LONG-TERM CARE – DATA ACCUMULATION

Moderator:	SAM GUTTERMAN
Panelists:	HAROLD L. BARNEY
	GARY L. CORLISS
	JOHN C. WILKIN
Recorder:	SAM GUTTERMAN

Report of progress of the Society of Actuaries' Long-Term Care (LTC) Experience
Committee
- 1984-89 interinsurance company LTC experience study
- Analysis of noninsurance company LTC experience
- Pilot project for study of experience of Continuing Care Retirement
  Communities (CCRCs)
- Other developments

MR. SAM GUTTERMAN: I am the moderator for this session and currently chairper-
son of the Society's Long-Term Care Experience Committee. Long-term care is an
area in which actuaries and the insurance industry have become increasingly active in
the last several years. As in all other areas, actuaries have a particular interest in
identifying and analyzing relevant experience data. Unfortunately, relevant experience
data available to date have been relatively sparse.

This session will constitute a status report of our activities relating to long-term care
experience in terms of institutional care, home care, and continuing care retirement
communities. Our presentations are organized around three principle areas of our
activities.

The first area is noninsurance company experience. Mr. John Wilkin, an actuary with
the Actuarial Research Corporation, has been in charge of our efforts relating to the
analysis of noninsurance institutional care experience. John will provide insight into
what has likely been the most commonly used data source in this area -- the 1985
National Nursing Home Survey. Our efforts in this area will be available in a preprint
form early in the third quarter, to be published in the *1988-1989-1990 Reports*
volume. We encourage discussions of this report.

The second area is our study of intercompany insurance experience of monoline
long-term care health insurance products. Mr. Gary Corliss of Duncanson & Holt has
assisted me in this study. Gary will provide an overview of the very preliminary
results of this study. We anticipate making final results of this study available near
the end of 1991. It is our intention to continue this as an ongoing study; therefore,
we invite additional contributors to join in the study. In addition, we anticipate that
the Individual Life Experience Committee will request and receive contributions of
experience of long-term care benefits provided in conjunction with individual life
insurance policies.

The third area is our efforts to develop the experience of continuing care retirement
communities. Mr. Harold Barney, President of Actuarial Forecasting & Research, has
worked in continuing care retirement communities extensively. He is currently
Chairman of the American Academy of Actuaries' Committee on CCRCs and the

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National Association of Insurance Commissioner's Work Group on Model Regulations of CCRCs. He has worked with Ms. Faye Albert of the committee in the development of a pilot study of experience of CCRCs. Our committee will serve as the project oversight group for a much more thorough study of the experience of these communities, which we are currently requesting proposals for.

MR. JOHN C. WILKIN: I am not going to present detailed numerical results of our study. Instead, I'm going to describe what we did and the issues that we addressed. If you are interested in obtaining the study, you can contact Mr. Jack Luff at the Society office.

One of the first things that an actuary new to the field of long-term care notices is that there is a great deal of data and articles written on the subject. In fact, Mr. Mark Litow of our committee recently developed a bibliography of long-term care data sources and articles, and the bibliography is just short of 100 pages. That bibliography is also available from the Society office by contacting Mr. Luff.

However, very little of that data are directly usable in actuarial models. In order to obtain data that are useful, the Long-Term Care Experience Committee has analyzed the 1985 National Nursing Home Survey (NNHS). Actuarial models generally use admission rates. Often what is found in the literature is prevalence rates. Actuaries want admission rates by single year of age for a one-year period. The literature often includes rates for broad age groups over two-year and five-year periods. One of the topics that is very common in the literature is lifetime use, that is, the probability of entering a nursing home from your current age until you die. None of these results is very useful for actuarial models.

Actuaries would like to have continuance tables. Often, what is more available is average length of stay or probabilities of remaining in a nursing home for certain lengths of stay. However, the results are usually for only three or four years, which is often not sufficient. Also, what is in the literature is generally continuance tables based on persons rather than days. For pricing, the distribution of days is important.

Actuaries would like to have data based on the benefit periods, elimination period and lifetime maximums as defined in insurance policies. What is most often available in published data treats each stay independently -- the date of admission through the date of discharge for one particular stay. Because about 28% of admissions are transfers from one nursing home to another, the independent stay basis is not very useful for analyzing the impact of elimination periods and lifetime maximums. Also, actuaries are interested in detailed data by age and policy duration. It is very common to see data by large age groupings in published data.

Actuaries would like to see data on an insured population, while most of the national surveys cover the general population. In particular, the drawbacks of general population data are that they do not reflect the effects of underwriting and antiselection on lapse and that the general population is largely uninsured. With other types of coverage such as life insurance, the general population is generally an insured population; but with long-term care the general population is currently uninsured. The uninsured population must pay for all of its care itself, or else impoverish itself to get care through the Medicaid program. Both of these options are not conducive to using

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long-term care services. As a result, I would expect that an insured population would have an insurance-induced demand effect. Last, actuaries would like to have rates that are based on covered conditions; not all conditions found in the general population are covered.

As mentioned previously, the 1985 National Nursing Home Survey is a rich data source which can yield, with proper analysis, useful information. Before describing our analysis, I would like to describe the survey itself. The survey was conducted by the National Center For Health Statistics (NCHS). It first tried to identify the universe of nursing homes. The nursing homes identified provided all levels of care, not just skilled nursing or intermediate care facilities. They included noncertified and certified homes. However, they did require that the home provide some form of nursing care. Therefore, they excluded homes for the aged, community care facilities, and adult foster homes.

From the universe of 20,479 homes identified, 1,079 were included in the survey. The selection process was a stratified sample under which it was more likely for a certified large nursing home to be in the survey than a noncertified small home. The survey excluded Alaska and Hawaii, so just the 48 continental states and the District of Columbia were included in the universe of homes. Within each of the 1,079 nursing homes, a randomly selected sample of current residents and discharge residents was taken. Some 5,243 current residents and 6,023 discharge residents were asked certain questions. All of those discharges occurred within the year prior to the survey. The survey took place between August 1985 and January 1986. The average date of the survey was October 11.

The survey's questions were very detailed. In the current resident questionnaire there were questions on demographic data, such as, age, sex, marital status, date of admission and residence before admission. There were very detailed questions on where the persons were before their current stay. There were enough questions to get information on up to seventeen prior nursing home and hospital stays, covering the number and lengths of those prior stays. There were detailed questions on the primary diagnosis or condition of the patient which reflects up to eight multiple diagnoses. There were also questions on the ability of the patients to perform activities of daily living (ADLs).

On the discharge questionnaire, many of the same questions were included, except questions on the ADL status of the patients were not very detailed. There were, however, additional questions regarding where the patient went after discharge.

The NCHS conducted the survey and has produced numerous publications on its results. In general, the publications include prevalence rates, the number of residents at a point in time divided by the population at that same time. I believe that the NCHS has used an imprecise population in the denominator which I will get back to later. Also, it has published tables on lengths of stays, based on the discharge survey. These results are on an independent stay basis, tabulating the length of the last stay. They did not take into account prior stays that were really transfers between nursing homes, thus part of a longer stay.

PANEL DISCUSSION

One of my pet peeves is where the prevalence rates and the average length of stay are taken from the NCHS data and used to calculate incidence rates. This is not a very accurate approximation. For one thing, the underlying populations are different. The prevalence rate is the population at a point in time, divided by the total population at that same point in time; whereas the incidence rate is admissions over a one-year period, divided by the noninstitutionalized population at the mid-point of that period. In general, the prevalence rate is based on an accumulation of past incidences and probabilities of continuance over prior years and prior ages; whereas the incidence rate is what is occurring in the current year at the current age.

The objectives of the Long-Term Care Experience Committee with respect to the 1985 National Nursing Home Survey are to make the data more suitable for use by actuaries. Even if insured experience were available, we would still want to learn as much as possible from the 1985 Nursing Home Survey. The committee has calculated three complete sets of utilization rates, that is, admission rates and continuance tables. Continuance tables were developed separately for the distribution of persons and the distribution of days. Admission rates were calculated by counting the admissions within the one-year period prior to the survey date for both the current resident survey and the discharge survey, divided by the mid-year population.

The continuance tables were constructed by a life table method, where the observation period was the year before the survey date up to the survey date, with both current residents and discharges contributing to the exposure. The discharges were the decrements.

This procedure was performed three times to produce three sets of utilization rates. The first set of rates apply to all records in the survey on an independent stay basis. This basis is the same as most of the data that you see published on this survey. The second set of rates again applies to all records in the survey, but on a combined stay basis. This second set is closer to how actuaries would like to see the data. In this set, any admission from a nursing home or from a hospital, and before that a nursing home, were excluded from the calculation of the admission rates. These stays were, in effect, combined in the derivation of the continuance tables.

The third set of rates were derived using the same method as the second, i.e., on a combined stay basis, excluding many patients who would not be covered by insurance policies. In particular, it excluded conditions of those who would most likely not be sold policies in the first place; for example, people who were mentally retarded or who had congenital conditions. It also excluded people who would not be covered even if insured, for example, those with mental conditions (except for Alzheimer's) or those treated for substance abuse.

Even though these rates are closer to what is suitable for actuarial models in pricing long-term care policies, it is still short of what is really desired. For one thing, the study is still based on the general uninsured population. For another, even though we've excluded people who would either not be sold policies or whose conditions would not be covered, there was no attempt to further eliminate people who did not fail certain ADLs or meet some medical necessity requirement. Lastly, the results are for 1985, so it does not take into account any trends since 1985. Several factors affect these trends, including the nursing home bed supply, the general level of health

of the succeeding cohorts, and the availability of spouses and children as care givers. There has been a great deal of discussion concerning whether future generations may be less likely to have as many care givers as current generations because of higher divorce and falling fertility rates.

The following is a description of some of the specific calculations that were performed (Table 1). The first step in the calculation of admission rates was to estimate a precise denominator for the rates. We started with the census population as of July 1, 1985. This is the population used by most analysts when calculating rates from the survey. However, we made several adjustments, to obtain a more precise population:

- The first adjustment was to subtract the populations of Alaska and Hawaii, because these states were not included in the survey.

- The second adjustment was to include an estimate of the census undercount. Each census misses a certain percentage of the population, which is estimated by the Bureau of the Census.

- The third adjustment was to subtract the institutionalized. Since we are looking for admission rates by the noninstitutionalized population, we should not count the institutionalized as part of the exposed population.

