

EDUCATION COMMITTEE  
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SOCIETY OF ACTUARIES

GROUP AND HEALTH SPECIALTY STUDY NOTE

**PRICING LONG TERM CARE**

by

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and  
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## 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 be only 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 insurance.

### Introduction

This study note is divided into the following four sections:

- I. *Overview of the 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 the Marketplace

With total earned premiums approximating \$6.7 billion annually, LTC is small relative to other insurance lines. New sales have decreased in recent years; after reaching more than \$1 billion in 2002, sales declined to about \$700 million in 2004.

The number of companies selling LTC insurance has also decreased in recent years. According to a 2004 report by America’s Health Insurance Plans (AHIP), 104 companies sold about 900,000 policies in 2002. This number was down from 125 in 2000 and 127 in 2001.

Overall market penetration, defined as the number of individuals with policies divided by the population aged 55 and over, is only about 5–10%. However, the penetration rate varies

significantly state to state, with the highest penetration rates above 20% and the lowest below 4%.

The market is relatively concentrated. The five largest carriers controlled more than 60% of the market in 2004. Lack of growth and market concentration are likely due to pricing increases and concerns about some combination of cost of capital, surplus strain, and the regulatory environment. These 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 percentage of sales take place through direct response channels. The group market generally includes products sold to employers, associations, or continuing care retirement communities (CCRCs). In many cases, group products utilize the same type of underwriting as individual products for retirees, spouses, and other relatives, whereas actively- at-work employees may be either guarantee issue or subject to limited underwriting requirements. Some plans also offer spouses of actively at-work employees limited underwriting. Many group plans are sold as pseudo-individual plans, which means that there is no employer contribution and the plan is fully portable for the individual. The U.S. federal government sponsors the largest of this type of group LTC plan for government employees, annuitants, spouses, and family members.

In recent years, a debate has developed over group versus multi-life approaches. The two approaches differ in the level of underwriting, commission structures, degree of plan customization, and enrollment responsibilities. The multi-life approach typically uses an individual product and therefore has stricter underwriting, higher commissions, more plan-customization options, and higher responsibility for the agent or broker to perform enrollment functions. In contrast, group has simplified or guaranteed-issue underwriting, lower commissions, fewer plan customization options, and potentially less responsibility for the agent or broker to perform enrollment functions. But recently, the lines between group and multi-life have been blurring. For example, some multi-life products that are sold as worksite plans now offer simplified or limited underwriting.

What is sometimes called “true group” coverage is more consistent with medical insurance. In this type of coverage, the employer pays a substantial amount of the premium and negotiates directly with an insurer for available products. This structure makes possible various cost-sharing and vesting options.

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

## A. Policy benefits

The benefits available in the group and individual markets are generally the same, and have continued to evolve over time. The types of care settings covered include nursing homes, assisted living facilities, home healthcare, adult day care, and other benefits as described below.

1. Nursing home. Some early nursing home policies, dating from the late 1980s, covered a limited period of skilled nursing home care. Depending on policy design, it was important to distinguish between skilled, intermediate, and custodial care:
  - *Skilled nursing care*. Nursing and rehabilitative services that require skilled medical personnel, such as registered nurses, licensed practical nurses, and physical therapists, under the orders of a physician. Such care must be provided on a 24-hour basis and requires one or more professional nursing methods or procedures daily.
  - *Intermediate nursing care*. Procedures that represent continuing treatment by means of skilled procedures and/or require the services of professional medical personnel. Such procedures would not qualify as skilled care, however, because they do not meet all the requirements for skilled care.
  - *Custodial care*. Care provided to assist an individual in carrying out daily living activities, including personal care services that do not necessarily require trained medical personnel.

Few, if any, policies sold today distinguish between skilled, intermediate and custodial care. Instead, policies 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 in a policy contract require that a nursing facility (a) be licensed by the appropriate state agency, (b) provide care and services on a 24-hour basis, (c) provide care under the direction of a physician or registered nurse, and (d) maintain daily patient records.

2. Assisted living facilities (ALF). Most new policies now include a provision to cover costs incurred by those who enter assisted living facilities. ALFs include assistance by a qualified staff, and may include nursing care and supervision. Some typical contractual provisions require that the ALF be licensed by the appropriate state agency (if any); have an awake, trained staff on duty at all times; and provide personal or custodial care necessary to assist residents with activities of daily living (ADLs) or cognitive impairment.
3. Home healthcare. The benefit triggers for home care are generally consistent with those for a nursing home. Covered services can include only skilled services, such as rehabilitative and nursing services; informal services, such as home healthcare aid or homemaker services, sometimes covered only if skilled services are covered; and chores or Meals on Wheels (infrequently covered). Most policies require that the caregiver be

from a licensed agency or be a licensed healthcare worker; however, some policies will cover care by an informal caregiver, and some will even cover care by 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, often staffed by nurses and aides who provide a range of healthcare 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, and ambulance or transportation needs. These benefits usually have contractual limits so that the additional cost does not amount to a significant percentage of the total policy cost. Some of these benefits may be in the form of riders to the base plan. In addition, many policies offer an “alternate plan of care” benefit. This benefit provides coverage for new and emerging care settings or some of the ancillary benefits mentioned above. Typically, coverage for the alternate plan of care is subject to the discretion of the carrier’s benefit department.

Insurers can pay benefits on a reimbursement, indemnity, or cash basis. The most common plans 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, regardless of actual expenses incurred. Indemnity benefits are more common for facility care than home healthcare. Cash-benefit plans pay the maximum daily benefit if claimants are eligible for benefits, regardless of whether they are receiving paid services 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 healthcare policies and comprehensive benefit policies. Most policies sold today are comprehensive benefit policies (sometimes called integrated- or 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 healthcare policies, with riders offered for the other type of benefit.

## **B. Benefit triggers**

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

Many policies (particularly tax-qualified policies) include a dual trigger that requires that certain activities-of-daily-living (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 other form of irreversible dementia as measured by clinical evidence and/or various tests that measure impairment.

A few plans have experimented with instrumental activity-of-daily-living (IADL) triggers. IADLs include shopping, meal preparation, managing personal finances, using the telephone, light housework, and taking medications. Due partly to the potential adverse selection issues associated with this trigger, it 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 Jan. 1, 1997, grandfathering policies sold prior to Jan. 1, 1997. The primary differences between tax-qualified and non-tax-qualified plans include the following three aspects:

1. Provisions required for a plan to receive tax-qualified status. The key 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." To satisfy that definition, a licensed healthcare practitioner must certify that an 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, together with other medical expenses, exceed 7.5% of adjusted gross income. The IRS has not yet ruled on the taxability of benefits and premiums for non-tax-qualified plans.
3. Insurance companies' taxes on profits. For tax-qualified plans, another important difference is that the insurance company may calculate active life reserves for tax purposes on a one-year, rather than two-year, preliminary term basis. This effectively lowers an insurance company's tax burden during the early policy years of tax-qualified plans.

### **D. Other plan features**

Other features commonly included in LTC policies concern benefit and elimination periods, daily benefits, issue ages, inflation benefits, and exclusions.

1. Benefit periods. Nursing home benefit periods range from one year to lifetime. Alternatively, they may take the form of a maximum pool of money paid over the lifetime of the policy. Some policies may express the pool-of-money benefit similarly to a face amount of life insurance (e.g., \$200,000); more commonly, though, a policy will express the benefit period or pool-of-money benefit in days times the maximum daily benefit (e.g., 4 years x 365 days x \$100 = \$146,000). In either case, the pool of money acts like a checkbook account that the insured can draw 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 the insured draws out less than the maximum daily benefit in any one day.

Home healthcare benefits and adult day-care benefits are frequently coterminous with nursing home benefits; i.e., all benefits have an aggregate benefit and elimination period. Otherwise, home healthcare often has a shorter benefit period or smaller dollar maximum. Home healthcare benefit maximums are sometimes expressed in terms of number of visits rather than calendar days. Using visits instead of days may extend the period for which coverage is available.

2. Elimination periods. The elimination period is the time between the initial date of confinement or treatment for a covered service and the benefit trigger is satisfied, 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 healthcare services may or may not have a coterminous elimination period; a policy may express home healthcare elimination periods in terms of number of visits, service days, or calendar days. Elimination periods defined in terms of visits or service days have been a source of confusion for some policyholders at time of claim.

