



GAAP Reserving Practices for A&H Business

S. Michael McLaughlin

Part I. What Are the Rules?

GAAP financial statements for accident and health insurers have been in the news recently. Several disability income writers have had to make difficult decisions on loss recognition. Morbidity experience in disability and medical coverages as well as interest rates remain as unpredictable as ever. Insurers and other players in the health care market are keenly interested in each other's financial performance as that market is in flux.

A clear understanding of GAAP methods and approaches is essential in the current environment. New products and changing market conditions can lead to crisis situations if the fundamentals are not closely monitored, even in the absence of new accounting rules. One health company recently determined that significant amounts of DAC (the deferred acquisition cost asset) should be written off and a huge charge to earnings taken. The decision was made only a few days before the audit was to be approved and earnings were to be released to the public. The process involved great effort under tight time constraints and forced examination of truly fundamental concepts in GAAP accounting for a health line of business. The process drew attention to both the need for constant attention to the financial reporting process and the relative lack of specific literature on GAAP for health insurance.

The *Financial Reporter* plans to publish a series of articles that will help to address some fundamental concepts and the dearth of literature. The series will refresh the reader on GAAP rules in general and their application to some of the major accident and health lines of business offered by insurers. In this first article we review the structure, or hierarchy, of generally accepted

accounting principles (GAAP). Future articles will deal with issues specific to disability income, medical lines and long-term-care policies.

GAAP Hierarchy

Originally accounting principles were based on a combination of historical precedent, the opinions of various professional bodies, company practice, and government regulation. In the mid-1930s accounting principles began to be formally documented. GAAP traces its roots to that time. GAAP is defined in Kohler's *Dictionary for Accountants* as "The conventions, rules, and procedures that define accepted accounting practices at a particular time and provide a standard by which auditors form their professional opinions about financial presentations. GAAP includes not only broad guidelines of general application, but also detailed practices and procedures."

Virtually all companies are affected by GAAP guidance, including retailers, manufacturers, and all commercial and financial enterprises, as well as insurers. Many companies are affected directly because their stock is publicly traded. Other companies are affected indirectly. For example, mutual and fraternal insurers are not publicly owned, but require an audit opinion for certain purposes (especially regulatory). Audit opinions must be written in accordance with GAAP. Thus the mutuals and fraternal must either comply with GAAP or receive an audit opinion that indicates failure to comply.

GAAP was first documented for insurance companies with the publication in 1972 of the stock company audit guide by the American Institute of Certified Public Accountants (AICPA). It is a small but comprehensive

document. It takes the reader through a history of the insurance business, the types of insurance companies, the types of insurance contracts, and insurance and investment operations. It explains the language of insurance and policy reserves. It explains the need for and method of amortization of the deferred acquisition cost asset. Finally it covers auditing procedures, disclosure requirements and auditors' reports. In re-reading the guide today, some 23 years later, I think it is remarkable how many of the concepts are still applicable and how thoroughly the guide covers the issues.

Over time, of course, much additional accounting guidance has emerged, from multiple sources. No single source contains the complete definition of GAAP. Authoritative sources include the AICPA, the Accounting Principles Board (APB), the Financial Accounting Standards Board (FASB), and the SEC.

The AICPA is the professional body for accountants. It can be traced back to predecessor bodies founded in 1887. It assumed its current name in 1953. Through its various committees it provides guidance and education to its members and helps to set the direction of accounting rule-making. The AICPA does not have primary responsibility for educating its professional members. Accountants are educated through various channels including colleges and universities. Examinations are

conducted by each state and accountants must be licensed by the state in which they practice.

The APB was formed in 1959 as the successor organization to the Committee on Accounting Procedure of the AICPA. The APB was also a committee of the AICPA. It had the highest level of authority within the accounting profession and it issued opinions on various matters. APB opinions still carry considerable authority, except of course in specific areas in which FASB statements have superseded APB opinions. The APB became involved in various controversial rulings over time until finally it was superseded by the FASB in 1973.

The FASB is a private organization formed in 1973 to establish financial accounting and reporting standards. The FASB comprises seven board members, appointed out of government, industry or the profession for limited terms, and a full-time staff. FASB is independent of the government, the SEC, the AICPA, and all other organizations. It is recognized by the SEC and the AICPA as authoritative. It follows an elaborate due process to issue new accounting standards, but nonetheless has been the subject of criticism in cases where its rules are considered inappropriate for the circumstances.

TABLE 1
GAAP HIERARCHY

Level A: (Most Authoritative)	FASB Standards and Interpretations	APB Opinions	AICPA Accounting Research Bulletins
Level B:	FASB Technical Bulletins	AICPA Accounting and Auditing Guides	AICPA Statements of Position
Level C:	Consensus Opinions of FASB Emerging Issues Task Force (EITF)	AICPA Practice Bulletins	
Level D:	AICPA Accounting Interpretations	Questions and Answers by FASB Staff	Practices Widely Recognized and Prevalent

TABLE 2
FASB STATEMENTS OF PARTICULAR RELEVANCE
TO THE INSURANCE INDUSTRY

<i>FAS 60</i>	Accounting and reporting by insurance enterprises
<i>FAS 91</i>	Accounting for nonrefundable fees and costs associated with originating or acquiring loans and initial direct costs of leases
<i>FAS 97</i>	Accounting and reporting by insurance enterprises for certain long-duration contracts and for realized gains and losses from the sale of investments
<i>FAS 109</i>	Accounting for income taxes
<i>FAS 113</i>	Accounting and reporting for reinsurance of short-duration and long-duration contracts
<i>FAS 115</i>	Accounting for certain investments in debt and equity securities
<i>FAS 120</i>	Accounting and reporting by mutual life insurance enterprises and by insurance enterprises for certain long-duration participating contracts

The Securities and Exchange Commission (SEC) is the two-ton gorilla of accounting rule-makers. It is an independent federal regulatory agency created in 1934 by Congress to administer federal securities laws. It has authority over financial statements and other filings of companies issuing securities that are traded on a stock exchange. The SEC has the power to halt trading in securities as it deems necessary. The SEC normally relies on the FASB and the AICPA for most rule-making, but on occasion expresses its preferences through the formal issuing of bulletins or interpretations or through the comment letter process.

Each of these governing accounting bodies has issued volumes of documents and pronouncements with multiple sets of rules and requirements that make up the body of GAAP literature. To make space on your bookshelf for just the authoritative GAAP literature that exists, you would first have to remove all your *Transactions*, all your *TSA Reports* numbers (assuming you became a member in 1949), and your *Encyclopedia Britannica*.

Each successive layer of guidance can be regarded as providing additional levels of detail of implementation of accounting principles. Table 1 classifies this literature according to its source and level of authority. There

is a clear ranking of the level of authority of various pronouncements, much as a flush beats a straight, which beats three of a kind.

The highest level of authority is the FASB Statement of Financial Accounting Standard (FAS). To date, more than 120 such standards have been issued. The statements of particular interest to insurers are no. 60, no. 91, no. 97, no. 109, no. 113, no. 115, and no. 120 (see Table 2). *FAS 60* applies to traditional life and health insurance and by and large is still the main guidance applicable to A&H business.