- The fourth adjustment was to estimate the population at the midpoint of the exposure period, which was in April, not in July.

TABLE 1
Population for Admission Rates
(Thousands)

Age	Census	AK & HI	Under- count	Institu- tionalized	Growth 4/12–7/1	Exposed Population
<65	210,739	−1,456	+3,365	−1,233	−385	211,031
65-84	25,847	−107	−19	−933	−102	24,685
85+	2,693	−9	+131	−699	−12	2,104
Total	239,279	−1,572	+3,477	−2,864	−499	237,821

You can see from Table 1 that for those under age 65 there was not much net change from the July census population of the U.S. to the April exposed population of the survey area, but at ages 65-84 the exposed population was about 5% lower than the census population; and at ages 85-plus there was over a 20% downward adjustment in the population.

The tabulation of admissions from the survey for three sets of rates can be seen in Table 2. By combining stays that involve transfers between nursing homes, about 28% of the admissions were excluded from the admission rate. This percentage is fairly flat by age. By excluding the noncovered conditions, there is a very large drop under age 65. About 20% of the admissions tabulated on the combined-stay basis

were excluded as noncovered conditions for the under 65. Only about 4% were excluded over age 65.

TABLE 2
Number of Admissions
(Thousands)

Age	Total Independent Stays	Total Combined Stays	Covered Combined Stays
<65	148	111	89
65-84	707	516	495
85+	395	277	265
Total	1,250	905	849

Chart 1 presents a graph of the admission rates under these three concepts. The combined stay rates and covered stay rates are fairly close together. The covered stays are about 4% lower than the combined stays total. According to Chart 2, the female rates are higher than the male rates at the important ages -- ages 65 through about 90. Just after age 90, there is a crossover. I'm not sure why this crossover occurs, but it could be partly because the admission data start getting scarce at those ages. Also, one of the reasons given for male admission rates being lower than female rates is that males generally have spouses who take care of them. Males who live past age 90, however, probably do not have their spouses still taking care of them.
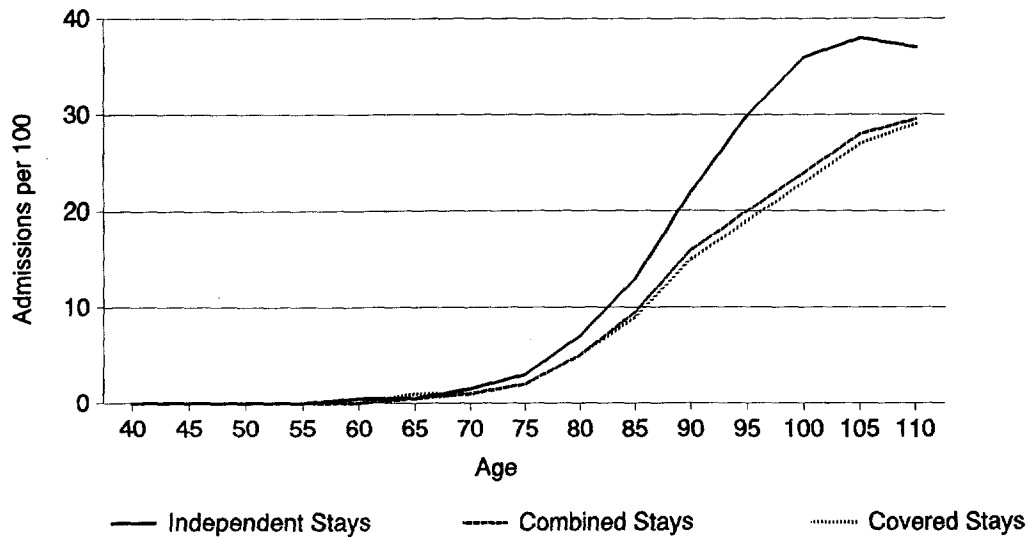
Another interesting factor of this graph is that for the age groups 65-84 combined, the female rate is 32% higher than the male rate; however, at any individual age the difference is much smaller. This results from the female admissions being weighted towards the higher ages in the age group relative to those of males in this same age group. This shows that a comparison of rates over many ages combined might not give a true comparison of underlying differences.

Chart 3 shows how the days are distributed for the three concepts. In general, by combining stays the average length of stay increased by 44%, from 405 days to 584. Then, by excluding mental conditions, the average length of stay decreased by about 5%, down to 556 days.

Chart 4 shows the difference between female and male continuance rates. Females have much longer lengths of stay. The average length of stay for the males is 440 days and for females it is 630 days, or 43% longer. One of the things that the committee did after calculating these admission rates and continuance tables was to compare results with other reported nursing home utilization data. We calculated prevalence rates, although they were not our primary focus (Table 3). The NCHS has published a great deal of detailed information on nursing home prevalence rates based on the 1985 NNHS. Table 4 shows that, when using the same concept as NCHS, the committee's tabulations of the 1985 NNHS are very close to what has been published. The main difference in the rates published by the NCHS and the committee is the denominator, i.e., the population.
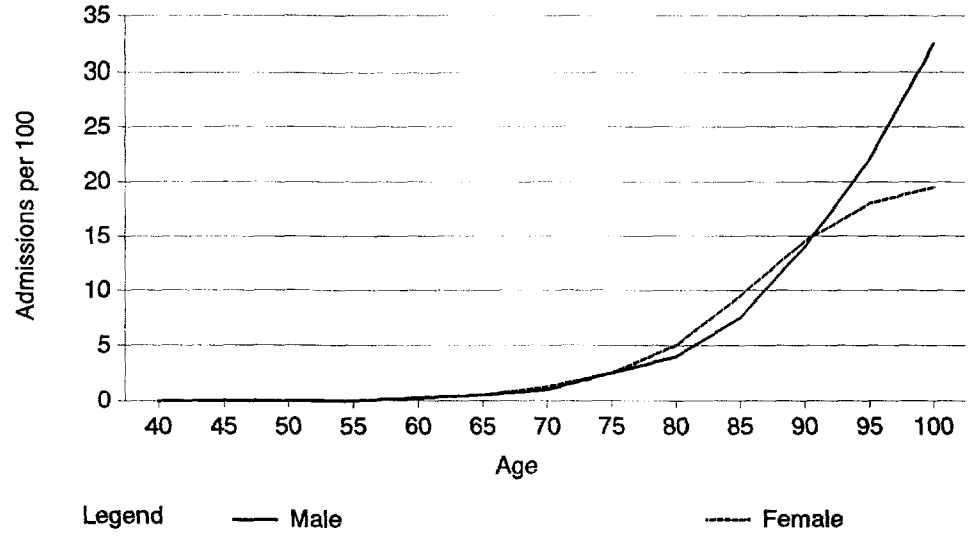
Nursing Home Admission Rates

1985 NNHS

Chart: Admissions per 100 vs Age (40–110). Legend: Independent Stays, Combined Stays, Covered Stays.

Nursing Home Admission Rates

1985 NNHS

Legend ——— Male   ------- Female

Percent of Days Above Threshold
1985 NNHS

Percent

Duration Threshold (years)

—— Independent Stays ----- Combined Stays ·········· Covered Stays
ALOS = 405   584   556

Percent of Days Above Threshold
1985 NNHS

Chart showing Percent (y-axis, 0 to 100) versus Duration Threshold (years) (x-axis, 0 to 5). Two curves: Male (ALOS = 440) and Female (630).

— Male   ----- Female

ALOS = 440   630
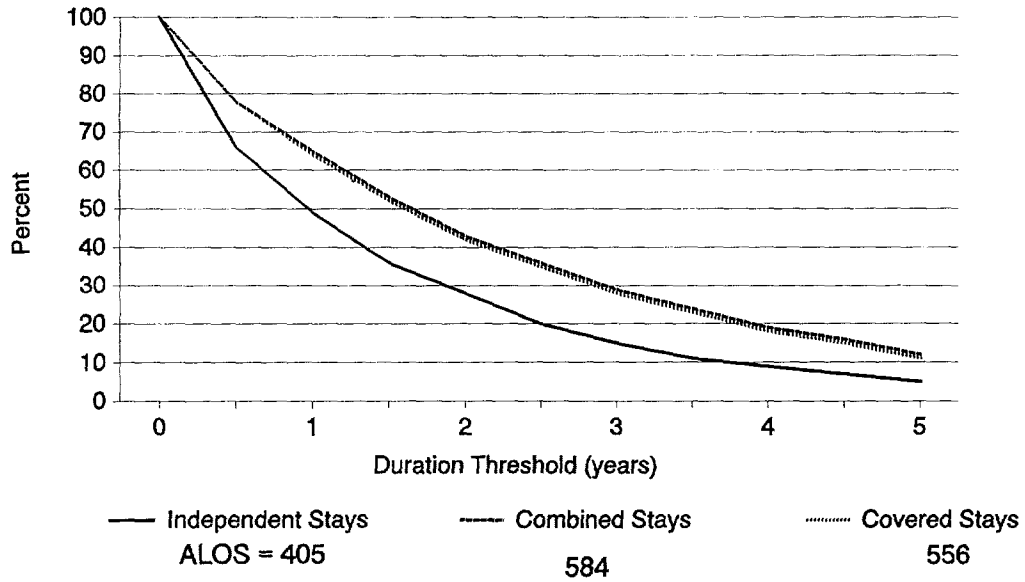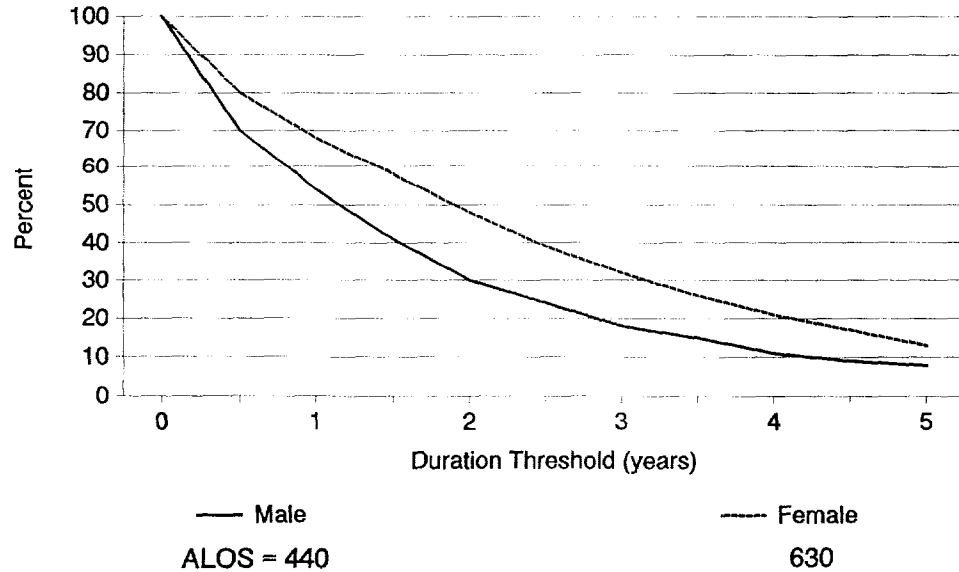
TABLE 3
Prevalence Rates
1985 NNHS

Age	NCHS	SOA
<65	0.08%	0.08%
65-84	2.80	2.79
85+	22.03	21.00

TABLE 4
Average Length-of-Stay
1985 NNHS

	Independent Stay Basis		
Age	NCHS*	Leong	SOA
<65	283	490	435
65-84	300	428	400
85+	593	318	403
Total	401	408	405
	Combined Stay Basis		
	Spence	SOA	
	580	584	

* Age at discharge.

