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ENTERPRISE RISK MANAGEMENT STUDY NOTE

PRICING LONG TERM CARE

by

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Study Note for Society of Actuaries Examinations

Pricing Long Term Care

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Abstract

This study note discusses considerations in pricing long term care (LTC) products and related aspects. Because of the rapidly changing environment for LTC products, databases consistent with the products sold today are not available or may only be partly applicable. Therefore, sound actuarial judgment is needed in pricing LTC products. This study note focuses on those considerations and the risk control factors that should influence actuarial judgment in pricing LTC.

Introduction

This study note is divided into the following four sections:

- I. **Overview of Marketplace** – Provides a general market overview and discusses the types of products and rating structures in the marketplace today.
- II. **Considerations in Pricing** – Focuses on data sources available and numerous items involved in pricing, both morbidity and non-morbidity items.
- III. **Establishing Morbidity Assumptions** – Discusses insured and population data analysis and the development of “ultimate” morbidity levels.
- IV. **Summary** – Discusses potential pricing formulas, actual morbidity experience to date, and the future environment for these products including regulatory concerns.

I. Overview of Marketplace

Today, the LTC marketplace includes a substantial number of companies selling both individual and group products. According to a recent HIAA (Health Insurance Association of America) report, in 2000 and 2001, 137 companies sold over 1.4 million LTC policies, with the market growing an average of 18% per year from 1987 to 2001. Also, there is large untapped potential since most estimates are that the market is currently only 5-10% penetrated.

While the number of companies selling LTC has increased slowly over time, the majority of sales are concentrated among a relatively few number of companies. Also, the market has recently seen some contraction due to both pricing and concerns related to some combination of cost of capital, surplus strain and the regulatory environment. These various issues will be discussed as part of this study note.

The individual market includes products sold through an agent, whether a broker or captive agent. A small amount of business is sold through direct response channels. The group market generally includes products sold to employers, associations, or CCRCs (continuing care retirement communities). In many cases, group products utilize the same type of underwriting as individual products for retirees, whereas actively at work employees and their dependents may be either guarantee issue or subject to limited underwriting requirements. Many group plans are sold as “pseudo” individual plans in that there is not any employer contribution and the plan is fully portable for the individual. The U.S. Federal government sponsors this type of group LTC plan for government employees, spouses and family members.

The discussion below focuses on the types of policies and benefit features available today.

A. Policy Benefits

The available benefits in the group and individual markets are generally the same, and have continued to evolve over time. The types of benefits in current policies are:

1. Nursing Home – Some early (late 1980’s) nursing home policies covered a limited period of skilled nursing home care. Therefore, depending on policy design, it was important to distinguish between skilled, intermediate, and custodial care. Illustrative definitions of these types of care are as follows:
 - *Skilled Nursing Care* – Nursing and rehabilitative services which can only be performed by skilled medical personnel, such as registered nurses, licensed practical nurses and physical therapists. Such care must be performed under the orders of a physician, provided on a 24-hour basis, and require one or more professional nursing methods or procedures to be performed on a daily basis.
 - *Intermediate Nursing Care* – Those procedures that represent continuing treatment using skilled procedures and/or require such treatment to be performed by professional medical personnel. Such procedures would not qualify as skilled care, however, because not all the requirements for skilled care are satisfied.
 - *Custodial Care* – Care that is provided to assist an individual in carrying out daily living activities, including personal care services that do not necessarily require trained medical personnel.

Most policies today do not distinguish between skilled intermediate and custodial care. These policies will pay for care in a nursing home so long as the claimant meets the benefit eligibility trigger and the nursing home meets the acceptable definition of a nursing home as outlined in the policy contract. Some typical definitional requirements found in a policy contract require that; a nursing facility

is licensed by the appropriate state agency, provide care and services on a 24-hour a day basis, provide care under the direction of a physician or registered nurse, and maintain daily patient records.

2. Assisted Living Facilities – Most new policies now include a provision to cover people that enter assisted living facilities. Assisted living facilities include assistance by a qualified staff and may include nursing care and supervision. Some typical policy contractual provisions in the definition of an assisted living facility requires that the facility is licensed by the appropriate state agency (if any), have an awake, trained staff on duty at all times, and provides personal or custodial care necessary to assist residents with activities of daily living (ADLs) or cognitive impairment.
3. Home Health Care – The triggers for home health once again are consistent with those noted above for nursing home. Covered services can include only skilled services, such as rehabilitative and nursing services, informal services, such as home health aid or homemaker services (sometimes these are only covered if skilled services are covered), and chores or meals on wheels (infrequently covered). Most policies require care to be provided by a licensed agency or health care worker. However, some policies will cover care by an informal caregiver and some will even cover care from family members. The potential for adverse selection from this type of policy design is very high.
4. Adult Day Care – Many policies today cover adult day care centers that are often staffed by nurses and aides who provide a range of health care services.
5. Other Benefits – Policies may also cover other ancillary benefits such as durable medical equipment, home modifications, respite benefits that pay for short periods of formal care to relieve informal caregivers, caregiver training, hospice benefits, ambulance needs, and prescription drugs. These benefits are usually offered with contractual limits such that the additional costs are not a significant percentage of the total policy costs. Some of these benefits may be sold as riders to the base plan.

Benefits can be paid on a reimbursement, indemnity or cash basis. The most common plans offered today cover actual expenses up to the maximum daily (or weekly or monthly) benefit. Indemnity plans pay the maximum daily benefit while an insured is receiving qualified care under the contract. Indemnity benefits are more common for facility care than home health care. Cash benefit-type plans pay the maximum daily benefit if the claimant is benefit eligible, regardless if they are receiving care or not. Clearly, the potential for adverse selection is highest for the cash benefit plan and lowest for the reimbursement of actual expenses up to the daily benefit.

The marketplace today includes both stand-alone nursing home and home health policies, as well as combined benefit policies. Assisted living facility care and adult day care services are

normally incorporated as a part of these policies. On occasion, companies will sell both stand-alone nursing home and home health policies, with riders offered for the other type of benefit. In that case, home health benefits are usually structured similar to nursing home benefits.

B. Benefit Triggers

Benefit eligibility requirements were originally borrowed from Medicare requirements and were based on a prior hospital stay or medical necessity. As a result, early long term care insurance policies (that primarily covered nursing home care) required a three-day prior hospital stay for benefit eligibility. This trigger is no longer acceptable under the NAIC Model Regulation. A medical necessity benefit trigger is still used on non-tax-qualified policies sold today. This trigger is generally more lenient and subjective than the ADL triggers discussed below.

Many policies (particularly tax-qualified policies, discussed below) include a dual trigger that requires certain ADL or cognitive impairment provisions be satisfied. ADLs often include bathing, dressing, eating, transferring, toileting and continence. ADL triggers often require that an individual need assistance with at least two or three ADLs to be eligible for benefits. The cognitive impairment trigger generally requires that a person have Alzheimer's disease or some form of irreversible dementia as measured by clinical evidence and/or various tests that measure impairment.

A few plans have experimented with IADL (instrumental activity of daily living) triggers. IADLs include shopping, meal preparation, managing personal finances, using the telephone, light housework, and taking medications. Due to the potential adverse selection issues associated with this trigger, this trigger is not very popular in the market today.