FASB statements are sometimes clarified by Interpretations or Technical Bulletins issued by the FASB. The AICPA issues Statements of Position usually to clarify various accounting practices or rules appropriate for a particular industry. Additional detail may come from AICPA Practice Bulletins.

As can be seen, audit guides fit somewhere into the middle of the overall hierarchy. The stock life audit guide, however, was elevated in the hierarchy by being condensed and summarized into *FAS 60*, which was issued in 1982.

Other literature is applicable. Many other sources of information are available and should be referred to where an issue is not adequately covered elsewhere. One good example is the book *Ernst & Ernst GAAP Stock Life Companies*. Published in 1974, it contains not only thorough theoretical discussions but also a large number of very detailed examples. For years the book was near-authoritative. Even now it proves useful. This is especially true for accident and health business, which is governed by *FAS 60*.

Other actuarial literature including *Transactions* papers provide guidance in the absence of authoritative literature. Table 3 provides a list of examples.

Note that there are no actuarial items on the list of authoritative GAAP pronouncements. This is a body of accounting literature. Nonetheless, actuaries have figured prominently in the development of GAAP as it affects the insurance industry. Actuaries are mentioned several times in the Audit Guide. Actuaries have provided invaluable assistance to FASB and the AICPA, particularly through the efforts of the American Academy of Actuaries committees on relationships with the auditor and the committees on financial reporting. For example, the Academy frequently submits comments on FASB statement exposure drafts, either in written form or in oral testimony.

TABLE 3
OTHER RELEVANT LITERATURE
GAAP—A&H

- AICPA Committee on Insurance Accounting and Auditing. *Audits of Stock Life Insurance Companies*, 3rd ed. New York, N.Y.: American Institute of Certified Public Accountants, 1972.
- Cloninger, Kriss, III. "GAAP for Nonguaranteed-Premium Life Insurance," *TSA XXXIII* (1981): 499-510.
- Ernst & Ernst Insurance Industry Committee. *GAAP Stock Life Companies*. New York, N.Y.: Ernst & Ernst, 1974.
- Halpern, Emanuel. "Approach to the Pricing and Valuation of a Social Insurance Supplement to Disability Income Policies," *TSA XXXI* (1979): 533-46.
- Health Practice Notes Work Group. *Health Practice Notes*. Washington, D.C.: American Academy of Actuaries, January 1995.
- Milgrom, Paul A. "On Understanding the Effects of GAAP Reserve Assumptions," *TSA XXVII* (1975): 71-92.
- Raws, Alfred, III. "GAAP for Medicare Supplement Policies," *TSA XLII* (1980): 339-74.
- Warnock, R. Larry. "GAAP Reserves," *SOA Study Notes 385-29-94*. Schaumburg, Ill.: Society of Actuaries, 1994.

GAAP is described as a comprehensive basis of accounting. As the large amount of literature proves, the adjective "comprehensive" is a good one. The accident and health actuary has no small burden in understanding the rules of the game. This first article has dealt with the authoritative literature and guidance. However, the actuary must go beyond a basic understanding of the literature. The rules and principles must be applied intelligently to various products in rapidly changing circumstances. Future articles in this series will deal with the specific issues that arise in individual disability income, medical and long-term-care business.

Part II. Disability Income

The individual DI line of business comprises a wide variety of contracts. The stated benefit may be payable on disablement due to sickness, accident, or both. There

is usually an elimination period after the insurable event and prior to benefits accruing, which typically varies from as short as seven days to as long as six months or more. The benefit payable may be expressed as a fixed amount per month of ongoing disablement or in terms of a replacement of lost income. Complex benefit riders are usually available, including cost-of-living increases, partial and residual benefits, social insurance carve-outs, and many others. Premiums may be guaranteed or nonguaranteed and may be either issue-age-based or step-rated.

This article primarily covers the noncancellable, guaranteed renewable individual DI contract (noncan), typically issued to relatively select risks, for example, white-collar workers.

Noncancellable coverage is in some respects is very similar to traditional life insurance. Premiums are fixed for the lifetime of the contract based on the insured's age at issue. Coverage spans many years, typically through age 65. Unlike life insurance with its steadily improving mortality, noncancellable has seen long periods of deteriorating experience. The business has been characterized for several years by low or nonexistent profitability.

Benefit Reserves

For these long-term contracts, applicable GAAP guidance is provided by *FAS 60*. Benefit reserves are calculated by using a net level-premium approach. The formulas used reflect contract terms, including benefit amounts, contract duration, and the gross premium scale. The net level-premium method, in conjunction with realistic assumptions on future experience, establishes reserves each year in amounts such that future profits emerge in proportion to gross premiums. Thus reserving begins with the establishment of realistic assumptions for morbidity, mortality, lapsation, investment income, and expenses. Later I discuss modifying these best-estimate assumptions to include a degree of conservatism.

Morbidity assumptions are based on standard tables, the company's own experience, or a combination of both. Large companies are likely to have credible experience of their own at all ages, especially at shorter durations of disablement. Smaller companies are more likely to use a standard table (for example, the 1985 CIDA) with adjustments to reflect their own experience. Some companies make detailed experience adjustments

to incidence and termination rates by age bands; other companies make simpler overall adjustments to total claim costs; and a few companies with little experience of their own may use the table unadjusted.

Most noncancellable companies should have enough data for credible experience studies, at least at an aggregate level. Perhaps one exception to the rule is in the area of underwriting selection studies. These factors can have a significant impact on noncancellable reserves. Both the early favorable experience and the commonly observed later gradual deterioration in experience have the effect of increasing benefit reserve factors relative to using ultimate morbidity. For example, a first-year selection factor of 0.75 may increase to an ultimate factor of 1.10. The effect on reserves can be quite dramatic and should be considered in all cases in which there is medical underwriting.

There are additional challenges in establishing morbidity assumptions for certain optional benefits typically available on disability income policies. For example, partial and residual disability riders pay additional benefits to the insured who is not, or is no longer, totally disabled. This is clearly an additional benefit. However, if the rider were absent, the insured may instead remain on full claim for the basic benefit. Thus the cost of the additional benefit is very likely partially offset by savings in the basic benefit. It is difficult to measure the experience of these riders separately, because they exist only as supplements to the basic policy. Judgmental solutions are common. Some additional reserve is usually held, on the grounds that it would seem to be aggressive to assume that a partial or residual benefit incurs zero additional cost. Companies would most likely be guided by the morbidity assumptions used in pricing here.

The cost-of-living adjustment (COLA) rider increases benefits, typically after disablement. The increase may be a fixed amount, for example, 5% per annum, or a rate tied to the consumer price index (CPI). Reserve factors are typically developed for total benefits both with and without the COLA increases. The valuation system of course has to identify policies with COLA riders and apply the appropriate factors.