Another very useful study on the 1985 National Nursing Home Survey was by Mr. Ken Leong, published in a special edition of the *Health Section News*. Ken used virtually the same definition of admission rates as the committee did by looking at the number of admissions the year before the survey. He used an independent stay basis, rather than the combined stays or the combined stays excluding noncovered conditions. Table 5 shows that when the committee used the same concept as Leong, the rates were very close.

TABLE 5
Admission Rates
(Independent Stay Basis)

Sex	Leong	SOA
Male	0.41%	0.38%
Female	0.69	0.66
Total	0.55%	0.53%

Table 6 compares the admission rates based on independent stays of the committee with those published in an article by Cohen, Tell & Wallach in the December 1986

issue of *Medical Care*. The Cohen rates came from the 1977 current Medicare survey. Cohen estimated admission rates by looking at people in this survey at one point in time and then the same people a year later -- the number of admissions were obtained by counting those people who were not in the nursing home at the first survey date and who had a physician visit in a nursing home sometime during that year. The survey did not include data on how many people actually entered the nursing home. Cohen published five-year probabilities of admission for five-year age groups. The rates published by Cohen are quite a bit lower than the committees' comparable rates. Cohen's five-year rates, in general, are about two-and-a-half times the Committee's one-year rates.

TABLE 6
Admission Rates for 85 +
(Independent Stay Basis)

Sex	Cohen*	SOA**
Male	25.94%	16.26%
Female	55.80	19.81
Total	47.70%	18.71%

*   Five-year probability from the 1977 CMS.
**   One-year central admission rate.

There was a study by Korbin, Liu, Coughlin and McBride in the February 1991 issue of *Medical Care*. They tabulated admission rates from the 1982-84 National Long-Term Care Survey. This survey interviewed people in 1982 and then again in 1984, two years later. The article by Liu was called "Predicting Nursing Home Admission and Length of Stay." The survey authors did a multiple regression analysis on the respondents' conditions in 1982 to predict what conditions would lead to nursing home admissions over that two-year period. Because they used multiple linear regression, their explanation of admission rates by age was based on a linear formula. Table 7 shows that their admission rates are about the level of the committee's (i.e., about two times the level of the committee's because theirs are two-year rates). However, their rates are much flatter by age.

TABLE 7
Admission Rates
(Independent Stay Basis)

Age	Liu*	SOA**
65	5.9%	0.7%
75	8.8	3.0
85	13.1	12.8

*   Two-year probability from the 1982-84 NLTCS.
**   One-year central admission rate.

LONG-TERM CARE -- DATA ACCUMULATION

Mr. Jay Boekhoff, a member of the Long-Term Care Experience Committee, has analyzed New York Medicaid data (Table 8). The data came from a study of all Medicaid eligibles in fiscal year 1983, who were watched over a five-year period to see how many went into a nursing home. Admission rates were calculated for each individual year, then averaged. The rates for the New York Medicaid population are slightly lower and flatter by age than the rates in the committee's report. One possible explanation might be that the New York rates exclude the first year in the five-year period; those rates were much higher than those in subsequent years. If that first year had been included, then the New York rates would have been much higher.

TABLE 8
Female Admission Rates
(Combined Stay Basis)

Age	Boekhoff*	SOA
65	0.8%	0.6%
75	2.5	2.2
85	6.1	10.0

* New York Medicaid Population.

There is also quite a bit published on average lengths of stay. Most of it is on the one-stay-at-a-time or independent-stay basis. The rates published by the NCHS come from the discharge survey. They organize the average length of stay by the age at discharge rather than the age at admission. As a result, I am not sure how useful it is to compare the NCHS results with those of the committee's. In the aggregate, NCHS estimated 401 days as the average length of stay, very close to the committee's estimate of 405. This is significant because the two average lengths of stay were estimated by completely different methods. The 401-day estimate that NCHS published reflected the average of the lengths of stay reported by patients who were in the discharge survey, whereas the Committee's estimate is based on the life table construction method.

Mr. Leong's estimate of the average length of stay was also very close – about 408 days. He used the discharge survey in a manner similar to the NCHS, except that he tabulated by age at admission instead of age at discharge.

Besides the committee's study, there is only one other study I know that has attempted to combine stays to get an average length of stay on a combined-stay basis using the 1985 NNHS. That study was done by Spence & Weiner at the Brookings Institution. They published their results in *The Gerontologist* in 1990. Their method was to take the discharges from the survey and piece together several stays that involved transfers in order to calculate an average total stay. Their results were also very close to those of the committee's. They estimated 580 days, compared to the committee's 584.

I mentioned that the committee used a life table construction method to develop continuance tables. Under this method, probabilities of being discharged between certain intervals of stay were derived from the survey. In deriving the length-of-stay

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distributions for all conditions on an independent-stay basis, all of the discharges were counted in deriving the discharge rates. In deriving the distribution on a combined-stay basis, any discharge that was going to go into another nursing home, was not counted as a discharge, but simply as a withdrawal from observation.

The committee sees this as only the first of many works. In particular, we are planning to analyze other data sources, including data from several other states' Medicaid programs. Also, the three sets of utilization rates contained in the current committee's report (i.e., all conditions on an independent-stay basis, all conditions on a combined-stay basis, and covered conditions on a combined-stay basis) still do not include several major adjustments necessary to obtain rates that would be more similar to insured experience. For example, the rates do not take into account benefit eligibility criteria such as ADLs and medical conditions. The committee plans on deriving another set of rates that would take those into account. Finally, we are hoping to analyze trends in this data.

MR. GARY L. CORLISS: Long-term-care insurance is continually entering new eras. Over the last five or six years, many new benefits have become available, as well as new options, new marketing approaches and new distribution systems. I'm quite excited about the studies that have been completed, including the three projects that we're talking about relative to long-term-care data. It is only a beginning, but we're getting to that point where actuaries like to be -- working with information that's based on insured lives.

This portion of the session will cover intercompany experience. My objective is threefold -- to present the initial data that have been gathered; to comment on some of the findings; and to inform you of the future actions to be expected from this particular subcommittee. The presentation of the data will cover three main areas. First, there will be a general overview of the data collected, that is, the general characteristics of the information that has been submitted. Second, the charac-teristics of the actual policies that have been placed in force will be discussed. These characteristics comprise several different areas -- marketing, underwriting and various contract provisions, as well as some demographic information. The third area is related to the actual claim data that has been submitted from the various companies.

Before talking about some of the specific information, I'd like to emphasize that these are preliminary results. The data still require massaging. Some fields will be cleaned up in order to make the data more complete, as well as make the evaluation as extensive as possible. Second, whereas John Wilkins had many specific numbers and graphs in his presentation, most of my presentation is pictorial. This approach was chosen to emphasize that this is preliminary data and that there is not a great deal of specific data that are useable for pricing purposes.

The first section is a general overview of the data. We have requested information from a large number of companies. Seven companies have provided data. We hope to include an additional company before the initial report is published. The seven companies have marketed over 50 different policy forms. There are slightly more than one million insured records. The exposure years won't add up to be quite as much because of two circumstances: Either there were terminations within the policy

experience period, or the end of the exposure period was reached. The net result, therefore, is almost 700,000 exposure years of data.

There are 6,500 claim records. That does not mean 6,500 different people have been on claim, because there are multiple claim records for some individuals. The days of institutional care that are within those 6,500 records total almost 1.25 million days. The amount paid in benefits is $56 million. The home care data are much, much smaller. As we go through some of the rest of the data, you'll see why they are smaller. The actual amount of the benefits paid for 26,000 home care visits is $400,000.

As we look at the marketing characteristics (Chart 5), a brief note should be made. This category is a breakout of those 50 policy forms within the study. How were these forms actually marketed? Independent agents sold 40%. Company agents produced 6%. Direct mail accounted for 17%. That left 37% in the "Unknown" category, which is very high. We hope to clean up that particular field further and get more specific data on it. Because this field is on a policy form basis, it is expected that we should be able to clarify that item. We just weren't able to do it prior to this meeting.

Moving to the underwriting characteristics (Chart 6), full medical underwriting was reported on 23% of the business and 54% on a simplified approach. We left the judgment as to what these terms mean up to each reporting company. For future studies, we will be more precise in our definitions to more clearly identify the difference between a simplified and full medical selection process. The survey form asked about attending physician statements (APSs). We wanted to get an idea about how much work is occurring to actually evaluate the applicants' medical information. The results indicated that for more than half (56%) of the applications, a great deal of data were unknown or uncoded. Of those companies that could report such information, half of the applicants provided APSs and one-half did not.

A third area for which underwriting data was requested pertains to telephone interviews. Interviews were utilized either extensively or occasionally on only 3% of the applicants. The exposure period for this study was prior to 1989. My expectation is that we will see that particular number increase dramatically with a greater use of telephone reports. It may come out of the clean-up of the "unknowns" as we proceed. If not, then I think it's certainly going to increase in future exposure years.

A review of the different plans sold indicate why we have little home health care data (Charts 7-9). Almost half of the plans (by policy form) require prior hospitalization before one could even get to nursing home benefits, and then there are further step-downs to get to home care benefits. Prior hospitalization screening was optionally selected on another 25% of the forms. As time goes on, that's another area that I expect will be changing. The second plan parameter we queried was the maximum benefit periods. Keeping in mind that the exposure period ended in 1989, the most significant and longest benefit period was five years. Of particular interest to our analysis is that 18% of the insured policies had only a one-year maximum benefit period. That certainly has an impact on the average length of a claim.

