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## Session 44PD

### Understanding Secondary Differences in LTC Experiences

**Track:** Long-Term Care

**Moderator:** PHILIP J. BARACKMAN  
**Panelists:** ANDREW J. HERMAN  
P. J. ERIC STALLARD  
JOHN LEO TIMMERBERG

*Summary: This panel discussion includes presentations by long-term care (LTC) actuaries that have observed secondary differences in LTC experience in both insured and general populations. Practical applications of this new information are also discussed.*

**MR. PHILIP J. BARACKMAN:** Our presenters for this session are Andrew Herman, John Timmerberg and Eric Stallard. All are members of the SOA, but they come from different backgrounds—actuarial consultant, insurance company actuary and research professor—so we've got a variety of perspectives converging on similar topics. We are fortunate to be able to receive insights from both industry experience, as well as population experience.

By way of introducing the topic, I wonder how many of you recall the days when life-insurance premiums were not differentiated by smoker/non-smoker status. I think that is an instructive case study of how a suspected underlying experience factor ultimately became demonstrated and recognized in pricing. For purposes of this session, we are taking it for granted that long-term care experience varies by age, by benefits provided, and of course, how the business is underwritten. By secondary differences, are focusing on items such as gender, marital status, geographic region, and distribution method.

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**Note:** The chart(s) referred to in the text can be found at the end of the manuscript.

An understanding of how such factors affect experience is becoming very important to sound long-term care (LTC) pricing. One or more of these factors may eventually be used directly in rate tables, and therefore be similar for LTC what smoker/non-smoker was to life insurance a couple of decades ago. The use of the term "secondary" is not to imply minor significance. Initially, such factors were assumed to be less significant, or treated that way in pricing. A quote by Robert McNamara strikes a cautionary note on this subject, "To measure what can be easily measured, that is okay as far as it goes. To disregard what can't be easily measured or to give it an arbitrary value, that is artificial and misleading. To presume that what can't be easily measured really isn't important, that is blindness. To say what can't be easily measured really doesn't exist, that's suicide."

By the time we leave this session, I hope all of us will be feeling less suicidal about our work in LTC, because a lot of this experience is not easily measured. Or if we can measure it, it is not easily interpreted.

I'd like to go over the introductions for our speakers. Andrew Herman is a consulting actuary with Wakely and Associates, Inc. He is responsible for the firm's senior health-insurance practice. He has many years of experience in long-term care, including contract development, experience analysis, pricing, re-rating, and financial reporting. Prior to joining Wakely in 1988, he was employed by three long-term-care insurance market leaders. He earned his bachelor's degree in mathematics from the University of Pennsylvania.

Our second speaker is John Timmerberg, who is second vice president at Conseco Companies. Mr. Timmerberg has worked in LTC insurance for 11 years, including prior positions at CNA and Transamerica. He has master's degrees from both the University of Iowa and the University of Illinois. And his current responsibilities at Conseco include product development, pricing and re-rating for long-term care. Conseco has a large and somewhat developed LTC block.

Eric Stallard is a research professor and an associate director for the Center of Demographic Studies at Duke University, where his research expertise includes modeling and forecasting for medical demography and health, and LTC actuarial practice. Mr. Stallard is a frequent presenter at SOA meetings.

**MR. ANDREW HERMAN:** Today, I am going to talk briefly about some of the drivers that are not primary drivers: gender, marital status, region, and then impact of product type and distribution channel. I am not going to give a whole lot of statistics today.

My first comment is that premium rates today are on a unisex basis. I am not aware of any carriers that are varying the rates by gender in the individual marketplace at least. Long-term-care claim costs are generally higher for females as we first saw that in the 1985 National Nursing Home Survey. The ratio of females to males seemed to be about 150 percent to 200 percent, and it was driven

primarily by lengths of stay. In some of the younger ages, the claim costs were nearly equal. But as you get into the seventies and the eighties, the female claim costs were close to double those of the male. So on an age-adjusted basis, you would expect significantly worse experience for females.

Industry experience, interestingly, suggests that the female to male ratio is probably a bit lower in an insured environment. Perhaps, some of this has to do with the nature of the policyholders that are purchasing coverage. In an insured environment, married females have noticeably been better. Interestingly, the SOA inter-company study showed female claim costs to be very close to the level of males. And *our* findings, when we study our client companies, are that females are higher, but not as high as you see in the nursing-home data, maybe in the 33 percent-higher range.

Voluntary lapse rates and morbidity are probably correlated to some degree. One company actually reported that the married couples had lower lapse rates compared to singles. I think that in their data the single females had the highest voluntary lapse rates, but I am sure that the type of data will vary by company. Obviously from a pricing perspective, higher lapses may partially offset the impact of higher claim costs, except in the first policy duration or two.

As a company actuary, particularly if you are a valuation actuary, you should consider varying the morbidity in lapse assumptions by gender. I think that most carriers that are selling on a unisex basis do reserves on a unisex basis, but there are many arguments for varying the reserves by gender.

In studying the claim-cost experience by marital status, I believe that most actuaries will look at it relative to the status of the time of policy issue. And many regulators and people looking at the block will ask the question, "Is this the marital discount? Is it permanent?" I think that the industry generally has a permanent discount.

At Wakely and Associates, we find that married insureds have significantly lower claim levels. And when I say that in the early policy durations the claim level is about half, I am talking about the first 10 policy years. Those are about the only years for which we have good data. Some companies may have 15 years of experience, but most companies probably only have 10 good years of data on the types of forms that are being sold today. So we are seeing that marital claim costs are 40 percent to 50 percent of singles. But you need to be wary. The bulk of the claims happen beyond 15 years. So the first 10 or 15 years may not tell the whole story.

What has happened in the industry, as companies find out that married insureds have much better claims experience? I guess most carriers have active strategies to target married insureds, as a result. In fact, spousal discount percentages have been moving upward, and the rules for application for the discount have been made

more liberal. And it seems to make sense. I can remember several years ago, I saw a discount that was applied as a 50 percent discount on the younger life, or an alternative approach is a 50 percent discount on the lesser premium. Typically, you have to buy the same coverage in these designs. But I would say that these models are back in vogue, because we have some client companies asking us to price this design and help them introduce it. And we feel that it is justified. We have a lot of questions from the regulators about whether that is worth it. Fifty percent just sounds like a big number, but really it's only on one life and, on average, people will be two or three years apart in age. So we usually model those by the 22 percent discount per life. Other carriers may be introducing even greater rate differentials to target married insureds. I am not sure that I have seen much higher than 25 percent, but you would probably see that on the market today.

Now, I would like to talk a little bit about the claim-cost experience by region. One of the panelists earlier today talked about the rural problem. And that has been problematic for carriers that are selling stand-alone nursing-home policies. I think that the industry started out with a lot of area rating. You saw products with three rating areas. And the regions may have been based on some other product or study. But the industry leaders generally moved to a nationwide rating scheme throughout the 1990s. I think the top industry seller of long-term care today is probably still selling mostly on a nationwide rating scheme, but with higher premiums in California or other states. In fact, we recommend to our client companies that are selling in brokerage markets that they really be careful about region, because if you're only selling in rural areas where nursing-home experience is bad, then clearly the product should have a higher price. But ideally, we think that you should have some area factors, in particular in stand-alone products, so that you do not get hit with anti-selection.

Let us talk just a little bit about survivorship benefits. These are benefits that are life-insurance in nature. They provide for a paid-up policy upon some time period or the death of the spouse. And it is going to increase your marital claim cost, but maybe that is a good thing. Since the married insureds seem to be such good risks, maybe it is okay. You have a little extra claim cost, but then you attract those policyholders. So companies may try to put survivorship benefits into the base contract, and hope that they sell more married insureds. When you do that, there is some subsidization because single insureds who do not benefit from that particular benefit will be paying part of the cost. So I think that's led to some state regulators requiring that benefit to be offered by a rider. Still, in most states, you could have a survivorship benefit in a policy.

I have one other comment about home care. Stand-alone home care coverage seems to be another sore point for the industry. And when you look at it, stand-alone home-care-policy experience may be so poor that it really may not be worth talking about marital discounts. I was talking about the regional variations for nursing-home products, but typically, I think that we see regional variations in the industry more on stand-alone designs. Home-care stand-alone policies have had

problems in particular areas like South Florida, or some of the bigger cities. Iowa, Kansas, Minnesota, Missouri, North Dakota, Nebraska, and South Dakota—these are states that are poor-nursing-home states.