One reserving challenge is to estimate the average COLA increase for those riders that are tied to the consumer price index. Although CPI increases will vary, the COLA increase assumption is set at issue and locked in there-after. Policies issued in the early to mid-1980s typically assumed long-term average rates of

inflation in the 6% to 8% range. More recent experience has been lower, with inflation rates in the range of 3% to 5% throughout the late 1980s and 1990s thus far. These lower rates are actually more typical of long-term history. Further, the government will most likely make changes to the CPI, perhaps during 1996. The changes will reflect improving product quality over time and will tend to generate lower CPI increases than in the past. Thus it would seem appropriate to estimate lower average inflation rates going forward for COLA riders currently being sold, at least as compared with policies sold in the mid-1980s.

Social insurance supplemental riders integrate with the disability benefits paid by the Social Security Administration (SSA). SSA benefits are modest, have long elimination periods, and are more difficult to qualify for than typical disability insurance benefits. For example, disablement must be expected to be total and permanent. The social insurance rider takes these conditions into account. It is priced to pay a benefit in the interim until the SSA benefit begins and to continue to pay if SSA benefits are denied. In reserving for these riders Halpern's approach [1] is commonly seen. An estimate is made of the probability of SSA paying benefits relative to the probability of the noncancellable policy paying benefits. This factor is applied as an adjustment to the claim cost that otherwise would be paid by the rider for the SSA waiting period through the end of the rider benefit period.

In reserving for waiver-of-premium benefits, simplified approaches are often seen. The magnitude of the benefit often does not warrant exact treatment of waiting periods and retroactivity. In one simple approach, waiver reserves may be based on the reserve factor for the basic benefit applied to the amount of monthly gross premium being waived. Alternatively, an aggregate increase to the benefit reserve in the ratio of premium waived to disability benefit may be appropriate.

Provision for the Risk of Adverse Deviation in Experience

In accordance with *FAS 60*, a provision for adverse deviation (pad) should be included in the assumptions for future experience. Thus reserve assumptions are slightly conservative relative to realistic or best-estimate assumptions. Recall that the use of realistic net level reserve assumptions results in profit emerging as a level percentage of premiums. If actual experience

unfolds exactly in accordance with realistic expectations, that is, better than the conservative reserve assumptions, additional profit will emerge as the pad is released. For example, if interest rates are actually higher than assumed in reserving, a spread will be earned because investment income on assets supporting the benefit reserves exceeds the interest needed to fund the benefit reserves. Thus GAAP profits will emerge partly in proportion to gross premiums and partly in proportion to release of margins in the assumptions. Thus profits as a percentage of premium will rise slightly over the lifetime of the contract.

It is a significant challenge to set the provisions for adverse deviation at an appropriate level. Large margins (for example, 10% of claim costs, 200 basis points in interest rate spread) will tend to greatly depress profits in the early years, perhaps to negative numbers. On the other hand, margins that are too small may prove optimistic. For example, margins less than 5% in claim costs, or 25 to 50 basis points in spread, may quickly disappear with mild deteriorations in experience, resulting in losses in later years. The difficulty is exacerbated by the difficulty of early identification of deteriorating or improving trends. Sensitivity testing of pad assumptions is a critical part of establishing appropriate benefit reserves.

A minor point worth noting is that it can be difficult to determine the direction, let alone the magnitude, of appropriate conservatism in lapse assumptions. Noncancellable products have no surrender values, thus lapses may generate a profit—while the loss of future interest margins may offset this effect. Further, the dynamic adjustments to DAC make some adjustments for lapses. In many cases the effort of developing pad for lapse assumptions is not worthwhile, and best-estimate assumptions are used.

Maintenance Expenses

In keeping with *FAS 60*, benefit reserves should include a provision for the cost of expenses related to future policyholder benefits. Typically all nonlevel costs would be considered. In some cases the reserve is identified or calculated as a separate maintenance expense reserve; in other cases the reserve is included with benefit reserves; and in still other cases the expense of paying benefits is considered a level, recurring cost and is not provided for in reserves.

Although practice varies, the ideal solution would seem to include reserve provision for, at least, claim

settlement expenses. DI claim settlement can be complex and hence relatively costly. Further, these expenses tend to rise with advancing policy duration, because disability incidence rates increase with age. Thus a reserve provision for claim settlement expenses may add a significant amount to benefit reserves.

DAC

Certain acquisition costs are capitalized and amortized in proportion to premiums (deferred) over the expected lifetime of the contract. Costs eligible for deferral vary with and are primarily related to the acquisition of new and renewal contracts. Deferrable acquisition costs include first-year and heaped renewal commissions to the extent they exceed ultimate renewal commissions. Acquisition costs also include issue and underwriting expenses, which may be substantial. Noncancellable business often requires both medical and financial underwriting to establish good health and insurable interest.

DAC is amortized by using the same assumptions used for benefit reserves. It is common to see either DAC factors applied to an in-force policy database or the use of worksheets. Either approach is acceptable. If factors are used, the assumed unit acquisition cost assumptions must be validated against actual deferrable expenses. If worksheets are used, the amortization schedules should include a column for expected persistency, so that dynamic adjustments can be made at the end of each accounting period to reflect actual persistency.

Theoretically, under *FAS 60*, DAC should be amortized over the premium-paying period of the contracts. A noncancellable contract issued to a person aged 35 would typically extend to age 65; thus 30 years is the theoretically appropriate amortization period. For various reasons, including simplicity and conservatism, it is very common to see a maximum 20-year amortization period. If worksheets are being used, it is convenient to use the same amortization period for multiple worksheets within a line of business. Note that profit emergence may be quite sensitive to the choice of amortization period. Testing at different issue ages is advisable in setting this assumption.

The amortization schedule oftentimes is not very dependent on elimination period, benefit period, or other benefit characteristics. The major variable influencing DAC amortization is persistency (and of course

the length of the amortization period). Thus simplifying approaches are common. While a noncancellable block of business may use several hundred cells for the calculation of benefit reserves, one might see only a very limited number of DAC amortization worksheets. In some cases there may be one schedule for younger ages, one for older ages, and a split between level-premium and step-rated policies.

Loss Recognition

Increasing loss ratios and declining interest rates have squeezed profit margins to the vanishing point for many noncancellable business units. The absence of a future profit margin has implications for the DAC asset. The asset can be held only as long as it remains fully recoverable out of a stream of future profits. Technically the asset should be demonstrated to be recoverable for each year's new issues as well as for the block of business as a whole. If insufficient future profits exist to recover the DAC, it should be reduced to the point at which no future losses are expected. DAC may need to be reduced all the way to zero, if appropriate. In extreme cases an additional reserve, the premium deficiency reserve, must be established such that there is no expectation of future loss on the business.

At the date of loss recognition, benefit reserves (and DAC, if any) are based on realistic future assumptions. DAC may have to be eliminated and reserves may need to be strengthened further. Those assumptions are then locked in. If experience deteriorates further, loss recognition may again become necessary. If experience should unexpectedly improve, the loss recognition process is not revised. In this event some profits would begin to emerge.

