APPENDIX B

Actuarial Standards of Practice

INTRODUCTION

Actuarial Standards of Practice (ASOP) are published by the American Academy of Actuaries (AAA) through an assigned governing body called the Actuarial Standards Board (ASB). They essentially set the rules that should be followed by it members with respect opinions (or work-products).

ASOP No. 1. Introductory Standard of Practice is the ASOP that broadly deals with issues that are common to all of the other ASOPs (some 47 in number). Some ASOPs are applicable to all practice areas (Life, Health, Pension,. P&C, ERM); some are applicable to only a single practice area (Health, e.g.). Other Work-Products discussed in this Text are as follows:

ASOP No. 3 Continuing Care Retirement Communities (May 2011)
ASOP No. 5. Incurred Health and Disability Claims (May 2011)
ASOP No. 6. Measuring Retiree Group Benefit Obligations (May 2011)
ASOP No 12. Risk Classification (May 2011)
ASOP No. 23. Data Quality (May 2011)
ASOP No. 25. Credibility Procedures applicable to Health Coverages (May 2011)
ASOP No. 41. Actuarial Communications (May 2011)

For source documents, visit www.actuarialstandardsboard.org/asops.asp.

ASOP No. 1
Introductory Actuarial Standard of Practice

Introduction

This ASOP (a) describes the operations of the ASB, (b) outlines the general content and format of an ASOP, (c) discusses several terms that are used frequently in ASOPs, (d) defines the expected level of practice (not merely the present practices) and (e) standardizes the acceptable level of deviation for all ASOPs.

Key Changes

The key changes are these: (a) must/should distinction is made clear and (b) the meaning of deviation is clarified.

Glossary and Definitions

See the *Master Glossary* where all off such from all ASOPs are set forth. The meanings of terms may change by ASOP, but such are beyond the scope ofthis Text to discuss.

Purpose and Format

Each ASOP guides the actuary in four ways; what is (a) considered, (b) done, (c) documented and (d) disclosed.

Principle One. The ASOP should promulgate a standard for appropriate actuarial practice.

Principle Two. The ASOP should not be used to (a) shift any professional or legal responsibility from the actuary or (b) fix any guilt of malpractice. The actuary is expected because of education and experience to understand and apply the ASOPs in an appropriate manner.

Principle Three. An ASOP deals with the common, not the uncommon, situation.

Principle Four. The ASOP deals with principles and does not micromanage.

Principle Five. Laws or regulations must take precedence over the ASOP

Principle Six. The actuary should not rely only on the ASOP but should also rely on other relevant published materials.

Principle Seven. The Effective Dates of the SOPs must be adhered to carefully..

ASOP No. 3

Continuing Care Retirement Communities

Introduction

Because of many changes in needs and formatting of the ASOPs it was deem to be necessary that a new version of this ASOP be issued. One of the major reasons for the length of this ASOP is the paucity of educational materials on the Continuing Care Retirement Communities CCRC).

Purpose and Scope

Purpose. The purpose is to guide actuaries in the providing of actuarial services to CCRC. Such may be either profit or non-profit.

Scope. The end-user of such services may be (a) owners, (b) operators, (c) financing entities, (d) residents (or prospective residents), (e) regulators or (f) professionals of a CCRC. There are ten examples of such actuarial services to a CCRC: (a) using an actuarial balance as a way of testing the financial solvency of a CCRC, (b) estimating the actuarial value of assets and liabilities, (c) estimating proper resident fees for residents or a group of new residents, (d) developing population projecting projections (particularly the migration from independent living to assisted living to health center living), (e) projecting cash flows, balances, etc., (f) designing and pricing new residence agreements, (g) estimating future service obligations under GAAP, (h) assisting in the development of financial feasibility studies, (i) make morbidity, mortality and turnover experience studies and (j) develop mortality, morbidity or life expectancy studies to be used by the CCRC. The actuary may depart from the this ASOP (a) to comply with applicable laws, regulations, etc. or (b) for any other reason but only such if (a) such is (a) deemed appropriate by the actuary and (b) disclosed as part of the work-product.

ASOP No. 5

Incurred Health and Disability Claims

Introduction

Significant changes from the prior ASOP are these: (a) the new ASOP is reformatted so as to be consistent with other ASOPs, (b) such reserves are extended to incurred claims in total rather than just unpaid claims liabilities (i.e., the paid portion of the incurred claims Is addressed), (c) claims settlement expenses are no longer part of ASOP No. 5 but rather is governed by it own ASOP and (5) deficiency and active life reserves are governed by a special ASOP.