Policy elimination periods are defined as once per lifetime or once per episode of care. Policies that define the elimination period as once per episode of care are stricter, requiring that, if claimants recover from a claim for a defined period of time, they will have to satisfy a new elimination period before qualifying for benefits again.

3. Daily benefits. Most policies include a maximum daily benefit, typically from \$50 to \$350, depending on what is most appropriate for a policyholder's geographic area. Some policies offer a monthly or weekly home healthcare benefit maximum. For example, instead of \$100 per day, the plan might include a maximum of \$700 per week, allowing a claimant to receive more than \$100 in a given day. Integrated nursing home and home care coverage plans will often state the home care maximum as a percentage of the nursing home daily maximum (e.g., 50%, 80%, or 100%).
4. Issue ages. Many companies issue policies only through age 79 because they have found it difficult to properly underwrite the 80+ issue ages and, as a result, their experience with older issue ages has not been good. Other companies limit their benefit periods or issue amounts, or both, at ages 80 and over; still others 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 ages over 65. For individual policies, the average issue age has trended below 60. For group business, a typical average age is around 45, but this can vary depending on the type of group; obviously, retiree groups and dependents (parents) would have much higher average ages.

5. Inflation. Most companies offer an inflation rider that allows an increase in the benefit amount, in terms of either a flat-amount increase or a percentage increase each year. A third alternative is a guaranteed-purchase option.

Inflation riders are usually priced according to issue age and provide for an increase in benefits by x% (often 5%) per year on a simple or compounded basis. Many inflation plans increase annually over the life of the policy, but some increase to only a specified attained age or for only 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, which allows the insured to purchase additional benefits based on attained age without underwriting, is often available every year or every other year, although other eligibility time periods are occasionally used.

Two methods of adjusting premiums to recognize inflation include: (a) by calculating a level premium over the life of the policy, and (b) through attained-age increases, similar to the benefit increase levels.

The NAIC Model Regulation requires that insurers offer policyholders 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.

- *Pre-existing conditions or diseases.*
- *Mental or nervous disorders, with the exception of exclusions or limitation of benefits on the basis of Alzheimer's disease.*
- *Alcoholism and drug addiction.*
- *Illness, treatment, or medical condition arising out of:*
  - *War or act of war (whether declared or undeclared);*
  - *Participation in a felony, riot, or insurrection;*
  - *Service in the armed forces or units auxiliary thereto;*
  - *Suicide (sane or insane), attempted suicide, or intentionally self-inflicted injury;*  
*or*
  - *Aviation (this exclusion applies only to non-fare-paying passengers).*
- *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 there normally is no charge in the absence of insurance.*

- *Expenses for services or items available or paid under another long-term care insurance or health insurance policy.*
- *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.*

Policies sold in the market today generally incorporate these exclusions or subsets of these exclusions, depending on state-specific mandated benefit requirements.

### **E. Premium structures**

Almost all long-term care is sold as guaranteed renewable. This means that the insured has the right to continue the long-term care insurance in force by the timely payment of premiums. The insurer has no unilateral right to change any provision of the policy or rider while the insurance is in force and cannot decline to renew the policy. However, the insurer can revise the premium rate on a class basis.

Although policies are guaranteed renewable, many include initial rate-guarantee periods of three, five, or even 10 years.

Most LTC is sold on an issue-age and unisex basis. Most plans have modal premiums (annual, semi-annual, quarterly, or monthly) 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, typically 10–20%—but they can be as high as 25–50%. A common trend is to offer a larger discount if both spouses are covered and a smaller discount if only one spouse is covered. Some companies are also offering substandard rates, similar in concept to those found in major medical or life insurance products.

Groups of individuals who purchase policies together, such as employer groups or credit unions, often qualify for association discounts of 5–10%. Often, a reduction in agent commissions pays for such discounts.

Some group policies are sold with a small “core” policy that is paid for by the employer and a voluntary “buy-up” that is paid for by the employee.

### **F. Riders**

Long-term care policies may offer a variety of riders besides inflation riders. The NAIC Model Act requires that insurers offer a nonforfeiture benefit on all LTC policies. This benefit usually occurs in the form of a rider. The NAIC Model Regulation outlines the specific requirements for this nonforfeiture benefit.

Other optional riders often offered 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 (allows one spouse access to the other's pool of money), cash benefit (home healthcare benefits are paid out as cash up to the daily benefit instead of expense reimbursement), waiver of premium, and others. The benefits under these riders may also be sold by inclusion in the base plan.

### **G. Combination products**

This study note focuses on stand-alone long-term care policies. However, there are various combination products 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, which is similar to stand-alone long-term care coverage, pays benefits after the insured has received the total accelerated death benefit.

Disability income and annuities are other products that can offer integration with long-term care coverage.

The Pension Protection Act of 2006 provides some clarification and enhancement of the tax treatment of life/LTC and annuity/LTC combination products. For example, charges taken out of account values are *nontaxable* distributions; from a tax perspective, such distributions reduce the basis used in the contract to determine if the LTC rider is tax qualified.

In addition, the 2006 Act provides that tax-qualified benefits received from life or annuity platforms are tax-free.

Another feature of the Pension Protection Act of 2006 is the use of a 1035 exchange out of a life or annuity contract to purchase a stand-alone LTC contract. (A 1035 exchange is a tax code provision that allows a transfer of funds from a life or annuity contract to another life or annuity contract without creating a taxable event). This may provide an important way for some individuals to finance the purchase of LTC coverage. The effective date of most of these changes is not until Jan, 1, 2010; however, the enactment of Pension Protection Act of 2006 may increase activity and interest in developing combination products with the future changes in mind.

## **II. Considerations in Pricing**

This section discusses considerations involved in establishing assumptions for morbidity, investment earnings, expenses, voluntary lapses, mortality, surplus strain and reserves, profit levels, and loss ratios.

The Actuarial Standard of Practice (ASOP) #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.”*

The actuary needs to balance these provisions 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 the remainder of this study note.

## **A. Morbidity**

This section examines 17 considerations affecting morbidity: data sources, integration of coverages, reinstatements, transfers, coordination with other coverage, pre-existing condition limitations, level of care/charge levels, area, policy options and benefit triggers, age and gender, marital status, morbidity improvement, underwriting, marketing, claim administration, reinsurance, and regulatory considerations. This discussion provides a framework for the detailed discussion of ultimate morbidity levels in Section III, “Development of Morbidity Assumptions.”

1. Data sources. LTC morbidity assumptions may be developed from population-based data sources and insured data sources. Actuaries should use insured data to the extent possible. The availability of insurance will by itself increase the use of services, because people who buy such coverage tend to need it the most and are likely to use more services and potentially linger on claim longer. However, since most LTC is underwritten, the utilization of services during the underwriting period will likely be lower than population data would suggest. 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.
  - (a) *Population-based data sources*. Exhibit I, attached below, contains a brief description of the key features of various population-based data sources. 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 healthcare data. Assisted living facility data are also available in the National Long-Term Care Survey. The amount of data for ALFs continues to increase, but the definition of what qualifies as an assisted living facility varies greatly from survey to survey and state to state. Therefore, when examining population-based data sources, one should take care to ensure consistency with the definition contained in LTC policy contracts.

When analyzing population-based data, it is important to pay close attention to the form of the data, i.e., whether it is snapshot or longitudinal data (such as an exposure study). Snapshot data means data pertaining to a particular valuation date or a short period of time; if possible, one should translate such data to an exposure basis. Longitudinal data means data gathered over a longer period. For an exposure study, one can calculate frequencies by dividing the number of claims by the number of lives exposed for the period and develop continuance curves for people entering or leaving claim status during the period. For either a snapshot or longitudinal study, adjustments are necessary to reflect the following factors:

- Maturity of the population. If the population studied does not cover the entire potential period of a stay or confinement, it is necessary to estimate continuance by combining more than one source and/or using judgment.
- Data bias. A study may have focused on a specific type of individual in a specific setting, or have other biases. For instance, experience for nursing homes and home healthcare can vary substantially across different geographic areas.
- Transfers between facilities. Data analysis should aim 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.
- Reinstatements. Data analysis should aim to determine whether a discharge and subsequent reinstatement within a certain period of time are recognized as one stay or two. Once again, this factor can affect the overall frequencies and average length of stays used.
- Changes in the provider environment that affect the type of care an individual receives. For example, recent years have seen a well-documented shift away from skilled nursing facilities toward home healthcare and assisted living care.
- Government program influences. To the extent government programs influence utilization and cost patterns, this needs to be recognized in any data analysis.