The test for existence of sufficient future profits for new business (recoverability testing) is typically performed by using a net-to-gross premium calculation. The net premium for benefits and maintenance and acquisition expenses is calculated based on current best-estimate assumptions and compared to the gross premium. If the net premium is the larger, there will be insufficient future profits to fully recover the DAC. The amount of acquisition costs deferred must be limited to a smaller amount such that the net premium does not exceed the gross.

The process of testing the block of business as a whole (loss recognition) usually requires a gross premium valuation. This could require a significant effort

to perform the modeling process. The process is made more difficult by the sensitivity of the results to small changes in assumptions. This is because small changes in claim costs or interest rates are projected over the remaining lifetime of the block of business.

One typical complication with loss recognition is the definition of the block of business to be examined. For example, noncancellable business issued in the very competitive 1980s may well show losses due to aggressive pricing and underwriting practices of that era, while contracts issued before or since may be profitable. The question arises, Should the unprofitable business be looked at separately? Or should it be combined with all other noncancellable business for the purpose of looking at overall loss recognition?

Both approaches have been taken. The company's usual approach for managing its business should be the overriding consideration in grouping business for this test. If the unprofitable contracts share a common identifying characteristic, it would be conservative, and probably not wrong, to recognize losses on that group of contracts taken separately. On the other hand, if by combining groups of noncancellable policies, the projected losses disappear, then there is no need to take an overly conservative approach.

Realistically, loss recognition is a difficult and painful decision for any company. Depending on the circumstances, long and difficult explanations and discussions may be needed among management and with the board of directors. Externally the issues may have to be discussed with auditors, bankers, analysts, rating agencies, and perhaps the SEC. Loss recognition should be avoided until the evidence clearly indicates a permanent deterioration of expectations. Once the decision to recognize losses is made, decisive action should be taken. The loss recognized should be sufficient to ensure that the exercise will not have to be repeated, barring further new causes of deterioration.

Claim Reserves

Claim reserves have been a difficult financial reporting area for noncancellable business. The valuation table in use for many years, the 1964 CDT, even with low valuation interest rates, tended to produce inadequate reserve levels. It was common to see adjustment factors of the order of +100% to tabular disabled life reserve factors during the first one or two years of disablement. The 1985 CIDA table does not suffer from

this problem, at least not to the same degree, but claim reserving is still a challenging area of GAAP financial reporting.

FAS 60 requires that a liability for unpaid claims be accrued when an insured event occurs. This applies regardless of whether the event has been reported. In accordance with *FAS 60*, most companies attempt to establish GAAP claim reserves at realistic levels. Some actuaries would argue that *FAS 60* requires provision for adverse deviation in the claim reserve as well as the benefit reserve. Where financial conditions permit, this prudent and conservative approach is desirable and is not prohibited. Nonetheless, a pad for claim reserve assumptions is not an explicit requirement under GAAP.

Practice has varied in the choice of interest rates for claim reserves. A few companies choose an interest rate related to the issue date of the contract. Others choose a rate appropriate to current issues. Still others use a current portfolio-related interest rate. All these choices are acceptable provided they lead to realistic or somewhat conservative reserves.

And what if the claim reserve is inadequate? Is loss recognition required? While practice varies, *FAS 60* anticipates that estimates of claim reserves would be reviewed and updated regularly, with any change in the reserve impacting income immediately. Thus there is no lock-in of claim reserve assumptions. In fact, claim reserves may be strengthened or weakened in the appropriate circumstances, even in the absence of loss recognition.

One common practical approach to claim reserving is to use the same amount for GAAP as is held for statutory reporting purposes. If the statutory reserves have been set by using realistic morbidity assumptions and if those reserves are adequate, it would not be inappropriate to hold the same amount for GAAP. Oftentimes it would be theoretically possible to hold a lower GAAP reserve, based on identical morbidity assumptions, but using a higher, more realistic interest rate than statutory valuation rates. Thus the use of the statutory reserve number for GAAP typically represents a slightly conservative approach.

One minor but often overlooked point relates to claim settlement expenses. *FAS 60* explicitly requires the posting of a provision for the costs to be incurred in settlement of the company's claim payment obligation. This provision is needed in addition to the provision for future expenses included in benefit reserves. This addi-

tional provision is exactly analogous to the need for claim reserves in addition to benefit reserves. There is no redundancy because one reserve provides for future incurrals and the other provides for future payments on past incurrals. Although not always seen, this provision could fall in the range of 4% to 8% of the claim reserves!

An interesting situation arose at one noncancellable-writing company. The claim reserves proved deficient time after time, despite reflecting repeated studies of experience. Finally, a close examination was made of all areas relating to administration and claims. It was found that many long-term claims were settled through negotiations between the claim department and the disabled policyholder. For example, a disabled person may agree to a lump-sum settlement of \$150,000 in lieu of receipt of \$2,000 per month for 10 years. The claim reserve on such a case may equal \$200,000. A negotiated settlement works to the advantage of both parties by advancing payment to the individual while releasing reserves held by the company.

In the example cited, the experience studies had treated such negotiated settlements the same as any other disability termination. In essence the company was treating such settlements as recoveries when, in substance, the benefit was approximately fully paid out. Thus the experience studies were incorrectly optimistic.

Reinsurance

Reinsurance recoverable amounts are assets, as opposed to net offsets against liabilities. This treatment is consistent with *FAS 113*, "Accounting and Reporting for Reinsurance of Short Duration and Long Duration Contracts." For noncancellable business, both reinsured claims and active lives would give rise to assets. Treatment of the assets should be consistent with the nature of the contract (that is, coinsurance versus yearly renewable term), the requirements of *FAS 60*, and the treatment of the corresponding liability on the direct business. Thus a reinsured claim recoverable asset would be calculated similarly to the claim reserve, of course reflecting the waiting period, retention and any other limitations of the reinsurance contract. Likewise, an asset would be determined for the future benefits that would be recovered under a coinsurance contract, similar to the benefit reserves on the direct business.

Expense allowances received from the reinsurer would not be considered income in the first year of the

contract. An unearned premium liability should be held that would amortize into income over the expected duration of the related contracts.

Note that the assumptions appropriate for the reinsurance items could differ from those appropriate for the direct business. For example, expense allowances may not correspond exactly with direct commissions. Further, high retention limits may cause reinsurance morbidity to differ significantly from morbidity on direct business. If reinsured items are material in amount, then appropriate assumptions are important, including careful consideration of the appropriate level of pad.

Other Individual DI Contracts

Other individual DI contracts include guaranteed renewable contracts that are by their nature long term but carry no premium guarantees. Issues arise when premium rates increase. Presumably along with the revised premium there is an updated view of future morbidity and perhaps expenses and interest rates as well. Let us assume for a moment that, although there are material changes in expectations, future losses are *not* expected. Loss recognition is therefore not required. Although *FAS 60* calls for the lock-in of initial assumptions, it does not require lock-in in situations that would fail to fairly present the financial statements. Although not common, it may be appropriate GAAP treatment to modify benefit reserves at the time of a change in gross premium. The term "prospective unlocking" is used to indicate that no reserve discontinuity occurs. Instead a new net premium is calculated and a new rate of accrual of reserves begins, consistent with the modified future assumptions.