Purpose and Scope

Purpose. Such claim reserves are needed ithe (a) financial reports, (b) claims studies, (c) rate setting or (d) other actuarial studies.

Scope. The affected entities include (a) insured plans, (b) self-funded plans, (c) managed care or HMO plans, (d) health care providers, (e) government-sponsored arrangements of regulators. It excludes (a) active life reserves, (b) deficiency reserves or (c) claims expense reserves. It does not deal with financial or regulatory issues.

Analysis of Issues and Recommended Practices

Introduction. This work-product is most important to health plan management.

Considerations with Claim Reserve Setting. They are nine in number: (a) plan provisions, (b) plan sponsor business practices, (c) extraneous economic conditions, (d) relevant medical practices, (e) applicable claims practices, (f) risk characteristics, (g) benefit carve-outs, (h) legal/regulatory requirements and (i) special problems with long-term contracts.

Analysis of Incurred Claims. In this determination, the following factors should be considered: (a) plan provisions, (b) analysis of the submitted data, (c) what margins of safety might be appropriate and (d) the time value of money.

Categories of Incured Claims. There are multiple ways of categorizing; (a) due and unpaid, in course of settlement and IBNR, (b) lag data or individual, etc.

Reinsurance. This issue should be specifically addressed.

Large Claims Pattern. This would include the lawsuits, COB, subrogation, etc.

Other Considerations. These would include (a) managed care and (b) data considerations.

Reserve Developmental Methods. These include: (a) lag data, (b) tabular and (c) other. The process of reserve testing is included as an other method.

Communications and Disclosures

The actuary should follow the relevant ASOPs that deal with this topic.

ASOP No. 12
Risk Classification

Introduction

Actuarial guidance in risk selection became needed as the process (a) grew increasingly difficult and (b) was subject to more public scrutiny.

Purpose and Scope

Purpose. Deals with the (a) designing, (b) reviewing or (c) changing risk classification systems.

Scope. It deals with risk classification. Professional services must be involved. It is all about the relative likelihood of expected outcomes – personal or financial – individual or group. The range of professional services: (a) expert advice or testimony, (b) legislative or regulatory assistance, (c) public policy statements. A plethora of actuarial activities may be involved: (a) rates, (b) funding, (c) dividends, (d) benefits, etc.

Analysis of Issues and Recommended Practices

In General. Best actuarial judgment must be carefully applied.

Risk Characteristic and Their Careful Selection. These four considerations should prevail: (a) there must be an established relationship between the risk factor and the expected outcome, (b) it is no necessary to know the cause and effect but only to know that it exists, (c) the process must be objective, practical and legal as well as (d) follow generally-accepted business and industry practices.

Consideration in Establishing Risk Classes. There are four considerations: (a) they must be appropriate to their intended use, (b) three critical actuarial issues must be accounted for (adverse selection, credibility and practicality), (c) legality, industry practices ss well ss the business practices of the intended user(s) and (d) reasonableness of results.

Testing the Risk Classification System. The testing protocol is in four parts: (a) measure the effect of adverse selection, (b) test alternate classification options, (c) analyze the effect of changes and (d) perform quantitative tests (where possible or practicable).

Documentation. The actuary should document the work.

Disclosure. There should be full disclosure of all relevant items following ASOP 23 and ASOP 41 such as (a) significant limitations due to applicable laws (b) significant departures from industry practices, (c) significant departures due to the business practices of the end-user, (d) experience indicating the need for a change in the underwriting rules, (e) material adverse effect of anti-selection and (f) applicability of ASOP No. 41.

ASOP No. 23
Data Quality

Purpose and Scope

Purpose. This ASOP is to provide guidance in five ways: (a) selecting the data that is the basis of the work-product, (b) relying on the data that is submitted by others, (c) reviewing the data, (d) using the data and (d) making appropriate disclosures with respect to the data quality.

Scope. The actuary is not required to audit the data. Special guidance is required if the actuary fails to fully comply with this ASOP because of legal or regulatory requirements.

Analysis of Issues and Recommended Practices

Overview. It is quite usual that the submitted data is not totally accurate, comprehensive and appropriate. The actuary is permitted to provide the work-product in such situation but the imperfections in the data should be disclosed along with their implications. There are **six** data actions that should be considered: (a) selection of data, (b) reliance on data that is submitted by others, (c) reliance on other information that is relevant to the use of sch data, (d) review of data, (e) limitation on the responsibility of the actuary and (f) use of the data.

