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Long-Term Disability Experience

Committee Results—Issues and Impacts

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Summary: The Experience Committee presents final first-year results and discusses the issues and impacts of its research and findings.

Mr. G. Nicholas Smith: One of the challenges of this study was to figure out what to publish since the committee could have published thousands of pages of reports. Choosing the “right” ones was a difficult task.

David G. Fitzpatrick is from Standard Insurance Company. William J. Hauser is from Sun Life Assurance Company. Finally, Edward G. Bailey is from Fortis Benefits Insurance Company.

I will give a quick history and update of the Group Long-Term-Disability (LTD) Experience Study. I believe I have presented some of the history at prior SOA meetings, but I would like to reiterate it for those of you who are not familiar with the study. Mr. Bailey will present an overview of results which will give you an idea of the findings. Mr. Fitzpatrick will describe the study’s impact on valuation and any possible valuation uses. Finally, Mr. Hauser will discuss termination issues with a focus on how terminations were defined for the study.

The Society's Disability Committee mission is stated as follows:

Gather, analyze and publish group disability experience to meet the needs of:

- Insurance regulators to facilitate valuation and pricing approvals,
- Insurance industry to monitor trends in experience, and
- Participating companies to facilitate detailed understanding of their business.

This Group LTD Experience Committee's primary mission is to produce study results for the benefit of the insurance industry as a whole, but it also assists the participants with any issues they have with their experience since their data were analyzed and returned to them.

Listed below are the short-term and long-term goals and objectives that we started with. These were created about two years ago; therefore, we should probably update them in the next year. We have completed the goal of resurrecting the 1984 reports (*Transactions, Society of Actuaries, 1984 Reports, Report of the Committee on Group Life and Health Insurance, pp. 243-299*). It was hoped that we could go back to 1984 and continue to the present, but we haven't been able to do that. This study's data have been sufficient to modify the Commissioner's Group Disability Table (CGDT) (*Transactions, Society of Actuaries, 1987 Reports*), or to at least show where the CGDT is conservative. AIDS and maternity reserving have been addressed; however, the impact of settlements has not been addressed yet. Our final short-term goal, to split deaths and recoveries, has been completed.

Short-Term Goals

- Resurrect/update the 1984 Reports
- Publish modification table for the Commissioner's Group Disability Table
- Assess the impact of settlements
- Split deaths and recoveries

Long-Term Goals

- Create new valuation table—recent experience
- Create tables for other LTD reserve components (Social Security, International Classification of Diseases—9th revision)
- Monitor LTD risk factors (nature, definition, max, own occupations)

For long-term goals, obviously we have not created a new valuation table yet. However, this committee is somewhat different from others in that we're not only conducting experience studies, but we're also creating an experience table for each pass, and we intend to do that in the future. The current results have some experience for other LTD reserve components such as social security and incurred

but not reported (IBNR) claims, so in this way, we have met the goal of creating tables for other LTD reserve components. Finally, we've done a limited amount of monitoring of LTD risk factors (nature of disability, definition of disability, maximum duration of benefits, own-occupation definition), so we're fairly well along on that goal.

The Group LTD Experience study began three years ago in San Antonio, and I have presented findings at the health meetings as they've emerged over the last three years. At a recent Experience Committee Meeting, it was decided that this study for 1996 is complete. Those companies that participated in the 1996 study are listed below, and we're kicking off a solicitation process for the 1997 study. I believe all these companies will be participating again.

Study Participants

- BMA
- CNA
- Fortis
- Guardian
- Met Disability
- Mutual of Omaha
- Paul Revere
- Principal Financial Group
- Reliance Standard Life
- Standard Insurance Company
- Sun Life of Canada
- TIAA

Let's discuss the study process. Due to the advent of personal computers we abandoned old techniques of data solicitation that required fixed formats. Instead, we asked companies to provide data as a claim dump, which we proceeded to clean up, audit, put into a standard format, and process through an audit program. The audit routines cleaned up the data where possible, and where it was not possible, algorithms were written to program around "errors." Finally, a publishing program was used to produce, as I mentioned, thousands of pages of reports if we choose to run them.

Here's a brief overview of the preliminary results. We had 320,000 records submitted, of which 240,000 were used. Claim records were not used if they were denied claims, outside of the study period, or administrative services only policies. After the audit routines were performed, the data were "relatively" clean, orderly, and usable; however, there was still a 20% error rate. The study showed that the CGDT is 16% conservative, and this is from a valuation standpoint using a 7%

interest rate. If a more realistic statutory interest rate of 5.5% is used, then the CGDT is 23% conservative.

Results by participant show that termination rates are plus or minus 5%, so they're all very tight. From a termination standpoint, the CGDT is 177% conservative and the CGDT Basic is 159% conservative. The data were cross referenced with 20 million social security death records in an attempt to clean up the death terminations. Termination coding is one of the weak points of the claim analysis as many companies' claims examiners can attach most any code to a terminated claim. The claim is not cross checked or used for anything else. About a little more than 10% of the terminated claims were changed from some other cause to death through cross checking against the social security table. Finally, we published new IBNR, social security, and extensive reserve valuation tables for both open claims and claims at the end of the elimination period. We have a great deal of data on terminations and a great deal of data published on reserves.

Mr. Edward G. Bailey: After I started trying to put together a presentation, I realized my biggest challenge was to somehow isolate relevant information from the thousands of pages of potential output that Mr. Smith referred to. I'm going to briefly go over some of the different termination rates. Instead of looking at the termination rates in terms of the actual termination rates themselves, I thought I'd take a look at them in a couple of different ways. One way is to turn the rates into a survival function and look at the different comparative survival functions. Another way is to look at the way the experience table was generated and analyze how well it fits the data through actual-to-expected terminations. I will also look at some of the work that Mr. Smith has done on ultimate terminations and differences in timing of terminations by death and recovery.

Next I will talk some about IBNR, specifically the different completions, or how quickly IBNR runs out. I will also discuss the difference in social security award rates, and talk some about the elimination period reserves or the reserves when a claim hits the elimination period. In a sense, I translate that into how big a claim is or how big the average claim is by various variables. Finally, I will look at some of the differences in open claim reserves. I'm not going to dwell too much on that. Mr. Fitzpatrick is going to talk more about that and how different reserves compare on the experience basis versus the CGDT.

Mr. Smith had mentioned that there were 240,000 claim records used in the study. I thought another way of looking at that is that there are 5.5 million claim months in the study. Mr. Smith pointed out that I should probably put that in something more usable, so I've converted it to show there are 14.4 trillion claim seconds of exposure in this study. Of these records, Mr. Smith took the experience on about 30% of the

claims that had the cleanest and best-coded data and tried to generate the experience table. The experience table was created from the first submission of data. The report was actually built through a submission step process and so, of the originally submitted claims, the best looking data were used to assemble the experience table, and the 240,000 claim records were compared against that table.

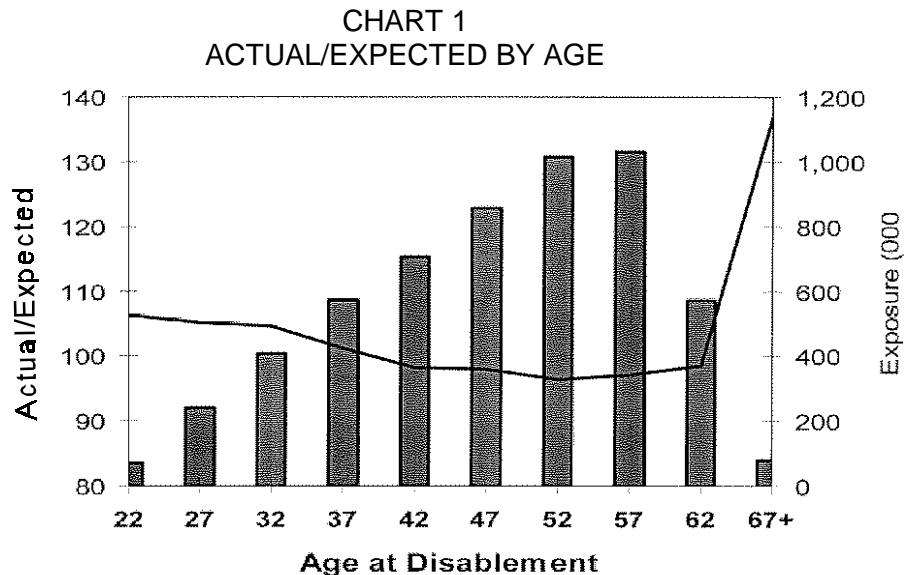
The terminations in the experience table were determined by some fairly complicated functions, but those functions fit the data fairly well in that there was actually only a 1% difference in the actual-to-expected terminations. Since the change in definition of disability affects termination rates, it's difficult to say how "real" the 1% difference is. If all the claims data did not indicate the period under the primary definition of disability (usually at 24-month duration), you couldn't actually assign to the claims that did not have it the excess terminations that you would anticipate; however, you'd still see the actualities. For example, you would notice that a claim actually closed at 24 months of benefit, but there was no excess expectation of termination because it wasn't coded as having a 24-month change in definition. Although the claim may have had a change in definition of disability, if it was not coded that way, it couldn't be factored into the expectation. So the actual fit may be better than a less than 1% difference.