C. Tax-Qualified and Non-Tax-Qualified Plans

The Health Insurance Portability and Accountability Act of 1996 (HIPAA) created the requirements for tax-qualified long term care insurance effective for all policies sold on or after January 1, 1997. Policies sold prior to January 1, 1997 were grandfathered into tax-qualified plans. Primary differences in tax-qualified and non-tax-qualified plans include the following aspects:

1. Required provisions for a plan to receive tax-qualified status – The key product difference between the two types of plans is that tax-qualified plans must limit benefits to only those who meet the definition of a “chronically ill individual”. In order to satisfy that definition, a licensed health care practitioner must certify an activity of daily living (ADL) functional impairment is expected to last at least 90 days or that the individual is cognitively impaired. The functional impairment must include substantial assistance with at least two ADLs. Furthermore, tax-qualified plans cannot contain a medical necessity type of benefit trigger because that does not satisfy the definition of a “chronically ill individual”.

2. The tax treatment of benefits and premiums for the individual – Benefits received on tax-qualified plans are not taxable income and premiums paid for tax-qualified plans are deductible to the extent that the premiums along with other medical expenses exceed 7.5% of adjusted gross income. Currently the IRS has not ruled on the taxability of benefits and premiums for non-tax-qualified plans.
3. How the insurance company is assessed taxes on profits – For tax-qualified plans, another important difference is that the insurance company is permitted to calculate active life reserves for tax purposes on a one-year, rather than two-year, preliminary term basis. This effectively lowers the insurance company tax burden during the early policy years on tax-qualified plans.

D. Other Plan Features

Other features commonly included in LTC policies are as follows:

1. Benefit Periods – For nursing home benefits, benefit periods can be anywhere from one year up to lifetime, or they may take the form of a maximum pool of money paid over the policy lifetime. The pool of money benefit amount can be expressed similar to a face amount of life insurance (such as \$200,000), but more commonly is expressed as the benefit period in days times the maximum daily benefit (such as four years * 365 * \$100 = \$146,000). In either case, the pool of money can be thought of as a checkbook account that can be drawn down over time, with the maximum withdrawal in any one day equal to the daily benefit. As a result, the actual calendar time over which benefits are paid can be greater than the benefit period purchased if less than the maximum daily benefit is paid out in any day. Longer benefit periods/maximum pools are becoming more and more frequent. Home health benefits and adult day care benefits are frequently coterminous with nursing home benefits (all benefits have an aggregate benefit and elimination period). Otherwise, home health care often has a shorter benefit period or smaller dollar maximum. Also, home health maximums are sometimes expressed in terms of number of visits rather than calendar days. This type of variation may result in cost savings, since the number of visits can be significantly less than one per calendar day, depending on types of services covered. However, using visits instead of days may extend the period for which coverage is available.
2. Elimination Periods – This period represents the time between the initial date of confinement or treatment for a covered service and the date at which benefits first become payable. For nursing home services, elimination periods can run from 0 to 365 days, but frequently are 0, 20, or 90 days. Home health services may or may not have a coterminous elimination period; home health elimination periods may be expressed in terms of number of visits, service days, or calendar days.
3. Daily Benefits – Most policies sold include a maximum daily benefit amount. Typical offerings may be from \$50 to \$300 depending on what is most

appropriate for a policyholder's geographic area. Some policies offer a monthly or weekly home health benefit maximum. For example, instead of \$100 per day, the plan will include a maximum of \$700 per week. This will allow a claimant to receive more than \$100 in a given day. Integrated nursing home and home health care coverage plans often will state the home health care maximum as a percentage of the nursing home daily maximum (such as 50%, 80% or 100%).

4. Issue Ages – Many companies will issue policies only through age 79 since they have found it difficult to properly underwrite the 80+ issue ages and as a result experience on older issue ages has not been good. Other companies will limit their benefit periods or issue amounts or both at ages 80+; still others will issue the same type of policy regardless of age. Almost all premiums are issue age rated and in fact most states have prohibited attained age rated policies. For individuals policies a typical age might be 62, although some companies have experienced a lower average issue age. For group business, a typical average age is around 45, but this can vary depending on the type of group being covered; obviously, retiree groups and dependents (parents) would have much higher average ages.
5. Inflation – Methods of increasing benefits are as follows:
 - i) Flat amount of increase each year.
 - ii) Percentage increase each year.
 - iii) Guaranteed purchase options.

Most companies offer an inflation rider priced on an issue age basis, where the benefits will increase by x% (often 5%) per year on a simple or compounded basis. Many inflation plans increase annually over the life of the policy, however, some only increase for 10 or 20 years.

An option offering a flat increase of \$x per year is not as common as the percentage increase rider. The guaranteed purchase option, where additional benefits can be purchased based on attained age without underwriting, are often available every year or every other year, although other eligibility time periods are occasionally used.

Methods of adjusting premiums to recognize inflation benefits are as follows:

- i) Premium adjustments are levelized over the life of the policy.
- ii) Attained age increases similar to the benefit increase levels.

The NAIC Model Regulation requires that a policyholder be offered a minimum level of inflation coverage as specified in the Regulation.

6. Exclusions – The NAIC Long Term Care Insurance Model Regulation permits the following exclusions in LTC policies.
- i) Preexisting conditions or diseases;
 - ii) Mental or nervous disorders; however, this shall not permit exclusions or limitation of benefits on the basis of Alzheimer’s Disease;
 - iii) Alcoholism and drug addiction;
 - iv) Illness, treatment or medical condition arising out of:
 - a) War or act of war (whether declared or undeclared);
 - b) Participation in a felony, riot or insurrection;
 - c) Service in the armed forces or units auxiliary thereto;
 - d) Suicide (sane or insane), attempted suicide or intentionally self-inflicted injury; or
 - e) Aviation (this exclusion applies only to non-fare-paying passengers).
 - v) Treatment provided in a government facility (unless otherwise required by law), services for which benefits are available under Medicare or other governmental program (except Medicaid), any state or federal workers’ compensation, employer’s liability or occupational disease law, or any motor vehicle no-fault law, services provided by a member of the covered person’s immediate family and services for which no charge is normally made in the absence of insurance;
 - vi) Expenses for services or items available or paid under another long-term care insurance or health insurance policy.
 - vii) In the case of a qualified long-term care insurance contract, expenses for services or items to the extent that the expenses are reimbursable under Title XVIII of the Social Security Act or would be so reimbursable but for the application of a deductible or coinsurance amount.

These exclusions or subsets of these exclusions are included in policies sold in the market today.

E. Premium Structures

Almost all long term care is sold as guaranteed renewable. This means the insured has the right to continue the long term care insurance inforce by the timely payment of premiums and when the insurer has no unilateral right to make any change in any provision of the policy or rider while the insurance is inforce, and cannot decline to renew, except that rate may be revised by the insurer on a class basis.

Although policies are guaranteed renewable, many include initial rate guarantee periods of three, five or even ten years.

Most LTC is sold on an issue age and unisex basis. Also, most plans have modal (annual, semi-annual, quarterly or monthly) premiums payable over the life of the policy. However, some companies offer limited pay options such as single pay, 10-pay, 20-pay, or pay to age 65.

Many companies are offering spousal discounts and/or preferred risk discounts. These discounts are typically 10% to 20% but can be as high as 25% to 50%. Some companies are also offering substandard rates, similar in concept to those found in major medical or life insurance products.

Association discounts of 5% to 10% are sometimes offered to groups who purchase together (such as employer groups or credit unions). These discounts are typically paid for by a reduction in agent commissions.

F. Riders

Long term care policies may offer a variety of riders besides the inflation riders discussed earlier. The NAIC Model Act requires that a non-forfeiture benefit be offered on all LTC policies. This benefit is usually offered in the form of a rider. The specific requirements for this non-forfeiture benefit are outlined in the NAIC Model Regulation.

