reason #6	4 - Reason #1 1 - Reason #3 1 - Reason #4 2 - Reason #6	1 - Reason #1 1 - Reason #2 2 - Reason #6	1 - Reason #6

Reasons Given For Not Establishing Reserve or Allocating Surplus
Reason #1 - Covered by margins in table
Reason #2 - Felt to be an insignificant risk
Reason #3 - Management decision to delay recognition
Reason #4 - Covered by a strategy of changed guaranteed elements
Reason #5 - Other
Reason #6 - None of this type of insurance inforce

(Continued)
TABLE 10

RESERVING FOR AIDS

PARTIAL SUMMARY OF AIDS RESERVING SURVEY
SHOWING THE COUNT OF RESPONSES TO QUESTIONS BY COMPANY OWNERSHIP AND BY ASSET CATEGORY

	COMPANY OWNERSHIP				
	STOCK				
	> 1 Billion	> 250 Million < 1 Billion	> 100 Million < 250 Million	> 25 Million < 100 Million	> 25 Million
Read July, 1989 Aids Committee Report	35 Yes 5 No	22 Yes 4 No	12 Yes 3 No	10 Yes 2 No	2 No
Read ASB's draft "Guidance on Estimating and Providing for the Cost of HIV-Related Claims Covered under Life and Accident and Health Policies"	34 Yes 6 No	22 Yes 4 No	13 Yes 2 No	10 Yes 2 No	2 No
Projected impact of AIDS on existing business	22 Yes 18 No	13 Yes 13 No	5 Yes 10 No	5 Yes 7 No	2 No
Projected impact of AIDS on new business	15 Yes 25 No	8 Yes 18 No	4 Yes 11 No	8 Yes 4 No	2 No
Company's exposure to the financial implications of AIDS existing business	19 - Little or No 19 - Moderate 2 - High	16 - Little or No 9 - Moderate 1 - High	10 - Little or No 5 - Moderate	9 - Little or No 2 - Moderate 1 - High	1 - Little or No 1 - Moderate
Company's exposure to the financial implications of AIDS new business	23 - Little or No 16 - Moderate 1 - High	16 - Little or No 10 - Moderate	7 - Little or No 8 - Moderate	9 - Little or No 3 - Moderate	1 - Little or No 1 - Moderate
Companies that have incorporated the impact of AIDS in pricing	18 Yes 22 No	7 Yes 19 No	6 Yes 9 No	4 Yes 8 No	2 No

(Continued)

TABLE 10

PANEL DISCUSSION

PARTIAL SUMMARY OF AIDS RESERVING SURVEY
SHOWING THE COUNT OF RESPONSES TO QUESTIONS BY COMPANY OWNERSHIP AND BY ASSET CATEGORY

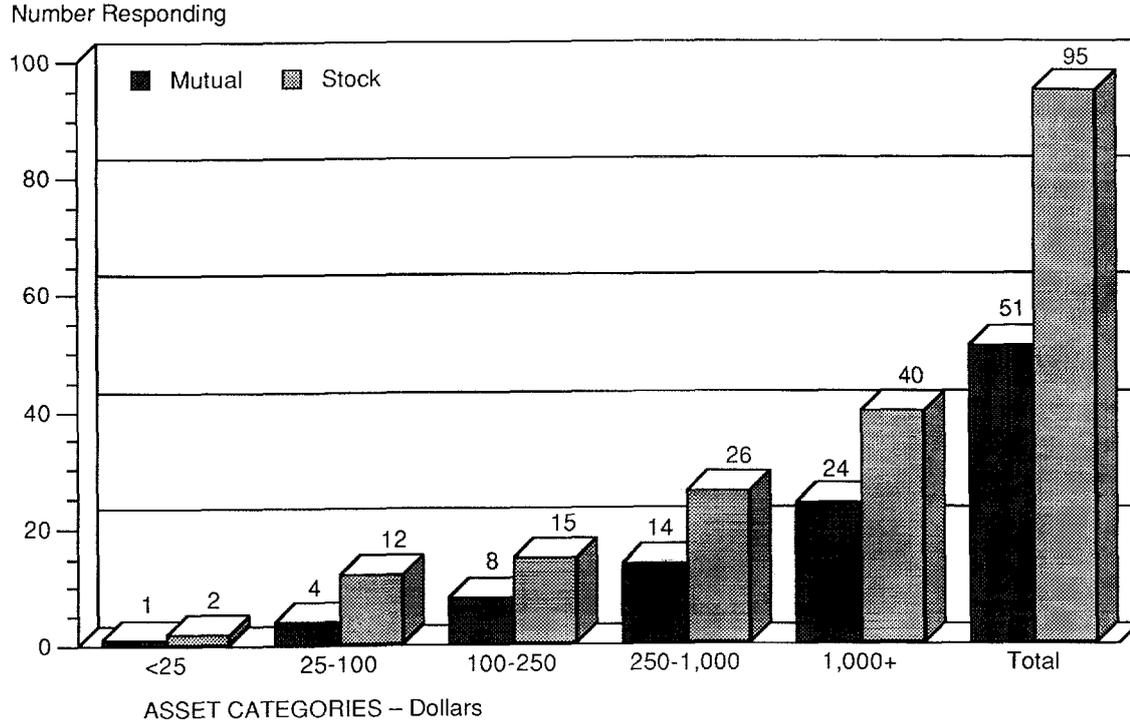
	COMPANY OWNERSHIP				
		STOCK			
	> 1 Billion	> 250 Million < 1 Billion	> 100 Million < 250 Million	> 25 Million < 100 Million	> 25 Million
1989 Permanent HIV testing limits for a male age 25-40	2 All Business	1 @ 95,000	8 @ 100,000	5 @ 100,000	2 No Responses
	1 @ 50,000	18 @ 100,000	3 @ 100,001	1 @ 100,001	
	1 @ 75,000	4 @ 100,001	1 @ 101,000	6 No Responses	
	27 @ 100,000	1 @ 150,000	1 @ 150,001		
	1 @ 100,001	2 No Responses	2 No Responses		
	1 @ 101,000				
	7 No Responses				
1989 Term HIV testing limits for a male age 25-40	2 All Business	1 @ 95,000	8 @ 100,000	4 @ 100,000	2 No Responses
	1 @ 50,000	17 @ 100,000	3 @ 100,001	1 @ 100,001	
	1 @ 75,000	4 @ 100,001	1 @ 101,000	7 No Responses	
	26 @ 100,000	4 No Responses	1 @ 150,000		
	1 @ 101,000		2 No Responses		
	1 @ 150,000				
	8 No Responses				
Established additional AIDS reserves or allocated surplus for Individual Life	4 - Reserve	2 - Surplus	5 - Reason #1	3 - Reason #1	1 - Reason #3
	2 - Surplus	12 - Reason #1	5 - Reason #2	5 - Reason #2	1 - Reason #6
	21 - Reason #1	5 - Reason #2	1 - Reason #3	1 - Reason #3	
	5 - Reason #2	3 - Reason #3	2 - Reason #4	3 - Reason #6	
	4 - Reason #3	1 - Reason #4	1 - Reason #5		
	1 - Reason #5	2 - Reason #5	1 - Reason #6		
	3 - Reason #6	1 - Reason #6			