Actual to expected by age measures terminations by looking at the number of actual terminations over the number of expected terminations. In the life of an LTD claim you expect more terminations in the first few years, and the actual-to-expected termination ratios tend to be biased towards front-end experience on a claim. So the claims in the early duration contribute more to the difference. When we look at the actual-to-expected terminations we see actually a few more actual terminations at younger ages. The table fits fairly well where the bulk of the claims are.

On Chart 1, Actual/Expected by Age, the vertical bars represent the exposure and the line going through is the actual-to-expected ratio. Of note is that we see much more actual claims closed at the upper ages than expected, and this, again, may be due to some of the claim closure reasons. For example, if a claim maxes out at age 65 or 65 and two months, it's sometimes difficult to tell without plan data exactly why it closed.

As I mentioned before, the expected terminations are represented as functions. One of the inputs of the function are gender—male and female. The four basic causes of disability are: AIDS, maternity, mental and nervous, and all others are another input. I know there's a great deal of interest in doing diagnosis adjustments and that is being considered for future passes, but it's not in the current study as published. Another function input is the age of disablement which is one of the factors that

affects terminations. Duration, or how long a claim has been in existence, is another input.



The next topic is function output. I should point out the fact that the table has a select-and-ultimate nature. In addition, the own-occupation period causes excess terminations at the time of the change in definition of disability. Finally, elimination period also affects terminations. In this way there are termination differences in three-month versus six-month elimination periods, and there are termination differences in the 24- versus 36-month change in definition of disability. The function outputs show different terminations due to death and recovery, and there are excess terminations at the change of the second definition.

Let's discuss how well the function fits the actual data. Some of the reasons why it might not fit as well as it could is that the functions were determined based on 30% of the data. As more data came in there could have been some differences. There are some coding differences as well. Chart 2 shows actual-to-expected terminations by elimination period, where the vertical bars measure the exposure. Most of you who are familiar with LTD are aware that the bulk of the exposure happens with a three-month or six-month elimination period. The actual-to-expected terminations, where the bulk of the data resides, are a little bit higher. There are more actual terminations than what are expected. Where there's less data, there are less terminations than expected.

I thought about creating a chart for terminations by gender, but the graphs looked very similar. Actual-to-expected terminations for males and females are fairly close and they have about equal weighting in the study. Males were right at one and females were at about a 2% excess actual terminations over the expectation. For

cause of disability, and this is one of the things that Mr. Hauser might be talking about later, we should look at the change in treatment of AIDS, and how this is affecting terminations. As you see, most of them are fairly good fits, but for actual terminations on the resubmitted data, or the second pass through the data, we had actually considerably less terminations than what we would have expected based on the prior study. There's also not much weight there.

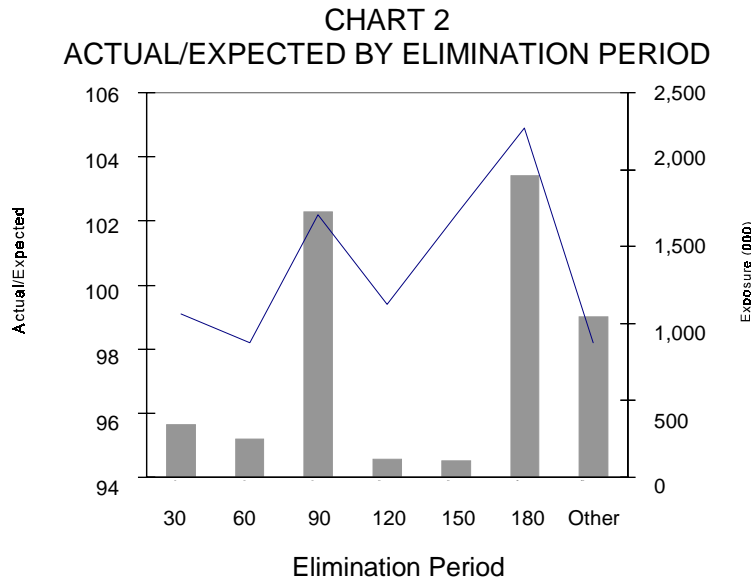


Chart 3 shows actual-to-expected terminations by duration. There's a great deal of variance in and around the 24–30-month period. My suspicion is most of this is due to claims that actually have a change in definition at that point, but weren't coded as having a change in definition. So we actually saw closures, but we didn't expect them by function.

Chart 4 shows actual-to-expected terminations by cause and closure type (death and recovery). Mr. Smith has come up with two different functions, one for deaths and one for recoveries. You see the recovery function seems to fit across the different types of terminations fairly well and, again, shows some significant improvement in AIDS recoveries. Apparently there has been some improvement in AIDS mortality. As far as deaths are concerned, there are a few more maternity deaths, but the expected as well as the actual is extremely small. Although it's a big blip on the chart, there's not much weight behind it.

CHART 3
ACTUAL/EXPECTED BY DURATION

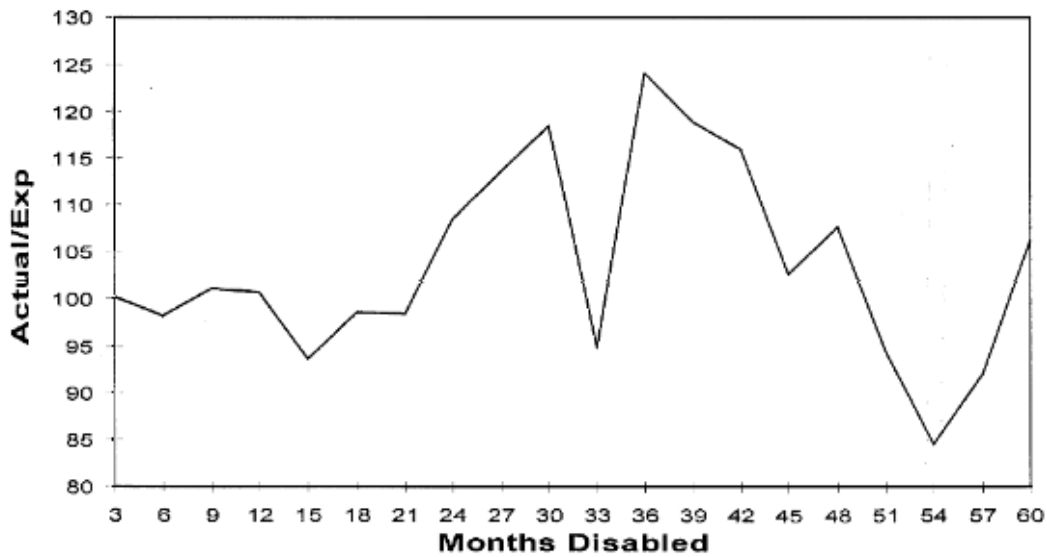


CHART 4
ACTUAL/EXPECTED BY CAUSE AND CLOSURE TYPE

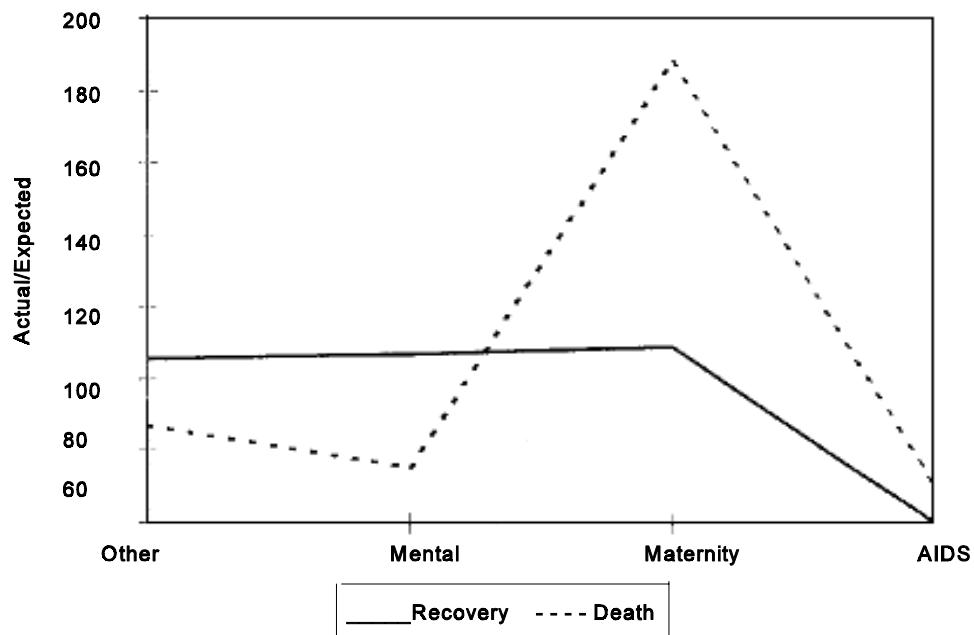


Chart 5 shows claim status versus months disabled. It represents a change in the state of a claim over time. I've used the assumption that there are females age 47 disabled due to some condition other than maternity, like AIDS, or mental nervous. In this particular picture, you'll notice a wiggle at the 27-month mark. I'm assuming that there's a three-month elimination period and a 24-month change in definition

of disability and the wiggle at 27 months represents the excess terminations due to recovery at month 27. In this case, we have a million claims. I'm not sure where that one million number came from. Maybe a thousand claims might have been a better number to start with at three months. As we go through time, more and more recover, so the number of claims persist and some die. The deaths and recoveries take the complement of that. You have the bottom piece of the graph which represents the remaining claims, and that is essentially the survival function for claims for females age 47 with other disabilities and a 24-month change in definition.