(b) *Insured data.* A company should use its own experience, to the extent that such data is available, credible, and appropriate for the plan being priced. (See the detailed discussion of this in Section III.)

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

- The study relies on consistent coding of information, but different companies may code their data differently.
- A majority of the data come from older issues, and therefore 80% of the claims (based on data through 2001) are nursing home claims. Therefore, the home healthcare data is much less credible.
- Because LTC is a relatively new product, the experience is primarily early duration experience only. This limitation will likely be true of any current insured data.
- Although most business is underwritten (69% of exposure is from individual products), the level of underwriting varies greatly from company to company.
- The underlying mix of business and companies contributing to the study has changed over time, and that, too, can distort trends in the data.
- Technology and the environment for long-term care services are continually changing, and the underlying experience with morbidity and mortality is also likely to change. Actuaries should consider the potential for such changes when estimating or projecting cost levels.

2. Integration of coverages. Costs for stand-alone nursing home or home healthcare policies often have higher nursing home or home healthcare claims than the corresponding claims for a comprehensive policy with both types of benefits. The reasons for this are clear. People who have a stand-alone nursing home policy often receive care in a nursing home when another setting would be more appropriate. Similarly, people who have a stand-alone home healthcare policy may receive home healthcare benefits when they would be better cared for in a facility. Stand-alone policies are most frequently purchased in areas where there is a high prevalence of usage for that type of care.

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

Using the appropriate setting for care generally results in lower costs than using an inappropriate setting or level of care. For example, if home healthcare is appropriate, nursing care will usually be more expensive because of its more intensive services. However, if nursing care is appropriate, using home healthcare services may require

services beyond the scope of what is normally included, and the cumulative cost will exceed that of nursing home care.

3. Reinstatements and restoration of benefits. A company should handle reinstatements in pricing the same way it handles them administratively. When evaluating the effect of reinstatements, one should pay attention to the period of time between discharge and a subsequent readmission (usually called a separation period) in writing the contract as well as in pricing. Restoration of benefit provisions may necessitate special tracking for administration of maximum benefit provisions as well as experience monitoring.
4. Transfers. Frequencies and continuance curves should reflect transfers between sites of care appropriately. If transfers are not recognized as new frequencies, then continuance curves should not reflect them as discharges; the opposite scenario is also possible. Transfers may also be important with respect to claim costs by level of care, where transfer frequency estimates are needed. (See 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; 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 cannot pay for a person's Medicare deductible and can begin paying benefits only 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 will probably not produce dramatic savings because of the heavy level of underwriting normally involved.
7. Level of care/charge levels. Charges can vary greatly by area and level of services provided. According to the 2006 MetLife Mature Market Institute surveys, estimated average nationwide charges are \$183 per day for a semi-private room in a nursing home, \$2,968 per month for a private room and private bath in an ALF, and \$19 per hour for a home healthcare aide. The average home-care 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, and the qualifications and affiliation of the providers. In addition, if an insurer offers multiple options for reimbursement of home care or assisted living (e.g., 50% versus 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. Although policyholders typically choose a daily benefit appropriate to their geographic area, the insurer may sometimes realize savings if an insured receives services that are less expensive than the daily benefit limit. The actuary can account for this savings by adjusting the morbidity assumption, however, 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 for nursing homes and home healthcare services vary significantly by region. 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 healthcare services, utilization is often the highest in low-utilization areas for nursing homes, such as Mississippi, Georgia, and Florida.

Limited experience indicates that the number of people who return to their native states for terminal care distorts the data on utilization of nursing home services. For example, Midwestern “transplants” who have lived for years in warm-weather states such as Arizona or Florida commonly return to their native states for 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. Actuaries should consider this potential for adverse selection when setting morbidity assumptions. Also, the benefit trigger contained in a policy can have a material effect on the morbidity level. (Refer back to Section I for further discussion of available policy options and benefit triggers.)
10. Age/gender. Age is perhaps 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. (See 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. Experience with long-term care plans shows differences between married and single individuals. At younger ages, married morbidity may often be no more than 50% of single experience in the early policy durations. However, as married policies age, the experience tends to increase faster than the single experience because of a combination of death or divorce and increasing health problems. For married couples, one of the major considerations in reducing utilization is that one spouse is able to take care of the other unless, or until, the caretaking spouse’s health also diminishes.

12. Morbidity improvement. Several studies, including those of the National Health Interview Survey, the *American Journal of Public Health*, and the Center for Demographic Studies at Duke University, indicate that the level of disability or ADL-dependency for the same age is likely decreasing with the passage of time. (See the references at the end of this note.) Studies, based upon population data rather than insured data, tend to show decreases ranging anywhere from 0.7% to 2.3% per year; however, views vary widely on the validity of these estimates and their applicability in the future. Some believe that morbidity improvement is more likely to accelerate in the future, whereas others take a contrarian view. The debate on this issue is at two levels: 1) will population-based morbidity improvement continue in the future, and if so, at what level? and 2) are results from population data applicable to insured data? This debate within the profession will probably continue for some time.

Fueling this debate is evidence that claim experience for most companies on issues prior to approximately 1995 show much poorer experience than issues from approximately 1995 on at the same policy duration and issue age. Recent data appears to confirm this result, according to studies conducted by the Society of Actuaries' (SOA) Long-Term Care Experience Committee Intercompany Study, analyzing long-term care experience from 1987–1999. Clearly, part of this improvement is due 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, whereas other companies assume no improvement and consider this either part of an additional margin in pricing or an invalid assumption. Eric Stallard of Duke University reported at the 2004 Intercompany LTC Insurance Conference that the annual rate of decline in the age-standardized HIPAA ADL disability rate over the period 1984-1999 was 1.64% per year. It is worth noting that morbidity improvement includes both changes in incidence and length of stay over time; changes in length of stay should reflect (disabled life) mortality improvement as well as changes over time in recovery rates.

13. Underwriting. Underwriting levels can strongly influence early duration experience; some argue that it significantly affects 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 relatively constant over a person’s lifetime.

Underwriting varies from company to company in terms of the information collected through application questions, medical records, telephone interviews, and face-to-face interviews, as well as the conditions accepted. (See Section III for more about underwriting adjustments.)

14. Marketing. For individual products, the marketing distributions frequently include specialists (both brokers and career agents) who focus on LTC sales and have had specialized training in how to sell a complex consumer product. In terms of morbidity, evidence suggests that claim experience has been better for specialists who focus on LTC

sales than for occasional producers, perhaps because the sales from the occasional producer are bought and not sold, and the policyholder may be selecting against the company.

15. Claim administration. On nursing home policies prior to 1985, claim administration was a major problem because companies had difficulty administering facility-type definitions or level-of-care definitions (often referred to as gatekeepers). In many cases, pricing excluded custodial care in one manner or another. As a result, many carriers of policies prior to 1985 had significant losses from their nursing home policies. Removing many of the facility or level-of-care gatekeepers since 1985 has simplified claim administration.

Today, claim administration may include various levels of care management or care coordination. The focus of these programs is to give people the most appropriate care in the most appropriate setting. The process usually includes developing a plan of care and follow-up adjustments to the plan. The plan of care, based on an assessment of the individual's functional and cognitive capacity, specifies the frequency and type of services required. The degree and level of care management or care coordination can affect the overall morbidity levels of a LTC block of business.

Contractual provisions drive part of the claims effect from care coordination and claims administration. Stricter definitions within a policy may produce extra cost controls, but they may also generate a higher administrative cost and the need to have someone capable of making geriatric or medical interpretations or rehabilitation assessments.