Reasons Given For Not Establishing Reserve or Allocating Surplus

- Reason #1 - Covered by margins in table
- Reason #2 - Felt to be an insignificant risk
- Reason #3 - Management decision to delay recognition
- Reason #4 - Covered by a strategy of changed guaranteed elements
- Reason #5 - Other
- Reason #6 - None of this type of insurance inforce

(Continued)
TABLE 10
RESERVING FOR AIDS

NUMBER OF RESPONSES TO AIDS RESERVING SURVEY



1346

PANEL DISCUSSION
CHART 21

RESERVING FOR AIDS

How does that translate then into practice? Fifty-one percent of the people projected AIDS claims on inforce business to look at the financial implications, while 42% projected the impact on new business. What did they conclude? About 2-4% of the companies saw a high exposure to the financial implications of AIDS. About 46% of the companies saw moderate exposure, and generally, the mutuals saw higher exposure than the stock companies. Based on this, about 40% of the companies incorporated the impact of AIDS in their pricing of mortality. The wording of the survey question does not indicate whether companies made any changes to their pricing or whether they just looked at their margins to see if the margins appropriately covered the AIDS risk. Few companies established any extra reserves and surplus. Ten percent of the mutuals said they set up some extra reserves, and 2% of the mutuals said they set up extra surplus. Among the stock companies, 5% set up extra reserves, and 5% allocated extra surplus. That was for life insurance.

For DI, almost no companies made reserving or surplus changes. Two percent of the stock companies said that they set up extra reserves. I don't have any data here that would show how many companies in the survey actually had DI. It may be a fairly small sample.

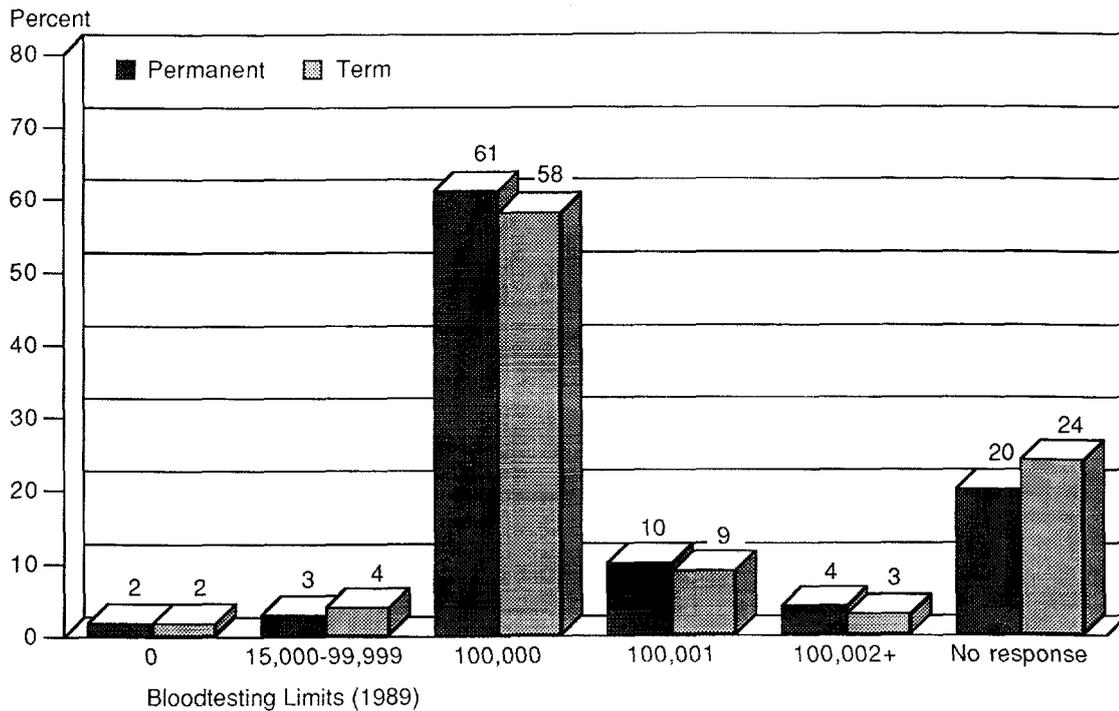
I find it fairly interesting that although most people are aware of the problem, only half the people made projections and only 10% put up extra reserves and/or surplus. If I sat on the Actuarial Standards Board (ASB) and saw that, it would lead me to believe we need an AIDS standard. The problem has been laid out, but apparently, either for half of the companies the situation is obviously so good that they don't need to do any projections, or else they need to be encouraged to take further actions. That might have been the ASB's conclusion in formulating the second draft of the Standard.