CHART 5
CLAIM STATUS VERSUS MONTHS DISABLED
FEMALE AGE 47 OTHER

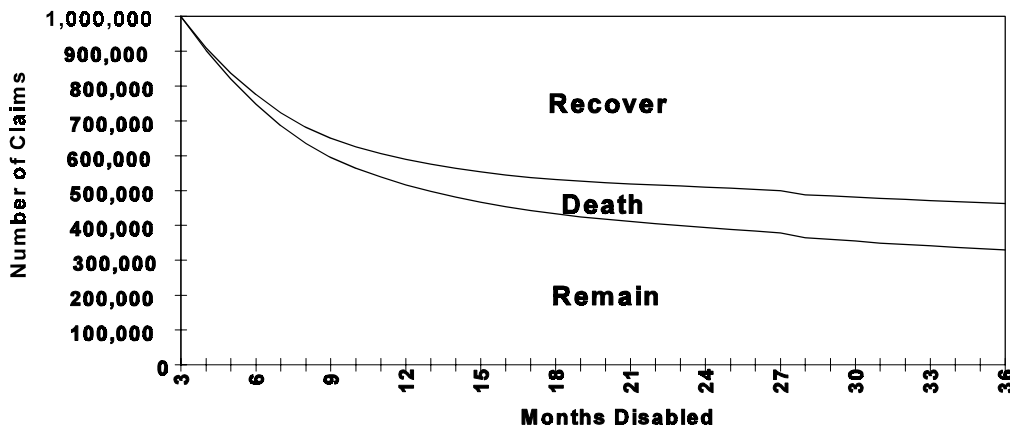
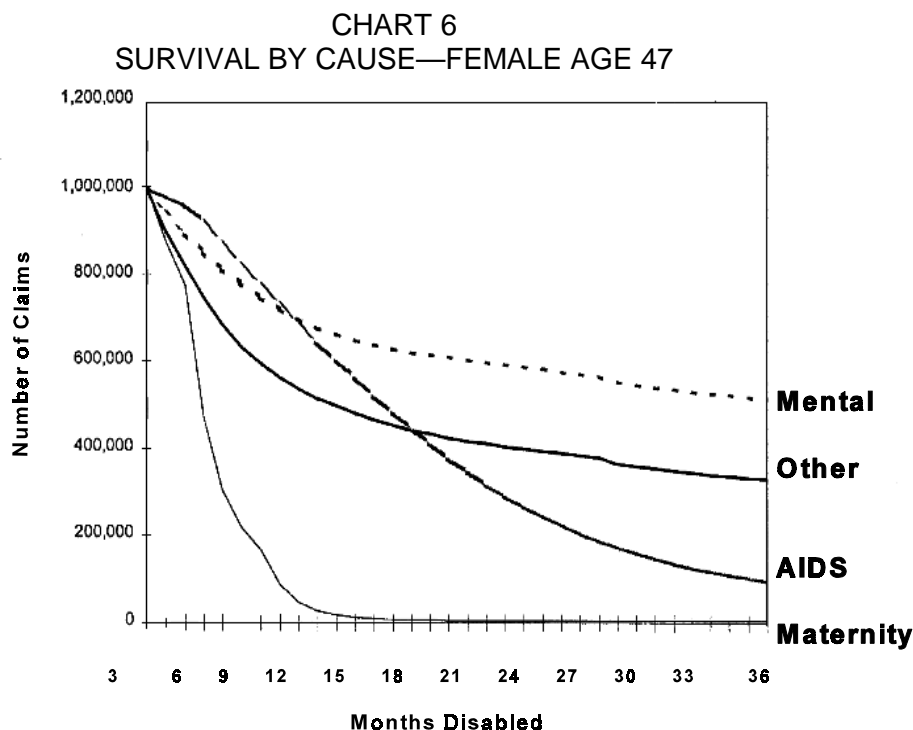


Chart 6 shows survival by cause for females age 47. But to contrast that, I thought I'd throw up what would happen for maternity claims or AIDS claims. Granted, we don't have many 47-year-old female AIDS claims and there aren't many 47-year-old female maternity claims. I thought I would put them up for contrast and I'd also like to point out for both maternity and AIDS claims, that they're not real age dependent. The survival functions are very similar regardless of age. Take 47-year-old females with an "other" cause of disability. If you wanted to know what a typical AIDS claim would look like, follow the AIDS line fairly closely. The maternity claims follow fairly closely regardless of age of the claim. One of the scariest parts of this chart for me is that the mental/nervous claims at 24 months of benefit have about 50% more people still disabled than a regular claimant.

With the legislative climate perhaps considering treating mental/nervous claims as any other claim, there's potentially excess cost here. Most insurance companies have a two-year limitation on our mental/nervous claims under the standard practice. If we didn't have that two-year limitation, would we process claims

differently. How would this survival function change accordingly? It may come down and look much more like the other claims if we are a little bit more active. I see some shaking their heads in disbelief. I'm saying it's a possibility. I'm not saying there's a probability.

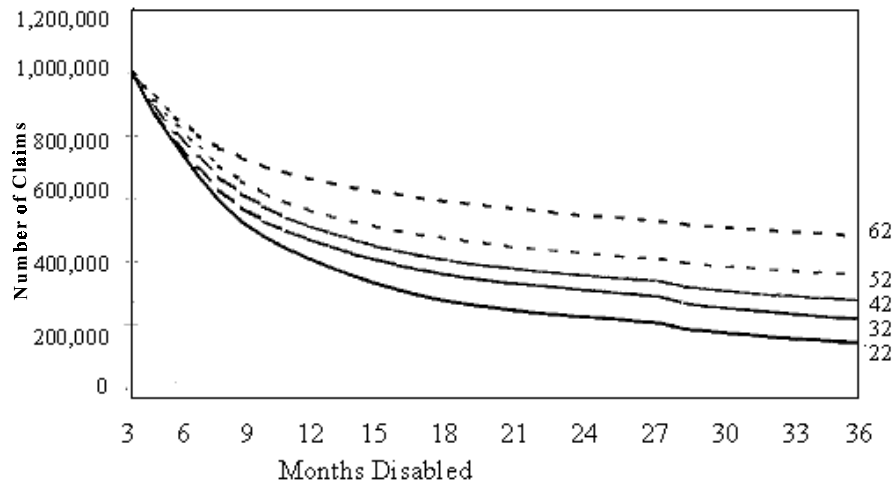


An interesting point regarding AIDS claims is that they don't tend to have the steep slope upfront as you generally do with other types of claims due to recoveries. So initially you have slightly more persisting claims for AIDS than you do for other claims. Another interesting point of a survival function is that it's fairly easy to translate from a survival function back to terminations. The steeper the slope the more the terminations. But you can also get an idea from the survival function of what the shapes of the reserves over time are going to be. The steeper the slope of a survival function, the faster the increase in the reserve is going to be over time. A fairly flat survival function slope dictates fairly high reserves. The mental/nervous claims would generate fairly high reserve levels if we had unlimited benefits. The reserves I was talking about just prior to this were on individual claim basis. If you take that individual claim basis and multiply it times the level of the curve, you can get the total reserve for a cohort of claims.

Chart 7 shows survival functions by age, and it is probably not that surprising for most of you. Older people tend to recover less and so you have more persistent claims. The recovery rate at the early part of a claim is so much higher than the death rate that the lower recoveries more than offset the increased deaths at older

ages. This pattern, that survival functions are flatter by age, is true for males and females, as well as for mental/nervous and other claims. The only time this pattern is reversed is with AIDS claims where you have higher terminations due to death than recovery and older claimants terminate quicker than younger claimants.