16. Reinsurance. Various types of reinsurance arrangements are available in the marketplace today. These include coinsurance, modified coinsurance, yearly renewable term (YRT), and others. Actuaries should consider such arrangements in pricing and developing morbidity assumptions to the extent that contractual guarantees or reinsurance involvement will affect the results of the direct writing company.
17. Regulatory considerations. Regulatory considerations can affect many areas of LTC pricing, including morbidity assumptions. The NAIC Model Regulation requires an actuarial certification of the following with respect to a new business filing:
  - (a) *A statement 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 form with no future premium increases anticipated;*
  - (b) *A statement that the policy design and coverage provided have been reviewed and taken into consideration;*
  - (c) *A statement that the underwriting and claims adjudication processes have been reviewed and taken into consideration;*

- (d) *A complete description of the basis for contract reserves that are anticipated to be held under the form, to include:*
- (i) *Sufficient detail or sample calculations provided so as to have a complete depiction of the reserve amounts to be held;*
  - (ii) *A statement that the assumptions used for reserves contain reasonable margins for adverse experience;*
  - (iii) *A statement that the net valuation premium for renewal years does not increase (except for attained-age rating where permitted); and*
  - (iv) *A statement that the difference between the gross premium and the net valuation premium for renewal years is sufficient to cover expected renewal expenses; or if such a statement cannot be made, a complete description of the situations where this does not occur;*
    - (I) *An aggregate distribution of anticipated issues may be used as long as the underlying gross premiums maintain a reasonably consistent relationship;*
    - (II) *If the gross premiums for certain age groups appear to be inconsistent with this requirement, the commissioner may request a demonstration under Subsection C based on a standard age distribution; and*
- (e) (i) *A statement that the premium rate schedule is not less than the premium rate schedule for existing similar policy forms also available from the insurer except for reasonable differences attributable to benefits; or*
- (ii) *A comparison of the premium schedules for similar policy forms that are currently available from the insurer with an explanation of the differences.*
- C. (1) *The commissioner may request an actuarial demonstration that benefits are reasonable in relation to premiums. The actuarial demonstration shall include either premium and claim experience on similar policy forms, adjusted for any premium or benefit differences, relevant and credible data from other studies, or both.*
- (2) *In the event the commissioner asks for additional information under this provision, the period in Subsection B does not include the period during which the insurer is preparing the requested information.*

The above section of the Model Regulation was adopted in August of 2000, and at the time of this writing, more than half of the states have adopted it in whole or in part. For further information and interpretation of the provisions of the Model Regulation, please refer to the American Academy of Actuaries' *Long-Term Care Insurance Compliance with the NAIC LTC Model Regulation Relating to Rate Stability*.

## **B. Investment earnings**

Investment earnings are not a significant item in pricing most health products, but they are very significant to LTC. Particularly for younger issue ages and plans with inflation options, the investment income assumption is critical to product profitability. For a policy issued below the age of 65, investment earnings will often exceed 25% of premium received over the life of a policy (on a present-value basis, discounted at the investment income rate). Even for issue ages 65 and over with long benefit periods, investment earnings will likely exceed 10% of the present value of earned premium over the policy lifetime. Clearly, these approximations of the total 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. To help manage the investment risk, actuaries can apply various investment approaches that employ interest rate swaps, derivative instruments, hedging strategies, and coordination with other product lines with shorter duration liabilities. It is important for the pricing actuary to communicate closely with the investment area when developing an appropriate pricing assumption for investment income.

Some companies use a more sophisticated investment strategy, as well as hedge instruments, to lock in current investment rates. This approach can be useful in eliminating variability in product financial results caused by changes in interest rates over time.

## **C. Expenses (excluding profit)**

Non-commission expenses often average 13–18% of premium over the policy lifetime. These expenses fall into several categories:

- Underwriting. This is typically a per-policy expense that increases with issue age, because the amount of underwriting information captured typically increases with age.
- Claim Administration. This is the cost of processing and investigating claims, including the legal costs relating to claims, as well as any care-management or care-coordination expenses. Claim-administration expense is often expressed as a percentage of incurred claims or paid claims.
- Policy Administration. This includes computer system expenses and interactions with customers, including premium billing and processing, rescissions and answering questions about contractual provisions. Policy administration expense is usually expressed either as a percentage of premium or as a per-policy expense.
- Compliance. This is the cost of developing and filing policies, as well as complying with regulation.
- Actuarial. This is the cost of developing new products, evaluating experience, and managing the in-force business.

- Marketing. This includes policy-selling costs not included in commissions or overrides. Marketing is intertwined with commissions; the more agents are expected to do, the less the marketing expense—and vice versa.
- Premium Tax. This is the levy by each state relating to the sale of a policy in that state.
- Overhead. This includes the costs of all other items not included above, typically rent, executive salaries, and other costs.

A major issue for companies entering LTC is the initial start-up cost of distribution development, systems, underwriting, and claim functions. Actuaries should carefully consider how much of these start-up expenses to assume in pricing and discuss the question clearly with management. Third-party administrators (TPAs) and reinsurers sometimes perform these company functions and can help lower initial start-up costs.

Commission expense varies between brokers and career agents. To date, commissions in the brokerage market have generally averaged 60–80% or more in the first year and 15–20% in renewal years. Commissions in the career market have generally been lower, ranging from 30–50% in the first year and 10–15% in renewal years. One reason for the discrepancy is the different levels of support and sales leads provided. Some companies have structures that are more level by policy duration, and others have structures that are more “heaped” in the first year than even the 60–70% mentioned above.

Company representatives or their agents generally market group products, earning typical group commissions (generally 5–15% of premium). Worksite products sold as individual multi-life plans typically have commissions similar to individual plans. Those commissions, however, can vary greatly depending on the level of agent involvement in the sales and enrollment process.

#### **D. Voluntary lapses**

Assumptions used for lapse rates can have a significant effect on the premium levels of a long-term care policy. Generally, a higher first-year lapse rate will result in a higher premium because of the inability to recover acquisition costs and the nonavailability of profits in later years. Low lapse rates after the first year, particularly in later years, will result in higher premiums than would otherwise be true; this is due to the steep age-cost curve on long-term care benefits. In other words, because costs can increase steeply on an attained-age basis, lower lapses mean that more policies will remain in force into the high-cost years.

Lapse assumptions in the long-term care market have dropped dramatically from those of policies sold in the 1990s. Missing this assumption alone has made some blocks of LTC policies unprofitable and has been a major contributor to the need for rate increases.

When examining actual experience relative to pricing, actuaries need to take several complicating factors into account, for example:

- Most companies do not track voluntary lapses and mortality separately. Therefore, one should use a mortality table assumption 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.

- Changes in policy coverage or upgrades in coverage might be coded as a lapse.
- Exhaustion of policy benefits might also be coded as a lapse.

The 2006 Long-Term Care Persistency Report of the Society of Actuaries and the Life Insurance and Market Research Association (LIMRA International) shows first-year voluntary lapses of about 7.5% for individual LTC and 13.5% for group LTC. The report shows ultimate lapses of about 3% for individual policies and less than 2% for group policies. However, as noted in the report, voluntary lapses include expiration of benefits. Therefore, ultimate lapses may be lower than reported; in fact, some companies have observed lapse rates lower than 1%. This low lapse experience has caused significant problems for the LTC industry, because lower ultimate lapse rates mean higher future claim costs and a need for higher premiums, assuming no other changes in assumptions.

#### **E. Mortality**

The 1994 group annuity mortality (GAM) table (static table without projection) is the mortality table specified in the NAIC Model Regulation relating to LTC active life reserves. However, some actuaries believe that this table is too high relative to LTC mortality levels (for “standard” or “preferred” underwriting risks). To develop an appropriate mortality assumption, the actuary should consider the total termination assumptions relative to lapse and mortality.

Consistent with increasing life expectancy and morbidity improvement assumptions, mortality has also been improving. If actuaries recognize morbidity improvement in pricing, then they should also recognize mortality improvement.

Another important consideration in modeling mortality is whether the mortality assumption applies to only healthy lives, or healthy and disabled lives. This will depend on the projection model that the actuary uses.

#### **F. Surplus strain/reserves**

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

Experience in the LTC industry over the past 10 years has shown substantial changes in three areas:

- Morbidity and mortality improvement. Incurred claims per exposure for policies issued prior to approximately 1995 have been much higher than for policies issued in approximately 1995

and later. This morbidity improvement may be due in part to underwriting changes. There is also evidence that population morbidity in general has improved over time. In addition, mortality improvement over the past 10 years is fairly well documented.