Other riders that may be offered on LTC policies include: return of premium upon death, return of premium upon lapse, survivorship rider (allows for a paid-up policy for surviving spouse) restoration of benefits (restores benefits after recovery), shared care rider (allows one spouse to access the other's pool of money), waiver of premium, and others. These riders may also be sold by inclusion as part of the base plan.

G. Combination Products

This study note is focused on stand alone long term care policies. However, various "combination" products exist that offer long term care coverage. Some life insurance policies offer long term care riders that accelerate death benefits. Some of these life policies also offer an additional long term care rider that overlays the LTC accelerated death benefit rider. This additional rider will pay benefits after the death benefit has been completely accelerated and is similar to stand alone long term care coverage. Disability income and annuities are other products that can offer integration with long term care coverage.

II. Considerations in Pricing

This section is divided into a discussion of considerations involved in establishing assumptions for morbidity, investment earnings, expenses, lapses, profit levels and loss ratios. Further, the section on morbidity is broken into 17 sub-topics as noted below:

1. Data Sources
2. Integration of Coverages
3. Reinstatements
4. Transfers
5. Coordination with Other Coverage
6. Pre-Existing Condition Limitations
7. Level of Care / Charge Levels

8. Area
9. Policy Options and Benefit Triggers
10. Age / Gender
11. Marital Status
12. Morbidity Improvement
13. Underwriting
14. Marketing
15. Claim Administration
16. Reinsurance
17. Regulatory Considerations

The Actuarial Standard of Practice (ASP) #18 makes the following statements regarding premium rate recommendations.

“The actuary should not use assumptions that are unreasonably optimistic. If the premium rate schedule is described by the actuary as applicable for the lifetime of the insured, the actuary should use assumptions that are consistent with that description and that have a reasonable probability of being achieved. In particular, the actuary should not rely on optimistic assumptions when recommending premium rates. On the other hand, the actuary should not use assumptions that are unreasonably pessimistic. It may be appropriate, however, to include provision for adverse deviation in assumptions.”

These provisions need to be balanced with the NAIC LTC Model Regulation which requires actuarial certification that the initial premium rate schedule is sufficient to cover anticipated costs under “moderately adverse experience” and that the premium rate schedule is reasonably expected to be sustainable over the life of the policy with no future increases anticipated. These provisions are further discussed throughout this study note.

A. Morbidity

In this section, various considerations affecting morbidity are discussed. This discussion is intended to provide a framework for the detailed discussion in the following section on establishing ultimate morbidity levels.

1. Data Sources – LTC morbidity assumptions can be developed from population based data sources and insured data sources. Insured data should be used to the extent possible. This is because the availability of insurance will by itself increase the utilization of services, since people who buy such coverage tend to need it the most and are likely to utilize more services. Population based data sources are important to fill in the gaps where there is a lack of credible insured experience, to help examine potential new benefits, and to understand overall morbidity trends.

- i) *Population Based Data Sources* - A list of various population data sources for nursing home and home health is attached in Exhibit 1. The most commonly used population data sources for nursing home information are the National Nursing Home Surveys. The National Long Term Care Surveys and the National Home and Hospice Care Survey are popular choices for home health data. While some information exists on assisted living facilities, it is difficult to discern the needed actuarial pricing information from these sources. Therefore, it is necessary to estimate assisted living facility costs based on either insured data sources or estimates from facility and home care population data.

In analyzing population based data, close attention should be paid to the form of the data, meaning whether it is snapshot or exposure data. Snapshot data means that a study has been done as of a certain valuation date or over a short period of time; such data should be translated to an exposure basis if possible. Exposure data means that information has been constructed over a period of time, such as a calendar year or other fiscal period. For an exposure study, frequencies can be calculated by dividing number of claims by number of lives exposed for the period and continuance curves can be developed for people entering or leaving claim status during the period. However, for either type of study, adjustments must be made to reflect the following items:

- a. Maturity of the Population – If the population studied does not cover the entire potential period of a stay or confinement, continuance must be estimated by combining more than one source and/or using judgment.
- b. Data Bias – This study may have been conducted on a certain type of individual in a specific setting, or have other biases. For instance, experience for nursing homes and home health care is very different by geographic area.
- c. Transfers Between Facilities – Data should be analyzed to determine whether transfers to a different facility are included as discharges followed by new admissions or part of a continuous length of stay. Definitions of frequencies and length of stays should always be tied to a specific definition of what that frequency and length of stay includes and does not include.
- d. Reinstatements – Data should be analyzed to determine whether a discharge and subsequent reinstatement within a certain period of time is recognized as one stay or two. Once again, this factor can impact the overall frequencies and average length of stays used.

- e. Waiting Lists for Nursing Homes – The data should be analyzed in aggregate or for any geographic area in regard to the number of beds available in that area and whether beds are relatively empty, full most of the time, or long waiting lists exist.
- ii) *Insured Data* - To the extent that a company's own experience is available, credible, and appropriate for the plan being priced, it should be used. Further discussion of using this experience is discussed later.

The only publicly available insured data source is the Society of Actuaries LTC Experience Committee Intercompany Study. While this study contains valuable information, the actuary should be aware of issues and limitations of this data. Some of those limitations include:

- a. The study relies on consistent coding of information, which may be done inconsistently from company to company.
 - b. A majority of the data is from older issues, and therefore 91.5% of the claims (based on data through 1999) are nursing home claims. Therefore, the home health data is much less credible.
 - c. Because LTC is a relatively new product, the experience is primarily early duration experience only. This limitation will be true of any insured data.
 - d. While most business is underwritten, there is great variation from company to company on the level of underwriting used.
 - e. The underlying mix of business and underlying mix of companies contributing to the study has changed over time, which can distort trends in the data.
2. Integration of Coverages – Costs for stand-alone nursing home or home health policies are generally expected to exceed those for a policy with both types of benefits for two reasons:
- i) Individuals are often misplaced (receiving care in an inappropriate setting) in a nursing home if they have a stand-alone nursing home policy,
 - ii) Receive home health benefits if they have a stand-alone home health policy, or
 - iii) Stand alone policies are most frequently purchased in areas that have a high prevalence of usage for that type of care.

If both types of coverage are available, the individual can generally be expected to be placed in the appropriate level of care, and anti-selection based on prevalence of type of care in an area is reduced if not eliminated.

Use of a more appropriate setting for care can generally be expected to produce lower costs than if inappropriate care is provided. For example, if home health care is appropriate, nursing care will usually be more expensive since it is generally for more intensive services. However, if nursing care is appropriate, use of home health services may require services beyond the scope of what is normally included, meaning such extra services may result in a cumulative cost of home health care exceeding that of nursing home care.