Regarding reasons for not setting up reserves, 54% of the mutuals and 48% of the stock companies said that AIDS was covered by margins in the table. Twenty-three percent of the stock companies and 10% of the mutuals considered AIDS an insignificant risk. I believe there is a misprint regarding changing guaranteed elements or premiums. I think it should have been nonguaranteed elements, but it was written that way in the survey. Among mutuals, 12% changed guaranteed elements or premiums, probably including dividends. Only 3% of the stock companies made such changes.

When we turn to DI, we have a different result. Half the mutuals and 24% of the stock companies thought AIDS was covered by the margin. Meanwhile, 41% of the mutual companies and 46% of the stock companies thought that AIDS presented an insignificant risk in DI. I find that to be an unusual conclusion. The Task Force Report indicated from its study that the risk was higher in DI than in life insurance.

One other element of the survey was the study of bloodtesting limits. Bloodtesting limits are shown in Chart 22. Testing limits are primarily at the \$100,000 level and show little difference between permanent and term coverages. Although there are no results for DI, I believe that many companies do testing on DI, and I think \$3,000 is a common testing amount as well as \$2,000. I do not know if all medical expense companies do testing, but our company does. We test in selective states for all applicants.

AIDS RESERVING SURVEY
Male Age 25-50



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PANEL DISCUSSION
CHART 22

RESERVING FOR AIDS

I think you will find in DI and in medical expense that it is effective to vary testing limits by state, having lower limits in high-risk states.

Canada. The next subject is Canada. Canadian reserve methods are much different than they are in the U.S. They are much more realistic with lower margins than you see in U.S. life reserves. In Canada, there is a very strong valuation actuary concept in place. The valuation actuary opinion in the annual statement is different than it is in the U.S. and is relied on to make judgments about the reserves. There are far less regulatory demands on the basis of reserves.

Canada's Guidance Notes for Valuation Actuaries were published in 1988. They were updated in 1989 and are scheduled to be updated again in 1990. As I understand, there will be very few, if any, changes. These notes have recommended factors and methods of estimating AIDS claims, much like the 1989 Task Force Report for the U.S. The notes have separate adjustments for U.S. and Canadian business.

The important difference when considering the effect of AIDS in Canada versus the U.S. is that in Canada it is much more likely that extra AIDS claims need to be added to the reserves, than in the U.S., because the Canadian reserves typically have less margins. And you will see that in Canada, the companies all have signed statements that they have looked at the effect of AIDS, and many of the companies have put up additional reserves for AIDS. I don't believe you can draw the conclusion that U.S. companies should respond in the same way because we're dealing with a different type of reserving system than in Canada.

AIDS Standard in the U.S., the first exposure draft of an AIDS standard, was released in October 1989. Twenty-seven responses were received, and by the way, that is a fairly high response, relatively speaking. It is surprising that for the entire actuarial profession, 27 comments is a good response to a proposed standard.

Several asked the ASB to clarify the confusion in the standard between whether additional reserves are needed or surplus can be allocated. There were several comments that cash flow testing is not applicable; it refers only to assets and interest rates. I found it curious that in the just-released second draft, no cash flow testing comments were mentioned and cash flow testing was eliminated as one of the advised methods to be used. There were several comments as to why the standard was needed at all. In fact, even the AAA's Committee on Life Insurance Financial Reporting recommended against it.

MR. STANLEY: Yes, that's right. There was a fairly broad feeling within the committee that we want standards to be broader in scope, rather than focused on a narrow issue.

MR. CHRISTIANSON: Other comments were as follows: (1) there wasn't enough emphasis on GAAP, (2) reserve margins are unrelated to pricing adequacy, (3) AIDS is no longer an unforeseen catastrophic risk, since it can be modelled and predicted to some extent, and (4) a lot of the costs are embedded in the inforce business that came on the books before testing began.

PANEL DISCUSSION

I will next review the second draft of the AIDS standard. The purpose of this standard is to help actuaries with considerations regarding the nature and extent of the actuarial analysis needed to evaluate the financial effects of the HIV epidemic. It also gives guidance on estimating and providing for the cost of HIV-related claims.