This is "old hat" to companies that market through different channels. I found this out when I was first getting into the industry: when you are selling the same product through different distribution methods, you may not have the same experience. It is surprising, because they have the same underwriting. But it seems that there are just different kinds of anti-selection for whatever reasons. So that brokerage distribution, if you're suffering from that kind of anti-selection, may yield claim levels that are dramatically higher than, say, captive, career-shop-type agents that just sell long-term care and are managed from the home office. And there are some blocks of brokerage business that are very good, but when this product is distributed by brokers who have access to multiple companies, you just really have to be wary about issues like regional pricing or a company's underwriting practices. I do not think that you really see that on the captive side. So if you have a channel where you can dedicate people to selling this business, you seem to get better experience. And I think most people know that already. Even though there has been quite a bit of industry rate increase activity over the last three, five, six years, it has been minimal for companies that are selling through captive channels.

When you are a pricing actuary, and you are developing the rates, you should have the correct distributions by gender or marital status. Maybe some actuaries take a shortcut and just say that the claimants are 40 percent male or 60 percent female, and do that over all ages. But if you are pricing with unisex rates, you do get into some issues when blending mortality tables and blending claim costs. In any event, my point is that you should pay some attention to gender or marital status.

Earlier this morning, the issue of ultimate morbidity came up. And I think that people are saying that an 85-year-old who was issued 20 years ago may not look like an 85-year-old who was issued five or 10 years ago. And I'm wondering if maybe some of this is due to secondary variables like gender or marital status. Maybe people have not really looked at that when they are looking at their 85-year-olds, comparing them to what they were at issue. It stands to reason that at age 75 there might be a smaller proportion of married people.

The actuarial reserves might vary by marital status to reflect the proportional premium discount. I think that everybody labors to find the right amount of discount to charge. And some of it has been driven by marketing reasons and how much can be justified. Once you settle on the spousal discount it makes sense to apply that discount in the reserving process, because really it is a morbidity-based discount. So we generally do that when we are doing our financial reporting, vary our reserves by marital status. Although we give a discount, we do not generally vary it by gender.

Reserves could be based on the expected slope of claim costs for married versus single insureds, because it seems that married people are going to have a significantly steeper slope, particularly in the back end, after the status has been terminated due to death or divorce. But I am not sure that many actuaries are setting it up that way. Because when people change, you have to track people and change their status on your reserving system. So it seems like it might be onerous, but it is certainly one approach to consider.

I think that when you are marketing particular products that do not cover the full continuum of long-term care, you get into more anti-selection issues. And that is why some of that is related to region, and that is why we recommend regional rates.

Marital discounts of 20 percent or more seem to be justified. We usually use a 20 percent couples discount when we are developing new products. And that is a couples discount based on marital status. There are some issues about requiring both people to be issued coverage. It seems that you'd want both of the applicants that you're giving a discount to, to be insurable. You want them to be healthy and to be able to take care of each other. So if you only had one insured who's healthy, there seems to be a question about whether you'd give the discount when the prospective insurer was declined coverage by your company. But generally, it is the easiest way to get the products approved. And since it seems like even 30 percent or more, or some huge number, might be justified, 20 percent, based on marital status is a reasonable approach to take when pricing this business. In certain situations, like stand-alone home-care designs, maybe you would use a 10 percent discount or nothing.

Companies have been doing this for years, giving some sort of a discount, an intermediate discount or allowing the full spousal discount, to people who aren't married. What situations are these? It could be sisters or relatives living together. It could be friends. The marriage rate is on the decline. It seems that there are probably a lot of seniors living together these days. So maybe they should get a discount, too.

And I think that you might have an issue when people are not together. You know, maybe they're relatives or sisters. I think a counter argument might be that this is not such a close relationship. They're not married or they're not that close or dependent on each other, so maybe it should be a lesser discount. We have one client that we gave a caregiver discount of 10 percent. So if you are married, you get 20 percent. If you are a caregiver, you get 10 percent. And it seems like a reasonable approach. I think it is valid to do caregiver discounts. But if you do it, monitor it over time. See if it really stands up and is justified.

**MR. JOHN TIMMERBERG:** I'm going to compare male and female results for both incidence rates and length of claim on an aggregated basis. I am going to look at the Society data at first, just to frame the discussion. And then I will talk about

Conseco-specific data. Then I'm going to compare married and single results for both incidence rates and length of claim on an aggregated basis. And in that case, it will be Conseco-only data. Finally, we will look at marital status by gender.

Some quick definitions—claim costs for long-term-care insurance are measured as the expected amount of incurred claim for a policyholder in one year per one dollar of daily benefit amount. Claim cost is equal to the product of the two things that we are going to talk about today: the expected incidence rate, which is the probability of having a claim during a year, and the expected length of claim. And you can consider whether or not you are going to use up your entire daily benefit amount. But normally 100 percent is used. So both incidence rates and length of claim can vary with attained age, gender, marital status, health status, risk-selection criteria, time of application, type of coverage, location and probably things that we haven't defined yet that are now unknown.

The source and applicability of the data that I'm going to present for the Conseco specific data—I've used data from selected forms that were written during the early-to-mid-'90s by companies acquired by and consolidated into the Conseco Senior Health Insurance Company. The policy experience presented today is entirely zero-day elimination period, with underwriting styles that may differ substantially from those in use today. Obviously, product design has changed substantially over that time period for those of you who've been in the market for a while. Also, these companies issue up to age 99, which is rare today. So the data presented may not be representative of current product designs, underwriting styles, distribution systems or the regional mix of sales. Also, I have given essentially raw data. I am not attempting to adjust for underwriting selection periods, and they are not necessarily representative of ultimate experience. And the forms presented do have some history of rate increases.

Conseco Senior Health Insurance Company is composed of a large block of business acquired from the purchase of ATL in 1996 and business written through Conseco Senior Health Insurance Company from 1997 to the present. Business acquired in that purchase does have rate-increase activity, both before and after purchase. There were no rate increases on business written by Conseco Senior Health Insurance Company from 1997 to the present. So the rate increases that you hear about from Conseco are on acquired blocks. "Married" means that both spouses were issued coverage, so that is the definition I am using for married. What I call "single" is going to include cases in which one spouse has coverage and the other spouse does not.

Overall, we are not attempting to draw any final conclusions. The Conseco-specific data is not ultimate, and we are looking at data for two sample forms with specific limitations, as noted above. I am trying to reinforce that you cannot run home and reprice everything based on a few charts that I am going to show you today.

From the summary section of the SOA Long-Term Care Inter-Company Study came surprising results. Male and female results were more similar than expected for incidence and length of claim. It appeared as though the claim costs were leveling off once you got up to age 84, and that 85 and beyond was going to be similar. Of course, the SOA study was almost entirely based on facility coverage. No integrated coverage was available way back then, or a very limited amount (Tables 1 and 2).

Table 1

*Incidence Rates by Gender  
From the SOA Intercompany Study*

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Attained Age Group	Male	Female
Less than 60	0.115%	0.204%
60-64	0.321%	0.243%
65-69	0.613%	0.576%
70-74	1.063%	1.149%
75-79	2.275%	2.303%
80-84	3.881%	3.829%

Overall, very similar ...



Table 2

*Continuance by Gender  
From the SOA Intercompany Study*

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Percentage Persisting At Least N Days by Gender

	Male	Female
Duration (days)		
120	71.42%	70.86%
180	66.68%	65.64%
365	55.57%	52.25%
730	41.73%	35.93%

Again, very similar ...

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For continuance—again, this is from the SOA study—it is very similar. There does seem to be some divergence in claims as people persist into the longer period of the claim. There appears to be some divergence as you get down to one or two years of persisting on claim.

Now, to analyze the Conseco-specific data, I have aggregated the results across age, groups, etc., so we would not have to look at so many numbers (Table 3). But essentially, just looking at these cuts for males versus females, for incidence rates and continuance, the result backs up the SOA study. In other words, my data is similar. For facility policies, there is very little difference—3 percent incidence rate versus 3.1 percent. For an integrated policy, there is not much difference—males at 1.5 percent, females at 1.7 percent. I want to point out the difference between integrated and the facility; the integrated form was a younger form. That's why those rates are lower. For length of claim, I expressed it in days. It's easier to get a handle on it when you see it in days. Males are less than females. If you measure it in days for a two-year benefit period or a four-year benefit period, males are about 10 percent lower than females.