3. Reinstatements – This item should be handled in pricing in the same manner as the company handles reinstatements administratively. In evaluating the impact of reinstatements, attention should be paid to the period of time between discharge and a subsequent readmission in writing the contract as well as in pricing. This period is usually called a separation period.
4. Transfers – Transfer between facilities should be reflected appropriately in frequencies and continuance curves. If transfers are not recognized as new frequencies, then continuance curves should not reflect them as discharges; the opposite scenario could also be used. Transfers may also be important with respect to claim costs by level of care, where such estimates are needed. This is noted below.
5. Coordination with Other Coverage – Most LTC policies today do not include coordination with other coverages. However, many include a provision for coordination with Medicare, and in fact, tax-qualified policies are required to coordinate with Medicare. The provision in HIPAA for tax-qualified reimbursement policies states that the policy must not reimburse expenses incurred for services or items to the extent that such expenses are reimbursable under Medicare or would be reimbursable but for the application of a deductible or coinsurance amount. In other words, a tax-qualified plan is not allowed to pay for a person's Medicare deductible and can only begin benefits at the point when Medicare benefits cease.
6. Pre-Existing Requirement – Some policies exclude coverage on pre-existing conditions for six months after issue. This requirement is more common in group policies. For individual policies, this item is not expected to produce dramatic savings due to the heavy level of underwriting normally done.
7. Level of Care/Charge Levels –Charges can vary greatly by area and level of services provided. Estimated average nationwide charges (trended to July 1, 2002) are: i) \$145 per day for nursing home care, ii) \$115 per day for assisted living facility care, and iii) \$90 per day for home health care. The home health

average charge will vary significantly depending on the mix of home care services provided (i.e., homemaker vs. therapies), the number of hours per day of required assistance, as well as the qualifications and affiliation of the providers. In addition, if an insurer offers multiple home care or assisted living facility reimbursement options (i.e. 50% vs. 100% of the nursing home benefit), the actuary should consider the fact that policyholders typically purchase benefits appropriate to their area. Thus, those who live in areas where home care is less costly (relative to facility care) may purchase a lower home care reimbursement level and vice versa.

Another potentially important aspect related to charge levels is the trend rate assumed on charges. This is true for expense reimbursement policies with benefits that inflate annually. While policyholders typically choose a daily benefit appropriate to their geographic area, there may sometimes be savings to the insurer if an insured receives services that are less expensive than the benefit limit. An adjustment can be made to the morbidity assumption to account for this savings, but for pool of money benefit designs, there is the potential that the savings will be paid out at the end of the benefit period.

8. Area – Utilization and charges vary significantly by area for nursing home and home health services. Nursing home utilization tends to be highest in the Midwest and lowest in states such as Hawaii, Arizona, Florida and Nevada. Charge levels tend to be higher in typically high cost areas such as parts of California and New York. For home health services, utilization is often the highest in low utilization areas for nursing home, such as Mississippi, Georgia, and Florida.

Further, limited experience indicates that utilization of nursing home services is distorted by the practice of individuals to return to their home states for terminal care. Commonly, residents in warm weather states like Arizona or Florida will return to a nursing home in their native state in the Midwest for such terminal care.

9. Policy Options and Benefit Triggers - Generally, the richer the plan design and policy options chosen, the greater the potential for adverse selection. This potential for adverse selection should be considered in setting morbidity assumptions. Also, the benefit trigger contained in a policy can have a material impact on the morbidity level. Further discussion of available policy options and benefit triggers was covered in Section I.
10. Age / Gender – Age is the most obvious variable upon which LTC claims will vary and age will be the variable with the highest explanatory value in any regression analysis of LTC claims. The slope of the attained age curve is a critical piece of LTC pricing and is discussed further in Section III.

In general, females claim at higher levels than males. Because LTC is usually priced on a unisex basis, it is important to understand morbidity levels by gender to be aware of potential subsidies.

11. Marital Status - As experience has emerged on long term care plans, substantial differences have been exhibited between married and single individuals. At younger ages, married morbidity may often be no more than 50% of single experience in the early durations. However, as married policies age, the experience tends to increase faster than the single experience due to a combination of death or divorce as well as increasing health problems. For married couples, one of the major considerations in reducing utilization is that one person is able to take care of the other unless or until their health also diminishes.
12. Morbidity Improvement – Several studies (cited in the references to this note – National Health Interview Survey, American Journal of Public Health, and the Center for Demographic studies at Duke University) indicate that the level of claim cost for the same age is likely decreasing with the passage of time. Studies have tended to show decreases ranging anywhere from 0.7% to 2.3% per year but views vary widely on the validity of these estimates and their applicability in the future. Some individuals believe that morbidity improvement is more likely to accelerate in the future, while others take a contrarian view. Substantial debate is occurring on this issue within the profession and should be expected to go on for some time. One consideration making this debate even more difficult is that claim experience for most companies on issues prior to approximately 1995 appears to show much poorer experience than do issues in approximately 1995 and later at the same policy duration and issue age. This result appears to be confirmed by recent studies conducted by the SOA Long Term Care Experience Committee Intercompany Study in analysis of long term care experience from 1987 through 1999. Clearly, part of this improvement in insured experience can be attributed to improvements in underwriting and claims administration over time, but the question of how much is a subject of significant debate. Some companies are currently assuming morbidity improvement within the ranges shown for periods ranging from five years to lifetime, while other companies assume no improvement and consider this part of an additional margin in pricing or an invalid assumption.
13. Underwriting – Underwriting levels can strongly influence early duration experience and some argue that it significantly impacts ultimate morbidity levels. This may be true because “lifestyle” underwriting will help determine the level of activity, social involvement, and living status, and these attributes may be somewhat permanent over a person’s lifetime.

Underwriting will vary from company to company in terms of the information collected (i.e. application questions, medical records, telephone interviews, face to

face interviews) as well as the conditions accepted. Underwriting adjustments are discussed further in Section IV.

14. Marketing – The market consists of both broker and career agents. To date, commissions in the brokerage market have generally averaged 60% to 70% in the first year, and 15% to 20% in renewal years. Commissions in the career market have generally been lower (partly due to the level of support and sales leads provided) ranging from 30% to 50% the first year and 10% to 15% in renewal years. For individual products the marketing distributions frequently include “specialists” (both brokers and career agents) who focus on LTC sales and have had specialized training to assist them in selling a complex consumer product. In terms of morbidity, there has been some evidence that claim experience has been better for these specialists than for occasional producers. This may be because the sales from the occasional producer are bought and not sold and the policyholder may be selecting against the company.

For group products, marketing has been performed by company representatives or their agents for typical group commissions (generally 5% to 10% of premium).

15. Claim Administration – On early nursing home policies (prior to 1985), claim administration was a major problem because companies had trouble administering facility type definitions or level of care definitions (often referred to as gatekeepers). In many cases, pricing was done to exclude custodial care in one manner or another, but often this was not accomplished. As a result, many carriers of policies prior to 1985 had significant losses from their nursing home policies. With the removal of many of the facility or level of care gatekeepers since 1985, claim administration simplified.

Today, claim administration may include various levels of care management, or care coordination. The focus of these programs is to get people the most appropriate care in the most appropriate setting. Usually included in this process is the development of a plan of care, and follow-up adjustments to the original plan of care. The plan of care is the result of an assessment of an individual’s functional capacity, and includes the frequency and type of services required. The degree and level of care management or care coordination can impact the overall morbidity levels of a LTC block of business.

Contractual provisions drive part of the claims impact from care coordination and claims administration. Stricter definitions under a policy may produce extra cost controls, but will also come at a higher administrative cost and the need to have someone capable of making geriatric or medical interpretations.

16. Reinsurance – Various types of reinsurance arrangements are available in the marketplace today. These range from coinsurance, modified coinsurance, yearly renewable term (YRT), and others. These arrangements should be considered in

pricing and morbidity assumption development to the extent contractual guarantees or reinsurance involvement is expected to impact the results of the direct writing company.

17. Regulatory Considerations – Regulatory considerations can impact many areas of LTC pricing, including morbidity assumptions. A new section of the NAIC Model Regulation (adopted in August of 2000) requires that an actuary must certify that rates are expected to be sustainable for the life of the policy under “moderately adverse experience”. At the time this note was written, 12 states had adopted this section of the model regulation, and many more are expected to adopt it. The actuary is directed to the American Academy of Actuaries’ LTC Practice Note for further information and interpretation of the provisions of the Model Regulation.