The third section states that little guidance is currently available on estimating AIDS claims, although I would say that there is a growing body of knowledge there. Also the timing and the magnitude of future AIDS claims is another important factor. It says that statutory margins are not intended to cover the whole range of unforeseen catastrophic risk. In other words, surplus is intended to cover unforeseen catastrophic risk, but the HIV epidemic is no longer unforeseen. Therefore, the cost should be provided through reserves. This means you should save your surplus for the next unforeseen risk that comes along.

There are also some characteristics of the epidemic pointed out in Section 3: (1) uneven geographic distribution, although it's starting to flatten out a little bit as Tom described earlier, (2) the prevalence of AIDS is different in the insured population than in the general population, (3) much of the cost is embedded in business issued before testing began, (4) underwriting practices are quite significant, as indicated in the hypothetical cases regarding bloodtesting limits and type of underwriting, and (5) antiselection by product type can occur. It is believed that term insurance, for example, is subject to more antiselection than whole life.

Section 4 reflects what companies have done. Most companies have changed their underwriting and have started testing for HIV. Only a few companies are setting up reserves and surplus and making pricing changes, although according to the survey we just looked at, 40% of the companies incorporated the impact of AIDS in their pricing. Finally, few companies have looked at the effect of selective lapsation, or the result that persons with HIV will continue on the books while normal lapses will operate on the rest of the business, magnifying the effect of AIDS claims.

Section 5 deals with recommended practices. First of all, regarding a professional recommendation or opinion, you should consider the effects on claims from the HIV epidemic. Look at the company's response. What has been done in terms of pricing, dividend changes, changes in guaranteed elements offered in contracts, etc. Consider offsets available, but clearly identify what those offsets would be. It is not sufficient to just say that there are offsets; one must identify the specific plan of action. In establishing appropriate reserves, it is important to consider the HIV-related claims. Take account of the reasonable response of the company. Reserves should be set up, not surplus. This is a definite change from the prior draft. Finally, determine the funding period for the reserves. In other words, it may not be necessary to set up the full reserve immediately.

Other items mentioned in Section 5 include the following: (1) selective lapsation should be considered, and (2) there are considerations other than valuation work. Pricing, for example, should also take account of HIV-related claims, (3) test a range of impact, in other words, look at a variety of scenarios, and (4) study other external information. The SOA models are not the only ones that exist.

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Finally, Section 6 seems to indicate that any time an actuary makes a report, the report must mention whether HIV was considered. I believe this needs to be narrowed down to certain types of reports. It also says to document the assumptions, techniques, and conclusions. If no additional reserves are set up, the actuary must document why they were not set up. Any deviations from the standard must be identified.

This second draft has been exposed for comments until September 1, 1990. I believe there is an expectation the Standard will be in place before year end. Harold Phillips will now comment about this AIDS standard and standards in general.

MR. PHILLIPS: I would encourage all of you to get involved in the development of the standards. Read the exposure drafts carefully. Write to the ASB if this draft does not make sense. Make suggestions for improvements. Twenty-seven responses do not represent heavy involvement by the actuarial profession.

On the AIDS standard, I had ten suggestions or questions. All my suggestions were incorporated in the second draft. I was pleasantly surprised and thrilled. You may get the same response. I've also written a response on the second draft, five points, mostly on style and language. In my opinion, the development of standards, the observance and respect for standards, and the follow-up and enforcement of standards are very important ingredients in the future success and relevance of the actuarial profession.

The standards are generally quite well done and could be better done with much more of your input. However, too often they are ignored. There is a widespread notion that they are for other actuaries, not for me.

The discipline committee only gets involved when there is a serious problem or someone turns you in. I believe we need education in and enforcement of standards -- a new Education and Examination (E&E) committee? There is no actuarial examination on compliance with standards. Perhaps we need some training here. Before E&E arrives, do your best to comply with standards. Document your rationale and conclusions in an actuarial report or memorandum. How valuable are standards if they are not enforced or are unenforceable? In my opinion, too much reliance has been placed on the NAIC and the states for enforcement of actuarial standards, for example, in reserving and determination and illustration of dividends and nonguaranteed elements. I don't believe the states are capable of, nor should they take on, this role.

My advice is to find out what standards apply to you, become familiar with them, and follow them carefully, fully, and conscientiously.

MR. CHRISTIANSON: The standards are found in small booklets published over time, and distributed with AAA mailings. It is a challenge to keep track of these and be aware of all the standards.

MR. PHILLIPS: To correct that, I understand they are working on a separate publication that will include all standards to-date in much better shape and form than they have been. They should be out soon.

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MR. CHRISTIANSON: Next, Dennis Stanley will discuss cash flow testing through a case study of a company.

MR. STANLEY: Whenever I get a standard, I quickly flip to Section 5 just to see what the standard practice is. For the AIDS standard, Section 5.2 catches my attention. It says, "If in the actuary's judgment, the reserve testing does indicate a need to increase reserves to cover any excess claims cost, the reserves should be increased directly instead of alternatively making an appropriation of surplus. The actuary should also determine the period over which any additional reserves should be funded."

First, I will comment on the circumstances in which the actuary deems initial reserves are to be put up and I will go through a case study to give my impressions and interpretations. Second, I think there are alternatives on how you actually fund them, and the standard gives no guidance on how to fund AIDS reserves.