CHART 7
SURVIVAL BY AGE-FEMALE OTHER

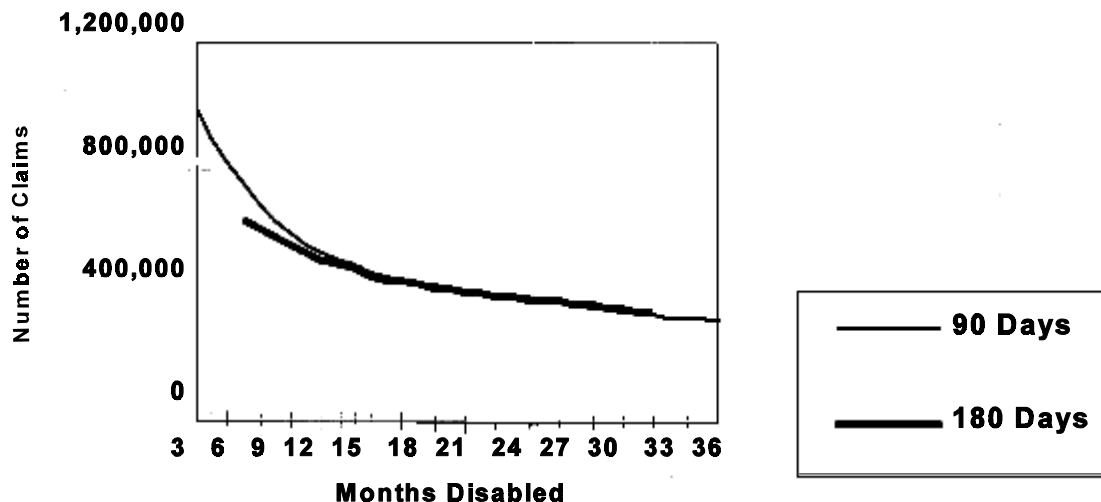


The other interesting point that may be lost due to the quality of the chart, is that the blip at 27 months, where the change in definition comes into play, is larger with the younger ages than it is with the older ages. I don't know if this is very revolutionary or not. When I talked to some people in management, they thought, "Wow, we've never seen that before." However, if you talk to the claims people, they say, "Oh, sure, you can't get anybody off claim due to a change in definition of disability, if they are past age 47." So I'm not sure how much of this is self-inflicted or if it's just the way the change in definition interacts with the second-year earnings test. But you do have significantly higher terminations at the change in definition for younger people. It's so high that the actual size drop on it is significantly higher than that of claimants aged 47 or 42, even though the bottom line for 22 year-olds is significantly lower in level.

Chart 8 shows survival function by elimination period. I don't have incidence in either the survival function by age or by elimination period; instead, I am assuming an incidence level.

Originally I had one more survival function that got edited out. That chart showed that males tended to survive longer than females at early durations. The recovery rates were slightly lower. If you can carry that out into the future though, the death rates eventually overwhelm it and male survival crosses over the female survival once you go far enough out in time.

CHART 8
SURVIVAL BY ELIMINATION-FEMALE OTHER 47



Let's discuss ultimate termination rates. The tables had a select period where the probability of recovery or death was based on how long someone had been disabled. After 60 months, the assumption was made that it didn't matter how long a claimant had been disabled. The probability of terminating due to death was going to be the same as the probability determined by attained age. I suppose the crossover assumption could be studied some more, but that was the assumption that was used in generating the table. For recovery rates, that crossover point happened at 84 months.

Once you get out into the ultimate period, the actual to expected varied by cause of termination and gender. The death rate for males was 85%. Actual-to-expected ratios for recoveries were 142%. Again, this is probably a function of claim closure coding. Females were a much tighter fit with a 100% actual-to-expected death terminations and 8% excessive actual-to-expected recovery percentages.

Charts 9, 10, and 11—ultimate rates by recovery, death, and total, respectively, show some probabilities of termination for a change. These are the monthly termination rates and I've tried to use the same scale on these graphs so that you get a relative view of the differences. There's not much weight for claimants age 32, disabled for seven years, and terminated due to recovery. That would have meant

the initial claimant had to be age 25 when he or she was disabled. There's not much weight in that early part of the table where the two curves are different. After age 40, the recovery rates for males and females are extremely similar.

CHART 9
ULTIMATE RATES—RECOVERY

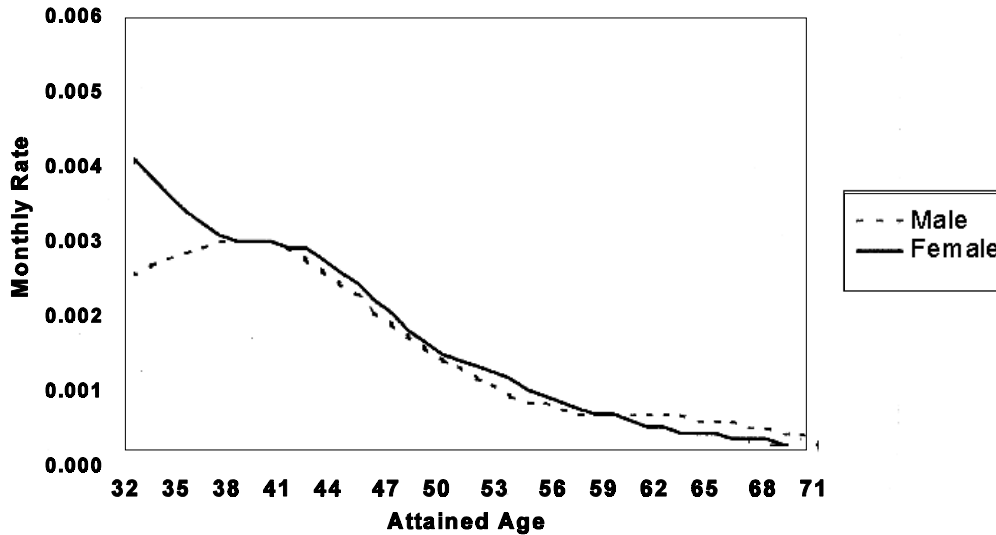
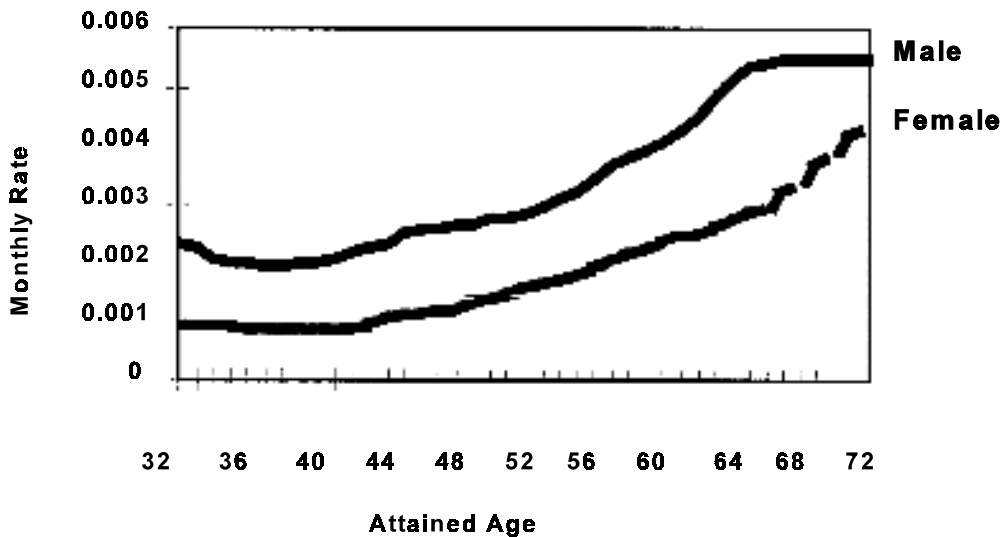


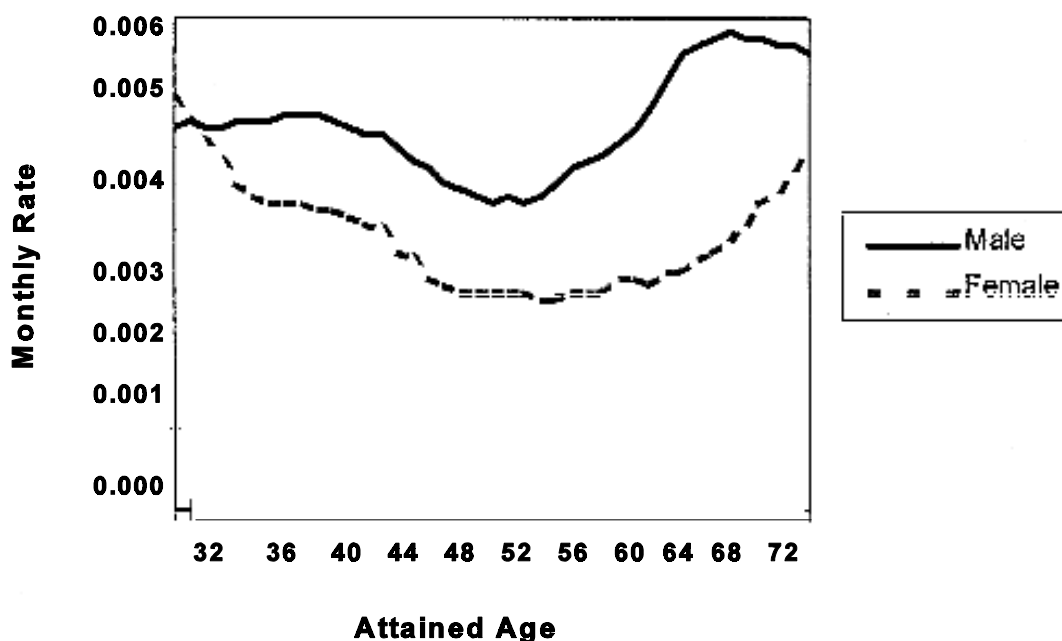
CHART 10
ULTIMATE RATES—DEATH



The death rates are markedly different at all ages and males are considerably higher. So I guess you can conclude that, after age 40, terminations due to recovery do not vary by sex, but they do vary if termination is due to death; in fact, it's significantly

different at all ages. If you add the two together, the male terminations are significantly higher at all ages after age 35. If you took a cohort of 1,000 people disabled at age 32, and then aged them based on these termination rates, you'd have more females surviving, which is the opposite from the early durations where males tend to survive longer.