The actuary must also consider each state’s specific requirements as they relate to morbidity assumptions. For example, mental and nervous conditions (exclusions allowed by the NAIC model regulation) cannot be excluded in at least the States of Washington and Massachusetts. Data sources indicate that paying for such conditions may add significantly to claim costs under age 65, but for ages 65 and over, such additional costs decrease rapidly with increasing age. The reason for this result is that most people age 65 and over have multiple conditions, and as such, the existence of a mental and nervous exclusion will probably not prevent a claim.

B. Investment Earnings

Whereas this is not normally a significant item on most health products, it is very significant on LTC. Particularly for younger issue ages and plans with inflation options, the investment income assumption is critical to product profitability. For a policy issued under age 65, investment earnings will often exceed 25% of premium received over the life of a policy. Even for issue ages 65+ with long benefit periods, investment earnings can be expected to exceed 10% of the present value of earned premium over the policy lifetime. Clearly, these approximations of the total amount of investment income will vary by the level of reserves held and investment income rate assumed.

The duration of LTC liabilities is very long, and as a result it may be difficult to match liabilities and assets. The application of various investment approaches that employ interest rate swaps, derivative instruments, hedging strategies, and coordination with other product lines with shorter duration liabilities can be used to help manage the investment risk. It is important for the pricing actuary to closely communicate with the investment area in order to develop an appropriate pricing assumption for investment income.

Obviously, this assumption should not be treated lightly in pricing. This statement is particularly true given that investment earnings rates have decreased significantly in recent years.

C. Expenses (excluding profit)

Commissions were discussed under “Marketing” and non-commission expenses can often be expected to average 13% to 18% of premium over the policy lifetime. These expenses fall into several categories including:

1. Underwriting – This is typically a per policy expense that increases with issue age because the amount of underwriting information captured increases with age.
2. Claim Administration – The cost of processing and investigating claims. This includes the legal costs relating to such claims. This also includes any care management or care coordination expenses. This expense is often expressed as a percentage of incurred claims or paid claims.
3. Policy Administration – This includes computer system expenses and interactions with customers including rescissions and answering questions about contractual provisions. This expense is usually expressed as either a percentage of premium or as a per policy expense.
4. Compliance – The cost of developing and filing policies and complying with regulation.
5. Actuarial – The cost of developing new products, evaluating experience, and managing the inforce business.
6. Marketing – This includes the cost of selling policies that is not included as part of commissions or overrides. This category is intertwined with commissions in that the more agents are expected to do, the less the expense in this category and vice versa.
7. Premium Tax – The levy by each state relating to the sale of a policy in that state.
8. Overhead – The cost of all other items not included above. Typical items include rent, executive salaries, etc.

A major issue for companies entering LTC is the initial start up expenses as they set up systems, underwriting, and claim functions. How much of these start up expenses are assumed in pricing should be a careful consideration and be clearly discussed with management. Third Party Administrators (TPA’s) and reinsurers are sometimes used to perform these company functions and help in lowering initial start up costs.

D. Voluntary Lapses

Assumptions used for lapse rates can have a significant impact on the premium levels of a long term care policy. Generally, lapses and premiums have the following relationships:

1. A higher first year lapse rate will result in a higher premium due to the inability to recover acquisition costs and the non-availability of profits in later years.
2. Low lapse rates after the first year, particularly in later years, will result in higher premiums than would otherwise be true due to the steep age cost curve on long term care benefits. In other words, since costs can increase steeply on an attained age basis, lower lapses mean that more policies will remain inforce into the high cost years.

Lapse assumptions in the long term care market have dropped dramatically in recent years. This is because experience has indicated that lapses are much lower than originally anticipated. Missing this assumption alone has rendered some blocks of LTC policies unprofitable.

In examining actual experience relative to pricing, several complicating factors need to be taken into account such as:

1. Most companies do not track voluntary lapses and mortality separately. Therefore a mortality table assumption needs to be used to back out mortality from total termination rates. Some companies have attempted to determine actual mortality by linking policy data to Social Security data on mortality.
2. Changes in policy coverage or upgrades in coverage may be coded as a lapse.
3. Exhaustion of policy benefits may also be coded as a lapse.

Actual experience demonstrates that first year lapse rates with brokerage companies now tend to range from 7-12% per year. Renewal year lapse rates are generally 4-8% in year two, grading down to 2% or lower on an ultimate level. These typical lapse rate assumptions are much lower than those used by most actuaries in the past. This dramatic difference in lapse experience has caused significant problems for the LTC industry, in that lower ultimate lapse rates mean higher future claim costs and a need for higher premiums assuming no other changes in assumptions.

E. Mortality

The 1983 GAM is the mortality table specified in the NAIC Model Regulation relating to LTC active life reserves. However, many actuaries feel that this table is too high relative

to LTC mortality levels. The actuary should consider the total termination assumptions relative to lapse and mortality to develop an appropriate mortality assumption.

Consistent with increasing life expectancy and morbidity improvement assumptions, mortality has also been improving. If morbidity improvement is recognized in pricing, then mortality improvement should also be recognized. This item is not as controversial as morbidity improvement, partly because its impact is much less on premiums.

F. Surplus Strain / Reserves

Reserve requirements for LTC have a significant impact on pricing and profitability. This is due to the conservatism required combined with the long duration of time over which that conservatism can be released. Statutory contract reserve, claim reserve, and premium reserve requirements for LTC policies are outlined in the NAIC Health Insurance Reserves Model Regulation.

Experience in the LTC industry over the last ten years has shown substantial changes in three areas as noted earlier. These are:

1. Morbidity and Mortality Improvement – Experience in the last ten years has shown that incurred claims per exposure for policies issued prior to approximately 1995 have been much higher than for policies issued in approximately 1995 and later, and further that claim costs at the same attained age are improving with the passage of time. These two factors combined indicate a significant decrease in morbidity in recent years, with the potential for further decreases due to morbidity improvement. However, as noted earlier, these items remain controversial and divided opinion does exist.
2. Investment Earnings - Interest rates have dropped substantially in recent years causing investment earnings on these products to be much lower than anticipated.
3. Persistency / Lapses – Voluntary lapses have been much lower than originally anticipated, resulting in many more policies remaining in force at older ages where claim costs are higher.

A combination of these three factors in conjunction with current reserve requirements has resulted in serious consequences for some insurers. The current approach to reserve standards is that interest rates are locked in as well as morbidity assumptions, while actual persistency is recognized as it occurs. Therefore, the higher persistency has resulted in companies having to increase reserves while they have been unable to recognize potential improvements in morbidity. While lower interest rates have hurt, statutory standards generally stipulate a 4.5% interest rate (the current whole life valuation interest rate) and companies are still earning higher than this level. Therefore, companies have been required to recognize the adverse consequences of higher

persistence but not recognize any favorable experience in their statutory reserves, meaning that statutory profits on such business become more back loaded.

The combination of back loaded profits and an increasing spread between the typical rate of return sought on long term care business (12% to 15%) and interest rates (which are decreasing) has resulted in a substantial increase in the cost of capital of these products. In other words, many investors have become concerned because they must commit capital at the low interest earnings rates for long periods of time before they can recognize the margins being held as profit.

In addition to the statutory reserve requirements, significant surplus strain occurs on LTC products due to a combination of factors which include:

1. The cost of capital associated with risk based capital requirements.
2. A difference in the preliminary term period for non-tax-qualified plans (one year preliminary term versus two-year preliminary term tax reserves).
3. Significant tax implications created by the difference between tax and statutory reserves, and the DAC tax.
4. Policy issue expenses.