Table 3

*Now, looking at Conseco data ...  
Males vs Females*

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<b>Incidence Rates (combined across ages)</b>				
Facility Policy	Males	<b>3.0%</b>	Females	<b>3.1%</b>
Integrated Policy	Males	<b>1.5%</b>	Females	<b>1.7%</b>
<b>Length of Claim (in days)</b>				
Facility Policy				
2 year benefit period	Males	<b>307</b>	Females	<b>340</b>
4 year benefit period	Males	<b>386</b>	Females	<b>448</b>

Conseco data also shows that male and female experience is very similar with males having slightly lower incidence rates and somewhat shorter claims

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Now, let us finally look at married versus single (Table 4). And this is Conseco-specific data for these two sample forms that I am showing you. We are seeing some large differences. For the facility policy incidence rates—married, 1.6 percent; single, 4.2 percent. That's a pretty substantial difference. For the integrated policy, the singles are about three times the married for the incidence rate. For the facility policy, at a two-year benefit period or a four-year benefit period, the singles are about 20 percent longer than the marrieds. So there is a more than 50 percent difference on incidence rates, and a 20 percent difference on the length of claim. And you can put those two together to get an even bigger difference.

Table 4

*Married vs Single*

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<b>Incidence Rates</b>			
Facility Policy	Married	<b>1.6%</b>	Single <b>4.2%</b>
Integrated Policy	Married	<b>0.8%</b>	Single <b>2.4%</b>
<b>Length of Claim (in days)</b>			
Facility Policy			
2 year benefit period	Married	<b>281</b>	Single <b>342</b>
4 year benefit period	Married	<b>342</b>	Single <b>450</b>

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So how do we explain these differences for married incidence rates? The conventional wisdom on the protective value of the healthy spouse or the underlying reasons might be as follows. In our society, the husband tends to be older than the wife. The husband has a greater chance of needing LTC services before the wife. The wife will care for the husband at home without formal assistance and beyond the point when benefits may be triggered. But if the wife does need LTC services before the husband, his protective value might be less, because he is less skilled as a caregiver.

Given that we have seen that male risk is lower than female risk, married risk is much lower than the single risk. So now, let us consider males by marital status for this sample facility policy (Table 5). I did it by attained age group, so you can see how common sense bears out. The incidence rates do increase directly with attained age. The married is much less than the single. So what starts out as large differences when they are younger become smaller differences as they get older. I want to point out that the SOA data indicated that the incidence rates leveled out beyond 84, and this doesn't look like a leveling out for this sample form.

Table 5

*Incidence Rates  
Males, by Marital Status*

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Facility policy

Single vs. Married (at time of issue)

	Single	Married	Ratio
Attained Age			
Less than 60	0.34%	0.00%	----
60-64	0.72%	0.34%	212%
65-69	0.75%	0.46%	163%
70-74	1.69%	1.06%	159%
75-79	3.25%	2.24%	145%
80-84	5.80%	4.51%	129%
85 and over	9.84%	8.50%	116%
<b>Overall</b>	<b>3.81%</b>	<b>2.50%</b>	<b>152%</b>

Now, let us consider single versus married for females (Table 6). And this one should raise your curiosity a little bit. Married is much less than single. That's a huge difference. Once again, we see the convergence by attained age. As they age, as they get older, those two differences do tend to converge.

Table 6

*Incidence Rates  
Females, by Marital Status*

Facility policy

Single vs. Married (at time of issue)

	Single	Married	Ratio
Attained Age			
Less than 60	0.19%	0.04%	475%
60-64	0.56%	0.05%	1120%
65-69	0.79%	0.13%	585%
70-74	1.47%	0.37%	397%
75-79	3.26%	0.76%	429%
80-84	5.80%	1.59%	365%
85 and over	10.28%	3.02%	340%
<b>Overall</b>	<b>4.39%</b>	<b>0.65%</b>	<b>675%</b>

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For integrated policies, similar results, similar conclusions (Table 7 and Table 8). There is maybe less convergence than we saw in the other ones. In other words, as they're getting older, those two numbers aren't converging as much as they have. So married females had lower incidence rates than married males, but single females were higher than single males.

Table 7

*Incidence Rates*  
*Males, by Marital Status*

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**Integrated policy**

Single vs. Married (at time of issue)

	Single	Married	Ratio
Attained Age			
Less than 60	0.27%	0.14%	193%
60-64	0.29%	0.29%	100%
65-69	0.78%	0.66%	118%
70-74	1.67%	1.07%	156%
75-79	2.85%	1.91%	149%
80-84	4.84%	3.64%	133%
85 and over	8.57%	7.03%	122%
<b>Overall</b>	<b>1.96%</b>	<b>1.27%</b>	<b>154%</b>

Table 8

*Incidence Rates  
Females, by Marital Status*

**Integrated policy**

Single vs. Married (at time of issue)

Attained Age	Single	Married	Ratio
Less than 60	0.47%	0.02%	2350%
60-64	0.69%	0.09%	767%
65-69	0.89%	0.14%	636%
70-74	1.85%	0.40%	463%
75-79	3.56%	0.88%	405%
80-84	6.27%	1.76%	356%
85 and over	10.26%	3.31%	310%
<b>Overall</b>	<b>2.61%</b>	<b>0.35%</b>	<b>746%</b>

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Let us look at length of claim for males (Table 9). For a facility claim, I show the percentage still on claim by single versus married. Not only do marrieds have fewer claims, but also they are shorter. And just to draw you back to that SOA data that I showed you at the beginning, at 12 months they were showing over 50 percent as still on claim. In my company's data, we have less than 50 percent, in fact about the mid-30s. That may be a reflection of the underwriting of the zero-day elimination periods. I'm not sure what causes that. And you can see the difference when it's measured in days, too.

Table 9

*Length of Claim  
Males, by Marital Status*

**Facility Claims**

Single vs. Married (at time of policy issue)

<b>Percent Still on Claim after:</b>	<b>Single</b>	<b>Married</b>
12 months	37.42%	33.85%
24 months	20.53%	17.75%
36 months	11.21%	8.45%
<b>Expected Length of Claim, for policy with:</b>		
2 year Benefit Period	319 days	296 days
4 year Benefit Period	408 days	364 days

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The same effect for females (Table 10). Married females—that one kind of stands out in how short their claims are. Do they wait until the last second to go on claim? Or do they recover and come out of claim more quickly because there is someone else at home? It raises a lot of questions.



Table 10

*Length of Claim  
Females, by Marital Status*

Facility Claims

Single vs. Married (at time of policy issue)

Percent Still on Claim after:	Single	Married
12 months	42.04%	20.61%
24 months	25.60%	9.68%
36 months	14.27%	4.29%
<b>Expected Length of Claim, for policy with:</b>		
2 year Benefit Period	349 days	209 days
4 year Benefit Period	463 days	244 days

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So to summarize, here is the ranking for these sample forms that I shared today: Married females have the lowest risk, single females have the highest risk, and the males are sandwiched in between.

**MR. P.J. ERIC STALLARD:** The data that we are going to talk about is publicly available data that has collected at the taxpayers' expense. And anybody who wants a copy of the data can get in touch with our scientific director of Duke's demographic studies.

So the question that we are asking is do age, sex, marital status, education and self-reported health status make a difference in LTC, and if so, what kind of difference? How large would the difference be? Ultimately, it will be up to you to determine whether you want to begin to think about how to incorporate this type of information into your pricing and design.

In the measures of activities of daily living (ADL) and cognitive impairment data that we used, we tried to make criteria consistent with the Health Insurance Portability and Accountability Act (HIPAA), which is the governing legislation for qualification for LTC insurance.

I used the 1984, '89, and '94 National Long-Term Care Surveys. The reference to the Health Insurance Portability and Accountability Act of 1996 is sort of critical. Because we have a sample for the total U.S. elderly population, I was able to cut the disability into three levels of severity: an ADL match to HIPAA, a cognitive

impairment match to HIPAA, and then a joint match (where you would actually satisfy both criteria). We also had people who were disabled, but they were disabled at a level that was below what HIPAA would require, and we called those mildly disabled. So you can count four disability classifications in terms of an insured population. The mildly disabled group would be a group that would match the group that would be rejected in underwriting. It's still important to keep track of them in a population model, but they're designed to match that particular group.

A standard LTC definition covers a wide range of health and social services—including adult day care, custodial care, home health care, hospice care, intermediate nursing care, respite care and skilled nursing, but generally not care in a short-stay hospital.

There are three HIPAA triggers—ADL trigger, similar-level trigger, and cognitive-impairment trigger. But the ADL trigger required substantial assistance with two out of six ADLs, and the standard set of six with a 90-day time screen on it. And really the disability is expected to last 90 days or more. You don't have to wait 90 days. A similar level trigger occurs when the individual has a level of disability similar to the level in the ADL trigger. I do not believe that it is operative in any state. The cognitive impairment trigger occurs when you need substantial supervision to protect the person from threats to health and safety in a severe cognitive impairment. And there's an IRS notice (Notice 97-31, I think) that actually goes to some degree of effort to define that.