CHART 11
ULTIMATE RATES—TOTAL

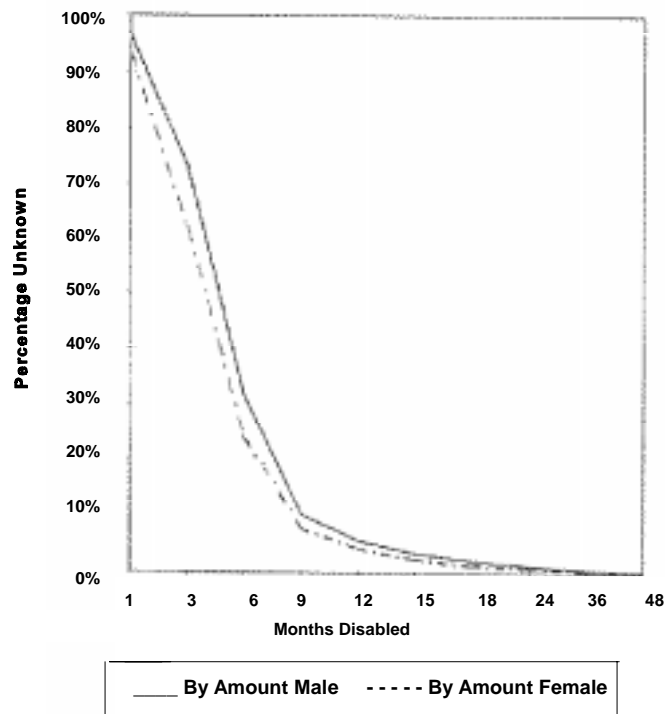


I thought I'd talk briefly about when and why claims close. One of Mr. Smith's studies analyzed the last month of claim duration to see how far through the month the claim was when it closed. All the standard tables that we've seen up to this point have always assumed a midpoint termination due to recovery. His study shows that that is nearly true for deaths. Deaths are fairly uniformly distributed throughout the month. For recoveries, after the first year, there's a significant bias towards claims closing at the end of the month than there is for claims closing at the beginning of the month. That's all I have to say about closure timing.

The next topic is IBNR claims by gender, cause, and EP. Mr. Smith also looked at claim report timing. The factor represented in Chart 12 is the percentage of claims unknown at a given point in time. So for those of you with a medical background, these are the complements of the completion factor. For those of you who may have studied property and casualty insurance, one of my favorite books is *The Introduction to Rate Making and Loss Reserving for Property Casualty Insurance* (Robert Brown, Actex Publications, Inc., 1993). These are essentially the Bornhuetter-Ferguson factors used in loss ratios in reserve development.

This shows that 97% of male claims after one month of disability are unknown, 3% are known. So if I had an estimation of how many claims I expected to see for a given month, a month later I would anticipate my unknown claims to be 97% of my initial estimation. You could use these factors directly. If you had an anticipated loss ratio, you might choose to use one of these factors, then figure out how many dollars of claims were still outstanding. The caution is the numbers that are generated were both by amount and by count, where the amount is the gross amount of the monthly payment, not necessarily the dollar impact of the claim.

CHART 12
IBNR BY GENDER



One of the things you'd want to consider if you were studying this for yourself is that if you had a litigated claim that you may not know about (say the lawyer was sitting on it for six months), this claim may be fairly large in terms of the dollars you're going to have to pay out even though the salary may not be that large. Chart 12 shows that female claims tend to be known a little bit sooner than the male claims. I think this can almost exclusively be attributed to maternity claims. As we see in Table 1, IBNR by Cause, maternity claims tend to be reported much quicker than other claims. Mental nervous claims tend to take the longest to be reported.

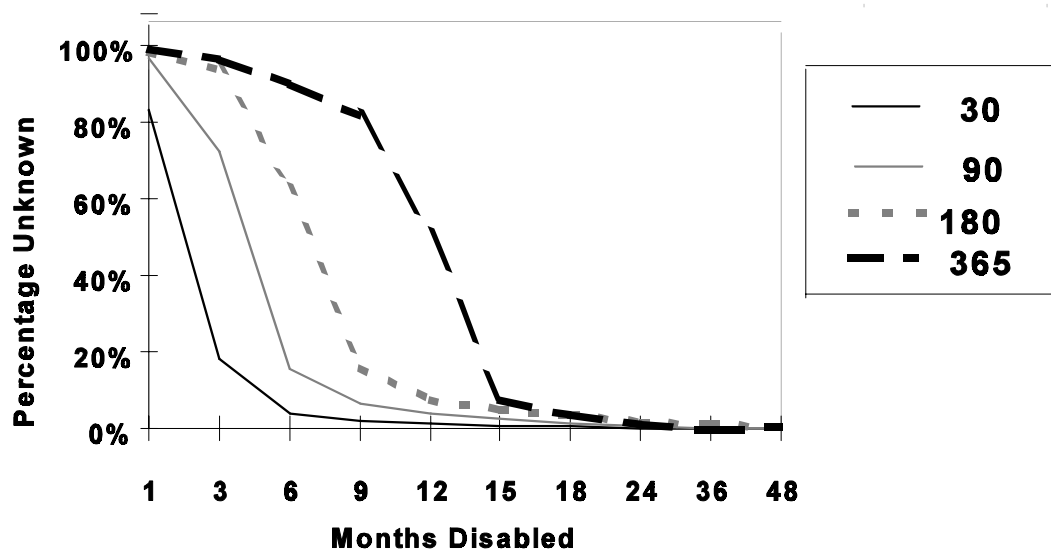
The IBNR factors that will be the most useful for reserving are the ones by elimination period portrayed on Chart 13. The top line represents a one-year

elimination period. Use of the table depends upon how you would reserve. I typically reserve for all claims until they've met their qualifying period in the IBNR reserve. So if I were using this table I would instead overwrite any claims, or any factor prior to the actual completion of the IBNR or the completion of the elimination period with a one. For example, on a 90-day elimination period, for the first three months, I would use a factor of one and after that I would start using these factors. You develop the remaining IBNR.

TABLE 1
IBNR BY CAUSE—PERCENTAGE UNKNOWN

Months	Cause by Amount—Percentage Unknown Per Month			
	Other	Mental	Maternity	AIDS
1	96.8%	97.5%	83.0%	92.7%
3	72.4	75.9	34.8	64.0
6	31.4	34.0	6.8	25.3
9	10.5	11.4	1.3	6.1
12	5.7	6.2	0.5	3.0
15	3.4	3.5	0.3	1.4
18	2.3	2.2	0.2	1.1
24	1.3	1.1	0.1	0.4
36	0.6	0.5	0.1	0.1
48	0.4	0.3	0.0	0.0

CHART 13
IBNR BY ELIMINATION PERIOD



Another report provided by the study is Social Security Award Rate Analysis. The ratios that are reported are the percentage of claims that will ultimately get a social

security award versus the number of claims open at a given time. The number of claims that were open at the three-month period would go into the denominator. The number of claims that were open at the three-month period that ultimately would get a social security award would be in the numerator. Over time, the percentage grows and it grows by age. The older the people are, the more likely they are to get a social security award. The younger the people are, the less likely they are to get a social security award. If you were trying to use this in calculating a reserve, you might have some difficulty.

Studying social security awards is always an interesting point because hardly anybody ever captures enough information to really do it right. It is difficult to track claims through their different states. You know that at time one this claim was estimated for social security. But what was the chance that the claim aged into actually having social security at time two, three, or four?

Table 2, Social Security Awards by Age and Duration, gives you some idea of the levels at which you can anticipate Social Security awards by duration. We see male Social Security award rates. You can also compare males and females and see that the female award rates tend to be lower at most ages and duration than the male rates.