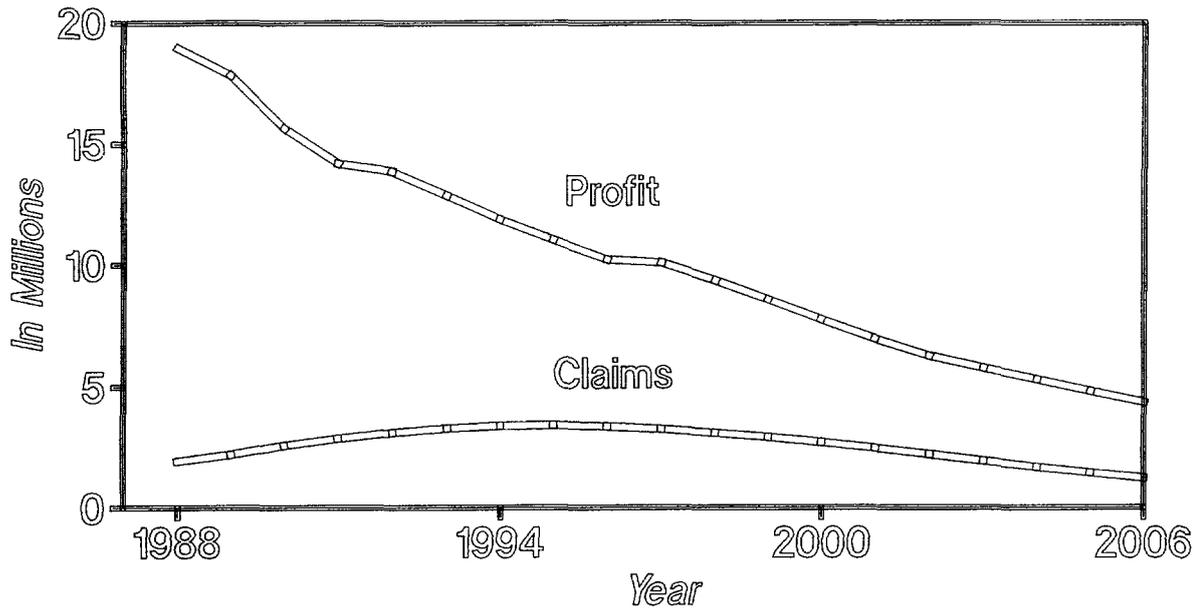
This case study was done in early 1988. The projection of AIDS claims was based on a model related to the Cowell-Hoskins work. We called the model the most-likely scenario, but based on more recent studies, it appears to be somewhat pessimistic. The company is medium sized, with \$10 million term premium inforce, \$40 million whole life and universal life inforce, and relatively stable growth. There were not any geographic distribution problems with their business. It was very widely distributed with no concentrations in high-risk areas. They began AIDS testing in 1988.

First we built a model of this company, reflecting their inforce business. Chart 23 is an overall projection of statutory earnings for the company. The profit line represents projected statutory earnings from the inforce business without AIDS claims. The claims line represents the additional projected AIDS claims. If I were a valuation actuary signing a statutory actuarial opinion in this situation, I would conclude that there is no need to set up additional reserves from a regulatory or Academy perspective. According to the guidelines for signing actuarial opinions, you have met the test if you sign a good and sufficient opinion and have done a gross premium valuation and concluded that the reserves are adequate to cover future claims. In this case, there are adequate future profits in the business to cover the future AIDS claims.

We went a little further than this entire company view and split out the whole life business. In Chart 24 we see even wider margins than for the entire company. The company's whole life business is more profitable. The mortality component is a much smaller portion of the premium than in term insurance. Again, I had the same conclusion that you don't need to worry about additional reserves in whole life.

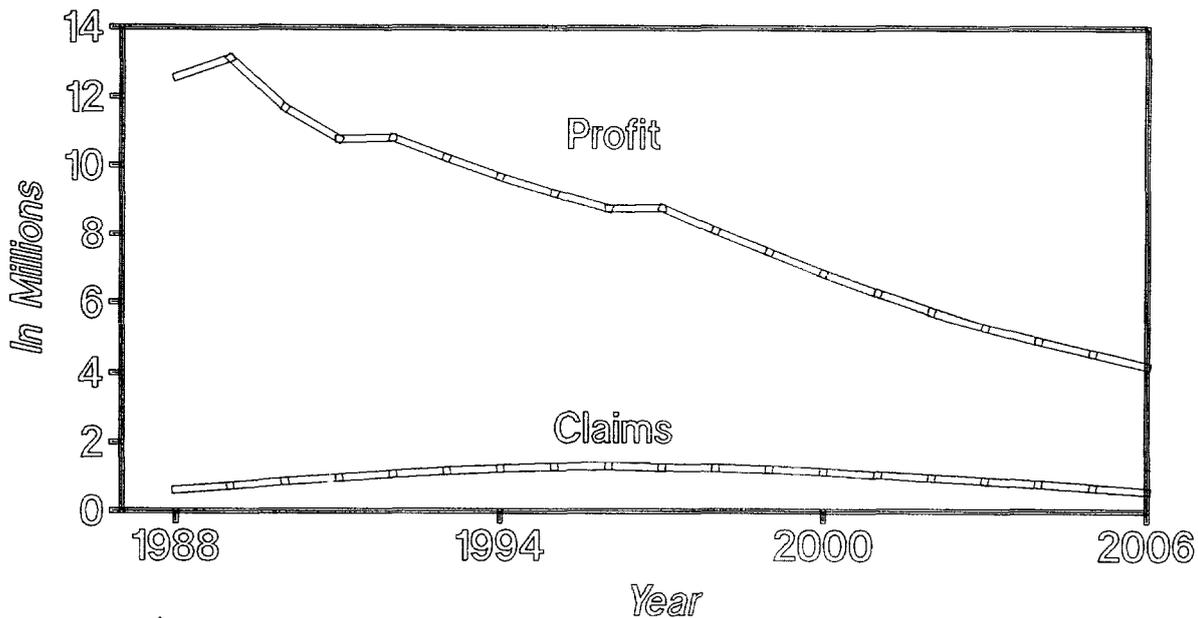
Next we separated out term insurance in Chart 25. If this was the company's only line of business, we have a whole new issue here, namely, when do you put up extra reserves? It's clear if this is a closed block of business, the company is going to need to put up reserves at some point. We did a gross premium valuation and the current reserves were adequate to cover the future AIDS claims, so there is not an immediate deficiency and insolvency situation, and I could sign a good and sufficient opinion at this point. It requires some sort of mechanism to fund these additional AIDS claims.