Prospective unlocking is appropriate if it accomplishes preservation of a reasonable pattern of profit emergence in proportion to the new gross premium, thus enhancing fair presentation of the financial statements. Kloninger's approach to nonguaranteed life insurance contracts [2] is an excellent discussion of the subject of varying premiums and is applicable to accident and health business also. The referenced paper also provides an approach to the mechanics of prospective unlocking.

Alternatively, it could be argued that unless loss recognition is required, it is required by *FAS 60*—or certainly not proscribed—that initial benefit reserve assumptions and factors be locked in. Either approach

may be appropriate depending on the circumstances, such as the magnitude of the gross premium change.

Conclusion

The comments in this article merely begin to scratch the surface of this complex and interesting line of business. The contracts are varied, with widely ranging risk factors, complicated benefit structures, and highly unpredictable and volatile experience. If there is one area in which the actuary should exercise great prudence and (dare we say) conservatism, it is with the noncancellable line.

The next article will discuss some unique aspects of GAAP reserving for medical lines of business.

References

1. Halpern, Emanuel. "Approach to the Pricing and Valuation of a Social Insurance Supplement to Disability Income Policies," *TSA XXXI* (1979): 533–46.
2. Cloninger III, Kriss. "GAAP for Nonguaranteed-Premium Life Insurance," *TSA XXXIII* (1981): 499–510.

Part III. Medical Policies

Accident and health policies covering medical benefits come in a wide assortment of shapes and sizes. The most comprehensive policies cover major medical expenses, subject perhaps to some inside limits such as deductibles or maximum benefits. Most now incorporate some aspects of health-care management, such as pre-admission certification, concurrent review, and preferred provider organizations. At the other end of the comprehensiveness spectrum are specified disease (for example, heart disease, stroke and/or cancer) policies. Other limited policies include hospital indemnity plans, which are primarily intended to supplement true medical expense coverages; Medicare supplement policies, intended to fill in the gaps in the government plan for senior citizens; and stop-loss coverages, intended to complement group medical coverage typically provided by small employers to cover only those expenses in excess of a high deductible.

This article discusses a few key GAAP reserving issues relevant to each of these coverages, focusing primarily on individual coverages. True annually renewable

group contracts are short-term coverages that involve little if any adjustments for GAAP relative to statutory accounting. Acquisition costs are fully covered by the first year's premium or are absorbed by the insurer. Stop-loss coverages may be considered reinsurance contracts and generally would be treated as group coverages. On the other hand, many small-group coverages or trust-group coverages are essentially similar to individual coverages and should be treated as such.

Major Medical Expense Contracts

Most major medical coverages (except perhaps those involving medical savings accounts) are covered by *Statement of Financial Accounting Standards No. 60*, "Accounting and Reporting by Insurance Enterprises." *SFAS 60* distinguishes between long-term and short-term contracts. One key decision to be made in GAAP reserving is whether we are dealing with a long- or short-term contract. Long-term contracts normally require a benefit reserve, while short-term contracts typically do not. It seems clear that noncancelable and guaranteed renewable contracts are long term—they extend well beyond a yearly term of coverage. But what about collectively renewable (CR) or optionally renewable (OR) contracts?

Prevailing practice is the guideline here. If the company has made a practice of renewing CR and OR contracts for long terms of coverage, reasonable estimates can be made of persistency, interest rates, morbidity, and expenses. GAAP rules would indicate that provision should be made for future benefit and expense costs, if reasonably estimable; therefore benefit reserves should be held. This concept is consistent with the current NAIC model law for A&H reserving, which requires contract reserves for contracts that may be renewed beyond one year, whether guaranteed renewable or not. Failure to hold benefit reserves solely because of nonguaranteed renewability is less common than it was in previous years.

Of course, the rating structure of the policy also must be considered in calculating the benefit reserve. Consistent with *SFAS 60*, a net level premium method is used. The reserve is the present value of future benefits less the present value of future net premiums. Net premiums are a level percentage of gross premiums. If it should occur that gross premiums are proportional to anticipated increasing benefit costs, the benefit reserve will be zero. Thus many attained-age-rated products that

technically require benefit reserves may require zero reserves. Of course if the gross premiums and benefit costs are not closely proportional, some benefit reserves will be necessary. Interestingly, the benefit reserves could be positive or negative at various policy durations, depending on the relative slope of gross premiums and benefit costs with attained age.

Older product designs attempted to prefund the increases of medical costs due to advancing age and thus were level-premium (that is, issue-age-rated) designs. Of course, medical costs inflate over time. As medical cost trends increased, particularly during the 1970s and 1980s, inflation rates dwarfed age trend rates. The level premium was unable to prefund costs that inflated at 15%, 20%, 25%, or higher annual rates. Eventually insurers gave up any attempt to prefund costs due to the high trends, and most recent product designs are based on annual or banded attained age rates.

If premium rates increase with attained age and can be rerated more or less regularly to reflect actual experience, then the rates should be proportional to costs and incurred loss ratios should be approximately level over time. There is no prefunding of future benefit costs hence benefit reserves should equal zero. The silver lining to the cloud of high medical cost trends may be simplified reserve requirements.

A complication to this tidy answer arises if effective medical underwriting is performed. In most cases, attained-age premium rates are not separated by select and ultimate levels. As with statutory reserving, ultimate-attained-age premiums with select claim costs in the early contract years would require a reserve. One way to explain this is with a retrospective look—a larger-than-necessary premium in the early years is set aside to pay for benefits that will be increasing over time at a faster rate than the premium scale.

With statutory reserving, two-year preliminary term reserves are common. Underwriting selection for major medical policies typically lasts only a few years and is most pronounced in the first two years. The statutory reserve for underwriting selection begins to accrue in the third year after selection has largely disappeared. Thus the statutory reserve is generally quite small and is often immaterial. With GAAP reserving, net level reserves are calculated, and, of course, these accrue beginning the first year. Thus this reserve may not be immaterial. Reserve numbers in the range of 5% to 20% of annual premiums would certainly be possible. On the

other hand, where only limited underwriting is performed, there may be relatively little selection, hence little need for a selection reserve.

Medical savings account policies are still not very common; therefore there is little definitive GAAP practice to examine. Depending on the structure of the plan it may be possible to argue that the plan is a universal-health contract consistent with the definitions in *SFAS 97*. In this case, a retrospective deposit method would apply. The benefit reserve would equal the account value, and DAC would be amortized in proportion to gross profits (that is, mortality and morbidity charges, expense charges and interest margins in excess of benefit costs, actual expenses, and interest credited to the account). Other contract designs may be equivalent to a premium-based (*SFAS 60* rule) type contract with an advance premium deposit account. Careful review of the facts and the reasonableness of the resulting profit recognition should be used to guide the decision on proper treatment.