- Investment earnings. Interest rates have dropped substantially, causing investment earnings on these products to be much lower than anticipated.
- Persistency/lapses. Voluntary lapses have been much lower than originally anticipated, with the result that many more policies remain 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, as well as morbidity assumptions, are locked in. Although a valuation voluntary lapse and morality assumption is prescribed by regulation, actual persistency is recognized as it occurs. Therefore, the higher persistency has required companies 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 4.0% interest rate (the current interest rate for whole life valuation), and companies are still earning higher than this level. Therefore, companies have been required to recognize the adverse consequences of higher persistency but not recognize any favorable experience in their statutory reserves, meaning that statutory profits on such business become more backloaded.

The combination of backloaded profits, typical rates of return sought on long-term care business (9–17%), and decreasing interest rates has resulted in a substantial increase in the cost of capital for these products. Many investors have become concerned because they must commit capital at the low interest rates for long periods of time before they can recognize the margins that are held as profit.

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

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

The risk-based capital requirements are generally driven by a combination of the NAIC formula and the requirements of various rating agencies. The current NAIC formula includes a C2 component based on premium, incurred claims and claim reserves. The formula was revised / updated based on a 2004 American Academy of Actuaries report. The primary structural revision in the formula was the inclusion of incurred claims. The incurred claim component helps to better match the timing of risk and capital requirements.

Reinsurance arrangements can mitigate some of the morbidity and lapse risk associated with LTC, and they can also assist in relieving some of the surplus strain. Currently, reinsurance penetration into the primary LTC market is only about 10%, but it may increase in the future.

### **G. Profit**

In part because of 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 range of 7–10 years.

When establishing profit objectives for long-term care policies, companies use a variety of measures such as: (i) pre-tax and/or post-tax percentage of premium over the policy lifetime, (ii) statutory internal rate of return, and (iii) generally accepted accounting principles (GAAP) basis return on equity. There are many variations on profit measures and profit levels across companies. According to a 2004 Tillinghast pricing methodology survey, LTC insurers targeted profits of 9–17% return on investment/return on equity (ROI/ROE) (statutory internal rate of return, or IRR/GAAP ROE), with a median of 12%.

### **H. Loss ratio: calculations and requirements**

Prior to the NAIC Model Regulation that was adopted in August 2000, policies were required to meet minimum loss ratio standards. At the time of this writing, more than half of the states had adopted that section of the Model Regulation; the remaining states still have minimum loss ratio requirements for new product filings. For states with loss ratio requirements, minimum loss ratios for individual policies are generally 60%, although a few states set the ratio at 65%. For group policies, some states have higher minimum loss ratio requirements. Because of the substantial amount of investment income on these policies, alternative approaches to calculating loss ratios can produce dramatically different results. As a result of the most current NAIC model regulation, most companies calculate loss ratio by dividing incurred claims by earned premium.

Some of the loss ratio definitions in use for LTC business are:

1. Present value of paid claims to collected premiums. This definition produces the lowest loss ratio. Its use is not advisable, because 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 premiums. This definition uses discounted incurred claims (based on discounted lengths of stay) divided by earned premiums. The resulting loss ratio will be higher than that of definition 1 (above), but lower than those of definitions 3–5, below.
3. Present value of undiscounted incurred claims divided by earned premiums. This definition includes interest on the claim reserve in the loss ratio (numerator). Because retrospective tests of the claim reserve are easiest using undiscounted claims, this method might make more sense than that of definition 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 that of definition 3, but less than definition 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; it produces the highest loss ratio of all.

In general, most states tend to use definition 2 (at the valuation interest rate), but this is not a uniform standard. Whichever definition the actuary uses, it should be spelled out specifically in the loss ratio memo supporting an actuarial filing.

There are several other possible variations to these formulas, including eliminating modal loadings from earned premiums and subtracting the change in the policy reserve from the denominator instead of adding it to the numerator. In any case, the definition should be consistent between initial rating and any re-rating.

When compiling loss ratios, some actuaries will use a lower interest rate than they use for calculating investment earnings. This approach seems reasonable if definition 1 or 2 (above) applies, but it does not seem appropriate when including investment income 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 2000 NAIC Model Regulation 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 necessary, the regulation requires a loss ratio of 58% on the initial premium and 85% 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. 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 previously mentioned, the actuary should use insured experience to the extent possible when developing ultimate claim costs.

This section also discusses the use of population-based data sources to develop a claim-costs basis or to fill in the gaps of insured data analysis.

## **A. Insured data analysis**

First, it is critical to understand the data one uses, including the 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 needs to be strong communication lines with each corresponding department of the company.

For example, if the company first began to implement cognitive underwriting screens four years ago, and the actuary is unaware that the company did not use cognitive screens previously, the result may be erroneous conclusions about the level of claims and the claim continuance on a go-forward basis. Similarly, it is important to be consistent in applying incurral dating rules (i.e., rules that determine whether a claim should be considered a new claim or a continuation of a previous claim) used in policy and claim administration, or else these factors can distort continuance table development and the overall cost curve for attained-age claims.

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 particularly important because a fair amount of incurred claims data will include open claims. Thus, if the claim reserves are misstated because of a poor continuance study, then recent claims (which are heavily dominated by the claim reserve) will also be affected.

One can develop continuance studies based on insured experience by examining all claims, open and closed. The open claims will contribute exposure only up to the most recent claim duration. To complete the continuance table, one can make an assumption about the continuing exposure and the length of stay of open claims. Clearly, the more developed the claim experience becomes, the more accurate the continuance table will be. One can then test the continuance table over time to see how well the claim reserves calculated from it will track paid claim amounts. Because insured claim experience will be available only for a certain period of time (for example, six claim years), the actuary can substitute population-based termination rates to estimate additional claim durations.

Another consideration is whether to vary the continuance table by care setting or to use one aggregate table. The aggregate table approach typically requires a “salvage” factor calculation to account for home healthcare reimbursement levels and frequency. The salvage factor can be calculated as the total claim dollars paid out over a given time period, divided by the maximum dollars allowed by policy contract to be paid out over the same time period. This salvage factor will need to be updated as the mix of claims by care setting changes over time.

As more insured continuance experience develops, it is possible to develop separate continuance curves by primary claim diagnosis. This allows companies to hold more accurate claim reserves by diagnosis; for example, a company would hold a much different claim reserve for someone with Alzheimer’s disease compared with the claim reserve for someone with cancer.

Subsequent to the continuance analysis, it is possible to develop actual claim costs by multiplying the applicable incidence with the paid claim plus ending claim reserves. This is an important reconciliation step in any case, because companies are concerned with not only the incidence of claim, but also the total dollars of claims paid out.

The actuary should compare actual incurred claims with expected claim costs to develop experience-adjusted claim levels. This actual-to-expected analysis should consider all key risk factors associated with claims. (See Section II for a discussion of many of these factors.) It is important not to analyze these risk factors in isolation, or else it may not be possible to recognize correlations when developing experience adjustments. The actuary should keep in mind that, when analyzing finer cuts of the data, the credibility of the data can become an issue.

When examining durational morbidity experience, one needs to make an assumption about the projected ultimate morbidity level after the experience period. For a given issue age, one can look at trends in the data, the claim experience from older issue ages, and data from various population studies in order to develop this assumption. 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.

To date, claim experience for many companies already appears to indicate that two people of the same age may have very different morbidity, even after the initial underwriting wears off. For example, an 85-year-old person whose policy was written at the age of 80 generally has poorer experience than an 85-year-old person whose policy was written at age 75. One apparent reason is that the person who buys a policy at 80 often buys it with a direct need in sight, whereas this is not as true for the person who is 75. Thus, older issue ages tend to have higher morbidity than ultimate experience might suggest, whereas younger ages often have lower experience. Another 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 today’s policies may need only a composite frequency because benefits generally do not distinguish between such levels of care.

One can estimate frequencies for skilled care by evaluating sources such as the National Nursing Home Surveys. As with insured data analysis, it is important first to understand the data, including the collection methods and environmental influences on the data.

For example, there has been a general decrease in nursing home prevalence over time, as indicated in a 2006 report from the Lewin Group that examines several data sources. The report points out, however, that it is important to understand the underlying causes and environmental influences of such patterns in the data. The Lewin report attributes the decline to:

- A healthier and wealthier elderly population in the U.S.