AIDS CLAIMS RELATIVE TO PROFIT



RESERVING FOR AIDS
CHART 23

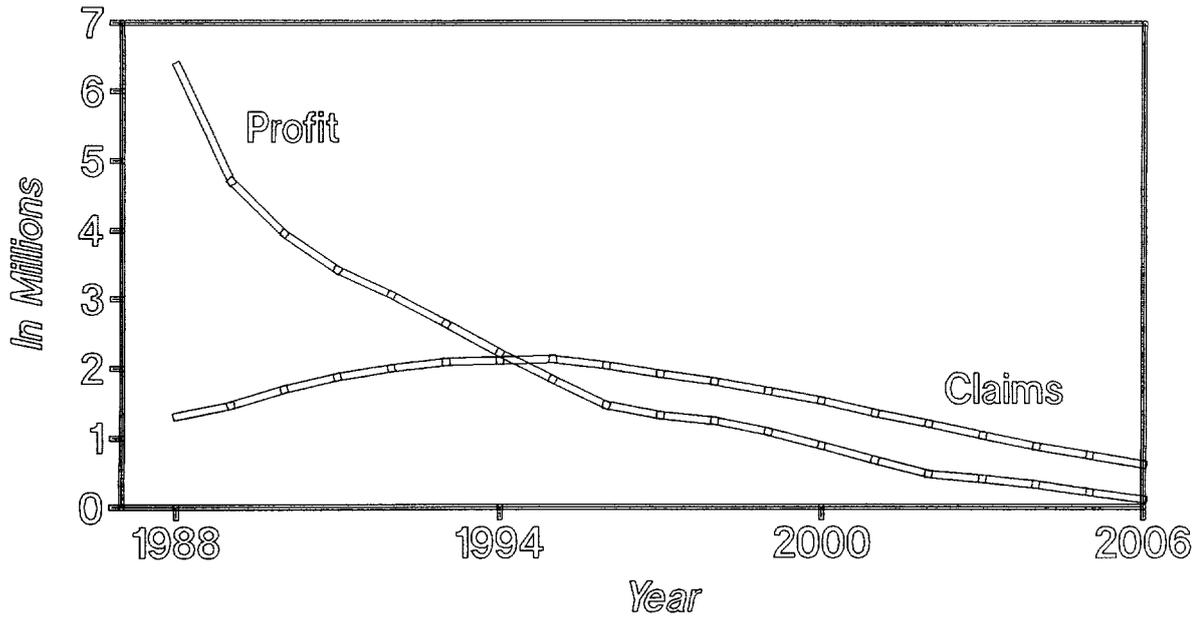
AIDS CLAIMS RELATIVE TO PROFIT (Whole Life)



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CHART 24

AIDS CLAIMS RELATIVE TO PROFIT (Term)



1355

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CHART 25

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What are some of the funding alternatives? There is an easy one which is very conservative that I call single premium funding. You just put up the present value of future AIDS claims as an additional reserve. The net result of that will be that you will realize the pre-AIDS profits in future years, since you have fully funded the AIDS claims. That is very conservative funding. The second alternative is net level premium funding for the AIDS claims. A third approach is "wait until the last minute," based on a gross premium valuation. You put up no additional reserve until you are absolutely forced to. Essentially no AIDS funding occurs until you get to the point where the company's reserves are inadequate. Then you start setting up the additional reserve.

A fourth reserve alternative is the maximum present value of future excess reserves required by a gross premium valuation. What we did is look at all of the future year gross premium reserves that were greater than the statutory reserves, take the difference, discount the amount to the present, and pick the largest one. By putting up this additional reserve today, the company would have prefunded for the future transition from tabular statutory reserves to the gross premium reserve. I am sure you have questions on how I did that, but let's look at the results in Chart 26.

The top line is an AIDS reserve equal to the present value of AIDS claims on this term insurance business, almost a \$16 million reserve. Remember that is relative to \$10 million of premium inforce and it is pretty significant reserve to put up. If you are willing to set up that additional reserve, you will realize all the normal statutory profits coming out of the business, although your surplus will be depleted.