A key issue here is that some people who are disabled can deal with that by having appropriate equipment or modifications. HIPAA's ADL trigger does not count ADLs resolved by the use of special equipment. Disabilities are excluded if you can resolve the disability. And that is an issue that you should be aware of in this particular set of tabulations that I did. I believe that every tabulation generated measures of disability—other than the ones that I've done on a long-term care survey, which are set-up to count equipment—will count such people as being disabled and they will fall into the ADL counts. You just need to be aware of that.

Sample size—we got a lot of people (Table 11). The dead are the number of people who died during the survey. Around 5,000 to 6,000 people die in a five-year period, and we replace those. Typically, we are running 17,000 to 20,000 people in each of the sample points.

Table 11

## NLTCS Sample Sizes

<u>Year</u>	<u>Alive</u>	<u>Dead</u>
<b>1982</b>	<b>20,266</b>	<b>224</b>
<b>1984</b>	<b>22,483</b>	<b>2,698</b>
<b>1989</b>	<b>17,346</b>	<b>5,816</b>
<b>1994</b>	<b>18,623</b>	<b>6,372</b>

**Overall Sample: 35,848 Individual  
Persons -- Approx. 42,000 incl. 1999.**

There is a hierarchy. And if you want to go into this hierarchy, it's defined and elaborated on, on the SOA LTCI Section Web site document [http://www.soa.org/sections/ltc\\_home&community.html](http://www.soa.org/sections/ltc_home&community.html). The key thing here is that we have a point at which we can cut (usually at level three, which would be the personal-assistance level), and then anything higher than level three, we count.

Cognitive impairment—there are different ways of measuring it. In 1999 we changed to the mini mental status exam (MMSE). And to my understanding, in 2004, we are going to go back to the short portable mental status questionnaire (SPMSQ). People also would be classified as cognitively impaired if a proxy interview was given for senility or Alzheimer's Disease. So we have a total catch of cognitive impairment. And on the SPMSQ, five or more errors would measure severe impairment. And in the tabulations in this particular presentation, five or more is what I am using to match the HIPAA cognitive impairment. Those that had three or four errors on this test, I am counting in the mildly disabled group. So we've got five levels of disability. The first level is not disabled. The second level is mild disability. And then third, fourth, and fifth, are either ADL, cognitive impairment or the pairings of those.

Table 12 and Chart 1 offer a picture of disability.

Table 12

### **Five Group Classification of Disability:**

- I. Non-disabled**
- II. Disabled, satisfies neither ADL nor CI trigger**
- III. Disabled, satisfies ADL trigger,  
but not CI trigger**
- IV. Disabled, satisfies CI trigger,  
but not ADL trigger**
- V. Disabled, satisfies both ADL and CI triggers**

Table 13 is an aggregate-transition table. And what I have here is the initial status in the five categories. And then the disability status five years later is used to label on the columns. And this is going to be fairly standard throughout all of the tables. There are different ways of looking at them, but I like to look down the diagonals. You can see the persistence. Non-disabled—five years later, 66 percent will be non-disabled. If they are mildly disabled, you will see 34 percent retain that status. And then as you go up to the higher levels of disability, just ADL only, it is 18 percent persistence. Then it drops to 10 percent. The joint ADL and cognitive impairment is 22 percent. And the other place that is interesting to go on your first cut is down the mortality. Sixteen percent are dead at the lowest group, and 71 percent are dead at the highest group. So clearly, there is a mortality component. I do not think that this table is particularly surprising, except that you can quantify the numbers.

Table 13

Unisex Disability Transition Matrix – Age 65+						
Disability Status 5 Years Later						
Age & Initial Disability Status	I. Non-disabled	II. Mild/moderate disability	III. HIPAA ADL only	IV. HIPAA C only	V. HIPAA ADL+C	VI. Deceased
All Ages						
I. Non-Disabled	<b>6634%</b>	953%	361%	130%	249%	1672%
II. Mild/moderate disability	699%	<b>3402%</b>	1086%	350%	843%	3621%
III. HIPAA ADL only	106%	765%	<b>1822%</b>	077%	848%	6382%
IV. HIPAA C only	337%	1020%	579%	<b>1064%</b>	2486%	4515%
V. HIPAA ADL+C	019%	120%	364%	103%	<b>2281%</b>	7113%

Go to the non-disabled five years later. You know, this is a true recovery, and you can see that 0.2 percent of the highest level of the joint HIPAA criteria actually end up being alive and recovered five years later. If they are mildly disabled, the recovery rate is almost 7 percent. So recovery occurs, but it's not a large factor.

In Table 14 , I constructed all of the different five-year transition matrices, strung them together in a Markov Chain type model, and computed a set of life expectancies. So you can go to age 65, and for the unisex table, you find life expectancy is 17.6 years, 13 years will be spent non-disabled, and then you have got various amounts. You can see about 13 percent of residual life expectancy will be mildly disabled, and then 12.7 percent in any of the three categories that would qualify for benefits under HIPAA. I have got the same information repeated, beginning by 10-year intervals. Life expectancy at 85 is 6.7 years, 38.8 percent being HIPAA-qualified. So that gives you a good summary of what's going on by age. The same information is broken out by gender (Table 15 and Table 16). For males, the key thing is that 80 percent are non-disabled at age 65, and for females, it is 70 percent. So clearly, these data are consistent with what your expectations are.

Table 14

Age-Specific Residual Life Expectancy by Age, Disability Group, and Sex							
Age	Disability Group						Total
	I. Non-disabled	II. Mild/moderate disability	III. HIPAA ADL only	IV. HIPAA CI only	V. HIPAA ADL + CI	III-V	
<b>Unisex</b>							
65	13.06	2.31	1.03	0.30	0.90	2.24	17.60
75	6.91	2.07	1.05	0.32	1.05	2.42	11.40
85	2.61	1.51	1.06	0.29	1.25	2.61	6.73
95	0.60	0.76	0.97	0.15	1.21	2.34	3.69
65	74.2%	13.1%	5.9%	1.7%	5.1%	12.7%	100.0%
75	60.6%	18.2%	9.2%	2.8%	9.2%	21.2%	100.0%
85	38.8%	22.5%	15.7%	4.4%	18.6%	38.8%	100.0%
95	16.2%	20.5%	26.3%	4.1%	32.9%	63.3%	100.0%

Table 15

Age-Specific Residual Life Expectancy by Age, Disability Group, and Sex							
Age	Disability Group						Total
	I. Non-disabled	II. Mild/moderate disability	III. HIPAA ADL only	IV. HIPAA CI only	V. HIPAA ADL + CI	III-V	
<b>Males</b>							
65	12.34	1.50	0.72	0.24	0.54	1.50	15.33
75	6.77	1.37	0.74	0.25	0.62	1.61	9.76
85	2.89	1.04	0.81	0.23	0.71	1.75	5.68
95	0.81	0.61	1.24	0.15	0.52	1.91	3.34
65	80.5%	9.8%	4.7%	1.5%	3.5%	9.8%	100.0%
75	69.4%	14.0%	7.6%	2.6%	6.4%	16.5%	100.0%
85	50.8%	18.3%	14.3%	4.1%	12.5%	30.9%	100.0%
95	24.3%	18.4%	37.1%	4.5%	15.7%	57.3%	100.0%

Table 16

Age-Specific Residual Life Expectancy by Age, Disability Group, and Sex							
Age	Disability Group						Total
	I. Non-disabled	II. Mild/moderate disability	III. HIPAA ADL only	IV. HIPAA CI only	V. HIPAA ADL + CI	III-V	
<b>Females</b>							
65	13.65	2.97	1.30	0.35	1.18	2.83	19.44
75	6.99	2.55	1.27	0.36	1.33	2.96	12.50
85	2.47	1.74	1.21	0.32	1.50	3.03	7.24
95	0.52	0.78	0.99	0.15	1.40	2.54	3.84
65	70.2%	15.3%	6.7%	1.8%	6.1%	14.5%	100.0%
75	55.9%	20.4%	10.2%	2.9%	10.6%	23.7%	100.0%
85	34.1%	24.0%	16.7%	4.5%	20.7%	41.9%	100.0%
95	13.6%	20.3%	25.8%	3.9%	36.4%	66.1%	100.0%

Tables 17 and 18 get a little busy. The key thing here is that we have got the same set-up. I have introduced the stratification table, which is male, female, and unisex—and I put unisex in the middle, primarily because the rates generally will come from that. And I do that in each of the tables, subsequently.