DAC Issues

To the extent that deferrable acquisition costs are incurred, it is appropriate to capitalize those and amortize them over time, in accordance with *SFAS 60*. Technically the amortization should cover the expected lifetime of the policies and occur at a rate proportional to gross premiums. This approach, if it were taken with attained-age-rated policies, would result in very slow amortization of DAC.

Common practice recognizes the riskiness of major medical coverages and the difficulty of forecasting trend due to increasing age, inflation, wear-off of underwriting selection, antiselective lapsation, managed care, changing persistency, and so on. Thus relatively short amortization periods (for example, 7 to 15 years) based on an assumed level premium are more common. This avoids accumulation of large DAC assets that, in any event, must be reviewed for recoverability and reduced if future losses appear likely. DAC normally would not be unlocked unless loss recognition were necessary, but a dynamic adjustment for actual persistency is very common.

There are special difficulties in loss recognition calculations for medical expense business. As mentioned above, the DAC asset cannot be held unless it is recoverable out of a stream of future profits. Loss recognition for major medical business typically is examined using

a gross premium valuation. Detailed cell-by-cell approaches and simplified models are both seen. Future costs and premiums are projected, and then the present value of future profits discounted at a realistic earned rate of interest is compared with the unamortized DAC balance. If DAC is not recoverable out of future profits, a writedown is necessary. In extreme cases all DAC must be eliminated and a premium deficiency reserve posted.

In the gross premium valuation, careful attention should be paid to the differential between costs and premium rate increases. The exact level of projected trends is not as critical as the differential. For example, future trends of 6%, with premium increases of 8%, will produce a result similar to future benefit cost trends of 10%, with premium rate increases of 12%. However, a future trend of 6% with premium increases at 9%, projected for a long period, will produce a much higher present value of future profits. The extra 1% of premium in the first projected year becomes 2%, then 3%, and so on. Even when discounted, this relatively minor change in the assumed future trend differential may have a huge effect on perceived DAC recoverability. It would be easy to “assume” problems away if this critical assumption is not carefully chosen. Even blocks of business with high current loss ratios could be projected as profitable, when in reality high rate increases lead to antiselective lapsation that makes it very difficult to reduce loss ratios on medical blocks of business.

Common sense must prevail. It would not seem reasonable to project future premium rate increases in excess of benefit cost trends indefinitely. One test for the reasonableness of the gross premium valuation assumptions taken together is to look at the resulting projected loss ratios. Projected loss ratios should change over time at reasonable speeds, ultimately reaching reasonable long-term sustainable levels.

Medicare Supplement

Each year on January 1, Medicare supplement plans automatically increase the amount of coverage to remain synchronized with the government’s indexation of Medicare benefits. The coverages are one of ten standardized packages promulgated by the NAIC. Gross premiums also typically increase each year, in some cases automatically, and in other cases are subject to filing with the state insurance department.

Each year the Health Care Financing Administration (HCFA) determines the extent to which hospital costs have increased and, in the fall, publishes the next calendar year's Part A deductible. The deductible is the amount that will not be paid by Medicare for a given hospital confinement (subject to certain other rules). Other benefits also are tied to this deductible. In 1966 when Medicare began, the Part A deductible was \$40; it has increased every year since 1969. In 1996 it is \$736. Part B (medical) deductibles are also reviewed periodically and subject to change, but historically changes have been infrequent. The last change (from \$75 to \$100) occurred in 1991.

Medicare supplement contracts are guaranteed renewable for life and thus are long-term contracts. They are popular, high-value coverages and are present in large volumes in many companies. Potentially, large reserve and DAC amounts are involved.

The regularly increasing benefit amount has been addressed in GAAP reserving in diverse ways. Some companies have simply increased reserve factors determined at issue in the ratio of the new benefit amount to the benefit amount at issue. This approach has the advantage of simplicity but tends to be very conservative. For example, policies issued several years ago would have reserves at a level as if the current benefits (and correspondingly higher gross premiums) had been in effect since issue.

A second simple approach is to make no adjustments for the increased benefit after issue, but to reserve solely for the initial level of benefit at policy issue. Some companies consider this approach required by the lock-in principle. In some cases, the approach may be justified by the circumstances. If the gross premiums initially were determined by using a level-premium concept, reserve factors can be determined at issue by assuming level future benefits and premiums. These reserve factors will apply in all future years to the initial benefit level in effect at issue. Successive increases in benefits may be regarded as attained age rated by practice or by design, with new layers of benefit funded by a new layer of premium. Thus no incremental reserve is appropriate for benefit increases after issue. This approach is administratively quite simple, but it should be used only when consistent with the policy rating structure.

A more exact approach is to reserve for each additional layer of benefit separately, at its actual issue age and date, giving consideration to the pattern of future

premium increases on each layer. This may result in a series of reserve factors. For example, a policy issued in 1993 to an individual then aged 65 would be reserved as of year-end 1995 by using factors applicable to: (a) issue age 65, policy duration 3, and benefit levels consistent with the \$676 initial deductible; (b) issue age 66, duration 2, benefit levels of \$20 (that is, the incremental benefit); and (c) issue age 67, duration 1, benefit level of an additional \$20. Thus three layers of benefit are required to reserve for a total benefit of \$716 for 1995.

The increased accuracy of this approach comes at the price of increased complexity in the valuation system. After several years, there will be multiple layers of benefits, adding time and effort to the process and increasing the need to carefully check the accuracy of data and calculations.

Another theoretically sound approach, although rarely seen, is to calculate reserve factors at issue anticipating a pattern of future benefit increases. After all, one can reasonably predict that benefits most likely will continue to increase in the future. GAAP would seem to require that reasonable estimates be made where possible, including this virtual certainty. Under this approach, consistent estimates would be made of future benefit and premium increases, and reserves would be calculated by using these and other realistic valuation assumptions (including provision for adverse deviation).

As actual experience emerges, a decision would have to be made on whether the reserve basis should change. It would seem that, unless major experience or benefit change occurred beyond what was assumed, the initial assumptions would remain "locked in." This would be consistent with the concept that benefit increases are anticipated under the initial contract, as opposed to unexpected benefit increments added by rider. Therefore, this approach seems likely to be simple to apply in practice. Depending on the rating structure, it may also result in relatively low reserves, and appropriately so, as compared with the layered approach.

One common caution that should be universally applicable in reserving is that the reserve method should be consistent with pricing principles. Medicare supplement policies and their complicated, increasing benefits are no exception to the rule. Specifically, the valuation net premiums should be treated as issue age versus attained age related as appropriate, depending on pricing principles. Similarly, "lock-in" is not intended to require that reserves be held at levels that clearly produce unreasonably high or low profit patterns. When

new layers of coverage are added, there is no obligation to continue to use the same assumptions used for previous layers of coverage if they are no longer appropriate. As with major medical coverages, if new business is underwritten, the effects of medical selection should be considered in the reserving process.

DAC Issues

Similar issues apply to DAC methods for Medicare supplement as for major medical—coverages are long-term and premiums increase over time. How should DAC be amortized?