- Changes in patterns of nursing home use due to changes in Medicare reimbursement.
- The continuing development of alternatives to nursing homes.
- Increased availability of private LTC insurance.
- Active efforts by states to expand Medicaid LTC beyond the nursing home.

One must be aware of environmental influences such as these when analyzing population-based data.

It is important to distinguish between prevalence and frequency. Prevalence rates should not be used as frequencies, since prevalence and frequencies are not the same except in a stationary population. Incidence rates can be developed from prevalence rates by modeling a starting cohort of individuals and solving for the appropriate incidence rates by age, which will result in the observed prevalence rates.

In estimating frequencies for an insured policy from population data, one problem is how to apply potential loads to reflect policy benefits provided on an insured basis. Some general theories for estimating loads are:

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 periods tend to exhibit higher adverse selection.
2. For underwritten home healthcare services, frequencies should recognize whether or not a service is performed and, if so, the type of service. Some typical service categories are:
  - Rehabilitative therapy services
  - Visiting nurse
  - Home healthcare aide
  - Informal home healthcare
  - Homemaker
  - Chores
  - Meals on Wheels

The more skilled home healthcare services, such as rehabilitative services and visiting nurse services, will have much lower frequencies than home healthcare aide, informal services, and homemaker services. 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 healthcare services are to be covered on a wide-open basis.

3. For guaranteed-issue business, anti-selection will probably be very high (150% of ultimate claim costs or more) if participation rates of a group are low (i.e., under 5%) or for individual issues. However, as the participation rate increases, anti-selection should decrease. Obviously, for a relatively large employer-pay-all group with 100%

participation and an actively-at-work requirement, little or no anti-selection would be likely.

Continuance curves for nursing home benefits are available on a population basis from National Nursing Home Surveys and other useful sources.

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

In general, continuance curves should reflect the adjustments to population data by type of services and/or level of care (see Section II). Because LTC claims have a very long “tail,” and the presence of insurance creates induced demand and incentives to linger on claim, one should be cautious when developing the continuance assumptions from population data.

Continuance curves should also reflect the definition of benefit eligibility as found in the contract. For instance, if one uses an activity-of-daily-living (ADL) definition 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 Section II pointed out, charge levels vary dramatically by geographic area and type of service 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. (See Section II for specific charge levels for nursing home and home healthcare benefits.)

### **D. Integration of coverages**

When examining insured data, it is important to distinguish between stand-alone coverage and integrated coverage. When one combines various types of coverages, integrating them may result in a cost reduction because one form of care is substituted for another. Accordingly, in a nursing home/home healthcare product with a coterminous benefit period (such as four years), stand-alone costs (developed from either population-data or insured-data sources) for each of these benefits should be reduced to reflect two factors:

- Appropriate care. People misplaced in one type of service because insurance coverage is available for only that form of care will now receive the appropriate form of care. The extra cost associated with the duplication should be subtracted.
- 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 healthcare 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 the underwriting is done properly, it can have an effect on ultimate morbidity levels. This is because many factors that figure in to underwriting may last throughout a person's lifetime. For example, if a person has been a non-smoker her whole life until age 60, it is unlikely that she 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 effects on LTC morbidity.

The underwriting requirements (level of underwriting information gathered) are often a good predictor of how "tight" a company's underwriting standards are. It is no surprise that "tight" underwriting companies generally exhibit much better early-duration experience. It remains a question, however, as to whether tight underwriting will lead to better ultimate-duration experience.

Typical underwriting standards for a tight company include:

- Face-to-face interviews of all applicants aged 65 and over, including cognitive screening. Applicants under the age of 65 must undergo face-to-face interviews and paramedical exams if they have not seen a doctor recently.
- A medical application that divulges the applicant's past health history, general lifestyle, whether he or she has recently been in a hospital or nursing home or has received home healthcare services (or been advised to receive such services), and all current medications.
- Telephone verification of information on the application for those who do not have a face-to-face interview, and a telephonic cognitive impairment test for people aged 60 and over to attempt to determine if an applicant has even mild cognitive impairment.
- Medical records or attending physician statements 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.
- Comprehensive underwriting protocols. This includes specific criteria for build charts (height and weight) and all health conditions, including co-morbidities.
- The requirement that an applicant over the age of 72 see a physician if the applicant has no record of a visit during the past two years.

Rejection rates for underwritten long-term care plans generally range anywhere from 5% to 45%, with an average around 17–19%. The companies in the top end of the range often are new companies to the marketplace who are being tested by agents about the types 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 affect the average rejection rate.

The definition of what qualifies as a preferred or substandard risk varies greatly from company to company. A preferred class for one carrier may be similar to a standard class for another. Often, it is simply a marketing strategy that drives the label of different underwriting classes. Preferred, super-preferred, select, standard, substandard, and other variations of these names all have different meanings for different insurance companies. As more claim data on specific conditions, lifestyles, and diseases become available, underwriting will become more refined and additional risk classes may evolve.

#### **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 about pricing are in place, one can use an asset-share or profit-study model, as described in other texts. The method of pricing for waiver of premium benefits should be 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 plans are generally very low-frequency, high-severity products and there are many unknowns, one should consider using a substantial amount of sensitivity testing (required in ASOP #18) and, potentially, stochastic modeling.

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

The following published resources, some of which have been mentioned in this paper, can provide guidance:

- Actuarial Standard of Practice #18 on Long-Term Care Insurance
- Academy of Actuaries *Long-Term Care Insurance Compliance with the NAIC LTCI Model Regulation Relating to Rate Stability*
- NAIC Model Act and Model Regulation
- NAIC Guidance Manual for Rating Aspects of the Long-Term Care Insurance Model Regulation
- Information from the SOA's Long-Term Care Experience Committee Intercompany Study
- SOA and LIMRA's Long-Term Care Insurance Persistency Experience Report
- Population studies cited in Exhibit I of this note (below)
- Information from the SOA's Long-Term Care Insurance Section Newsletter

- Information from the LTC Section and Practice Area on the SOA's Web site

Because the LTC marketplace is changing rapidly, an actuary must constantly deal with new types of benefits and corresponding considerations. Many of these considerations are regulatory, and the various state governments have been changing their regulations and interpretations very quickly. Such changes challenge the actuary to manage the risks inherent in these products.