Table 17

Disability Transition Rates – Age 70-74 by Sex									
Initial Disability Status	Sex	Disability Status 5 Years Later							
		Non-disabled	Mild disability	HIPAA ADL only	HIPAA CI only	HIPAA ADL + CI	Any HIPAA	Any Disability	Dead
Nondisabled	Female	75.0%	10.0%	2.5%	0.8%	1.8%	5.1%	15.0%	10.0%
	Unisex	73.0%	8.4%	2.4%	0.9%	1.5%	4.8%	13.2%	13.8%
	Male	70.4%	6.4%	2.3%	1.1%	1.1%	4.5%	10.9%	18.8%
Mild disability	Female	9.5%	45.6%	13.2%	2.8%	4.2%	20.2%	65.8%	24.7%
	Unisex	10.6%	42.4%	11.7%	3.2%	4.3%	19.1%	61.6%	27.8%
	Male	12.6%	36.5%	8.9%	3.8%	4.5%	17.2%	53.7%	33.7%
HIPAA ADL only	Female	0.6%	13.5%	27.9%	1.3%	6.2%	35.4%	48.9%	50.5%
	Unisex	0.5%	12.4%	21.3%	1.6%	10.0%	32.8%	45.3%	54.2%
	Male	0.4%	11.0%	13.1%	2.0%	14.1%	29.3%	40.3%	59.4%
HIPAA CI only	Female	8.7%	14.9%	11.4%	22.3%	16.6%	50.2%	65.1%	26.2%
	Unisex	10.5%	14.8%	8.9%	13.1%	19.3%	41.3%	56.0%	33.5%
	Male	12.6%	14.8%	6.4%	3.7%	22.6%	32.7%	47.5%	39.9%
HIPAA ADL + CI	Female	0.0%	1.6%	6.4%	1.5%	31.3%	39.2%	40.8%	59.2%
	Unisex	0.9%	1.8%	5.9%	2.1%	25.4%	33.4%	35.2%	63.8%
	Male	2.1%	2.0%	5.3%	2.9%	18.1%	26.3%	28.3%	69.6%

Table 18

Disability Transition Rates – Age 80-84 by Sex									
Initial Disability Status	Sex	Disability Status 5 Years Later							
		Non-disabled	Mild disability	HIPAA ADL only	HIPAA CI only	HIPAA ADL + CI	Any HIPAA	Any Disability	Dead
Nondisabled	Female	44.7%	16.9%	6.8%	2.6%	5.4%	14.7%	31.6%	23.7%
	Unisex	43.7%	13.5%	6.2%	2.3%	4.7%	13.3%	26.8%	29.5%
	Male	42.1%	8.2%	5.4%	1.9%	3.6%	10.9%	19.1%	38.8%
Mild disability	Female	2.3%	32.0%	12.7%	5.5%	11.7%	30.0%	61.9%	35.7%
	Unisex	2.7%	27.7%	11.4%	4.9%	11.5%	27.8%	55.5%	41.8%
	Male	3.8%	16.1%	7.8%	3.0%	10.8%	21.6%	37.7%	58.5%
HIPAA ADL only	Female	1.0%	4.7%	19.7%	0.4%	10.6%	30.7%	35.4%	63.5%
	Unisex	1.1%	3.9%	16.8%	0.6%	9.9%	27.3%	31.2%	67.7%
	Male	1.1%	2.2%	10.3%	0.9%	8.3%	19.6%	21.8%	77.1%
HIPAA CI only	Female	0.5%	8.4%	6.7%	8.9%	34.5%	50.1%	58.5%	41.0%
	Unisex	0.8%	7.5%	7.7%	10.5%	28.1%	46.3%	53.8%	45.4%
	Male	1.2%	5.4%	10.0%	13.9%	12.5%	36.4%	41.8%	57.0%
HIPAA ADL + CI	Female	0.0%	0.3%	2.2%	1.1%	30.3%	33.6%	33.9%	66.1%
	Unisex	0.0%	0.2%	1.6%	0.8%	26.7%	29.2%	29.4%	70.6%
	Male	0.0%	0.0%	0.0%	0.0%	16.9%	16.9%	16.9%	83.1%



You see mortality for female is lower than for males. There is a five-year mortality from the non-disabled group. And you'll see that disability is substantially higher. Any disability is at 15 percent, versus 10.9 percent. Any HIPAA disability is at 5.1 percent, versus 4.5 percent. So that pretty much answers the question as to why females have higher disability, or presumably, will spend greater amounts of time on claim. They have a higher rate of disability, and at the same time, they have lower mortality. So they live longer with a disability.

The rest of the table shows various transitions. You can see the recovery transitions and so on, and these are paired. In each case, I have a table for ages 70 to 74 and follow them for five years. And then the next table gives the identical information for ages 80 to 84, followed by five years. And probably the most outstanding characteristic is that for the older ages, the recovery rates tend to decline significantly. For example, the mildly disabled goes from 10 percent down to 2 percent or 3 percent.

Marital status—I have looked at Tables 19 and 20 several times, trying to figure out how to interpret them. You will see that marrieds have lower amounts of disability after five years, but they have higher mortality. That seemed strange. And I think that the previous presentation brought forth some anomalies, as well. Things are very interesting when you look at marital status. Do it as a unisex model and then do a breakout by sex, and you find that you get different results.

Table 19

Disability Transition Rates – Age 70-74 by Marital Status									
Initial Disability Status	Marital Status	Disability Status 5 Years Later							
		Non-disabled	Mild disability	HIPAA ADL only	HIPAA CI only	HIPAA ADL + CI	Any HIPAA	Any Disability	Dead
Nondisabled	Married	73.8%	7.6%	2.0%	0.9%	1.3%	4.1%	11.7%	14.4%
	All Statuses	73.0%	8.4%	2.4%	0.9%	1.5%	4.8%	13.2%	13.8%
	Non-Married	71.5%	9.8%	2.9%	1.0%	1.7%	5.6%	15.4%	13.1%
Mild disability	Married	14.4%	42.2%	11.5%	2.1%	3.2%	16.8%	59.0%	26.6%
	All Statuses	10.6%	42.4%	11.7%	3.2%	4.3%	19.1%	61.6%	27.8%
	Non-Married	6.7%	42.8%	11.7%	4.3%	5.5%	21.5%	64.3%	29.0%
HIPAA ADL only	Married	0.6%	14.3%	16.9%	1.9%	8.9%	27.7%	42.0%	57.4%
	All Statuses	0.5%	12.4%	21.3%	1.6%	10.0%	32.8%	45.3%	54.2%
	Non-Married	0.4%	9.7%	27.2%	1.3%	11.7%	40.2%	49.9%	49.7%
HIPAA CI only	Married	13.5%	16.0%	11.7%	1.1%	25.1%	38.0%	54.0%	32.5%
	All Statuses	10.5%	14.8%	8.9%	13.1%	19.3%	41.3%	56.0%	33.5%
	Non-Married	7.5%	13.5%	6.0%	24.9%	13.5%	44.5%	58.0%	34.5%
HIPAA ADL + CI	Married	1.9%	1.0%	4.6%	1.8%	22.6%	28.9%	29.9%	68.2%
	All Statuses	0.9%	1.8%	5.9%	2.1%	25.4%	33.4%	35.2%	63.8%
	Non-Married	0.0%	2.6%	7.2%	2.5%	27.3%	37.0%	39.6%	60.4%

Table 20

Disability Transition Rates – Age 80-84 by Marital Status									
Initial Disability Status	Marital Status	Disability Status 5 Years Later							
		Non-disabled	Mild disability	HIPAA ADL only	HIPAA CI only	HIPAA ADL + CI	Any HIPAA	Any Disability	Dead
Nondisabled	Married	45.1%	10.4%	5.8%	2.3%	4.4%	12.5%	22.8%	32.0%
	All Statuses	43.7%	13.5%	6.2%	2.3%	4.7%	13.3%	26.8%	29.5%
	Non-Married	42.7%	15.9%	6.5%	2.4%	4.9%	13.8%	29.8%	27.6%
Mild disability	Married	3.5%	23.2%	9.2%	5.5%	10.5%	25.1%	48.3%	48.2%
	All Statuses	2.7%	27.7%	11.4%	4.9%	11.5%	27.8%	55.5%	41.8%
	Non-Married	2.4%	29.5%	12.2%	4.4%	12.0%	28.6%	58.1%	39.4%
HIPAA ADL only	Married	1.2%	3.9%	14.0%	0.5%	9.1%	23.6%	27.5%	71.3%
	All Statuses	1.1%	3.9%	16.8%	0.6%	9.9%	27.3%	31.2%	67.7%
	Non-Married	1.1%	4.1%	18.1%	0.6%	10.7%	29.4%	33.5%	65.5%
HIPAA CI only	Married	0.0%	6.4%	9.7%	12.9%	28.3%	50.8%	57.2%	42.8%
	All Statuses	0.8%	7.5%	7.7%	10.5%	28.1%	46.3%	53.8%	45.4%
	Non-Married	1.0%	8.1%	7.2%	9.3%	28.3%	44.9%	53.0%	45.9%
HIPAA ADL + CI	Married	0.0%	0.8%	0.0%	0.0%	24.0%	24.0%	24.8%	75.2%
	All Statuses	0.0%	0.2%	1.6%	0.8%	26.7%	29.2%	29.4%	70.6%
	Non-Married	0.0%	0.0%	2.0%	0.9%	28.2%	31.1%	31.1%	68.9%