Reinsurance arrangements can take some of the morbidity and lapse risk associated with LTC, but can also assist in relieving some of the surplus strain as well. Currently, reinsurance penetration into the primary LTC market is estimated at only 10%, but this may increase in the future.

G. Profit

Due in part to the surplus strain issues discussed above, recognition of profits in a long term care policy (particularly on a statutory basis) may take years to emerge. In fact, break even years are commonly in the 7-10 year range.

In establishing profit objectives for long term care policies, companies use a variety of profit measures. Common measures include: i) pre-tax and/or post tax percentage of premium over the policy lifetime, ii) statutory internal rate of return, and iii) GAAP return on equity. Many variations on profit measures and profit levels exist across companies.

H. Loss Ratio Calculations and Requirements

Prior to the NAIC Model Regulation that was adopted in August of 2000, policies were required to meet minimum loss ratio standards. At the time this study note was written, approximately 12 states had adopted that section of the Model Regulation, and therefore,

the remaining states still have minimum loss ratio requirements for new product filings. For individual policies, minimum loss ratios are generally at 60% in most states. A few states are 65%. For group policies, current maximum loss ratio requirements are generally 75%. Because of the substantial amount of investment income on these policies, alternative loss ratio calculation approaches can produce dramatically different results. Some of the different types of loss ratio definitions in use for LTC business are:

1. Present Value of Paid Claims to Collected Premiums – This will produce the lowest loss ratio. Its use is not advisable since minimum loss ratio requirements would be difficult to meet and companies should be monitoring incurred loss ratios in any case.
2. Present Value of Incurred Claims to Earned Premium – This definition uses discounted incurred claims (based on discounted lengths of stay) divided by earned premiums. The resulting loss ratio will be higher than 1, but is lower than the subsequent definitions.
3. Present Value of Undiscounted Incurred Claims Divided by Earned Premiums – In this definition, interest on the claim reserve is included in the loss ratio (numerator). Since retrospective tests of the claim reserve are easiest using undiscounted claims, this method might make more sense than 2.
4. Present Value of Discounted Incurred Claims Plus Present Value of Change in Policy Reserve Divided by Present Value of Earned Premiums – This method recognizes investment income on the policy reserve, but not on the claim reserve. The loss ratio will generally be higher than 3, but less than 5.
5. Present Value of Undiscounted Incurred Claims Plus Present Value of Change in Policy Reserve Divided by the Present Value of Earned Premiums – This method recognizes investment income on both the claim reserve and policy reserve and produces the highest loss ratio of all.

In general, most states tend to use 2 as the definition (at the valuation interest rate), but this is not uniform. The definition should be spelled out specifically in the loss ratio memo supporting an actuarial filing. Further, several other variations can be applied to these formulas, including elimination of modal loadings from earned premiums and subtracting the change in the policy reserve from denominator instead of adding it to the numerator; the change in the policy reserve can also be replaced by the present value of the inforce policy reserve at the end of the rating period. In any case, the definition used should be consistent between initial rating and any re-rating. Also, some actuaries will use a lower interest rate in compiling loss ratios than is used in calculating investment earnings. This latter approach seems reasonable if 1 or 2 are used, but it does not seem appropriate when investment income is included as part of the loss ratio formulas; in that case, the discount rate should be identical or very similar to the investment earnings rate.

The new NAIC Model Regulation (adopted in August of 2000) eliminates the need to meet initial loss ratio filing requirements. Instead, the actuary must certify that rates are expected to be sustainable over the life of the policy under “moderately adverse experience”. However, if a rate increase is ever needed, a 58% loss ratio is required on the initial premium and an 85% loss ratio on the increased premium.

III. Development of Morbidity Assumptions

This section discusses the development of ultimate claim costs in an insured environment. In attempting to develop an ultimate morbidity level assumption, one may question whether there truly is an ultimate morbidity level. This issue is addressed in this section. References to ultimate claim costs herein represent the multiplication of corresponding frequencies, lengths of stay (from the continuance curve) and charge levels or indemnity amounts, adjusted to reflect any integration of coverage. As was mentioned earlier, insured experience should be used to the extent possible in developing ultimate claim costs. But this is no trivial task as is discussed below. The use of population based data sources to develop a claim costs basis or to fill in the gaps of insured data analysis is also covered in this section.

A. Insured Data Analysis

First, it is critical to understand the data being analyzed. This includes understanding details of the policy contract, underwriting, marketing, claims administration, policy administration, and how these things as well as outside environmental issues have changed over time. Clearly, for the actuary to develop a thorough understanding of how these elements influence morbidity experience, there will need to be strong communication lines with each of these areas of the company.

For example, if the company first began to implement cognitive underwriting screens four years ago, and the actuary was unaware that the company previously did not use cognitive screens, erroneous conclusions may be reached in terms of the level of claims and the claim continuance on a go forward basis. Similarly, incurral dating rules (that determine if a claim should be considered a new claim or continuation of a previous claim) used in policy and claim administration need to be consistently applied or they can distort continuance table development and the overall attained age claim cost curve.

A claims study is only as good as its component parts. In other words, the precursor to a good claims study is a good incidence and continuance experience study. The continuance study is of particular importance since a fair amount of incurred claims data will include open claims. Thus, if the claim reserves are misstated due to a poor continuance study, then recent claims (which are heavily dominated by the claim reserve) will also be impacted.

Continuance studies based on insured experience can be developed by examining all claims, open and closed. The open claims will contribute exposure to the study, only up to the most recent claim duration. An assumption can be made in regard to the

continuing exposure and length of stay of open claims to reflect any estimated bias in length of stay caused by exclusion of the remaining part of open claims. Clearly, the more developed the claim experience becomes, the more accurate the continuance table will be. The continuance table can be tested over time to see how well the claim reserves calculated from it will track paid claim amounts. Since insured claim experience will only be available for a certain period of time (for example, six claim years), population based termination rates can be substituted to determine estimates for additional claim durations.

As more insured continuance experience develops, it will become possible to develop separate continuance curves by primary claim diagnosis. This will allow companies to hold much different levels of claim reserves for someone with Alzheimer's than someone with cancer.

Actual claim costs can also be developed subsequent to the continuance analysis by matching the paid claim and ending claim reserves with the actual incidence rates. This is an important reconciliation step in any case, because we are concerned not only with the incidence of claim, but with the total dollars of claims paid out.

At some point in time, actual incurred claims should be compared to expected claim costs to develop experience adjusted claim levels. This actual to expected analysis should consider all key risk factors associated with claims. Many of these factors were discussed in Section II of this study note. It is important that these risk factors not be analyzed in isolation so that correlations can be recognized as experience adjustments are developed. The actuary should keep in mind that as finer cuts of the data are analyzed, credibility of the data can become an issue.

In examining durational morbidity experience, an assumption needs to be made as to the ultimate level to project morbidity after the experience period. For a given issue age, one can look at trends in the data analyzed, the claim experience from older issue ages, and from various population studies in order to develop this assumption. As mentioned in the introduction to this section, in performing this analysis, one may question the existence of an ultimate claim cost assumption, or whether separate issue age curves converge to different (ultimate) levels rather than one ultimate level. Claim experience to date for many companies already appears to indicate that two people the same age may have very different morbidity, even after initial underwriting wears off. For example, a person age 85, who is written at age 80, generally has poorer experience than a person age 85 written at age 75. One apparent reason is that the person who buys a policy at age 80 often buys it with a direct need in sight, whereas this is not as true for the person age 75. Thus, older issue ages tend to have higher morbidity than ultimate experience might suggest, whereas younger ages often have lower experience. Another potential theory is that there is a potential reduction in average claim length the further a policyholder is removed from underwriting.