Society of Actuaries Intercompany Study
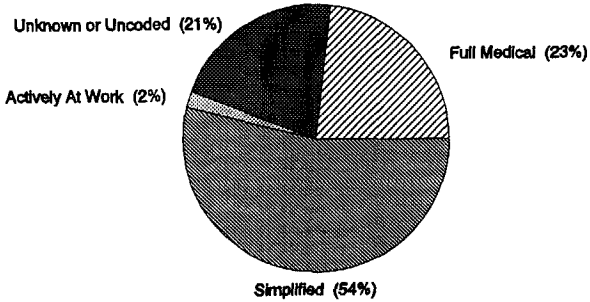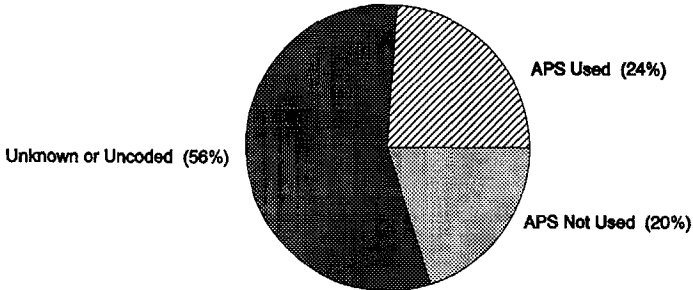# of Long-Term Care Experience
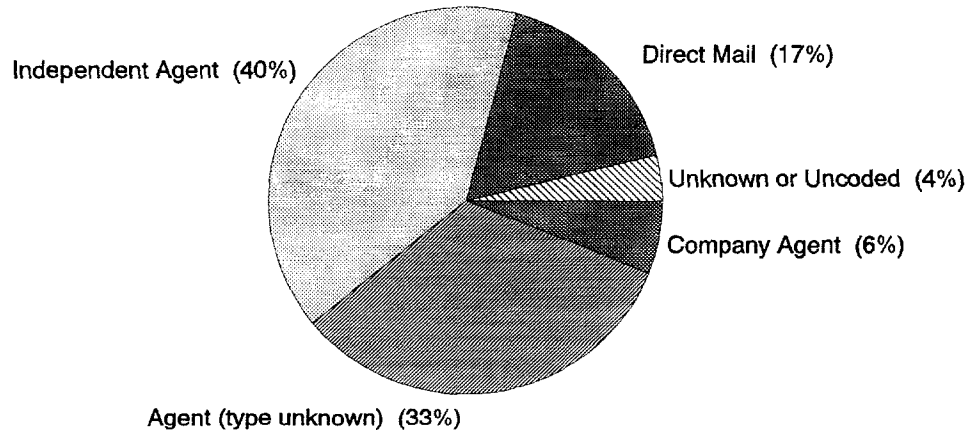
Independent Agent (40%)

Direct Mail (17%)

Unknown or Uncoded (4%)

Company Agent (6%)

Agent (type unknown) (33%)

Marketing

Society of Actuaries Intercompany Study of Long-Term Care Experience

Unknown or Uncoded (21%)

Full Medical (23%)

Actively At Work (2%)

Simplified (54%)

Underwriting

APS Used (24%)

Unknown or Uncoded (56%)

APS Not Used (20%)

Attending Physicians Statement

Not Used (26%)

Phone Occasionally (2%)
Used Extensively (1%)

Unknown or Uncoded (71%)
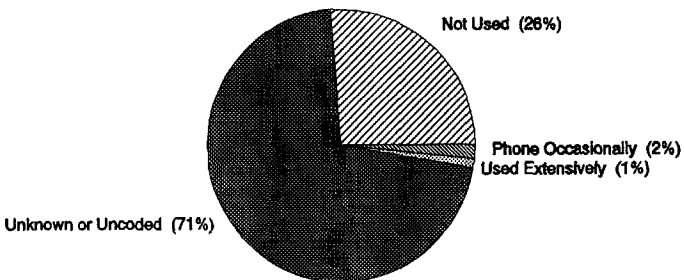
Telephone Interviews

Society of Actuaries Intercompany Study of
Long-Term Care Experience
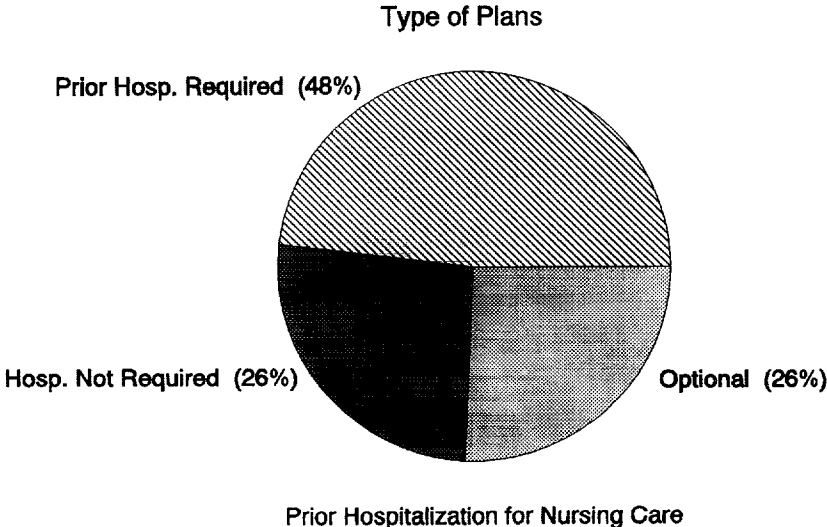
Type of Plans

Prior Hosp. Required (48%)

Hosp. Not Required (26%)

Optional (26%)

Prior Hospitalization for Nursing Care

Society of Actuaries Intercompany Study of Long-Term Care Experience

Type of Plans

Other (15, 30, 150) (0.5%)

100 Days (23%)   0 Days (27%)

90 Days (21%)   20 Days (29%)

Elimination Periods for Nursing Care
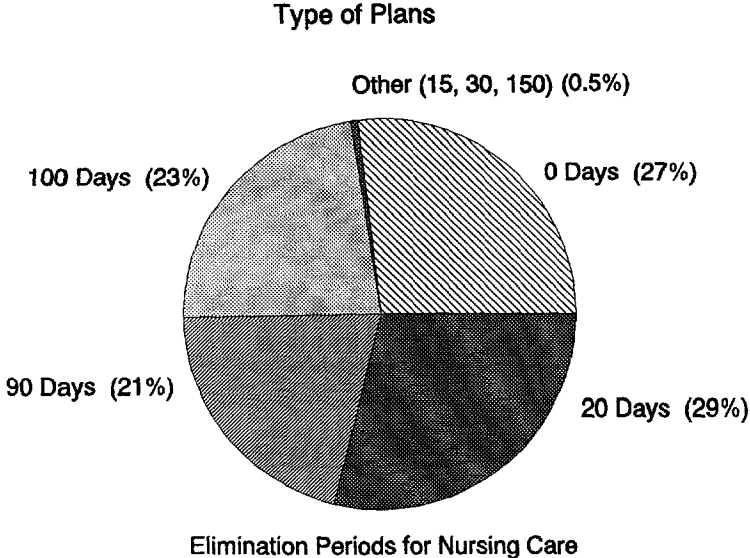
Society of Actuaries Intercompany Study of

Long-Term Care Experience

Type of Plans

Maximum Benefit Periods for Nursing Care

6 Years (5%)   Others, Unknown (8%)

5 Years (11%)

1 Year (18%)

4 Years (18%)

2 Years (9%)

3 Years (32%)
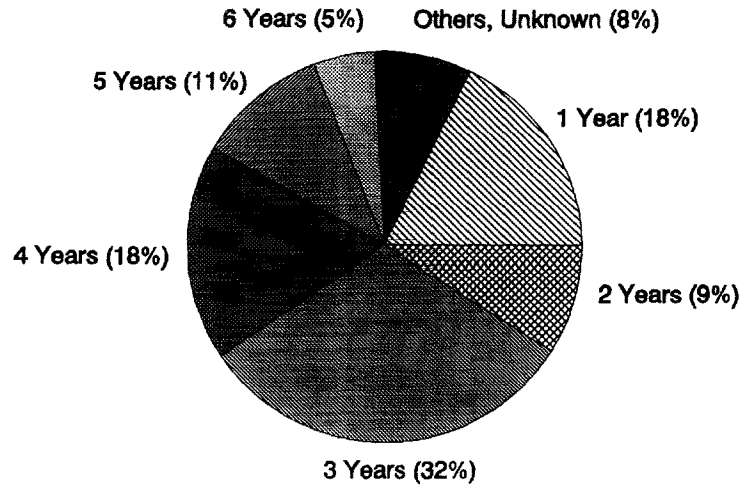
A further review of the requirements to receive home care benefits also indicates why a low amount of actual claims for home health care was noted (Chart 10). Based on home care requirements for coverage, fully 28% did not offer any benefits to start with, 50% required some prior level of care, and only 21% allowed direct access to benefits for home health care.

As you might expect, the average benefit amounts that we found by issue year are slowly creeping upward (Chart 11). Benefits were in the $50 a day range for issues in 1987. They rose to about $60 a day in 1988 and $67 in 1989. Actually, these numbers are not too far away from the average nursing home costs incurred through-out most of the United States for that period of time. The home care benefits are typically about one-half of the nursing home benefits. The exposure followed that expectation fairly closely.

Before we get into actual claims experience, I believe it's helpful to note where the exposure is and where it's coming from (Chart 12). By observation year, the data being submitted are making quantum leaps. For example, the year 1989 had almost 320,000 exposure years. That is a significant increase over the 100,000 exposure years in 1988. If one refers to the Health Insurance Association of America publica-tions of policies sold (not necessarily in force), this exposure is almost 20% of all policies that were in force during that time period. For 1988 that percentage is also similar to 20% of the market. Prior to 1988, the exposure of the study is much less than 20% of the in-force policies. The important thing for the Society's study and its future value is we are capturing significant and growing amounts of data from the major players in the industry.

Looking at the exposure data by policy duration and recognizing that most of the experience is only for the 1989 year, it's easy to understand that most of the exposure is in the first policy year.