Let me just make the comment here. Death is still higher at age 80 to 84, and disability is lower. If it is any disability, it is substantially lower. And even if it is HIPAA disability, it is clearly lower. When you do the breakout by sex for males, you find out that disability for marrieds five years later is significantly lower, and the mortality rates are also significantly lower (Table 21). So when you do the breakout there you get a very different picture.

Table 21

Disability Transition Rates – Age 70-74 by Marital Status, Males									
Initial Disability Status	Marital Status	Disability Status 5 Years Later							
		Non-disabled	Mild disability	HIPAA ADL only	HIPAA CI only	HIPAA ADL + CI	Any HIPAA	Any Disability	Dead
Nondisabled	Married	71.7%	6.2%	2.0%	1.1%	1.0%	4.1%	10.3%	17.9%
	All Statuses	70.4%	6.4%	2.3%	1.1%	1.1%	4.5%	10.9%	18.8%
	Non-Married	64.0%	7.1%	3.5%	1.2%	1.2%	6.0%	13.1%	22.9%
Mild disability	Married	15.7%	38.6%	8.8%	2.1%	4.5%	15.4%	54.0%	30.3%
	All Statuses	12.6%	36.5%	8.9%	3.8%	4.5%	17.2%	53.7%	33.7%
	Non-Married	4.7%	31.1%	9.2%	8.0%	4.6%	21.8%	52.9%	42.3%
HIPAA ADL only	Married	0.5%	12.8%	12.9%	2.7%	11.8%	27.5%	40.3%	59.2%
	All Statuses	0.4%	11.0%	13.1%	2.0%	14.1%	29.3%	40.3%	59.4%
	Non-Married	0.0%	6.0%	12.8%	0.0%	21.7%	34.5%	40.5%	59.5%
HIPAA CI only	Married	15.5%	16.9%	7.0%	1.6%	23.8%	32.5%	49.4%	35.1%
	All Statuses	12.6%	14.8%	6.4%	3.7%	22.6%	32.7%	47.5%	39.9%
	Non-Married	4.7%	9.3%	4.8%	9.6%	19.5%	33.9%	43.2%	52.0%
HIPAA ADL + CI	Married	3.0%	1.5%	2.8%	2.8%	22.0%	27.6%	29.1%	68.0%
	All Statuses	2.1%	2.0%	5.3%	2.9%	18.1%	26.3%	28.3%	69.6%
	Non-Married	0.0%	3.2%	11.4%	3.2%	9.4%	24.0%	27.2%	72.8%

The same thing happens at the older age. You have a reduction in the disability rate and a reduction in the mortality rate (Table 22).

Table 22

Disability Transition Rates – Age 80-84 by Marital Status, Males									
Initial Disability Status	Marital Status	Disability Status 5 Years Later							
		Non-disabled	Mild disability	HIPAA ADL only	HIPAA CI only	HIPAA ADL + CI	Any HIPAA	Any Disability	Dead
Nondisabled	Married	44.6%	8.6%	4.8%	2.0%	3.2%	10.1%	18.7%	36.7%
	All Statuses	42.1%	8.2%	5.4%	1.9%	3.6%	10.9%	19.1%	38.8%
	Non-Married	36.5%	7.7%	6.5%	1.8%	4.2%	12.5%	20.2%	43.3%
Mild disability	Married	4.1%	15.3%	9.4%	3.9%	9.3%	22.6%	37.9%	57.9%
	All Statuses	3.8%	16.1%	7.8%	3.0%	10.8%	21.6%	37.7%	58.5%
	Non-Married	3.2%	17.2%	5.5%	1.7%	13.0%	20.2%	37.4%	59.4%
HIPAA ADL only	Married	1.7%	3.5%	13.5%	0.0%	7.0%	20.5%	24.0%	74.2%
	All Statuses	1.1%	2.2%	10.3%	0.9%	8.3%	19.6%	21.8%	77.1%
	Non-Married	0.0%	0.0%	5.5%	2.7%	12.1%	20.3%	20.3%	79.7%
HIPAA CI only	Married	0.0%	4.9%	10.3%	15.0%	17.7%	43.0%	47.9%	52.1%
	All Statuses	1.2%	5.4%	10.0%	13.9%	12.5%	36.4%	41.8%	57.0%
	Non-Married	3.1%	6.7%	10.8%	10.8%	6.7%	28.2%	34.9%	62.0%
HIPAA ADL + CI	Married	0.0%	0.0%	0.0%	0.0%	13.5%	13.5%	13.5%	86.5%
	All Statuses	0.0%	0.0%	0.0%	0.0%	16.9%	16.9%	16.9%	83.1%
	Non-Married	0.0%	0.0%	0.0%	0.0%	21.3%	21.3%	21.3%	78.7%

And when you go to females, it gets a little less clear (Table 23). The same pattern with the disability occurs and the mortality is lower. At age 85, they are almost identical (Table 24). There does not appear to be a lot of difference in the mortality, and yet we had a disability reversal at the same time. It appears that marital status does not function identically between male and female, and that is quite consistent with the previous presentation.

Table 23

Disability Transition Rates – Age 70-74 by Marital Status, Females									
Initial Disability Status	Marital Status	Disability Status 5 Years Later							
		Non-disabled	Mild disability	HIPAA ADL only	HIPAA CI only	HIPAA ADL + CI	Any HIPAA	Any Disability	Dead
Nondisabled	Married	76.6%	9.5%	2.0%	0.6%	1.5%	4.1%	13.6%	9.7%
	All Statuses	75.0%	10.0%	2.5%	0.8%	1.8%	5.1%	15.0%	10.0%
	Non-Married	73.5%	10.5%	2.7%	0.9%	1.9%	5.5%	16.0%	10.5%
Mild disability	Married	13.1%	45.7%	14.2%	2.0%	1.9%	18.1%	63.8%	23.1%
	All Statuses	9.5%	45.6%	13.2%	2.8%	4.2%	20.2%	65.8%	24.7%
	Non-Married	7.2%	45.7%	12.3%	3.4%	5.7%	21.4%	67.1%	25.7%
HIPAA ADL only	Married	0.7%	16.1%	22.4%	0.7%	4.8%	27.9%	44.0%	55.3%
	All Statuses	0.6%	13.5%	27.9%	1.3%	6.2%	35.4%	48.9%	50.5%
	Non-Married	0.6%	11.0%	32.6%	1.8%	7.6%	42.0%	53.0%	46.4%
HIPAA CI only	Married	8.7%	13.9%	23.8%	0.0%	28.9%	52.7%	66.6%	24.7%
	All Statuses	8.7%	14.9%	11.4%	22.3%	16.6%	50.2%	65.1%	26.2%
	Non-Married	8.6%	15.3%	6.6%	30.8%	11.8%	49.3%	64.6%	26.8%
HIPAA ADL + CI	Married	0.0%	0.0%	7.9%	0.0%	23.6%	31.5%	31.5%	68.5%
	All Statuses	0.0%	1.6%	6.4%	1.5%	31.3%	39.2%	40.8%	59.2%
	Non-Married	0.0%	2.4%	5.8%	2.2%	34.1%	42.2%	44.6%	55.4%