As with major medical, fairly short amortization periods (10 to 20 years) and the simplifying assumption that future premiums will be level are common. One could argue that DAC is being held on the initial level of coverage at issue with no increments thereafter.

On the other hand, if incremental premiums are commissionable, those commissions are acquisition costs and, as such, are eligible for deferral and amortization, at least to the extent they exceed ultimate commission levels. It would be simple and appropriate to include these additional acquisition costs in the amortization schedule, retaining the original end date to the schedule. Thus, if first-year acquisition costs are amortized over 15 years, second-year commission costs would amortize over the remaining 14 years, and so on.

As mentioned above, it does not seem unreasonable to anticipate future premium increases with medical supplemental coverage. If the DAC amortization schedule anticipates premium increases, the effect will be a slower rate of amortization and thus a higher DAC asset balance, compared with using level premiums. Of course, whichever approach is taken, the DAC asset must continue to be recoverable out of future profits.

Specified Disease Contracts

An interesting issue that sometimes arises with specified disease policies is claim reserving. For example, what is the proper reserving procedure when an initial claim is a relatively small amount and a cancer diagnosis is indicated, as in the case of a tissue biopsy? Perhaps a long course of treatment involving radiation and chemotherapy is in the offing. Should a substantial reserve be posted to cover the estimated total cost of treatment, or should a much smaller reserve be held to cover estimated incurred costs to date?

While this question is not purely a GAAP issue, recall that GAAP claim reserves are intended to be based on best-estimate rather than conservative numbers. For statutory purposes, a conservative estimate may be made, but under GAAP rules conservatism is not always the preferred practice.

In this example, the right answer is to examine contract language on covered benefits. If future incurred costs will be covered by future premium payments, the claim reserve should provide only for benefit costs accrued to date, whether reported or not. If the contract specifically provides benefits per diagnosis (for example, deductibles, out-of-pocket limits or maximums related to each diagnosis or occurrence of cancer), then the claim reserve should probably provide for the total expected benefit costs. Benefit reserves would continue to be required as well.

Hospital Indemnity

Hospital indemnity policies are sometimes deceptively simple. Typically there are a limited number of clearly structured benefits, and reserving follows fairly straightforward approaches. Occasionally, however, there can be surprises. One HI policy we have seen included low hospital indemnity benefits, a small surgical benefit schedule, defined ambulance cost benefits, and blood transfusion and “iron lung” benefits. When the product was originally priced, the blood transfusion and iron lung benefits probably seemed minor and no limits were placed on those coverages. Eventually, due to inflation, the “minor” blood transfusions and iron lung benefits became the major claim costs being paid under the policy! Overall policy benefit costs were inflating at a rapid rate, not zero as had been anticipated in pricing and reserving. Loss recognition was needed, although fortunately the line of business was not a major one. The moral of the story is to carefully review even relatively simple HI policies to ensure that all reserve assumptions are appropriate to the premium structure and benefits provided.

Claim Reserves

One interesting question that sometimes arises is whether claim reserves on medical coverages should be discounted. After all, other GAAP reserves are realistic, so shouldn't we apply a discount factor to GAAP claim reserves to get a more realistic estimate? On the average,

payouts may be spread over many months or even a few years, and a discount factor may reduce the reserve by a few percentage points. Occasionally, a few percentage points could amount to real money.

The perhaps surprising answer is that discounting of medical claim reserves would not be considered appropriate under GAAP. Discounting is permitted in accordance with an SEC bulletin (*SAB 62*) under two conditions: (a) discounting is performed for statutory reporting under prescribed or permitted practice, and (b) the claim amount is fixed and determinable. Thus disability-income claim reserves are discounted for both statutory and GAAP purposes. However, claim reserves on medical contracts normally would not meet either condition. Unless GAAP rules change to require or permit fair value presentation of insurance liabilities, undiscounted claim reserves will be the norm.

Closing

In the fourth and final article, I will discuss key GAAP reserving issues for long-term-care coverages. I will also review a few miscellaneous topics, including rider coverages and treatment of policy conversions.

Part IV. Long-Term-Care Policies

Long-term-care (LTC) policies typically provide both nursing and home health-care benefits. A fixed daily benefit in the range of \$100 to \$200 per day while confined is selected by the insured. Coverage may be provided while in a skilled nursing facility only or it may include intermediate care or custodial care facilities. Home care benefits relate to professional care provided at the home by visiting nurses, aides or therapists. The level of home care benefit is also selected by the insured. Benefits are typically subject to a waiting period of 90 or 100 days and a maximum term of coverage of one, two, three years, or even a lifetime. Benefit variations among states are common. A popular benefit option is the inflation rider. It provides for either a simple or compound increase in benefits, for example, 5% per year. Guaranteed-purchase options for increases in coverage are also popular.

Premiums are issue-age-based level premiums. Virtually all LTC policies are guaranteed renewable, meaning that premiums can be increased if overall experience warrants, although, of course, not on an individual policy basis. Current LTC policies may provide nonforfeiture benefits (for example, paid-up

options or cash surrender values), usually by an optional rider.

Currently premiums are not tax deductible to the individual and benefits received are tax-free. Tax law changes have been proposed that would permit deductibility of LTC premiums without requiring taxability of benefits.

Long-term care is an important coverage, especially to the senior market. As such, it continues to receive regulatory attention. Some state regulators want to cap premium increases or require noncancelable premiums. Also being contemplated is a requirement to provide nonforfeiture benefits.

GAAP Reserving

Under the definition of the *Statement of Financial Accounting Standards No. 60 (SFAS 60)*, guaranteed renewable LTC policies are long-duration contracts. Benefit reserves are required. These reserves will be calculated on the net level method using assumptions that are realistic with provision for adverse deviation (pad) in experience.

The choice of a morbidity assumption can be challenging. LTC claims are notoriously difficult to project. LTC policies are characterized by claim costs that increase steeply with attained age. Pricing studies indicate that loss ratios may be as low as 20 to 25% in the first few durations, increasing to 90 to 100% or higher, in later durations. The actuarial problem is that it is difficult to estimate the size of an elephant just by looking at the size of its tail.

LTC claims are also characterized by many short stays and relatively few long-term confinements. However, the long-term confinements contribute the larger part of the benefit cost. The infrequency of the few larger claims contributes to wider variability of experience compared with other coverages for which claim frequency is higher and thus more predictable. Therefore, even if the best experience studies were available, a company's experience in a given year could vary widely from the average.

And the best experience studies are not available. Sales of LTC policies have been increasing rapidly in recent years as the value of this type of coverage has become increasingly evident. One implication of increasing sales is that most current blocks of LTC business are relatively immature, on the average perhaps only five or 10 years old. This means that currently available experience studies do not fully reflect the

potential effects of cumulative antiselection. The risks are particularly great in light of steeply increasing claim costs with advancing age.

The uncertainty of future morbidity for LTC reserving suggests the use of larger assumption "pads" than for other coverages with more predictable morbidity. The pad is added to realistic assumptions. Pricing may be the best basis to use for realistic assumptions. The pad may consist of a 10 or even 20% increment to pricing claim costs. Perhaps a better approach would reflect the increasing possibility of antiselection over time, with a pad of 5 to 10% in the first few policy years increasing to 15 to 20% in later policy years.