B. Population Data Analysis

For nursing home benefits, frequencies will differ between skilled, intermediate and custodial care or ALF as applicable, but only a composite frequency may be needed for today's policies because benefits generally do not distinguish between such levels of care.

Frequencies for skilled care can be estimated by evaluating sources such as the National Nursing Home Surveys. As with insured data analysis it is important to first understand the data being analyzed, including collection methods and environmental influences on the data. For example, the environment for the 1985 NNHS was much different than that for the 1997 NNHS. This is because in the mid 1980's, Medicare hospital reimbursement changed from a per diem basis to a DRG (diagnosis related group) basis. This caused a shift of short, rehabilitative type care from hospitals to nursing homes because nursing homes were still reimbursed on a per diem basis. As a result, the incidence rates are much higher and lengths of stay much shorter for the 1997 NNHS vs. the 1985 NNHS. Environmental influences such as these are important to be aware of in analyzing population based data.

The problem with estimating frequencies for an insured policy from population data is how to account for potential loads that should be applied to reflect policy benefits being provided on an ultimate basis. Some general theories used in estimating loads are as follows:

1. For underwritten nursing home benefits, the general theory is that insured loads increase with the richness of benefits offered. For example, plans with higher daily benefits or longer benefit period tend to exhibit higher adverse selection.
2. For underwritten home health services, frequencies should recognize whether or not a service is performed, and if a service is performed, the type of service. Services may be broken into different categories, but typical breakdowns are as follows:
 - Rehabilitative Therapy Services
 - Visiting Nurse
 - Home Health Aid
 - Informal Home Health
 - Homemaker
 - Chores
 - Meals-on-Wheels

Frequencies for the more skilled home health type services, such as rehabilitative services and visiting nurse services, will have much lower frequencies than home health aid, informal services, and homemaker services. Further, chores and meals on wheels will have the highest frequencies. Because of these relationships and

the difficulty of controlling utilization in an insured environment for the more frequent services, insured loads will probably need to be very high if all home health services are to be covered on a wide open basis.

3. For guaranteed issue business, anti-selection will probably be very high (150% or more) if participation rates of a group are low (i.e., under 5%) or in an individual issue situation. However, as the participation rate increases, anti-selection should decrease. Obviously, for an employer-pay-all group with 100% participation and an actively-at-work requirement, little or no anti-selection would be expected.

Continuance curves for nursing home benefits are available on a population basis from the 1985 and 1997 National Nursing Home Surveys. References to the National Nursing Home Surveys is not intended to suggest other references should not be used.

For home health benefits, continuance curves can be expressed either in terms of calendar days or number of visits. Since the number of visits in a week are often less than seven, depending on the types of services covered, a continuance curve for calendar days and visits will look somewhat different.

In general, the adjustments made to population data as discussed in Section II should be reflected in developing continuance curves by type of services and/or level of care. Also, since LTC claims have a very "long tail" and presence of insurance creates induced demand and the incentive to linger on claim, careful consideration should be taken in developing the continuance assumptions from population data.

Any continuance curves should also reflect the definition of benefit eligibility as found in the contract. For instance, if an ADL (activity of daily living) definition is used instead of a medical necessity definition, initial frequencies would be a little lower but the average length of stay and continuance could be longer, depending on age.

C. Charge Level Variations

As discussed in Section II, charge levels vary dramatically by the type of service being provided and geographic area in which it is provided. Where claim costs for specific types of service are required under a reimbursement product, frequencies, continuance curves and charge levels should all be combined for the corresponding service to obtain the correct and appropriate cost. Specific charge levels for nursing home and home health benefits were noted in Section II.

D. Integration of Coverages

In examining insured data, it is important distinguish between stand-alone coverage and integrated coverage. When various types of coverages are combined, integration of these coverages may result in a reduction in costs due to the substitution of one form of care for another. Accordingly, in a nursing home/home health product with a coterminous benefit

period (i.e., such as four years), stand-alone costs (developed from either population data sources or insured data sources) for each of these benefits should be reduced to reflect two factors:

1. People misplaced in one type of service due to the availability of insurance coverage for only that form of care will be placed in the appropriate form of care. As such, the extra cost associated with the duplication should be subtracted.
2. Benefit Period/Elimination Period Integration: To the extent that benefit periods and elimination periods are integrated, costs should be adjusted. For benefit periods, a four-year nursing home and home health combined benefit will cost less than separate four-year benefit periods for each. Conversely, an integrated elimination period (e.g. 90 days) will cost more than two separate elimination periods of the same length.

E. Underwriting Adjustments

Underwriting is a critical part of LTC morbidity. Many believe that if done properly, it can have an impact on ultimate morbidity levels. This is because many factors that are taken into account in underwriting may last throughout a person's lifetime. For example, if a person has been a non-smoker their whole life until age 60, it is unlikely that they will take up smoking at a later age. Also, lifestyle factors such as living status are likely to change very slowly over time, and therefore have long term impacts on LTC morbidity.

The underwriting requirements (level of underwriting information gathered) is often a good predictor of how "tight" a company's underwriting standards are. And it's no surprise that "tight" underwriting companies generally exhibit much better early duration experience. The question remains to be answered as to whether "tight" underwriting will lead to better ultimate duration experience. Typical underwriting standards for a "tight" company include:

1. Face-to-face interview of all applicants age 65 and over, including cognitive screening. Under age 65, face-to-face interviews and paramedical exams will be required for anyone who has not seen a doctor recently.
2. Medical application divulging past health history, general lifestyle questions, whether the individual has been in a hospital or nursing home recently, has received home health services or been advised to receive such services. Also, a list of all current medications is anticipated.
3. Telephone verification of information on the application for those who do not receive a face-to-face interview.

4. Medical records or APS's are obtained for all cases. If a company forgoes medical records at younger ages, it first demonstrates that its application and telephone verification protocols are adequately obtaining information.
5. Comprehensive underwriting protocols. This includes specific criteria for build charts (height and weight) and all health conditions including co-morbidities.
6. The requirement that the applicant see a physician if a visit has not been recorded in the last two years for those over age 72.

Rejection rates in the long term care marketplace generally range anywhere from 5% to 45%, with an average around 15%. The companies in the top end of the range often are new companies to the marketplace who are being tested by the agents relative to the type of business they will accept. In addition, rejection rates can vary dramatically by issue age; therefore, the average issue age for a given company will also impact the average rejection rate.

IV. Summary

This study note has discussed various considerations that an actuary should review in pricing, with particular attention focused on claim costs. Once all assumptions are made in regard to pricing, an asset share or profit study model as described in other study notes can be used. Pricing for waiver of premium benefits should be performed consistent with methods used for other types of products, such as disability. Thus, actual pricing should pose no serious problems from an expected value concern. However, because LTC products are generally very low frequency, high severity products and much is unknown relative to the experience, a substantial amount of sensitivity testing (required in ASP #18) and, potentially, stochastic modeling should be considered.

Once actual experience begins to emerge, actual to expected comparisons should be run to determine where experience deviates from original expectations. If significant deviations are evident, the actuary must then determine whether re-rating action is necessary, whether in the form of reduced premiums or rate increases.