We separated the experience by the distribution approach used. The greatest volume of exposure is on individual policy coverages (Chart 13). It makes sense that the exposure would be slanted in that direction as that is where the preponderance of LTC business has actually been sold. The second largest category is called associa-tion or pseudo group. Some people identify this category as just another form of individual coverage. The employer group exposure is quite small. Whether sold to active or retired employees, the employer group exposure is quite flat by age. Below age 45, virtually all of the data are of employee experience. The average issue age of the total exposure is just under 69 years of age for all forms of sales.

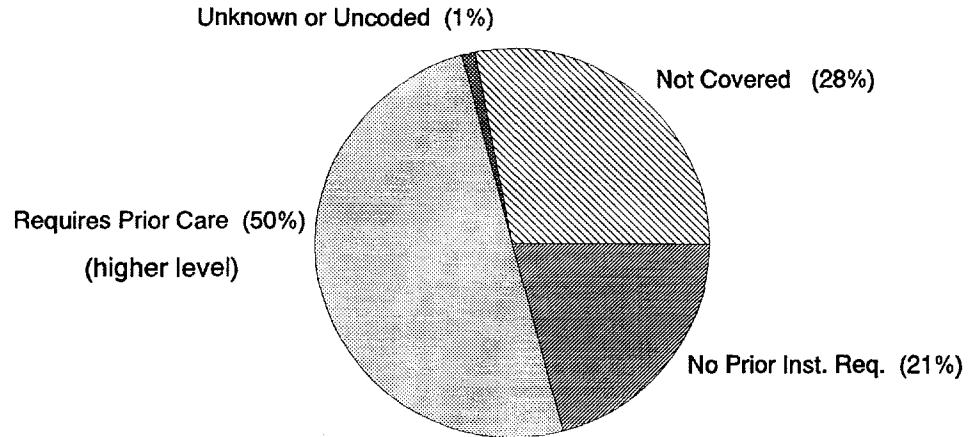It is not surprising that almost two-thirds of the insureds are female (Chart 14).

The third portion of this presentation covers the actual experience. What have we seen so far? (See Chart 15.) The bulk of the claims (by number) are centered around age 77. The average age of all claimants within the study was 76. If we look at the same data by dollar amount of claims rather than by number, they don't vary much. The average age of claim by amount is 75 rather than 76.

The intercompany experience results have been compared to the work that John Wilkin's subcommittee has put together and just presented (Chart 16). We wanted
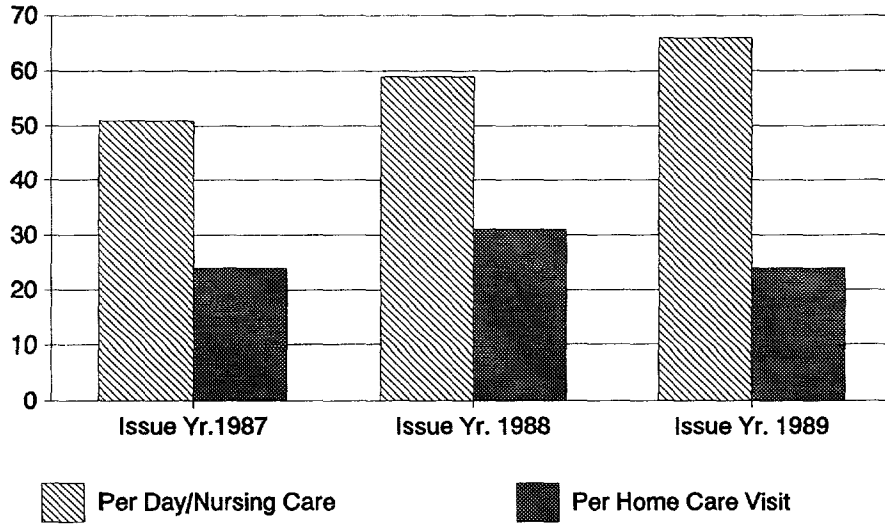
SOA Intercompany Study
of Long-Term Care Experience

Type of Plans

Home Care Requirement

Unknown or Uncoded (1%)

Not Covered (28%)

Requires Prior Care (50%)
(higher level)

No Prior Inst. Req. (21%)

Society of Actuaries Intercompany Study of Long-Term Care Experience

Average Benefit Amount

CHART 12

Society of Actuaries Intercompany Study of Long-Term Care Experience

Exposure in 100,000 Policy Years

Observation Year

Policy Duration
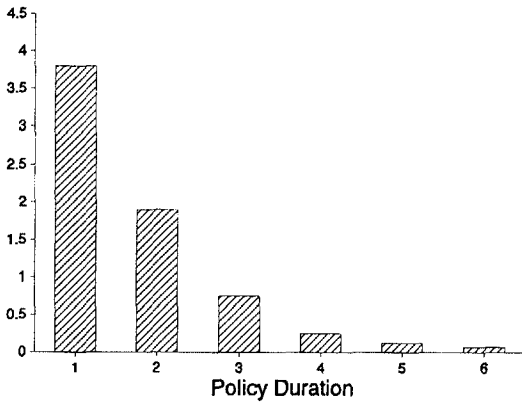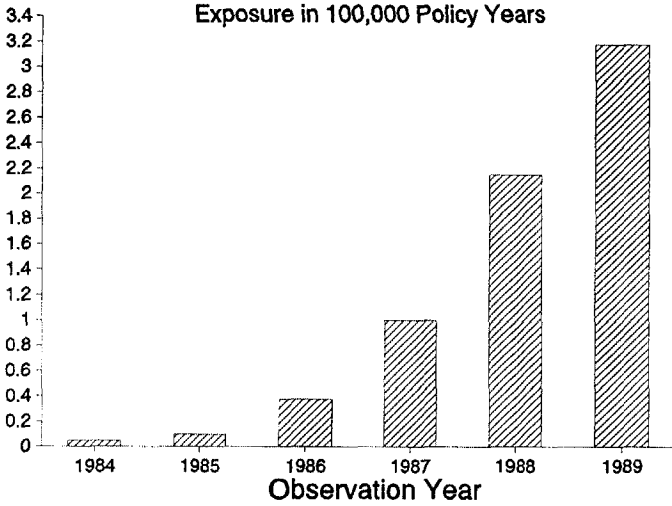
SOA Intercompany Study of Long-Term Care Experience

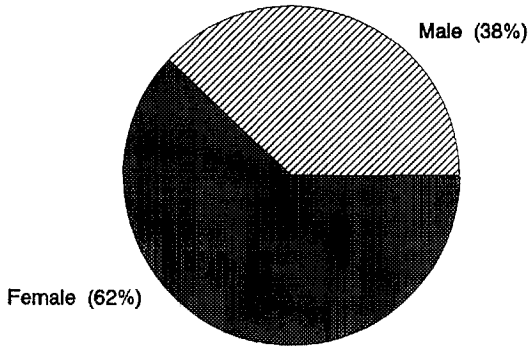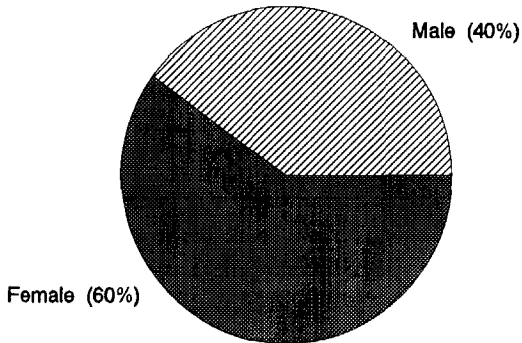Distribution of Exposure (in 100,000 years)
by Issue Age and Type of Contract

Issue Age

—— Individual   ----- Assoc./Psuedo Group   .... Employer Group
Both Active and Retired

Society of Actuaries Intercompany Study of
Long-Term Care Experience

Male (38%)

Female (62%)

Exposure Years

Male (40%)

Female (60%)