Selection of Data. The quality of the work-product is in direct proportion to the quality of the submitted data. In planning the work, the actuary should contemplate (a) the data that is needed and (b) the data that is available. The data selection process should involve the following considerations: (a) Is it appropriate and current? (b) Is it reasonable and comprehensive? (c) Does it have any known limitations? (d) What is the cost, feasibility and practicality of obtaining the data? (e) Is it prudent to consider other data sources? And (f) might sampling methods be appropriate?

Reliance on Data That Is Supplied by Others. Data submitted to the actuary is the common. The actuary may rely on such data subject to the common caveat cited in a following Paragraph. Disclosure of the actuary's reliance on such data must be disclosed.

Reliance on Other Informatiion Relevant to the Use of the Data. Other information might include plan document, SPD, stop-loss agreement, e.g. The actuary may safely rely on such items in the absence of any evidence that it is unreliable or inappropriate. The use of such data should be disclosed by the actuary.

Review of Data. The submitted data should be review the data for both (a) reasonableness and (b) consistency even though there is no evidence hat there may be a problem therewith. This practice my be waived if the actuary's professional judgment is

that such review is not needed. There are three things that the actuary should do in this review: (a) carefully define the data, (b) identify any questionable data values and (c) review prior data.

Limitation on the Responsibility of the Actuary. The actuary is not obligated to (a) determine that the data was falsified or fraudulently-provided, (b) expend an extra effort in search for questionable or inconsistent data and (c) audit the data.

Use of the Data. After reviewing the data, the actuary may arrive at any of these conclusions: (a) the data are usable, (b) the data must be corrected, enhanced, expanded etc. before it can be used, (c) the data may be used but only with caveats, (d) the data may be used but only with commentary in the opinion or (e) the data are not usable.

Documentation. ASOP No. 41 requires that the actuary's documentation with respect the data include the following: (a) how the actuary evaluated the data including the review of the data of the prior year(s), (b) a description of the defects, if any, in the submitted data, (c) a description of the manner in which the data was modified and (d) any other document deemed to be appropriate.

Communications and Disclosures

In addition to the prior disclosures, the following should be disclosed: (a) the source(s) of the data, (b) whether or not the actuary did review the data and a commentary on the use of the data as a result thereof, (c) the extent to which the actuary relied on the data supplied by others, (d) any material modifications made so as to permit the actuary to provide an opinion, (e) any way by which the data review of the actuary might affect the way in which the opinion should be used, (f) any unresolved concerns of the actuary, (g) any uncertain results, their magnitude and whether they are measurable, (h) any aspects of the opinion that might be affected by laws or regulations, (i) any way in which the opinion of another actuary was relied upon and (j) any way in which an ASOP was breached.

ASOP NO. 25

Credibility Procedures Applicable to Accident and Health, Group Term Life and Property and Casualty Coverages

Background

While of importance to ratemaking and prospective experience rating, such is also used for other purposes. This ASOP deals with the assignment of credibility values to data. The ASB believes that a single standard of credibility for all three practice areas would be helpful. The ASOP is the result of this collaboration.

Purpose and Scope

Purpose. The purpose is to guide actuaries in the selection of a credibility procedure and the assignment of credibility values to sets of data including subject experience and related experience.

Scope. I covers all practice areas. It includes self-funding. I covers a broad range of work-products. This ASOP does not apply to pension or annuities.

Definitions

Credibility. A measure of the predictive value in a given application that the actuary attaches to a particular body of data. Predictive is used in the statistical and not the futuristic sense.

Full Credibility. The level at which the subject experience is assigned full predictive value based upon the selected confidence interval.

Related Experience. Premiums, losses, exposures, expenses and other relevant data for coverage analygous to the coverage under consideration. Other data may include established rate levels or differentials. Such data might come from outside sources.

Subject Experience. Premium, losses, etc. that is directly relevant.

Analysis of Issues and Recommended Practices

Purpose and Use of Credibility Procedures. The purpose is (a) to blend information from the subject experience with information from one or more sets of related experience

when the when the subject experience does not have full credibility in order to improve the estimate of expected values or (b) to determine when the subject experience should have full credibility and such blending is not needed. Credibility procedures (a) should be used for ratemaking and prospective experience rating and (b) may be used for other purposes.

Selection of Credibility Procedures. The actuary should be familiar and consider various methods of determining credibility. The options, and their applications are quite extensive. Their cost-effectiveness should be considered. Such model-selecting and parameter-setting might be quite extensive. The selected credibility procedures should do te following: (a) yield results that are reasonable in the judgment of the actuary, (b) introduce no bias into the results, (c) are practical and (d) consider the issues of a valanced responsiveness and stability.