**TABLE 2
SOCIAL SECURITY AWARDS BY AGE AND DURATION**

Duration	Male				Female			
	32	42	52	62	32	42	52	62
6	42%	45%	59%	73%	25%	41%	55%	70%
12	53	56	70	83	44	53	67	81
18	56	60	75	86	50	59	73	85
24	56	62	76	87	53	62	75	86
36	60	67	80	89	60	69	81	88
48	73	74	82	84	71	75	85	87
60	77	76	84	88	76	77	86	88

Chart 14 shows implied claim size by gender. Based on the data that were submitted, we could consider how big claims were after having satisfied their elimination period. The amount of the reserve was represented either by the valuation table which, in this case, I think is the CGDT basic, versus the experience table. The numbers you can't really see very well are the actual reserves. You can see that the implied size of the claim grows with the elimination period.

Chart 15 shows implied claim size by age of the claimant. The largest claims would occur for 47-year-olds with a 180-day elimination period.

CHART 14
IMPLIED CLAIM SIZE BY GENDER

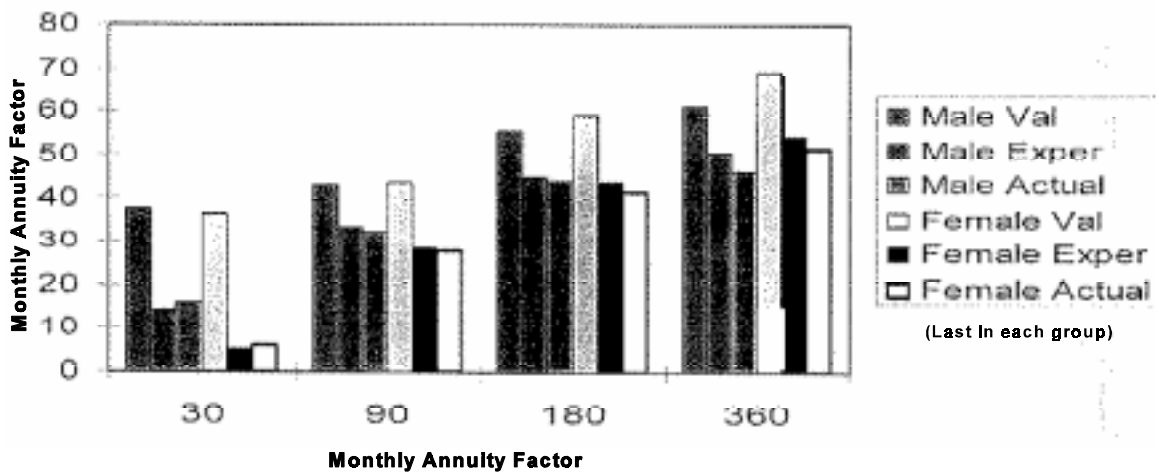
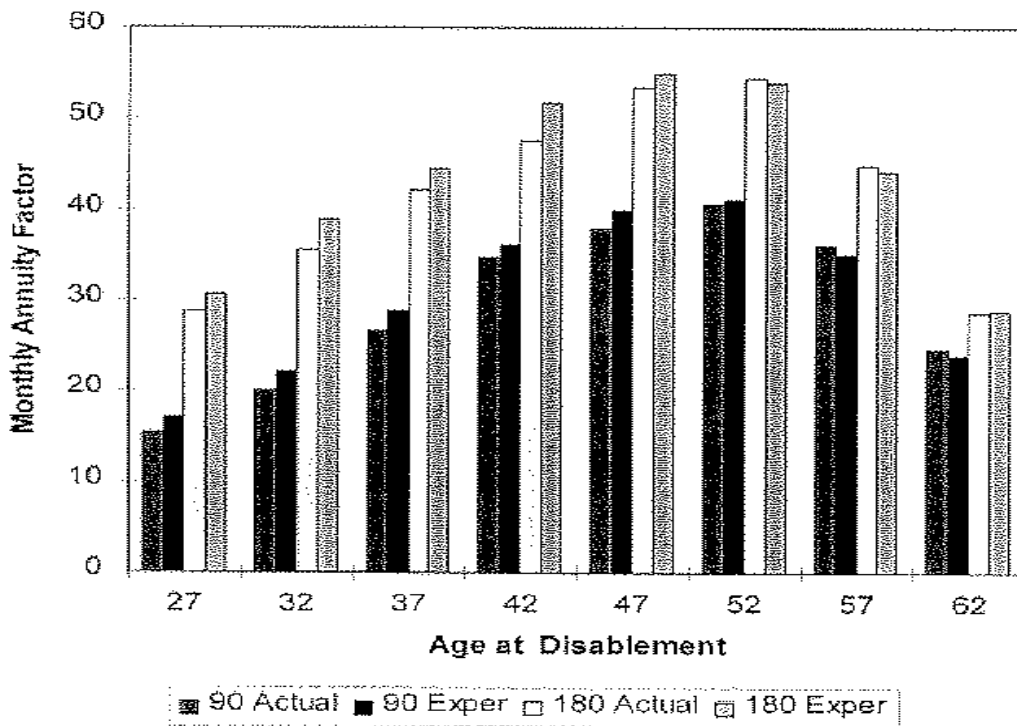


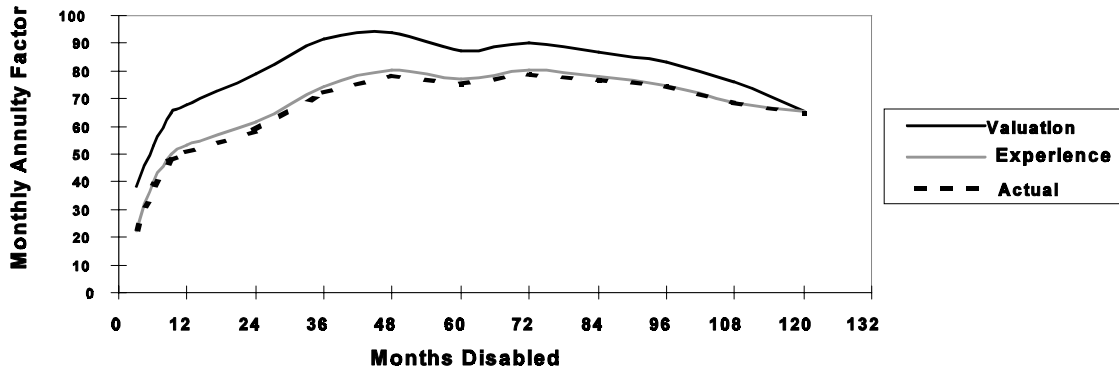
CHART 15
IMPLIED CLAIM SIZE BY AGE



I'd like to conclude with Chart 16, Open Claim Reserves. This shows the impact of reserving for a mix of open claims by the number of months disabled. This chart represents the different annuity factors. The top line is the current valuation basis.

The middle line represents the experience table that was generated and the bottom line is the actual. Although there may be a great deal of variation in actual to expected on the termination sides in various cells, the aggregate effect is that you have a fairly close fit when you get around to using it on a reserve basis, or at least a very good fit when compared to the current valuation standard.

CHART 16
OPEN CLAIM RESERVES



Mr. David G. Fitzpatrick: I would like to discuss how the reserves compare under the new SOA pilot 1995 table versus the 1987 CGDT. I'd also like to discuss a little bit about the impact of adding margins to the termination rates and what impact that has on the reserves. Finally, I'd like to briefly discuss some of the issues that are involved in adopting a new valuation table.

Table 3 shows a ratio of reserves between the 1995 table, using 90% of termination rates, and the 1987 CGDT for males at 5.75% interest. These are to age 65 reserves. The reason I used 90% of the termination rates is because the CGDT uses 90% on the basic table. I thought it was appropriate to compare the 1995 table with some margin put into the valuation table. As you can see from this table, using 90% of termination rates produces reserves that are considerably less than the 1987 Table. The differences depend on age and duration. I also did comparisons using females with the same characteristics of 90% of the 1995 table termination rates and using 5.75% interest. You can see similar ratios in Table 4.

To get a better perspective of it, I actually took a sample of claims and did the ratio based off the sample calculated on both reserve methods and came up with an average ratio of slightly over 0.9. In this comparison I was using a 90-day benefit waiting period, which is different from Mr. Bailey's qualifying period and different from the elimination period that Mr. Smith refers to. SOA 1995 table does not contain any margins in its current state.

TABLE 3
RATIO OF RESERVES—1995 TABLE (.90)
TO 87CGDT (5.75%, TO AGE 65M)

Duration	27	37	47	57
0 blt 3	0.78	0.84	0.85	0.82
3 blt 6	0.78	0.86	0.88	0.87
9 blt 12	0.77	0.86	0.92	0.94
15 blt 18	0.76	0.84	0.92	0.96
24 blt 36	0.75	0.83	0.92	0.98
60 blt 72	0.81	0.89	0.96	0.99
108 blt 120	0.82	0.92	0.95	-

TABLE 4
RATIO OF RESERVES—1995 TABLE (.90)
TO 87 CGDT (5.75% TO AGE 65F)

Duration	27	37	47	57
0 blt 3	0.80	0.82	0.83	0.79
3 blt 6	0.75	0.82	0.86	0.84
9 blt 12	0.70	0.80	0.90	0.91
15 blt 18	0.68	0.78	0.90	0.94
24 blt 36	0.68	0.79	0.91	0.96
60 blt 72	0.79	0.90	0.97	1.00
108 blt 120	0.84	0.94	0.98	-

One of the considerations in replacing the 1987 CGDT with the 1995 table is how to add margin to the 1995 table. One simple method is to reduce the termination rates by a uniform percentage. A variation of this method might be to use 2% reductions in the termination rates—one for recoveries and another for deaths. Another issue is determining the correct amount of margin to add to the table to make it a valuation table. If I asked 10 actuaries that question, I might get at least 11 answers. I believe the primary focus should be on the amount of margin that a company needs to demonstrate sufficient reserve runouts.