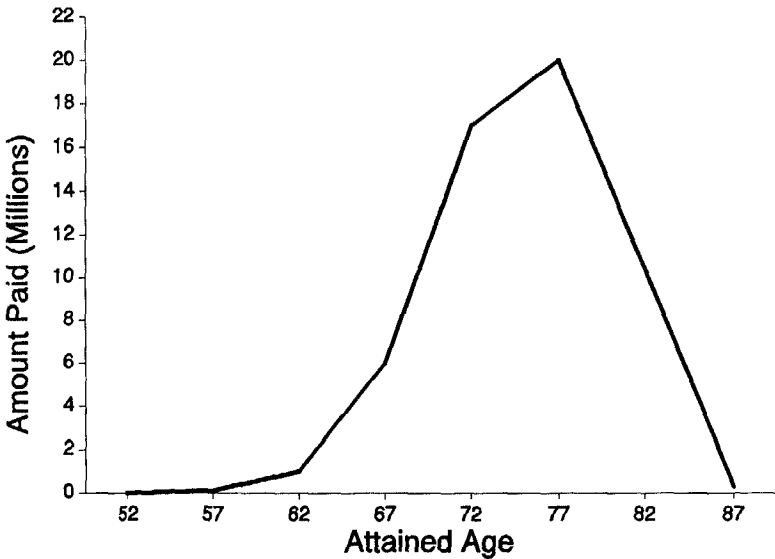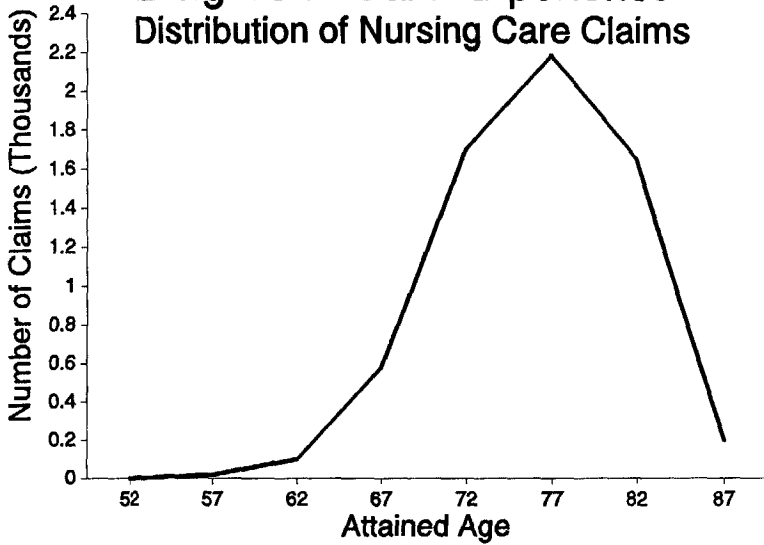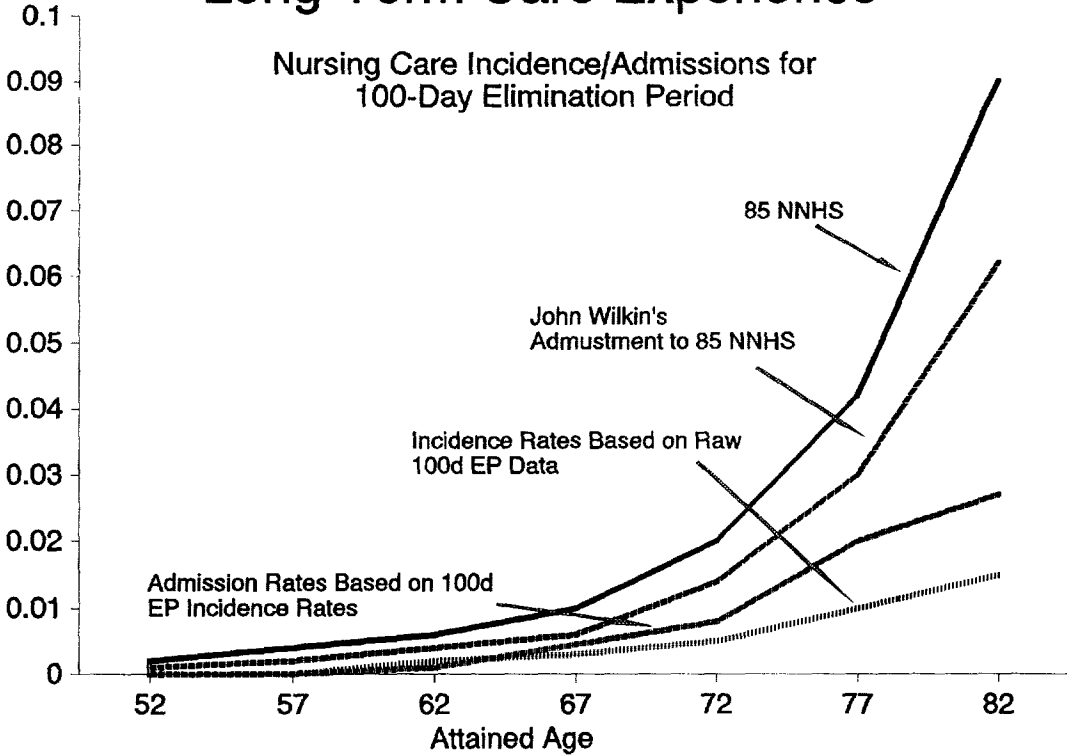## Number of Nursing Care Claims

CHART 15

SOA Intercompany Study of Long-Term Care Experience
Distribution of Nursing Care Claims

SOA Intercompany Study of Long-Term Care Experience

Nursing Care Incidence/Admissions for
100-Day Elimination Period

85 NNHS

John Wilkin's
Admustment to 85 NNHS

Incidence Rates Based on Raw
100d EP Data

Admission Rates Based on 100d
EP Incidence Rates

Attained Age

to measure his work, which developed an ultimate insured population from a non-insured base against what has actually happened on an insured lives basis from these particular seven companies. We've also compared in some places to Mr. Leong's data found in the *Health Section News* that many actuaries have used in pricing LTC coverages. A comparison was built in pieces. The comparison was built based on the exposure and claims for the 100-day elimination period coverages. The line on the bottom, denoted by the second highest arrow, is the actual incidence rates by attained age. The incidence rates were based on attained age at time of claim. In order to alter incidence rates to an admission rate basis, the incidence rates are only for claims that exceeded 100 days. An adjustment was made to get back to the admission rates for these particular individuals by attained age. The adjustment was the relative adjustment that is in the Wilkin's paper. This maximizes the comparability of results. The admissions developed from the intercompany study were actually lower than the Wilkin's adjustment. Realizing that the exposure is in a select period, that lower result makes sense. A comparison to the 1985 National Nursing Home Survey indicates the intercompany experience is even lower. This difference is expected because the 1985 survey is neither select nor does it link multiple admissions as does the intercompany study.

Next, we looked at actual to expected experience (Chart 17). When charted, the results look like modern art. Once again, a comparison was made to Wilkin's data on an actual-to-expected basis. In a select period, we would anticipate that results would come out to be less than 100%. For the most part, the experience is under the 100%. The cell that has the most volume of data is for central age 77. Results for that age were not as expected. By policy year, we expected that the ratio would tend to increase. It's not showing that result in these data. A small amount of data for attained age 72 and 82 contributes to the results shown in the graph. However, we wanted to at least show that variability. Only central age 62 is following the slope we might anticipate, although it is steeper than one would anticipate.

Average incidence rates (frequency) and length of claim (severity) is used by many actuaries in pricing their company's product. Now I'll talk about average lengths of claim information (Charts 18–20). There are artificial features within our average claim duration calculations. These features are twofold. First, the exposure is that of early duration policies and some of the people in the claim data come to the end of their claim prematurely because the exposure period expired. Their claims have not ended, but the exposure period has. Also, policies of limited benefit periods, such as one-year policies, will terminate a claim because the one-year benefit period has expired. Therefore, that claimant disappears. Due to these artificial affectations, we've decided to label our result as an average length of stay rather than an average length of claim. The claim stays have been separated into two categories -- one to look at closed claims and another for open claims. Closed claims could be either due to death, recovery or the expiration of the actual benefit period. Closed claims average 200 days. Open claims are somewhat longer. As you might expect, the Wilkin's adjustment anticipates the average claim will be higher because Wilkin links multiple stays, which the National Nursing Home Survey does not.

Lest you run out and decrease your gross premium charges by 25% based on the somewhat favorable results reported in this presentation, we want to cover one additional set of calculations related to length of claims (Chart 21). This set compares

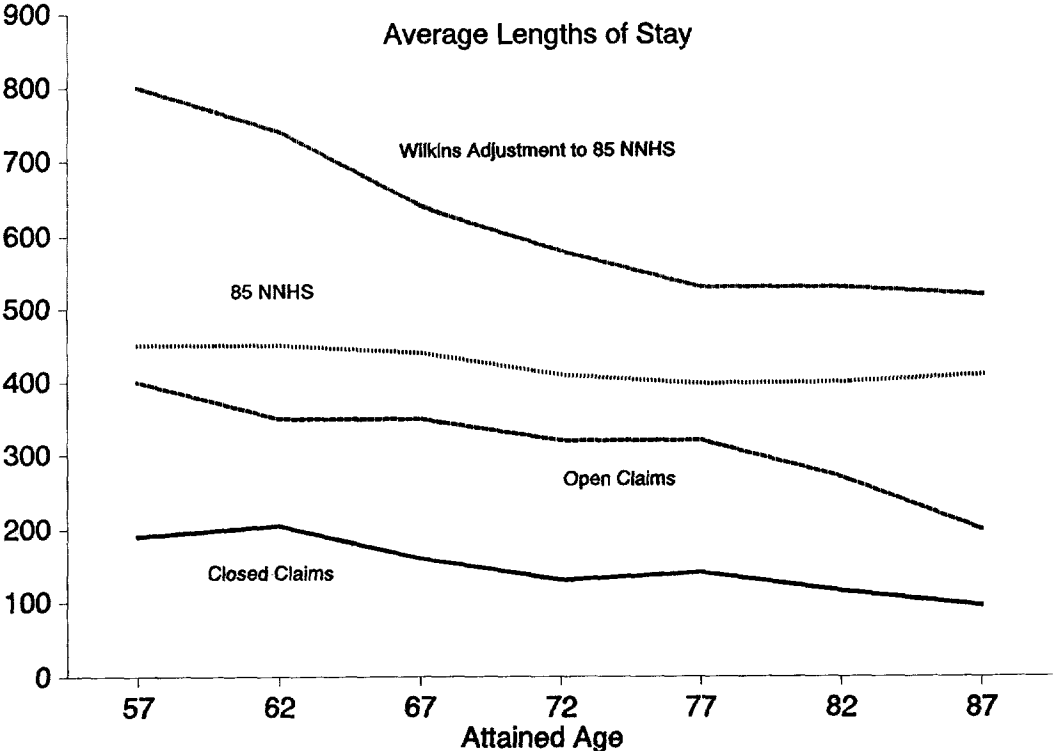# SOA Intercompany Study of Long-Term Care Experience

Actual to Expected Admission Rates (Expected are Based on John Wilkin's Adjustment to 85 NNHS)
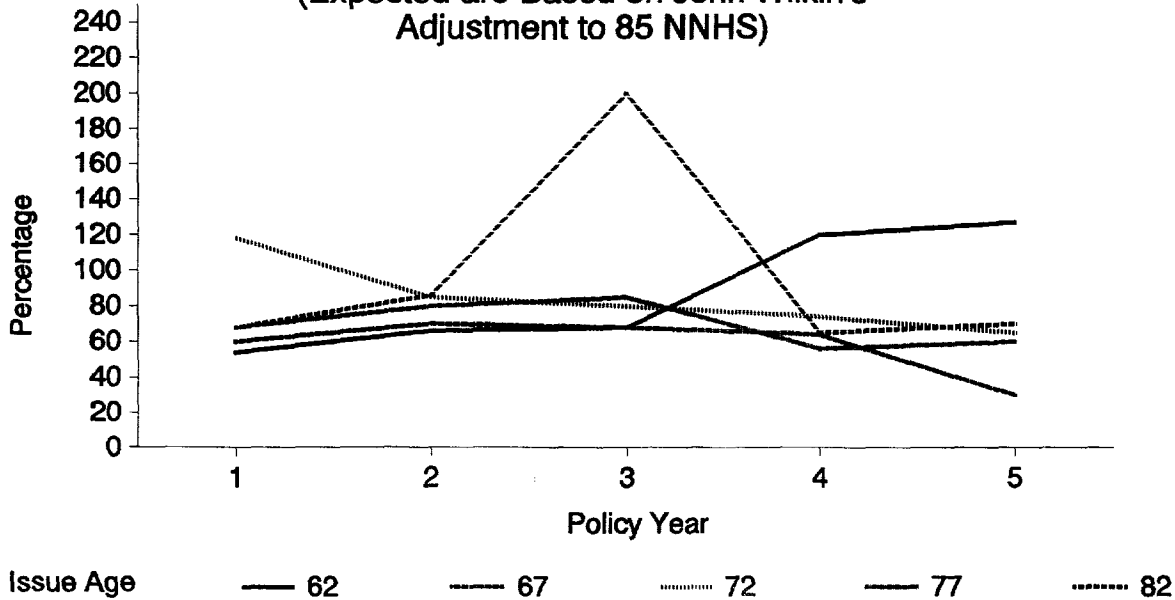
Issue Age —— 62   ---- 67   ········· 72   —— 77   ········ 82