Exhibit I

PUBLIC DATA	National Home and Hospice Care Survey NHICS	Nation Nursing Home Survey NNHS	National Long-Term Care Survey NLTCS	Longitudinal Study of Aging LSOA	SOA Intercompany Survey	Medical Expenditure Panel Survey MEPS	Medicare Data	National Center for Assisted Living (NCAL)
Survey Full Name	National Home and Hospice Care Survey NHICS	Nation Nursing Home Survey NNHS	National Long-Term Care Survey NLTCS	Longitudinal Study of Aging LSOA	SOA Intercompany Survey	Medical Expenditure Panel Survey MEPS	Medicare Data	National Center for Assisted Living (NCAL)
Administered by	National Center for Health Statistics	National Center for Health Statistics	National Institute on Aging, run by Duke University	Joint by National Center for Health Statistics (NCHS) and National Institute on Aging (NIA)	Society of Actuaries	Agency for Health Care Research and Quality (AHCRO) and National Center for Health Statistics (NCHS)	Centers for Medicare & Medicaid Services (CMS)	National Center for Assisted Living (NCAL)
Scope	Covers all home health and hospice agencies that are licensed or certified	Covers nursing homes, their services, their staff, and their residents	Longitudinal respondents from Medicare population. Once in survey, followed until they either die or are both	2 Main surveys: LSOA in 1984 and LSOA II in 1994. Target was individuals 70 and older, non-institutional	based data from 24 private LTC insurance companies	Covers entire Medicare population, its expenditures and services used. Primarily facility coverage that is Medicare eligible	Primarily facility coverage that is Medicare eligible	ALF only
Survey Method	Two stage sampling used. First, sample of HC and hospice agencies conducted. Second, sample of 6 current patients and 6 discharge patients from each agency.	Two stage sampling used. First, sample of nursing facility in institution. Non-dispatch group had sampling done to keep around 20,000	Survey follows up every five years. Divides into 3 groups: non-disabled, disabled living in community and disabled living in institution. Non-dispatch group had sampling done to keep around 20,000	Longitudinal Study. Study completed twice allows for comparison of disability	Policy and claim data voluntarily gathered from private LTC insurance companies.	Year long panel survey (1996). Two stage selection, first NH facility then second residents.	Two possible surveys. Medicare Beneficiary Survey (MCBS) and the 5% sample. Both seem to contain similar information.	Overview of Assisted Living (Factbook & Trends) Book
Survey Size	1996 NHICS: 1,200 agencies, 5,438 current patients and 4,758 discharges	2004 NNHS: 14,017 nursing homes, 1,623 NH & 215 current patients & 6,913 discharges	Sample 35,000 people from Medicare population with an additional 20,000 people (5,000 additional each study)	LSOA II: 9,447 people age 70+ LSOA: 7,527 people age 70+ LSOA III: Initial survey (84 with 2 follow-up surveys in 97-98 and 99-00). LSOA: Initial survey (84) with 3 follow-up surveys in 86, 88, 90.	Policy and claim data collected from 1984 to 2001 (claim through June 2002)	Stage 1: 1,160 NH facility selected. Stage 2: 2,344 selected.	5% sample of Medicare population	Updated every one or two years
Study Periods	Started in 1992, 1994, 1996, 1998, 2000	Started in 1973, then 1977, 1985, 1993, 1997, 1999, 2004	Study years: 1982, 1984, 1989, 1994, 1999	LSOA II available on CD	SOA publishes detailed report	ONLY conducted in 1996	Annual survey conducted	Book can be purchased for \$125
Data Availability	Available for purchase: 1996 & 1998, maybe 2000	Available on Website	Available 1982 to 1999. 2004 is available in BETA form. Also NLTCS linked to Medicare Part A & B data available				Available for purchase	
Primary Use	Prevalence for HC & Hospice	Prevalence and LOS for NF	Incidence rates for NH & HC. Numerous studies could be done as data source is very extensive and also longitudinal - underwriting, mortality...	Information on sequence of health events and disability (incidence rates)	Aggregate level LTC insurance statistics	Information about NH facilities and residents (prevalence rates)	Nursing facility incidence rates	High level statistics relating to the ALF industry
Other Uses	Limited LOS, Trend info across studies, ICD9 groupings	Discharge info, Trend info across studies	Use in underwriting as data rich info would allow for LTC predictors	Very extensive data on individuals background and then tracks across time	Valuable comparison information based on cause of claim	Numerous published articles about key data findings can be found on the MEPS website search engine	Possible trend information, relating to claim diagnoses	Trends in health of residents and services provided by ALFs
Key Data Highlights	Home Care & Hospice - agency & patient (current residents & discharges)	2 main data sets: 1) Nursing facility data and 2) Patient (current residents & discharges) data	Data rich (more than 6,000 variables)	Limited: Home care - informal or formal. Nursing Home - (slightly more) Data of admission, date of discharge	Published results for mortality, voluntary lapse, morbidity and cause of claim.	Included in the book are statistics on community type and unit mix; primary payment plans; occupancy; resident demographics and ADL needs, services, and staffing	High level information relating to the operational statistics of ALFs	
Provider Data	Ownership, Medicare/Medicaid certified, size, types of services	Size, Ownership, Occupancy, Distribution of source of payment, Range of charges	Home care - info on services provided. Nursing Home - general info on type of facility	Demographic, Family structure, economic/employment, residence info, health status, functional status, death information (See SRC8 - APP VIII for details)	Some data problems exist. Data varies as only 2 companies consistently provided data. Data heavily weighted towards NH only plans.	Rate schedule, services provided, staffing information	Gender, marital status, age, income, health, ADL, ADL, Rural or Metro	High level health information - ADLs, IADL, discharge reasons
Patient Data	Age, Gender, Region, Diagnosis, Marital Status, Living arrangement, IADLs, ADLs, Source of Payment, Reason for Discharge, Services Provided	Age, Gender, Region, Diagnosis, Marital Status, Living arrangement, IADLs, ADLs, Source of Payment, Reason for Discharge, Services Provided	Demographic, extensive functional status, health status, use medical device (eg walker or cane), caregiver info	Use in underwriting as data rich info would allow for LTC predictors		Demographic, residence history, insurance, health info	Information is only presented at a high level. Not detailed enough to determine any relevant rates.	
Limitations	Sampling method - small		Very extensive data source - should investigate further	Could provide incidence rates at older ages & start with information on looking at LSOA II		Will need adjustments to be applicable to nearest experience		
Website	<a href="http://www.cdc.gov/nchs/nhics.htm">www.cdc.gov/nchs/nhics.htm</a>	<a href="http://www.cdc.gov/nchs/nnhs.htm">www.cdc.gov/nchs/nnhs.htm</a>	<a href="http://www.cdc.edu/nltcs/index.htm">www.cdc.edu/nltcs/index.htm</a>	<a href="http://www.cdc.gov/nchs/lscoa.htm">www.cdc.gov/nchs/lscoa.htm</a>	<a href="http://www.soa.org">www.soa.org</a>	<a href="http://www.meps.hhs.gov">www.meps.hhs.gov</a>	<a href="http://www.cms.hhs.gov/medicare/default.asp">www.cms.hhs.gov/medicare/default.asp</a>	<a href="http://www.ncal.org">www.ncal.org</a>
Overall Assessment	Good Data Source for HC - Should investigate further	Good Data Source for NH - Should investigate further	Very extensive data source - should investigate further	Could provide incidence rates at older ages & start with information on looking at LSOA II	Could be used to compare and validate aggregate results and trends.	Primary use could be as a comparison of NH prevalence rates for 1996. Some detailed info (by ADL, marital status, age)	Limited value as only applies to Medicare eligible expenses	Limited value, but might be worthwhile to purchase their factbook

## Exhibit I (Continued)

### Miscellaneous Data Sources and Web Links

American Health Care Association. Online Survey, Certification and Reporting (OSCAR).

[http://www.ahca.org/research/oscar/OSCAR\\_readme.pdf](http://www.ahca.org/research/oscar/OSCAR_readme.pdf)

OSCAR is a data network maintained by the Centers for Medicare and Medicaid Services (CMS) in cooperation with the state long-term care surveying agencies. OSCAR is a compilation of all the data elements collected by surveyors during the inspection survey conducted at nursing facilities for the purpose of certification for participation in the Medicare and Medicaid programs. OSCAR is the most comprehensive source of facility-level information on the operations, patient census, and regulatory compliance of nursing facilities. The OSCAR data contain elements collected on CMS forms 1539, 671, 672, 673, and 2567. The OSCAR database includes the nursing home operational characteristics and aggregate patient characteristics for each facility.

American Health Care Association. The State Long-Term Health Care Sector 2005:

Characteristics, Utilization, and Government Funding. Reimbursement and Research Department, American Health Care Association (August 29, 2006).

[http://www.ahca.org/research/statestatsrpt\\_20060823\\_final.pdf](http://www.ahca.org/research/statestatsrpt_20060823_final.pdf)

This statistical report contains general information on the characteristics of government Medicare and Medicaid expenditures, and the characteristics and utilization of nursing facilities and intermediate-care facilities for the mentally retarded and those with developmental disabilities (ICFs/MRDD).

Friedland, Robert. "Caregivers and long-term care needs in the 21st century: Will public policy meet the challenge?" Georgetown University, Long-Term Care Financing Project (July 2004). <http://ltc.georgetown.edu/pdfs/caregiversfriedland.pdf>

Long-term care is hands-on assistance provided to people who need help with fundamental daily activities, such as bathing or eating, over a substantial period of time. This type of assistance is labor intensive and is provided by family, friends, and volunteers, as well as by hired personnel. Most people with long-term care needs (83%) live in their own home; among those living at home, the majority (78%) do not hire any help.

Houser, A., Fox-Grage, W., and Gibson, M. Across the States 2006: Profiles of Long-Term Care and Independent Living. AARP Public Policy Institute (December 2006).