Continuing with the margin discussion, the NAIC model regulations permit companies to adjust the 1987 CGDT table based on credible experience. If the 1995 table is adopted as a new valuation table, what latitude will be allowed for adjusting the table? As Mr. Bailey discussed, the 1995 table fits most companies' experience with a remarkably good fit unlike the 1987 CGDT table. Another issue is whether the states will adopt new valuation regulations with uniformity.

Prior to the 1987 CGDT, requirements were unclear in some states. Most states at least had a minimum requirement of a reasonableness safe harbor. In my opinion, this uncertainty expedited the adoption by the states of the 1987 CGDT table. Also,

with the existence of the 1987 table, will states move quickly to adopt a new table? If a new table is adopted, what interest rate requirements will be utilized, and will they be uniform among states?

In the NAIC model regulations, companies are permitted to adjust the 1987 CGDT Table based on their own experience. Based on recent discussions with other companies, it is not easy to understand or define what is permitted, and NAIC model regulations are subject to different interpretations. There is a drafting note in the NAIC model regulations:

For experience to be credible for purposes of (ii) (adjusting termination rates 3–5 years), the company should be able to provide claim termination patterns over no more than six (6) years reflecting at least 6,000 claim terminations during the third through fifth durations on reasonably similar policy forms.

Most people agree that you can adjust your termination rates, or at least claims, in the first two years. For durations three through five, it's fairly clear that you need to have a minimum of 6,000 claims in durations three through five over the most recent six years on similar policy forms. Not all states adopted the drafting note when they adopted the model guidelines. The point that I'm making is that much of the confusion interpreting the model regulations is due to the poor fit of the 1987 CGDT table. The 1995 table is a much better fit as can be easily demonstrated; therefore, it should not require as much adjusting by companies.

I also looked at the ratio of reserves to age 65, comparing 1995 table at 90% of the termination rates to the 1995 table. The ratios in Table 5 are for females for a 90-day benefit waiting period. This is strictly an illustration. It's not intended to suggest that 90% of the termination rates is the appropriate amount of margin. I'd encourage companies who are considering this to look at their own experience and base their margins off of their own reserve runouts. One of the concerns on getting the new table out to the public is that people may try to use it as a valuation table. Again, I'll emphasize that it currently does not contain any margins and, therefore, it's not a good valuation table in its current form.

I also have some ratios for the males in Table 6, which, again, are similar to the ratios for females (Table 5). I did a sample of actual claims using 90% of the termination rates and it increased reserves by about 4%. This amount will vary by company mix of business.

TABLE 5
RATIO OF RESERVES—1995 TABLE (.90)
TO 1995 TABLE—FEMALE, 90 DAY BWP

Duration	27	37	47	57
0 blt 3	1.19	1.16	1.12	1.08
3 blt 6	1.17	1.13	1.10	1.06
9 blt 12	1.12	1.09	1.06	1.03
15 blt 18	1.10	1.08	1.05	1.02
24 blt 36	1.08	1.06	1.03	1.02
60 blt 72	1.05	1.03	1.02	1.00
108 blt 120	1.04	1.02	1.01	-

TABLE 6
RATIO OF RESERVES—1995 TABLE (.90)
TO 1995 TABLE—MALE, 90 DAY BWP

Duration	27	37	47	57
0 blt 3	1.20	1.16	1.12	1.08
3 blt 6	1.16	1.13	1.09	1.06
9 blt 12	1.12	1.09	1.06	1.03
15 blt 18	1.10	1.08	1.05	1.02
24 blt 36	1.09	1.06	1.04	1.02
60 blt 72	1.05	1.04	1.02	1.00
108 blt 120	1.05	1.03	1.02	-

Those of you who are familiar with the 1995 table may have also heard of Table 95A. I wanted to point out that the two tables are based on the same data. The difference in Table 95A is that it blends maternity and AIDS termination rates into the "all" category after six months and 36 months respectively. Between the two tables, there is less than a 1% difference.

The recent improvement in AIDS mortality will be addressed in the next submission of data. Under the current risk-based capital formula, companies with more conservative reserves have higher risk-based capital requirements. Therefore, if a new table is adopted that reduces valuation reserves, risk-based capital would be lowered under the current formula as well.

Federal income tax treatment is another issue. I'm assuming though that companies that are adjusting the Commissioner's Group Disability Table will also put a margin into the 1995 table, and you consequently will not see a significant change in their tax situations.

There are many comparisons that can be made between the 1987 CGDT Table and the 1995 table. I have picked four of the more significant ones. First, the 1995

table is based on much more recent data. It uses data from 1987 to 1995 as opposed to the 1987 table which uses data from 1962 to 1980. An important feature and difference between the two tables is that in the 1987 table the impact of own-occupation period on termination rates was graduated out. The 87 Table contained three elimination periods, 90-day, 180-day, and 360-day; whereas, the 1995 table includes 30-, 60-, 90-, 180-, and 360-day elimination periods. Probably the most important difference is the better fit during the first two durations for 1995 table.

Results of the new LTD Experience Study are out on the SOA Web Page. You can find it under www.soa.org. There are four tables on the Web site: The 1995 table compared to the CGDT at 5.5% and 7% and the 1995 table compared to the G Basic Table at 5.5% and 7%. Before you print them out, remember that each report is 151 pages.

Mr. William J. Hauser: I'm the LTD Product Actuary at Sun Life of Canada. My presentation will cover how to handle specific situations in conducting and using a termination study. The two important words in that statement are first, *conducting*, which means applying a uniform set of rules across all participating companies; and second, *using*, which means considering company variations in a procedure that may produce results that are inconsistent with that uniform set of rules. In particular, I'm going to touch on settlements, own-occupation definition, changes in claim procedure, and other variables.

Before I go any further, I would like to highlight what I consider are the benefits of participating in this industry study. I know everyone has resource constraints and a great deal of work they have to get done. I think that by participating in the study you learn an incredible amount about what's going on with your block. Also, it can help you see the impact of differing procedures over time. So if anyone out there is considering participating in the next wave of the new study, I would heartily encourage you to do so.

Next, let's take a look at the uniform rules for settlement. In the study they were identified by a specific flag or by testing to see if the final payment was significantly above the previous net or gross monthly benefit. The uniform rule is that exposure on these claims is to the termination date. The important thing to note is settlements are much more common, so you need to have specific consideration and a uniform approach for them. For definition purposes, a settlement is a lump-sum payment to a claimant to absolve the insurance company of any future liability.

Now I will move on to different types of settlements. For definition purposes I've divided them into three categories: an any occupation settlement, for which claim

closure does not count as a termination; an own occupation settlement where, again, a claim closure does not count as a termination; and, a compromise settlement, which is identified by claim coding. Here a claim closure does count as a termination.

Let's look at the any occupation settlement. In my mind, an any occupation settlement is the typical settlement and characteristically there's no question about the disability status of the claim. Second, all potential offsets may be taken and that might be a requirement for the claim to be considered for the settlement process. Last, depending on company rules, any occupation settlements may require that health status be verified before the person can participate in the process.

Let's take a look at what happens when you have an any occupation settlement, keeping in mind, again, the rules that we used for the study. First, exposure is to the termination date, and second, closure does not count as a termination. The impact in absence of that settlement is that the potential uncounted exposure is probably out to age 65. Second, because of the settlement, you're going to be understating your terminations by death.

Let's move onto own occupation settlements and take a look at the characteristics for claims in that category. Again, there's no question about the disability status, but for this particular situation it's just during the own occupation period. It's doubtful that you'll have an any occupation disability approval at the change point. The settlement is typically for payments due through the end of the own occupation period. One variation of this is what's called a pay-and-close claim. What distinguishes a pay-and-close claim is you typically don't have a written agreement, and the onus is on the claimant to reopen the claim if they want to apply for continued payment.

Next, let's look at the impact of own occupation settlements, keeping in mind again our rules for doing the study. Exposure is to the term date and closure does not count as a termination. Here your potential uncounted exposure is limited, potentially only about two years, but your any occupation terminations are going to be understated.

For the last category of settlements, compromise settlements, the disability status of the claim is in question and the amount of the settlement is going to depend greatly on the specific situation with that claim. The most common claim in this category would be cases in litigation.