SOA Intercompany Study of
Long-Term Care Experience

Average Lengths of Stay

SOA Intercompany Study of Long-Term Care Experience

Average Lengths of Stay

Elimination Period
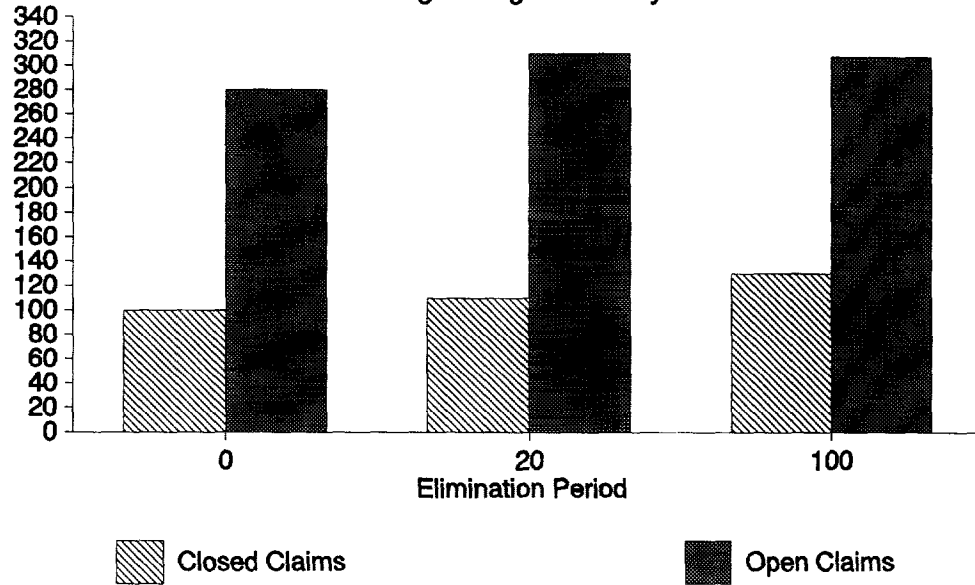
Closed Claims   Open Claims

SOA Intercompany Study of Long-Term Care Experience

Number of Closed Claims by Reason for Closing

May be Death or Recovery or Some Other Reason

Deaths

Recoveries

Attained Age At The Time Care Began

Length of Claim

Days of Care

Attained Age At The Time Care Began

Closed — Recovery   Closed — Death
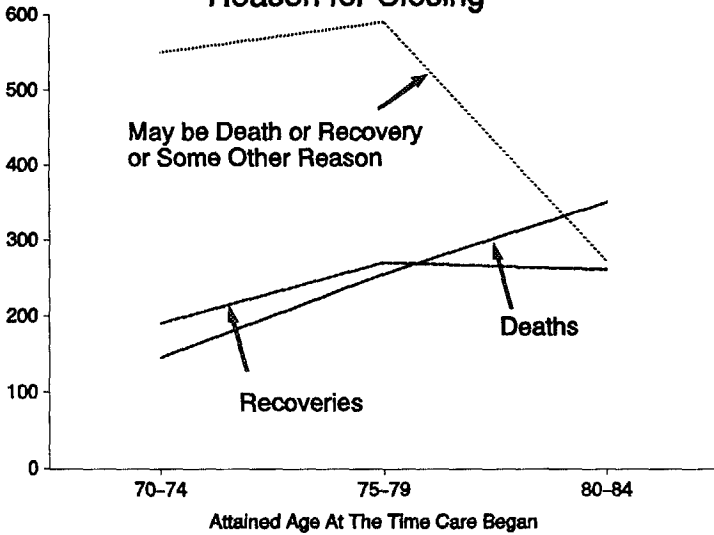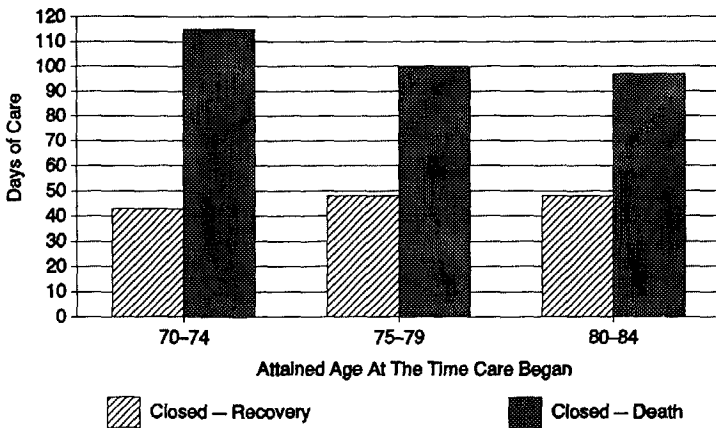
SOA Intercompany Study of Long-Term Care Experience

Continuance Table for Nursing Care

Based on All Raw
Nursing Care Data

85 NNHS

Wilkin's Adjustment to
85 NNHS
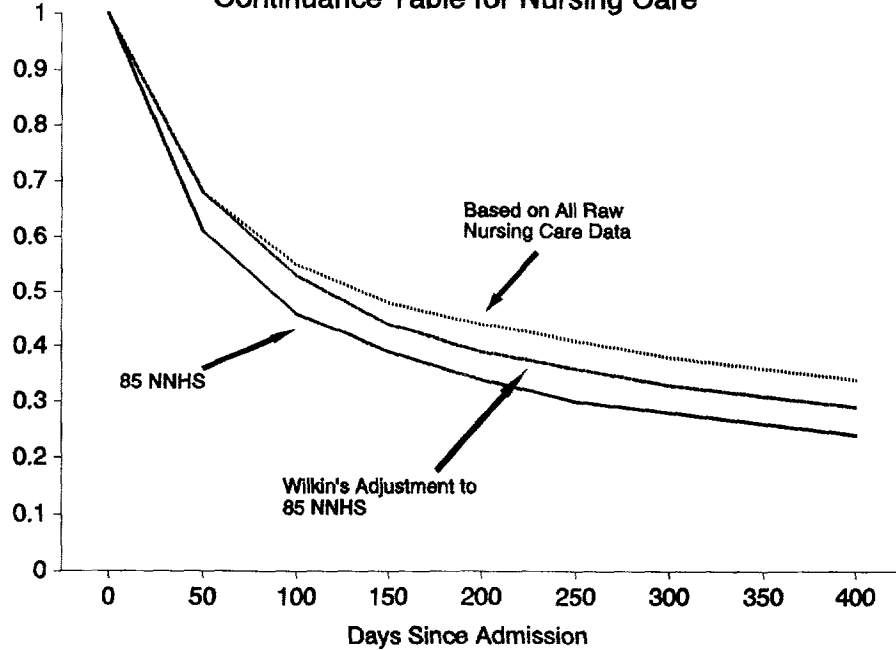
Days Since Admission

continuance tables. This is only a crude comparison because there is only one year of experience. However, the first year of claim is the one where the greatest changes in recovery will occur. This portion of the analysis did indicate greater continuance of claim in the intercompany experience than there is either in the Wilkin's adjusted tables or the National Nursing Home Survey.

Closed claims varied in duration from 100-120 days, varying by different elimination periods. Open claims, as one might expect, are somewhat longer in length, although fairly flat by elimination period at this point.

The last experience topic that I will cover is home health care benefits (Chart 22). I commented earlier that there are limited data on that benefit. The only piece of information that we chose to calculate is the average number of home care visits reported. Closed claims had between 100 and 130 days based on various attained ages. Open claims are about two and a half times that, in the 225-80 day range.

In summary, the first intercompany experience on long-term-care insurance and insured lives is on its way to completion. The objective was, first, to give you a sense that things are happening and, second, to let you know what can be expected and when. Several tasks lie ahead. Some data still need to be cleaned up. An additional company needs to send its data. Once the data are final, calculations presented and many others will be completed. There will be an analysis and commentary to go with the numerical results. It is expected these activities will be completed in the second half of 1991.

MR. HAROLD L. BARNEY: "Life Care Communities Live on Edge" reads the headline of a Tallahassee, Florida Newspaper. There have been numerous articles about life care communities and their financial status. What I will discuss is not so much whether the industry is financially solvent, but how one can measure solvency of a Continuing Care Retirement Community (CCRC) and what the Society of Actuaries can do to make the measurements more reliable.

Essentially, a CCRC is a collection of services, including the use of bricks and mortar, apartments, houses, and health care facilities which are guaranteed to an individual in return for a large sum of money (an entry fee) followed by monthly payments. These entry fees can range from $3,000-500,000 with monthly fees anywhere from $150 to over $4,000.