Table 24

Disability Transition Rates – Age 80-84 by Marital Status, Females									
Initial Disability Status	Marital Status	Disability Status 5 Years Later							
		Non-disabled	Mild disability	HIPAA ADL only	HIPAA CI only	HIPAA ADL + CI	Any HIPAA	Any Disability	Dead
Nondisabled	Married	46.1%	13.7%	7.6%	2.8%	6.7%	17.1%	30.8%	23.1%
	All Statuses	44.7%	16.9%	6.8%	2.6%	5.4%	14.7%	31.6%	23.7%
	Non-Married	44.2%	18.0%	6.5%	2.6%	5.1%	14.2%	32.2%	23.6%
Mild disability	Married	2.7%	33.8%	8.9%	7.5%	12.2%	28.6%	62.4%	34.9%
	All Statuses	2.3%	32.0%	12.7%	5.5%	11.7%	30.0%	61.9%	35.7%
	Non-Married	2.3%	31.7%	13.4%	4.9%	11.8%	30.1%	61.8%	35.9%
HIPAA ADL only	Married	0.0%	4.7%	14.8%	1.6%	13.3%	29.6%	34.3%	65.7%
	All Statuses	1.0%	4.7%	19.7%	0.4%	10.6%	30.7%	35.4%	63.5%
	Non-Married	1.2%	4.8%	20.3%	0.2%	10.5%	31.0%	35.9%	62.9%
HIPAA CI only	Married	0.0%	8.6%	8.2%	8.9%	44.8%	61.8%	70.4%	29.6%
	All Statuses	0.5%	8.4%	6.7%	8.9%	34.5%	50.1%	58.5%	41.0%
	Non-Married	0.6%	8.4%	6.5%	9.0%	32.5%	48.1%	56.5%	42.8%
HIPAA ADL + CI	Married	0.0%	1.9%	0.0%	0.0%	38.4%	38.4%	40.3%	59.7%
	All Statuses	0.0%	0.3%	2.2%	1.1%	30.3%	33.6%	33.9%	66.1%
	Non-Married	0.0%	0.0%	2.3%	1.1%	29.6%	33.0%	33.0%	67.0%

Education is a particularly tricky variable. The design of our survey was such that we had a screener interview. And if we determined that someone was potentially part of the disabled pool, which would include any level of mild disability, then we asked him or her a much more extensive set of questions. And education happened to be on the second set of questions, which meant that for people who were truly non-disabled, I had no information on education.

The higher the education, generally, the better the health. And that is your a priori expectation. So we jump up from the non-disabled to mildly disabled (Table 25 and Table 26). We find out that people who have higher levels of education, indeed have lower risk for disability. The mortality turned out to be slightly worse. The one other place in which there are some fairly significant differences has to do with the cognitive-impairment transition, where the more highly educated people have a more favorable experience with respect to the onset of cognitive impairment.

Table 25

Disability Transition Rates – Age 70-74 by Education									
Initial Disability Status	Education	Disability Status 5 Years Later							
		Non-disabled	Mild disability	HIPAA ADL only	HIPAA CI only	HIPAA ADL + CI	Any HIPAA	Any Disability	Dead
Nondisabled	All Levels	73.0%	8.4%	2.4%	0.9%	1.5%	4.8%	13.2%	13.8%
Mild disability	HS Grad	12.4%	41.9%	12.3%	1.6%	2.4%	16.3%	58.2%	29.4%
	All Levels	10.6%	42.4%	11.7%	3.2%	4.3%	19.1%	61.6%	27.8%
	Non-Grad	9.1%	42.9%	11.1%	4.2%	5.7%	21.0%	63.9%	27.0%
HIPAA ADL only	HS Grad	0.9%	12.5%	26.2%	1.5%	6.6%	34.3%	46.8%	52.3%
	All Levels	0.5%	12.4%	21.3%	1.6%	10.0%	32.8%	45.3%	54.2%
	Non-Grad	0.3%	14.0%	18.7%	2.0%	10.2%	30.9%	44.9%	54.8%
HIPAA CI only	HS Grad	8.0%	2.6%	8.2%	2.3%	30.2%	40.7%	43.3%	48.7%
	All Levels	10.5%	14.8%	8.9%	13.1%	19.3%	41.3%	56.0%	33.5%
	Non-Grad	11.9%	19.7%	7.9%	14.9%	15.9%	38.8%	58.5%	29.6%
HIPAA ADL + CI	HS Grad	0.0%	1.6%	3.2%	0.0%	31.6%	34.8%	36.4%	63.6%
	All Levels	0.9%	1.8%	5.9%	2.1%	25.4%	33.4%	35.2%	63.8%
	Non-Grad	1.6%	2.3%	7.7%	2.2%	21.8%	31.6%	33.9%	64.5%

Table 26

Disability Transition Rates – Age 80-84 by Education									
Initial Disability Status	Education	Disability Status 5 Years Later							
		Non-disabled	Mild disability	HIPAA ADL only	HIPAA CI only	HIPAA ADL + CI	Any HIPAA	Any Disability	Dead
Nondisabled	All Levels	43.7%	13.5%	6.2%	2.3%	4.7%	13.3%	26.8%	29.5%
Mild disability	HS Grad	1.8%	29.2%	11.7%	3.6%	11.9%	27.1%	56.4%	41.8%
	All Levels	2.7%	27.7%	11.4%	4.9%	11.5%	27.8%	55.5%	41.8%
	Non-Grad	3.3%	26.9%	11.4%	5.4%	11.5%	28.3%	55.2%	41.5%
HIPAA ADL only	HS Grad	3.2%	1.9%	19.4%	0.5%	9.1%	28.9%	30.9%	66.0%
	All Levels	1.1%	3.9%	16.8%	0.6%	9.9%	27.3%	31.2%	67.7%
	Non-Grad	0.0%	6.0%	16.1%	0.8%	12.1%	29.1%	35.0%	65.0%
HIPAA CI only	HS Grad	1.8%	8.2%	4.0%	8.1%	22.7%	34.8%	43.0%	55.2%
	All Levels	0.8%	7.5%	7.7%	10.5%	28.1%	46.3%	53.8%	45.4%
	Non-Grad	0.5%	8.1%	8.5%	11.1%	28.9%	48.4%	56.6%	42.9%
HIPAA ADL + CI	HS Grad	0.0%	0.0%	1.8%	0.0%	21.7%	23.5%	23.5%	76.5%
	All Levels	0.0%	0.2%	1.6%	0.8%	26.7%	29.2%	29.4%	70.6%
	Non-Grad	0.0%	0.3%	1.8%	1.1%	28.3%	31.2%	31.5%	68.5%

**FROM THE FLOOR:** Cognitive tests, many times, are predicated when you are trying to adjudicate a claim. A 25, for example, is considered impaired for a college graduate, but it would be 23 for a non-high-school graduate, or something like that. Is that what's happening here?

**MR. STALLARD:** Let me answer it in two ways. One, there clearly is an education effect in any of the tests, and that is fairly well-established. Here, we're looking at the change, so we're looking at people. Their educational level is the same five years earlier as it is five years later, so that would not be an explanation for why the change rates are different. It's still important. It just wouldn't explain the differences here.

The other variable we looked at was self-reported health status. We asked, "Compared to people in your age group, would you rate your health as being excellent, good, fair, or poor?" And then I grouped the excellent, and the good, and the fair, and the poor together (Table 27 and Table 28). There was one other limitation, the health status was not assessed for people who are in nursing homes or any institution similar to that. And so, we only get the assessment for people who are at the various disability levels, but are also outside of an institutional setting. And that explains a few anomalies. Normally, you would expect the combination of all statuses to be mid-range between the best health status and the worst health status. And there are a few places where that is not the case. The comparison between the high and low level, I believe, is still a valid comparison. What you are expecting here is that people who have excellent or good health, have much lower disability rates. They have substantially lower mortality rates. They have much higher recovery rates, generally, at the youngest ages of recovery. By age 80 to 84, it has dropped significantly.