The next alternative, the net level premium funding method, which is the third line, produces relatively low reserves. This has a low funding pattern and not a huge impact essentially in setting up the reserve. Also note that net level premium is less than the gross premium reserve (the fourth line). Thus, the net level premium funding is inadequate. So, essentially, the net level premium funding method may be an appropriate way to start out reserving for AIDS, but you have to switch over in 1993 to gross premium valuation.

The Max GPV line, which I prefer, systematically recognizes that you're going to have a gross premium valuation problem with that block of business. This method systematically funds for the gross premium to reserve, although there are certainly other ways to achieve the funding.

These are four techniques that I considered. I am sure there are additional variations on those, but keep in mind that the net level premium is inadequate at some point in time.

I think the important issue related to my interpretation is to look at the total company in considering AIDS reserves. I believe it is appropriate to look at the underlying profits of the business to offset the reserves to AIDS claims. That's my general conclusion. I also think it's appropriate to combine issue years when doing AIDS testing. I tend to think of it as being an aggregate issue, not a seriatim issue, and it really should be looked at in a macro sense.

AIDS RESERVE ALTERNATIVES

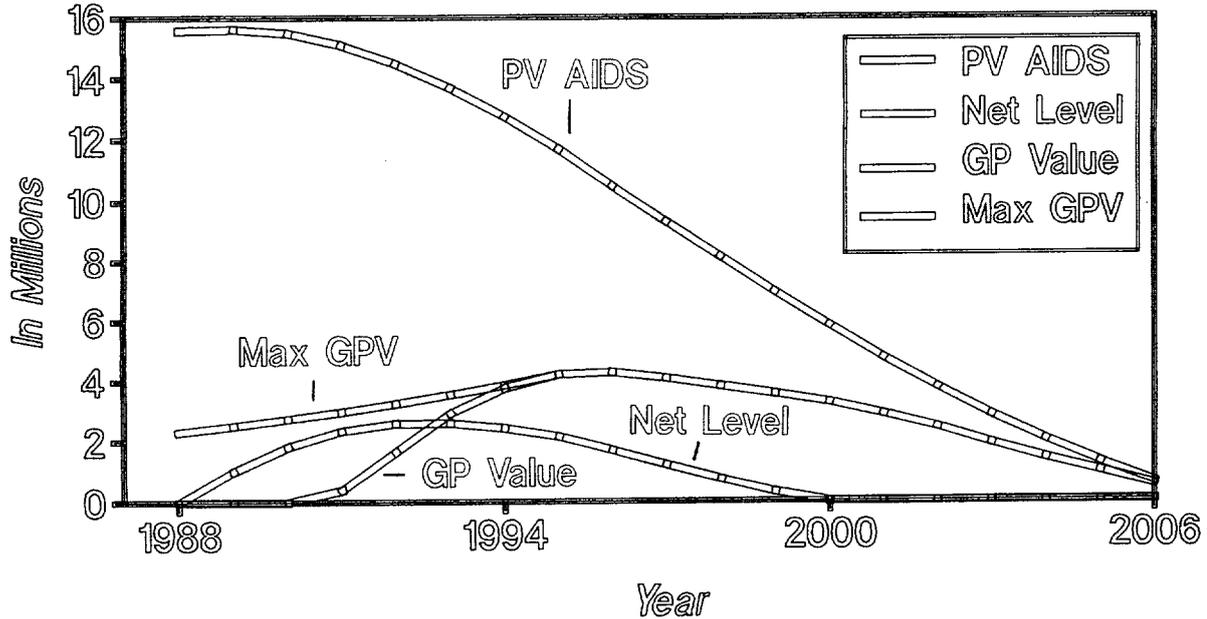


CHART 26

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Is it okay to combine term and whole life? Personally, I don't have any real problem with combining term and whole life. It is also appropriate to combine other lines of business. Again, I come back to a gross premium valuation as an aggregate test, not a seriatim test. Another issue is the possibility that the company is viable and continues to write new business that is profitable. It may turn out that profits on business written between 1988 and 1993 will have enough profits to cover the deficiencies. So there is even an alternative of no AIDS funding being necessary in this case. Just putting on profitable business in the future could carry it, although you might be dealing with some fairly slim margins going forward.

I really encourage you to consider your approach towards reserving for AIDS. In particular, what are you going to use for offsets?

MR. CHRISTIANSON: We were talking about this earlier, and I know Harold has some different views on this.

MR. PHILLIPS: Denny's conclusion was that you don't need any additional reserves in the situation depicted in Chart 23.

Do you need a reserve in this case? Section 5.2 says, "The actuary should provide for the estimated cost of claims deemed related to HIV infection by establishing the appropriate reserves." From the regulatory perspective, we like reserves. That's solvency. I would say that if the present value of future AIDS claims is greater than what you've made provisions for in pricing, you need a reserve. This is a different conclusion than Dennis reached. The profit is irrelevant in one sense.

MR. STANLEY: Let me reemphasize my position. I am signing a statutory opinion, and I am operating under two sets of rules guiding me. First I'm going to obey the valuation law that says, tabular reserves are appropriate. I am not aware that there is any law that says you have to reserve for the present value of any additional claims that you now expect to occur that you did not expect to occur when you originally priced the business. The second rule that I come back to is, actuarial principles and the good and sufficiency certification. I don't see in this standard, any requirement that I have to set up the present value of AIDS claims as a reserve. But when I go back to my good and sufficiency requirements for signing statutory actuarial opinions and conclude that there are adequate reserves to pay the benefits to the policyholders and conclude that if a reserve is not needed, there may still be reasons I want to establish a reserve. For example, management may like to have a more systematic approach to funding for the AIDS claims, so that they can control how they pay out shareholder or policyholder dividends.