A problem arises that is of concern to the National Association of Insurance Commissioners. It is also of concern to the American Association of Homes for the Aging (AAHA) and to any actuary whose mother is in one of these homes, as mine is. Will a given CCRC be able to deliver on the promises that it made to the residents for the fees they are collecting? The difficulty in answering that question stems simply from the fact that the money comes in at a different time than it goes out. The entry fee comes in at the beginning of a contract followed by small monthly payments while the individual consumes services over time in a totally different pattern. At the outset most patients are healthy. They're independent. They don't need a whole lot of help initially. Over time, they will become less independent, and they may end up in the health center, consuming services at a greater rate and being more expensive to maintain. Their service fee does not match the high cost of these services. Some

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Legend: Closed Claims, Open Claims
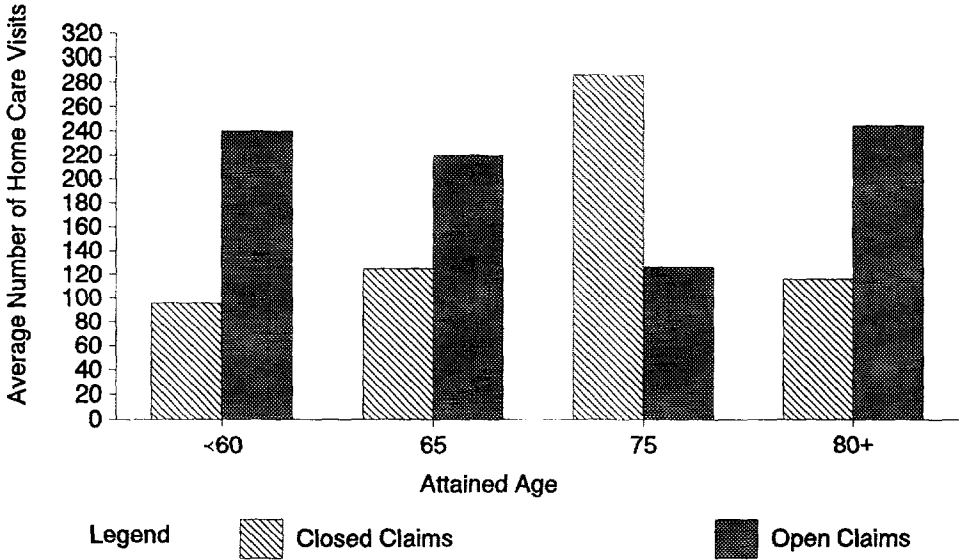
communities will increase monthly fees upon transfers to the health center to some degree, but most life care communities will have a flat rate that increases, at most, with inflation. The issue is how does one know that the lump sum that was paid up-front will be sufficient to fill the gap in monthly fees at the time down the road when the person needs the most expensive services.

Actuaries deal in "time value of money." Actuaries have a very natural skill that can be applied to this financial issue by using the time value of money and appropriate discounting, with probabilities that the services will be needed at each point in time. In this manner, all fees and services can be discounted to one point in time to effectively compare the mismatched cash flows!

The accounting profession has recently issued guidelines on providing a Statement of Position for CCRCs. An NAIC work group is developing a test of solvency to use in regulating CCRCs. So far neither group uses the time value of money in its attempts to test for solvency.

It is imperative that the actuarial profession stand up and be heard at this time. By the end of 1991, most CCRCs must collect a certain amount of information on their residents in order to comply with the accounting Statement of Position. In order to do that, they will collect most of the individual resident data that we, as actuaries, would need to provide an actuarial study of a community -- something that many communities have been reluctant to do because of the cost associated with collecting that data. These events create an opportunity for the communities, the actuarial profession, the regulators, and the accounting profession, to join forces and do something significant for the elderly of our society: to produce a reliable test of community solvency.

There remains one major problem. There does not exist a good, solid, credible, public use, validated database of the mortality and morbidity experience of care residents from which generally acceptable rates could be generated.

A number of studies have indicated that the mortality rates at CCRCs are well below what one would expect. One possible reason for this is because most data collection efforts may fail to record all the deaths that have occurred in these communities.

When collecting data from a CCRC, one does not find computerized records and modern technology for use in tracing residential movements. Many communities use lots of 3x5 cards: some of them in the health center, some of them in the billing area, some of them elsewhere. Perhaps the executive office asked a question about who died last year, so the death files may be in the Director's office under a pile of annual reports. They can be all over the place. The result is that frequently not all records are found and the mortality and morbidity rates will reflect those omissions.

The Society of Actuaries wants to create a usable, credible, and validated database on mortality and morbidity (transfers between various levels of care). This database would be built upon records from a large enough group of CCRCs that the Society of Actuaries can say, "Here are tables of mortality and morbidity rates that the NAIC can use as a basis for reserving, that actuaries can use in providing guidance to these

communities and that the communities can use in managing and accounting for their operations."

About two years ago, the Society of Actuaries commissioned Milliman and Robertson to produce an actuarial model of CCRCs for research purposes. That model is now complete. It gives us a tool to research CCRC operations, except we have one problem. We don't have the data on which to base certain assumptions. So one of the purposes of this data collection effort will be to provide the data for this model and test some research conclusions. Ultimately we may be able to address the question, "Are these CCRCs living on the ragged edge?"

So how do we get the kind of data we need as actuaries? About six months ago I approached, with Sam Gutterman's concurrence, the American Association of Homes for the Aging (AAHA), a large organization of nonprofit CCRCs. It agreed to jointly sponsor a project to collect the kind of data that will help its communities, its association, as well as the actuarial profession and policymakers throughout the country to deal with the issue of solvency in CCRCs. Incidentally, there are more than 1,000 CCRCs in existence right now. The AAHA agreed, not to provide money, but to provide much needed support. As a beginning, it helped enlist a community to participate in a pilot study which was recently completed. A report on that pilot is available through the Society office. The pilot study was intended to address the issues of data collection from CCRCs that must be overcome to establish a database.

The pilot community itself was a Florida community, one part of a five-home, multifacility unit. There were, on average, 525 residents in various types of units including villas, garden apartments, high-rise apartments, assisted living, and skilled health center units. The three years we studied began April 1, 1988 and ended on March 31, 1991. We collected records on 803 different lives. These 803 individual residents produced 1,664.43 life years of exposure. Of these, 130 were new entrants who came into the community during the three-year experience period. With over 500 residents at any one time, this is an above average size community (average being 175-200 lives).

The pilot study provided insight into several issues. "Can you get valid data," was one key issue addressed in this pilot study. The conclusion of the three actuaries that worked on this study is, "Yes, you can, but it requires a significant effort." Close to 300 research hours were spent to get those 1,600 exposure years. This number of hours is inordinately high for several reasons:

1. There was duplication of effort. We had three actuaries involved -- Jack Luff from the Society office, Faye Albert and myself -- where normally only one actuary would visit a community.

2. The data elements collected were changing and expanding during the collection process. As a pilot we sought to capture every conceivable data element, knowing that some would be difficult to capture, others would be superfluous and some additional elements would not be needed for the mortality study but might be for other management purposes.

LONG-TERM CARE -- DATA ACCUMULATION

Analyzing how we spent our time and what was necessary for the study, the pilot research indicated that around 100 hours, perhaps as little as 75 hours, per community is needed to collect the information, input it, validate it, and audit it to make sure it is complete and accurate, and verify that one has captured all deaths and transfers.

Another key issue that we addressed was, "Do we have all the people?" The community had provided us rosters for each of the four year-ends covering the experience period. The research team did comparisons between the collected data and the rosters. When the couple status at entry indicated a resident was a wife, we looked for the husband's record. Many other internal checks as well as reviews of other resident records and notations were employed by the research team. As a result we found 39 additional records that the community had missed on input, most of which were deaths early in the experience period. As I mentioned, there were 139 total deaths. Had we missed those 39, we would have understated the mortality rate by a statistically significant amount. Finally, we noted that the further back in time one looks, the more likely errors and omissions will turn up. That led to the recommendation that data for more than three years prior to the study be left out except in unusual circumstances.

To get useful and credible data requires that time and effort be spent on validation. The pilot suggests that the work can be done. It will constitute a different type of effort than getting computer tapes from insurance companies. As a result the Society has sent out a request for proposals, to do a research project which would multiply this one community by 50. Let me just state briefly the purpose of the research and the results that are sought.

The purpose is to establish a database of health changes within continuing care retirement communities based on 50,000 life years of exposure. The database would be a public-use database serving the needs of the national and state associations of homes for the aging, health care providers, the sponsors and providers of care for the aging, the managements of retirement communities, the actuarial profession, the state regulators, the facilities, the investment industry, market researchers, policymakers, and others interested in the issues associated with long-term care and the elderly.

The database records would be differentiated by at least age, sex, couple status, and resident status. When I say "resident status," I include more than the regular levels of care such as "independent," "personal," and "skilled" care. There are significant differences among communities' mortality and morbidity rates. We think some of these are attributable to the nonhomogeneity of independent housing definitions that are used. High-rise, congregate living facilities may attract a different type of independent resident than does a villa located half a mile from the dining hall where somebody has to be healthy to walk there. We want to look at different types of housing, that is, different levels of "independent," as well as the health levels that are normally considered.

Through the use of identification numbers, we believe the records could also be grouped for further analysis by community characteristics such as for-profit and not-for-profit ownership, age of the community, contract type, life care versus a fee-for-service (where the CCRCs increase the fees on entry to the health facility), community setting, urban versus nonurban, high-rise, garden apartment and cottages.

The primary result of the research would be the database itself. This would be made available to others for a nominal handling and duplication charge. Other important results would include a standard table of probabilities and life expectancies based on the entire database, which could be used by the NAIC to establish its reserve requirements.

The basic table would provide a reference point by establishing mortality and morbidity curves from which deviations could be allowed through the use of factors applied to basic rates to reflect the unique characteristics of certain communities. Standard tables of life expectancies would also be published. These tables would be produced on three bases -- single male, single female, and joint male/female. There may be two more bases if sufficient data are collected as there are a number of couples where both members are female or both male. Because of the accounting requirements, it may be necessary to have joint life expectancies for female/female couples and male/male couples, in addition to mixed couples.

The bottom line is: CCRCs are small insurance companies. Solvency testing is dependent on the time value of money and the probabilities of utilizing services. These are the ingredients that make CCRCs natural situations for actuaries to use their skills. If the risk of insolvency is great, proper and generally accepted solvency testing will help prevent disasters.

We have an opportunity as a profession to apply actuarial techniques to enhance the financial security of the elderly before a major problem emerges. This project, together with the research model and revised Actuarial Standards' Board (ASB) Standard on CCRCs, which is in the process of being redrafted, can make a difference to the communities, to the elderly, and to our profession.

MR. GUTTERMAN: These presentations provide an indication of the activity of the Long-Term Care Experience Committee, but they also indicate that, in fact, we have a long way to go in all of these areas.

MR. ROGER J. GAGNE: I wonder if anyone on the panel could comment on the possibility that, along with studying the 1985 Nursing Home data and other insured data, are there any plans to look at comparing different studies, like the 1977 and the 1985 studies, to try to identify trends? As pricing actuaries, we price a level premium product covering risks far into the future. Are there any hints that the panel can give us?

MR. GUTTERMAN: We hadn't specifically planned on comparing the 1977 and the 1985 studies. However, we will look into it. We do intend to analyze additional experience, particularly as John indicated in his presentation, and also in terms of insurance company data over time. We are certainly open to any additional avenues of research related to experience in these areas that might benefit actuaries in general.