Table 27

Disability Transition Rates – Age 70-74 by Initial Self-Rated Health Status									
Initial Disability Status	Initial Health Status*	Disability Status 5 Years Later							
		Non-disabled	Mild disability	HIPAA ADL only	HIPAA CI only	HIPAA ADL + CI	Any HIPAA	Any Disability	Deac
Nondisabled	All Levels	73.0%	8.4%	2.4%	0.9%	1.5%	4.8%	13.2%	13.8%
Mild disability	Excellent/Good	15.9%	47.8%	8.3%	2.8%	5.1%	16.2%	64.0%	20.1%
	All Statuses	10.6%	42.4%	11.7%	3.2%	4.3%	19.1%	61.6%	27.8%
	Fair/Poor	7.6%	39.3%	13.7%	3.0%	3.6%	20.2%	59.5%	32.9%
HIPAA ADL only	Excellent/Good	3.2%	19.0%	20.0%	3.2%	4.8%	27.9%	47.0%	49.8%
	All Statuses	0.5%	12.4%	21.3%	1.6%	10.0%	32.8%	45.3%	54.2%
	Fair/Poor	0.3%	14.4%	19.8%	1.7%	10.8%	32.3%	46.7%	53.1%
HIPAA CI only	Excellent/Good	19.0%	12.9%	3.6%	8.1%	27.6%	39.3%	52.2%	28.8%
	All Statuses	10.5%	14.8%	8.9%	13.1%	19.3%	41.3%	56.0%	33.5%
	Fair/Poor	7.2%	15.6%	10.9%	10.5%	15.4%	36.8%	52.4%	40.4%
HIPAA ADL + CI	Excellent/Good	0.0%	12.1%	0.0%	5.7%	29.5%	35.2%	47.3%	52.7%
	All Statuses	0.9%	1.8%	5.9%	2.1%	25.4%	33.4%	35.2%	63.8%
	Fair/Poor	2.0%	1.9%	6.2%	1.9%	23.6%	31.7%	33.6%	64.4%
* Note: Initial health status was not assessed for nursing home residents; "All Statuses" includes nursing home residents.									

Table 28

Disability Transition Rates – Age 80-84 by Initial Self-Rated Health Status									
Initial Disability Status	Initial Health Status*	Disability Status 5 Years Later							
		Non-disabled	Mild disability	HIPAA ADL only	HIPAA CI only	HIPAA ADL + CI	Any HIPAA	Any Disability	Deac
Nondisabled	All Levels	43.7%	13.5%	6.2%	2.3%	4.7%	13.3%	26.8%	29.5%
Mild disability	Excellent/Good	3.9%	28.7%	11.2%	5.3%	12.8%	29.2%	57.9%	38.2%
	All Statuses	2.7%	27.7%	11.4%	4.9%	11.5%	27.8%	55.5%	41.8%
	Fair/Poor	1.2%	28.1%	11.8%	4.3%	9.6%	25.6%	53.7%	45.1%
HIPAA ADL only	Excellent/Good	3.3%	7.1%	17.6%	0.9%	6.7%	25.2%	32.4%	64.4%
	All Statuses	1.1%	3.9%	16.8%	0.6%	9.9%	27.3%	31.2%	67.7%
	Fair/Poor	0.3%	6.6%	20.0%	0.7%	14.5%	35.2%	41.8%	57.8%
HIPAA CI only	Excellent/Good	1.7%	5.6%	8.6%	13.9%	27.5%	50.0%	55.6%	42.6%
	All Statuses	0.8%	7.5%	7.7%	10.5%	28.1%	46.3%	53.8%	45.4%
	Fair/Poor	0.0%	11.6%	7.4%	7.4%	26.2%	41.0%	52.6%	47.4%
HIPAA ADL + CI	Excellent/Good	0.0%	0.0%	3.8%	0.0%	28.3%	32.1%	32.1%	67.9%
	All Statuses	0.0%	0.2%	1.6%	0.8%	26.7%	29.2%	29.4%	70.6%
	Fair/Poor	0.0%	0.7%	3.1%	2.3%	24.1%	29.6%	30.3%	69.7%
* Note: Initial health status was not assessed for nursing home residents; "All Statuses" includes nursing home residents.									

So what are the conclusions here? The temporal decline in disability we measured is approximately 1.3 percent per year. It is worthwhile thinking that rate of decline is almost twice the rate of decline in mortality. And that would suggest that the total number of disability days in the population is declining modestly, which is very good. It builds in a conservatism factor from an insurer's perspective, potentially.

Females live longer with more disability. I would think that the recommendation that people use gender-based calculations for their reserving and for their pricing—even if you are going to put out unisex prices—is good advice. For females, HIPAA disability—the way I calculated it, was about 1.8 times higher. I did another analysis last year, where I actually computed what people reported as the price that they paid for care, and females were almost 2.8 times higher in terms of dollars spent. So female costs are higher.

Unisex married persons have higher mortality but lower disability transitions. That is an anomaly, because it needs to be broken out by gender. Male marrieds have lower mortality and disability transitions. On the female, some higher, although I am not convinced that there is a clear statement that one can make about the female marrieds.

High-school graduates that are disabled have a mixed pattern of mortality and disability transitions. Mildly disabled high-school graduates are less likely to get cognitive impairment. And mildly disabled younger high-school graduates were more likely to recover.

On the self-reported health status, it is better to have self-reported good health. You're more likely to recover. You are less likely to die. And you are also less likely to get cognitive impairment. So stay in good health. That's my wish for you all.

**MR. BARACKMAN:** One of the things that was interesting to me was the fact that the category that is disabled but satisfy neither the ADL nor cognitive impairment trigger is pretty large, in relation to the other categories. That suggests to me that how companies adjudicate and manage claims will be relevant to the experience.

Another thing to keep in mind is that to some degree, all of the assessment processes rely on self-reporting. When a nurse goes into the home and performs an assessment, he or she is not watching the person do every single ADL. And the self-reporting dynamic in a survey could be different than for the purpose of receiving an insurance benefit, let's say. We have to be careful in how we interpret this data, but we have seen some very similar results.

**MR. BARRY EAGLE:** I have two questions. Mr. Timmerberg, Mr. Stallard's data was questioning the female marrieds showing higher mortality. But he did indicate that it showed lower disability. In your numbers, you ended up having married females as the lowest risk. Now, I think that everyone can agree that single females would have the highest risk for a number of obvious reasons. The married females data

seems to be counterintuitive to the married males, because females who are around longer take care of their husbands much better than vice versa. So while your data may be accurate, do have you any rationale as to why that happened?

**MR. TIMMERBERG:** When I looked at it, I was wondering if when both members of the couple buy the policy, is that more an estate-planning type of decision on their part? Are they conservative from a lifestyle perspective and a financial-planning perspective, so they both get a policy? When one buys a policy, are they selecting against the company? Do they have a discussion like, We know that you are unhealthy. You need to get a policy. "I'm going to be fine. Let's go get some coverage." This may have happened especially in the early '90s, when the underwriting standards were substantially different from what they are today. But I do not have any hard answers for that, at this point.

**MR. STALLARD:** Just one thing that is worthwhile remembering is the difference in definition. Mr. Timmerberg's definition of married is that both members of his spouse pair bought a policy so his singles could include married people. But to my understanding, they do include marital status at the time of policy issue. My definition of marriage is people who say that they are married. But it is at the beginning of the five-year follow-up period, so the definitions are not precise. In fact, they're really somewhat different. And those differences in definition may explain some of the differences in data.

**MR. EAGLE:** Mr. Herman, You mentioned that one of the differentiating factors could be the distribution channel and that the broker's experience tends to be, perhaps, a little bit worse than the captive. I am wondering whether or not you feel that the distribution alone is responsible, or is it what the distribution can exact from the companies. You mentioned underwriting being potentially similar. You know, whether it's in the negotiation for the plan design, the negotiation for the underwriting criteria, or getting underwriting exceptions; is it the distribution, or is it the company's willingness to acquiesce to them? And while the point may be valid, do you think that we should be putting a little more emphasis on not giving in, rather than looking at the difference in distribution?

**MR. HERMAN:** Well, my observation is that the worst experience has been in cases where brokers have access to multiple carriers and know the underwriting rules, and they give just a couple of policies a year to one company. I mean, those are the kinds of things that we have seen that really stand out. To the extent that brokers are demanding and get exceptions into their plan design, I would think some of that would show up. Career agents who sell long-term care for a living are going to be equally demanding. But I just think perhaps it's brokers who know specific things about underwriting rules and who spreadsheet the premium rates that are causing that.

**FROM THE FLOOR:** Mr. Stallard, on the anomaly that you were talking about, marrieds and singles, and when they were disabled versus death—is it possible that

that's an artifact about gender weighting? The marrieds are 50/50, and the singles have a higher female percentage, and that might drive the lower mortality rate?

**MR. STALLARD:** I assume that you are referring to unisex table where they had the "married," "unmarried."

**FROM THE FLOOR:** Yes.

**MR. STALLARD:** Well, you've got two things going on when you do unisex. You've got females having much lower rates of disability and mortality being combined with males at the higher rates. So you have got different percentages of males being married than females because of the age difference. So when you put them together in a unisex table, you get a very complex merging. And it's not until you separate them into the sex-specific tables and then compare the marital-status categories, that you actually see what the differences are, which is that marriage is protective for males significantly, both with respect to mortality and disability. And it is also somewhat protective for females, but not quite as much. That was the story I got out of that.

Chart 1

Figure 1 – LTC Status by Year, Age, and Disability Group