A difficult question may arise if experience begins to develop adversely. For example, there was one case in which actual loss ratios on a book of LTC business were 45%. This seemed favorable until the company compared its experience to pricing. For the average policy duration of the business, the pricing expected the loss ratio to be only 30%. Does this indicate experience at 150% of expected? If so, the business would be unprofitable. Should a loss be recognized? Is the experience credible? In this case, the company made changes to its pricing, marketing, and underwriting practices. Loss ratios overall, and on new business, are now more closely in line with pricing expectations. No loss was recognized because the block of business, in totality, was considered profitable.

Other assumptions need to be chosen carefully. Life insurance mortality tables would seem appropriate—neither substandard mortality nor highly self-selected tables would seem preferable. If conservatism is desired for this assumption, lower mortality should be used. The interest rate assumption should be at a level consistent with the long potential life of LTC policies. Investment income is a significant component of the performance of the contract, and it should not be overstated. Because of the release of reserves at lapse, benefit reserve factors are quite sensitive to assumed lapse rates. And the level of maintenance expenses over the long term, and their likely inflation, should be carefully considered. All assumptions are important because LTC policies develop substantial benefit reserves, because of the heavy prefunding of benefits.

The deferred acquisition cost asset (DAC) is calculated using the same interest and persistency assumptions as benefit reserves. Amortization periods of 20 to 25 years would not be out of line for business issued at ages typical for LTC business (55 to 75). Factor methods work well for LTC business, perhaps better than

worksheet methods. With factor methods, the DAC amortization period is consistent with the maximum policy lifetime (for example, to age 95 or 100). Hence, DAC is amortized over the same period for which benefit reserves are calculated. Worksheet methods often use a shortened amortization period for convenience and conservatism. In conjunction with substantial conservatism in benefit reserves, the more rapid amortization of DAC may inadvertently introduce undue conservatism into the DAC, and hence the net GAAP liability. This may unduly depress profits in the early policy years.

After determining reserve and net premium factors, the total net premium for benefits, maintenance expenses and DAC should be compared to the gross premium. If the net premium is larger, then the pad in assumptions may be too large and should probably be reduced. This net-to-gross test is a good indicator of likely or potential underpricing. If the pad is reduced but the net premium still exceeds the gross, the situation is one of nonrecoverability. Part of the DAC that would be set up at issue should be eliminated, such that the net premium based on the reduced DAC does not exceed the gross premium.

Rider Coverages

Rider coverages, in general, require their own GAAP benefit-reserving process. Often riders can be overlooked in establishing DAC because all acquisition expenses eligible for deferral are captured regardless of their association with a base policy or attached rider. Benefits, however, are often materially enhanced by added riders.

One example, already mentioned above, is the benefit-inflation rider. The added component of benefit provided by the rider should not be ignored. Usually, with shorter benefit periods (for example, two or three years), a simple adjustment will suffice. For example, a daily benefit of \$100 in the first year, followed by \$105 in the second year, and \$110 in the third, could simply be reserved for as a level \$105 benefit. This should be slightly conservative overall. For lifetime benefits, the value of the inflation rider should be calculated accurately, because it may add 30 to 50% to base policy reserves.

Other riders should be reserved separately, as is the case with life insurance. Waiver of premium, accidental death, or riders that cover other family members must be reflected. With LTC and cancer coverages, there sometimes is a family discount. For example, a husband

and wife may pay a total premium discounted by 10% relative to two policies purchased separately. The actuary should carefully evaluate the basis for the discount when setting reserves. If the price discount is warranted by expectations of reduced morbidity or reduced administrative expense, then a reduced reserve for the spouse coverage, or rider, relative to a base policy, is appropriate. On the other hand, the discount may be warranted more by marketing considerations than expectations of reduced cost. In that event, the spouse rider should be reserved for as if it were a stand-alone base policy, that is, with full benefit reserves. If in doubt about whether benefits and costs will really be lower for the spouse coverage, the actuary should most likely remain conservative in reserving.

Cash surrender value and return-of-premium (ROP) riders are often sold with supplementary accident and health coverages, including LTC and specified disease policies. These riders return a percentage of cumulative premiums less claims paid through the rider term. The riders may cover periods of 10 to 25 years. The riders may have a “reset” feature, in which case cumulative premiums and claim are reset to zero if cumulative claims exceed a certain level relative to premiums. The premium returned are not only those of the rider but also the premiums of the base policy.

These riders can be very difficult to price and reserve. A common approach is to reserve for the pure endowment value of the return of premium or cash-value benefit, given the term remaining to endowment. The benefit amount should assume that all premiums have been paid up to the date of the endowment, not just the valuation date.

The pure endowment reserve is reduced dollar-for-dollar by the amount of cumulative claims paid. A possible modification to this approach would also recognize expected future claims. The difficulty here is that the return of premium benefit is never less than zero. Thus a few policies with large claims may receive zero ROP benefit. Most other policies, however, would receive a full or partial benefit. Overall, the ROP benefit is reduced by less than the total amount of claims. Thus a reduction in reserve of expected future claims would reduce reserves by too large an amount.

Policy Conversions

Revised policy forms are often introduced in the A&H marketplace. Should reserves and DAC be carried

over to the new policy? GAAP provides specific guidance in the case of traditional life insurance business that rolls over to universal life policies (the guidance: no carryover of DAC). For other types of conversion, the guidance is less specific. Let us consider an illustrative example. Company X wants to limit its exposure under a guaranteed renewable hospital plan with an unlimited surgical schedule and breakeven profitability. It will offer a new plan with lower limits on surgery, higher limits on the daily room and board benefit, and somewhat higher premiums. Agents will be paid a commission on the increase in premium, but the premium remains based on the policyholder’s original issue age.

In practice, treatment of both reserve and DAC has varied. Releasing reserves completely seems optimistic. Holding reserves as if the overall higher level of benefits and premiums had been in effect since inception seems overly conservative. A practical solution is to calculate benefit reserves using the new policy benefits but based on two layers. The first layer matches the reserves on the old policy, the second provides reserves for the incremental benefits, starting at the date of conversion. This approach is analogous to prospective unlocking.

By analogy, it seems appropriate to roll over the unamortized DAC balance into the new policy. The old balance, together with any additional acquisition cost (for example, commissions on the increased premium), will be amortized in proportion to premiums over the remaining lifetime of the converted policy. Depending on the circumstances, a lifetime of 20 years or shorter may be appropriate. If the new policy is profitable, there is neither a gain nor loss at conversion and future profits will emerge in proportion to future premiums.

Closing

This article concludes the four-part series. These articles have provided a number of insights based on experience with various types of accident and health policies. Of course, the approaches suggested here are not the only valid ones. Health actuaries often find highly creative solutions to complex reserving and pricing questions.

The author acknowledges considerable assistance from his colleagues within Ernst & Young LLP, who have contributed many insights and valuable comments.