The pricing actuary has several published resources available that can help provide guidance. Some of these have been mentioned throughout this study note and include:

1. Actuarial Standard of Practice #18 on Long-Term Care Insurance
2. Academy of Actuaries LTC Practice Note
3. NAIC Model Act and Model Regulation
4. NAIC Guidance Manual for Rating Aspects of the Long-Term Care Insurance Model Regulation

5. Information from the SOA's Long Term Care Experience Committee Intercompany Study
6. Population Studies cited in Exhibit I of this note
7. Information from the SOA's Long Term Care Insurance Section Newsletter

Because the LTC marketplace is changing rapidly, new types of benefits and corresponding considerations need to be dealt with. Many of these considerations are regulatory, and the various state governments have been changing their regulations and interpretations very quickly. Further, these changes result in new challenges to the actuary, to manage the risks inherent in these products. The quickly changing long term care market therefore represents a major challenge to the insurance industry; if it is not met, the result may be intervention by federal or state governments in a dramatic way.

Exhibit I

Population Based Data Sources

National Nursing Home Survey, 1985. National Center for Health Statistics. Hyattsville, MD.

The National Nursing Home Survey (NNHS) is a continuing series of national sample surveys of nursing homes, their residents, and their staff. Data about the facilities include characteristics such as size, ownership, Medicare/Medicaid certification, occupancy rate, number of days of care provided, and expenses. For recipients, data are obtained on demographic characteristics, health status, and services received.

National Nursing Home Survey, 1997. National Center for Health Statistics. Hyattsville, MD.

National Long Term Care Survey. Duke University Center for Demographic Studies, Durham, NC.

The National Long Term Care Survey (NLTCS) is a longitudinal study of the health and well-being of elderly Americans. It was conducted in 1982, again in 1984 and then every five years thereafter. The NLTCS helps identify changes in the physical and mental health, insurance coverage, financial status and family support systems of Americans over 65. In particular, the NLTCS measures the point prevalence of chronic (90 days or more) disability, changes in improvement in chronic disability, changes in the incidence of chronic disability, and changes in institutionalization.

National Home and Hospice Care Survey. National Center for Health Statistics, Hyattsville, MD.

The National Home and Hospice Care Survey (NHHCS) is a continuing series of surveys of home and hospice care agencies in the United States. Information was collected about agencies that provide home and hospice care and about their current patients and discharges. Data are collected on referral and length of service, diagnoses, number of visits, patient charges, health status, reason for discharge, and types of services provided.

Medicare Current Beneficiary Survey. United States Department of Health and Human Services. Centers for Medicare & Medicaid Service, Baltimore, MD.

The Medicare Current Beneficiary Survey (MCBS) is a continuous, multipurpose survey of a nationally representative sample of aged, disabled, and institutionalized Medicare beneficiaries. MCBS is a comprehensive source of information on the health status, health care use and expenditures, health insurance coverage, and socioeconomic and demographic characteristics of the entire spectrum of Medicare beneficiaries.

Medical Expenditure Panel Survey. Agency for Healthcare Research and Quality, Rockville, MD.

MEPS collects data on the specific health services that Americans use, how frequently they use them, the cost of these services, and how they are paid for, as well as data on the cost, scope, and breadth of private health insurance held by and available to the U.S. population.

Guralnik JM, Fried LP, Simonsick EM, Kasper JD, Lafferty ME, eds. *The Women's Health and Aging Study: Health and Social Characteristics of Older Women with Disability*. Bethesda, MD: National Institute on Aging, 1995; NIH Pub. No. 95-4009.

This monograph presents comprehensive information on 1,002 women age 65 years and older who were moderately to severely disabled, but not severely cognitively impaired, at study entry. Information collected includes their physical disability; health status, including disease and physiologic measures; health care and service utilization; and their daily lives.

Massachusetts Male Aging Study. Watertown, MA: New England Research Institute.

The Massachusetts Male Aging Study (MMAS) is a community-based survey of health and aging in men. It consists of a random sample cohort and is considered a landmark research effort in the fields of aging, urology, and endocrinology. Originally started in 1987, the MMAS is into its third round of data collection (MMAS-III). All participants will be re-interviewed in order to obtain updated information on hormone levels, health status, and other behavioral information.

Baltes, Paul B. and Karl Ulrich Mayer. *The Berlin Aging Study: Aging from 70 to 100*. Cambridge, England: Cambridge University Press, 2001.

The Berlin Aging Study is one of the largest interdisciplinary efforts to explore old age and aging. The study's first cross-sectional findings on intellectual abilities, self and personality, social relationships, physical health, functional capacity, medical treatment, mental disorders such as depression and dementia, socioeconomic conditions, activities, everyday competence, subjective well-being, and gender differences are reported in depth in this book. The study was carried out in the context of the Berlin-Brandenburg Academy of Sciences study group on 'Aging and Social Development'.

Second Longitudinal Study of Aging. National Center for Health Statistics, Hyattsville, MD.

The LSOA II is a prospective study with a nationally representative sample comprised of 9,447 civilian non-institutionalized persons 70 years of age and over. Participants were questioned about their, housing, family structure, living arrangements, social activity, physical functioning, conditions and impairments, health opinions, cognitive functioning, health care utilization, health insurance, income and assets, and childhood health and family longevity

Second Supplement on Aging (SOA II). National Center for Health Statistics, Hyattsville, MD.

Provides information on the causes and correlates of changes in health and functioning in older Americans age 70 years and over, including background demographic characteristics, health behaviors and attitudes, preexisting illness, social and environmental support, utilization of health care and services for assisted community living; physiological consequences of disability; social consequences such as changes in social activities, living arrangements, social support, and use of community services.

Health and Retirement Study. Institute of Social Research, University of Michigan.

The University of Michigan Health and Retirement Study (HRS) surveys more than 22,000 Americans over the age of 50 every two years. Supported by the National Institute on Aging, the study paints an emerging portrait of an aging America's physical and mental health, insurance coverage, financial status, family support systems, labor market status, and retirement planning.

DeFries, Gordon H., and Jean E. Kincaid Norburn. National Survey of Self-Care and Aging: Baseline, 1990-1991 [Computer file]. ICPSR version. Chapel Hill, NC: University of North Carolina, Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributor], 1996.

The National Survey of Self-Care and Aging (NSSCA) was conducted during 1990 and 1991 to create a baseline database on the prevalence of self-care behaviors by non-institutionalized older adults. Personal interviews were conducted with 3,485 individuals 65 years of age and older. Questions were asked about the type and extent of self-care behaviors for activities of daily living, management of chronic conditions (through self-care activities, equipment use, and environmental modifications), medical self-care for acute conditions, and health promotion/disease preventions. Social support, health service utilizations, and socio-demographic/economic variables were also included.

Longitudinal Study of Aging. National Center for Health Statistics and the National Institute on Aging.

The LSOA is a prospective study with a nationally representative sample comprised of 7,527 civilian non-institutionalized persons 70 years of age and over. The study measures the change in the functional status and in the living arrangements of older people; provides mortality rates for demographic, social, economic, and health characteristics that are not available from the vital statistics system; and provides measures of health care use for individuals over time.

Kemper, P. "The Use of Formal and Informal Care by the Disabled Elderly." *Health Services Research*, 27(4), 421-451, 1992.

Using data from the Channeling experiment, this article analyzes the factors associated with the amount of formal and informal home care received by the disabled elderly.

Kemper, P., and Murtaugh, C.M. "Lifetime Use of Nursing Home Care." *New England Journal of Medicine* 324(9), 595-600, 1991.

We estimate the amount of time the average person spends in nursing homes over his or her lifetime (lifetime nursing home use), using data from the National Mortality Followback Survey of the next of kin of a sample of persons 25 years of age or older who died in 1986. On the basis of these data, we estimated the likelihood that Americans will use nursing home care during the course of their lifetimes and the total duration of such care.

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