Let's look at the impact of compromised settlements. You can understate exposure if this is going to occur on the initial claim decision. There's no impact on exposure

for active claims because they would typically be terminated if you followed through on the decision that you made. There's no impact on the number of terminations because for the study a compromised settlement was counted as a termination. What is impacted is the timing of the termination. It is presumed that if you did not settle the claim, the process to make the final decision may have dragged out over time, and the termination date would have been at some point in the future. You also need to keep in mind that the claim might not be flagged as a settlement if the compromise payment is made outside the claim system, for example, by the legal department, or if you're identifying compromise settlements not by a flag in the system, but by looking for a large payment greater than the previous net or gross monthly benefit.

Now let's look at the next category of terminations, own occupation definitions. You have variations from the two-year own occupation standard of three years or five years or potentially three years of disability as opposed to two years of benefits. The way this study evaluated the impact of a change point was to look at whether or not there was a change point. The study did not look at differences in when that change point occurred or whether it was two years, three years, or five years. As Mr. Bailey alluded to before, the biggest impact is at the younger ages. For example, the impact of the change point for someone who's fairly young can be up to eight times the base line termination rate; however, for the older claimants that decreases down to about one-and-one-half times.

So we'll move on and take a look at the impact of the own occupation point. The study measures the impact of an own occupation change point, and that can be applied to whatever duration is appropriate. Interestingly, the study found that there was no statistical difference at later durations between an extended own occupation claim and a claim that didn't have a change in definition.

Let's move on to the next category, changes in claim procedures. There are four that I think are the most important ones. I think all of these are affecting companies to varying degrees. Claims per examiner are trending down. We see more pooling of routine handling of permanent and total disability claims. We've seen more dedicated and expanded rehabilitation staff. Finally, we're also seeing the increased use of medical expertise, such as a doctor or a nurse on staff, or the increased use of independent medical examinations.

Each company has been impacted by these trends in claim procedures to varying degrees. To the extent that claims procedures are tightened, termination rates may blip up as old claims are reexamined. Each company has to take a look at their particular situation to gauge the impact.

Let's move on to other variables that can impact the termination rates, specifically the category of benefits. Whether or not a claim is approved for social security is directly linked to the level of termination rates. Second, higher salaries tend to be associated with lower termination rates. If you are thinking about using the study for setting up reserves on reinsurance for LTD, that's something you're going to need to take into consideration.

Last we'll look at the impact due to different procedures. The two I'll discuss are things that I've looked at while examining Sun Life of Canada's block and are procedures that generate claim terminations which Mr. Smith has identified as looking out of line. First, overpayments are going to lead to higher termination rates. The typical scenario that happens with an overpayment is that an individual is approved for a claim, the Social Security approval lags and, when we get the final decision, there's a large overpayment. The claimant has received the check and, of course, has already spent the money, which leaves us no other alternative but to withhold the benefits. Depending on the level of the social security award, we can end up withholding benefits for quite sometime, up to two, three, or four years depending on the situation.

In this situation, what happens is that the claimant is not getting any benefits, but on a regular basis they're still getting a request from the insurance company to provide medical evidence substantiating continued disability. In a short-sighted decision, they opt not to complete the forms because they are not receiving a benefit anyway, and the claim is terminated. Now in Mr. Smith's study that isn't usually counted as a termination, depending on how the coding is set-up. But when you look at your particular situation, it does have an impact on the bottom line. It really isn't a termination in the sense of trying to identify when disability stops, but the impact is there.

You see a similar situation with long-term disabilities, and that typically comes up with claims that are at the minimum benefit. Some of our older policies are set at a \$50 minimum, and I think that's fairly common with most of the carriers out there. The claimant is confronted with a similar situation, and they opt not to go through the hassle of filling out medical statements for the sake of \$50 a month. Since the claimant does not submit the requested medical evidence, we end up terminating the claim. Now it does have an impact on the bottom line, but for study purposes it really isn't a termination of the disability. In conclusion I would say that as you evaluate using these tables, it is important to take a look at your company's procedures and your mix of business and think about how you're going to apply the tables.

Mr. Smith: There are some issues that came up in the 1996 study that we're going to work on improving in the next study. The experience by salary showed fairly significant variance in termination rates. The actual-to-expected ranged from a high of $\pm 108\%$ for low salaries and it dropped down to 90% for high salaries. We will investigate if we can either build that variation into the table somehow, or switch to an amount study versus a lives study. The current study is a lives study. Another issue is thinking about how much conservatism we should put in the table, which is more a matter of gathering opinions than conducting studies. The committee voted two days ago to make the NAIC aware of this study. The 1995 table is probably not going to be proposed as the valuation table, but I think many issues will start popping up. If we are able to address some of these issues now, we will have a cleaner and faster process when the time comes. Therefore, we're going to start educating the NAIC.

I believe there is an anomaly for age 60+ terminations. We will begin to pull the claims out and look up the true causes of termination. Termination rates or the recovery rates rise going from age 62 to 67. This phenomenon doesn't make logical sense unless there is a super select working population that continues on and is committed to going back to work. It could be true, but we need to investigate that specifically.

We will not specifically address special benefits; however, there are some special benefits in the study that create unusual patterns. For the next pass of the study, we will try to identify special benefits better and handle them more consistently. The issues of settlements was discussed by Mr. Hauser. The coding is probably not quite as clean as Mr. Hauser may have led you to believe, but, again, as I mentioned at the beginning, the termination codes submitted by the participants have a fairly high error rate. For the next pass of the study we're going to try to identify and handle settlements better. Companies have a wide range of termination codes. Some companies having under 10 and some have 100. We'd like to do a better job in this area. In addition, we have the same issues for compromised claims as we do for settlements.

Another issue is buyouts. We attempted to identify buyouts; however, I know we missed some and therefore the study may have some extra exposure that shouldn't be there.

Let's discuss future enhancements for the study publication. We will re-do the own occupation spike to see if we can refine it more. About half the companies didn't initially provide own occupation information; however, I think they'll be able to provide it for the next pass.

A second future enhancement will be reserve by cause. We will create a new version of the reserve diskette that we handed out in the past. We've had requests to combine the four causes of disability into one, to accommodate systems that only handle one cause, or requests to provide just two causes, maternity and other. We're going to take care of this issue next time by keeping the four causes, but putting the exposure into the calculation routine so you can merge the four. We've also had requests for the opposite, but we can't have 20 causes.

Partial and residual claim terminations will be looked at a little more. Despite the fact that these claims are in the study, we have not isolated them and don't really know anything about their termination rates. For deaths, you saw charts that ran at 80% or 85%. We started off saying that the 1995 table was built with 30% of the data and the cleanest data was used to produce the death rates. Actually the death rates came from an even stricter segment of that 30%. I still think that the 1995 table represents the best guess at this point of where we can improve on death rates by doing some cross checking. This is one of the most challenging issues to get accurate.

I already mentioned that we will work on identifying and handling buyouts better in the next pass of the study. We will do the same for administrative services only insured claims. They cause problems at times, since some claims may be administrative services only for 24 months and then insured afterwards. There may be inconsistencies in how this type of claim termination is coded. Finally, for the next pass of the study, we have set a goal of cutting the confidence interval in half. For the current study the confidence level is at $\pm 5\%$, and we hope to cut this figure in half.

We are kicking off the next pass of the study now. It will be handled in several phases beginning with a preliminary submission. These data will be run through audit routines, and the resulting audit reports will be returned to the companies. Hopefully, this process will be finished by the end of the summer and then the companies will have until early 1998 to reconcile audit errors. From those data, we'll build experience Table 98, which will then be used to audit and construct the final study.

Mr. R. Dennis Corrigan: I'm curious about the implied claim amount concept. It's just not clear to me what that meant. Can you elaborate?

Mr. Bailey: I apologize, I rushed through the chart that represented the implied claim amount. Those figures were meant to represent the size of the reserve at the time a claim opened. In other words, the chart showed how big the reserve should be when a claim hits the elimination period. Therefore, the numbers were

supposed to represent the size of a claim, taking into consideration the average diagnosis between AIDS, maternity, and any limited benefits for mental and nervous diagnosis.

Mr. Andrew S. Galenda: Mr. Bailey, could you define the numerator and the denominator on the IBNR percentages that you discussed?

Mr. Bailey: Yes, the numerator is the percentage of claims that were eventually approved for Social Security after that period of duration, whereas, the denominator is the total number of claims reported.

Mr. Michael B. Koopersmith: Could you tell me if there were any analyses done by replacement ratios or by occupation classifications, and whether there are any plans to do that in the future?

Mr. Smith: There is nothing on replacement ratios. We collected salary information so there is the possibility to analyze by replacement ratio, except in many cases salary is capped at the maximum, so there isn't a true replacement ratio. Regarding analyses by occupation classification, some companies classified occupations into blue collar and white collar; whereas, other companies provided extensive occupation codes that I never took the time to translate. It would have been quite a job to translate upwards of 1,000 occupation codes; however, it will probably be done in the future. At this point, we haven't looked at it yet.