[http://www.aarp.org/research/reference/statistics/d18763\\_2006\\_atl.html](http://www.aarp.org/research/reference/statistics/d18763_2006_atl.html)

This compilation of data covers many facets of long-term care and independent living in each state and the District of Columbia. Published biennially since 1992 by the AARP Public Policy Institute, the Across the States series helps inform policy discussions among public and private sector leaders in long-term care throughout the United States. It presents comparable state-level and national data for 150 indicators from a wide variety of sources, drawn together into a single document. This seventh edition of Across the States presents the most up-to-date data available at the time of production and displays it in easy-to-use maps, tables, and graphics.

United States National Center for Health Statistics (NCHS).

<http://www.cdc.gov/nchs/express.htm>

Some NCHS data systems and surveys are ongoing annual projects; others are conducted periodically. NCHS has two major types of data systems: those based on populations, containing data collected through personal interviews or examinations; and those based on records, containing data collected from vital and medical records. Information available from this site includes the National Health Interview Survey, National Health Care Survey, National Vital Statistics System, and the Longitudinal Studies of Aging (LSOAs).

United States. U.S. Congressional Budget Office. Financing Long-Term Care for the Elderly (April 2004).

<<http://www.cbo.gov/showdoc.cfm?index=5400&sequence=0&from=0#anchor>>

Over the next several decades, the population of U.S. seniors—people aged 65 and older—is expected to grow rapidly, more than doubling by 2040, while the population as a whole grows by about one-third. That surge in the elderly population will probably produce a similar increase in the demand for long-term care (LTC) services—the personal assistance that enables people who are impaired to perform daily routines such as eating, bathing, and dressing. Today, seniors finance such services from a variety of sources, including personal savings, care donated by friends and family, private insurance, and public programs such as Medicaid and Medicare. This Congressional Budget Office (CBO) paper, prepared at the request of the Budget Committee of the House of Representatives, summarizes the current state of financing for long-term care, identifies some of the issues affecting it both now and in the future, and considers policy alternatives that address the mix of private and governmental sources of financing for LTC costs.

United States. U.S. Department of Health and Human Services Administration on Aging. Profiles of Older Americans (October 2006).

<<http://www.aarp.org/research/reference/statistics/aresearch-import-519.html>>

Concise and comprehensive collections of facts and figures about the population aged 65 and older in the United States. Topics include health, life expectancy, marital status, living arrangements, geographic distribution, racial/ethnic composition, economic status, employment, and education. Compiled annually since 1982 by the Administration on Aging (AoA) of the US Department of Health and Human Services (HHS).

United States. U.S. Department of Health and Human Services, Agency for Healthcare Research and Quality. AHRQ Research Report: The Characteristics of Long-Term Care Users.

<<http://www.ahrq.gov/RESEARCH/ltcusers/#intro>>

This research report examines the characteristics of adult long-term care users, distinguishing between community-based and institutional care, and also taking into account the age of recipients. The great diversity of long-term care users and the increasing level of disability of the elderly long-term care population suggest that it will remain difficult and expensive to ensure access to long-term care and meet the needs of this population. The report projects that both nursing home and home care expenditures in Medicare and Medicaid will double from 1995–2005, and stresses the need to carefully monitor efforts at reducing public costs to ensure that this population's needs are met.

United States. U.S. Department of Health and Human Services, Centers for Medicare and Medicaid Services. Long-Term Care Minimum Data Set (LTCMDS).

<[http://www.cms.hhs.gov/PrivProtectedData/11\\_LTCMDS.asp](http://www.cms.hhs.gov/PrivProtectedData/11_LTCMDS.asp)>

This is the core set of screening and assessment elements of the Resident Assessment Instrument (RAI). RAI provides a comprehensive, accurate, standardized, reproducible assessment of each long-term care facility resident's functional capabilities and helps staff identify health problems. The assessment is performed on all residents in a Medicare- and/or Medicaid-certified long-term care facility.

United States. U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation. Population Estimates of Disability and Long-Term Care (February 1995).

<<http://aspe.dhhs.gov/daltcp/reports/Rn11.htm>>

A large minority of Americans (42.7 million, or 17.2%) have disabilities. Disability is broadly defined as having difficulty with certain activities (e.g., climbing stairs, walking, or attending school), because of a physical or mental health impairment. Most people with disabilities (60%) are under 65. In 1990, 4.5 million children under 18, 21.1 million adults aged 18-64, and 17.1 million persons aged 65+ reported a disability.

About 12.7 million Americans need long-term care (LTC), defined as help from another person to take care of basic needs such as dressing or bathing. About 29.7% of all people with disabilities, and 5.1% of the entire population, need LTC. The LTC population includes 262,000 children, 5.1 million nonelderly adults, and 7.3 million elderly persons.

## **Additional Links to Data**

<<http://www.actuary.org/health.htm>>

American Academy of Actuaries - ASOP 18: LTCi and Practice Notes

<<http://www.casact.org/pubs/proceed/proceed81/81195.pdf>>

Credibility - An Examination of Credibility Concepts, Steven Philbrick and Additional sources on the SOA examinations syllabus

<<http://www.soaltci.org/>>

SOA LTC Section – LTC newsletter, Links to surveys and publications, LTCi Conference

<<http://www.ncal.org/about/vital.htm>>

Assisted Living Sourcebook – statistics on assisted living residents, facilities, costs, etc.

<<http://www.nia.nih.gov/>>

National Institution on Aging – Alzheimer's Disease research and research clearinghouse for elderly disease and issues

<<http://www.aspe.hhs.gov/daltcp/projects.shtml>>

Office of Disability, Aging and Long-Term care Policy (DALTCP) Research Projects – research reports on TLC insurance and LTC experience

<<http://www.medicare.gov/NHCompare/home.asp>>

National Nursing Home Compare/Database from the Centers for Medicare and Medicaid Services (CMS). The Nursing Home Database contains information on every Medicare- and

Medicaid-certified nursing home in the country. One can locate nursing homes in a selected area and find information about compliance with Medicare and Medicaid regulations.

<<http://www.cms.gov/researchers>>

Multiple CMS data sources available from the Centers for Medicare and Medicaid Services, including downloadable files and public use files available for purchase.

<<http://www.cms.gov/medicaid/mcaidsad.asp>>

Medicaid statistics and data from the Centers for Medicare and Medicaid Services, including downloadable files on state-by-state expenditures and utilization.

<<http://www.cms.gov/statistics/nhe/>>

National health expenditures from the Centers for Medicare and Medicaid Services, Office of the Actuary. Summary tables and downloadable files are available.

<[http://www.bls.gov/oes/oes\\_data.htm](http://www.bls.gov/oes/oes_data.htm)>

Bureau of Labor Statistics state data

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<[http://www.towersperrin.com/tp/getwebcachedoc?webc=TILL/USA/2005/200506/tilli\\_update\\_pricing.pdf](http://www.towersperrin.com/tp/getwebcachedoc?webc=TILL/USA/2005/200506/tilli_update_pricing.pdf)>

A Profile of Older Americans: 2005 (Administration on Aging, U.S. Department of Health and Human Services, 2006).

<<http://www.aoa.gov/PROF/Statistics/profile/2005/profiles2005.asp>>

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<<http://www.medi-health.net/2002EMPLOYERLTCIGuide.pdf>>

Guide to Long-Term Care Insurance. America's Health Insurance Plans (July 2004).

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"Long-Term Care Insurance Model Regulation," *NAIC Model Laws, Regulations and Guidelines*. (Kansas City, Mo.: National Association of Insurance Commissioners, August 2006).

*Long-Term Care Insurance: Opportunity Knocking—Again?* (Hartford, Conn.: Conning Research and Consulting, Inc., 2005).

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<[http://www.ahipresearch.org/pdfs/18\\_LTC2002.pdf](http://www.ahipresearch.org/pdfs/18_LTC2002.pdf)>

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<[http://www.actuarialstandardsboard.org/pdf/asops/asop018\\_064.pdf](http://www.actuarialstandardsboard.org/pdf/asops/asop018_064.pdf)>

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<<http://energycommerce.house.gov/108/Hearings/04272005hearing1487/Ignagni.pdf>>

Long-Term Care Experience Committee Intercompany Study 1984–2001, Society of Actuaries (November 2004).

<<http://www.soa.org/ccm/content/areas-of-practice/special-interest-sections/long-term-care-insurance/actuarial/papers-presentations-research-resources/1984-2001-long-term-care-experience-committees-intercompany-study/>>

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