MR. PAUL F. KOLKMAN: Twenty-seven comments on the first draft of the standard are on the high end of the number of comments that we receive on such standards.

Draft two of this standard is fascinating in a couple of ways. The issue that is being discussed is real and resides in the conflict between the HIV standard and some of the other actuarial principles. What is the order? What is the precedence here? If you presume that the cash flow testing standards approved for adoption in April are in place

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and the valuation actuary concept is in place, then Denny's comments about cash flow testing are completely appropriate.

If you have existing profit margins in your business, and existing margins in your reserves, you perform tests, and you can very easily sign off on your aggregate reserve from a valuation actuary point of view.

This standard plows brand new ground. There is an issue that is not clear in the cover letter or in the standard. If you have future expected claims, you need to set up a reserve for those, unless you can identify future management actions which may offset those claims. You cannot count existing profits or existing margins in your business, but if management can take an action in the future to offset these claim costs, then you can count that. That puts margins and the actions of the company into two different categories, and it sets a standard for valuation, a standard for actuaries that is really quite new and remarkable. I would encourage anybody with an interest to read the draft carefully and give careful thought to it and comment as appropriate.

MR. STANLEY: Does your conclusion on the standard as written mean that, in my situation, you must systematically reserve for the present value of the AIDS claims? Could management strategy be reduced shareholder dividends and profitability in the future?

MR. KOLKMAN: I think it is clear that offsets must be due to some management actions you can take in the future. I interpret that to be either changes in dividends or nonguaranteed elements. Perhaps shareholder dividend changes would count, although that still comes through profits. I believe the standard is not clear in this area.

MR. MICHAEL E. MATEJA: I will cover some interrelated thoughts and wind up with the last issue that was raised here regarding reserve adequacy. When our company first got involved with AIDS, I told our chairman that AIDS was not good news. But I said that given what I am seeing, it is impossible for me to tell just how bad the news is, because based on the then available projections and the range of the future AIDS claims that were projected, there was no intelligent course of action other than to sit and wait and remain vigilant.

All of that suggested to me that the provision for that kind of scenario should be more in surplus rather than in a direct provision for AIDS claims in reserves, until such time as you had something harder to go on. The issue of reserves versus surplus has always troubled me, because we have a lot of surplus and conservatively valued reserves. I would be troubled if every time something goes wrong, somebody is going to tell me to put up additional reserves, since I also observe a lot of things that are going in the other direction. Somehow or other, there must be recognition of the totality of experience.

I have been playing with an idea with which the profession as a whole will probably have to come to grips, and the ASB ultimately will have to make standards. When we set up some reserves where we don't have as sound a basis as we would prefer, we need to use as a criterion that those reserves are adequate a high percentage of the time. I've used 90-95% recognizing that I can't tell when it's 90 or 95%, but I clearly want to err on the

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side of being right. That is the criteria. I'm not talking about an expected value. Regarding AIDS, if I ran a couple of different scenarios for mortality and interest, and perhaps lapse, and if I have concluded that in each instance I had adequate profit to cover those claims, 95% of the time I would say that I would have no difficulty signing an opinion statement that I had made good and sufficient provision for the obligations of the company. If we are going to be forced to recognize every adverse development, I will claim that every piece of good news that I get, such as declining mortality trends, should be reflected. We cannot sell in the marketplace and commit surplus each time something goes wrong, without having the offsetting capability of taking credit where credit is due.

MR. CHRISTIANSON: I think this is one reason why cash flow testing is a very important concept. We need to examine the totality of the risk, favorable and unfavorable trends, to see how the company comes out. Frankly, I was disappointed that the second exposure draft eliminated reference to cash flow testing. The SOA Task Force on the Financial Implications of AIDS thought this was quite important when we wrote the Task Force report. Also, the clock is still ticking. Whether we put up reserves, surplus, or nothing, the AIDS claims are occurring and will continue to increase. So if you choose not to do anything other than keep writing your business the way it is, the claims will still be there. One of the main thrusts of the Task Force report was that you can plan for AIDS claims and modify and create the future a bit, or you can just wait and let future events control your destiny. That is why I lean toward the practical side and am not as interested in the debate over reserves versus surplus as in planning for funding AIDS claims.

MR. STANLEY: Paul, if you think the standard now says you put up the present value of the AIDS claims if you don't have a management strategy related to that, who did the redraft, the Life Committee of the ASB or the full ASB? I want to know if that is a view of the practicing life actuaries or a broader group of actuaries?

MR. KOLKMAN: That is difficult to tell. There were some split opinions, but I think the final draft really has to be viewed as the opinion of the ASB itself. There were definitely people on the life committee that were on both sides of the issue. The final product is the responsibility of the ASB.

MR. CHRISTIANSON: In summary, we reviewed the accuracy of the current projections. We have no information that the 1989 SOA projections need to be revised at this point. They seem to be on target still. We gave you a variety of ideas regarding analysis of the AIDS risk within companies.

The debate on reserves versus surplus continues and the standards continue to be developed. If you came looking for a definitive word on what you need to do, you probably have not received that definitive word. I do not believe that the definitive word is available. The ASB, I know, is trying to develop a standard, and they need your help. I encourage each of you to respond.