Choice of Related Experience. Such selected similar experience should have characteristics ((frequency severity, e.g.) that are similar to the subject experience. The related experience should be used only if it will improve the final result. The actuary should use credibility protocols as a guide in making the decisions.

Informed Actuarial Judgment. In applyuing credibility protocols, the actuary should apply informed judgment. Credibility procedures do not always involve a mathematical analysis

Homgeneity of Data. The data often will not be homogenous which means that (a) it either should not be used or (b) it should be segmented.

Communications and Disclosures

Where practical, the credibility procedures should be disclosed. Any material changes from prior procedures should be disclosed. ASOOP No, 41 should be followed.

ASOP No. 41
Actuarial Communications

Purpose and Scope

Purpose. The topic is actuarial communications in its broadest sense.

Scope. This ASOP applies to all work-products regardless of the practice area. This ASOP may supplement and/or enhance another work-product but inconsistencies shall not be permitted. This ASOP shall not overcome or supersede any legal requirements. But if so done, should be so mentioned in the opinion. The terms work-product and actuarial opinion are synonymous.

Analysis of Issues and Recommended Practices

Requirements for Actuarial Communications. There should be clear communuications between the actuary and the intended end-user with respect to seven issues: (a) scope of the requested work-product, (b) the methodology used, (c) the procedures, (d) the assumptions, (e) the submitted data, (f) other information submitted that is relevant and (g) the manner by which the work-product is to be delivered. With respect the actual communication of the work-product, the following four rules shall be followed: (a) the work-product should be clear in form and content appropriate to the circumstances, (b) the work-product should be delivered with a reasonable time schedule and (c) the actuarial responsible should be clearly identified.

Actuarial Report. The signing actuary should consider and anticipate the work-product to be acted upon by he intended user. Careful attention should be given to a work-product that consists of multiple docment. The work-product should identify the methods, procedures, assumptions, submitted data and findings with sufficient clarity that another actuary may obtain such and understand it.

Specific Circumstances. The content of the work-product should be constrained by circumstances. The actuary is free to deviate from the mandate of this ASOP if such is both defensible and communicated.

Disclosures within the Work-Product. There should be disclosure in the work-product with respect the following issues: (a) needed comments on uncertainty or risk, (b) conflict of interest, (c) reliance on data from another source and other information and (d) responsibility for assumptions and methods.

Information Date of Record. The relevant dates for the data and findings should be disclosed.

Subsequent Events. These should be disclosed by the actuary if any of the following four conditions are met: (a) it becomes known to the actuary after the latest date in the work-product, (b) before the work-product is issued, (c) it has a material effect on the work-product or (d) it is not practical to revise the work-product.

Explanation of Material Differences. Any material differences between the subject work-product and similar ones provided by the same actuary should be explained and justified.

Oral Communications. Oral communications are good and proper so long as they are not used to confuse or mislead. Where such is a possibility, a follow-up written memorandum should be considered.

Responsibility to Other Users. The actuary should deliver the work-product in a manner that eliminates the likelihood that it might confuse or mislead an unintended user.

Retention of Submitted Data. The actuary is free to retain the submitted data for as long as is wished. It does npt have to be disclosed to any one. The submitted data should be retained out of courtesy if there ever is to be a successor actuary.

Communications and Disclosures

Disclosure in any Actuarial Communication. Two included essentials are these: (a) the responsible actuary should be named and (b) the work-product should be clearly identified. In addition, the following identifications should be in the work-product: (a) The intended user (not necessarily the end-user), (b) scope and intended purpose of the engagement or assignment, (c) statement that the signing actuary is qualified, (d) any cautions about risk or uncertainty, (e) any requisite limitations or constraints, (f) any conflict of interest, (g) any data that was used in the work-product for which the actuary does not assume responsibility, (h) critical date with respect the data, e.g., (i) any subsequent event data and (j) supplemental documents.

Certain Assumptions or Methods Prescribed by Law. If such prescribing by is the case, it should be disclosed in he Work-Product, specifying (a) he applicable law, (b) the detaials as to what the law prescribes and (c) that the work-product was prepared in accordance with such law.

Responsibility for Assumptions and Methods. Where the assumptions were selected by a person who was not the actuary, the following should be disclosed: (a) a designation of the (a) other party, (b) a description of the subject assumption, (c) the reason why this was done and (d) the impact on the results of such action.

Deviation from the Guidance of this ASOP. The actuary is free to vary from the ASOP but must make a statement justifying such if a deviation is made.

ASOP No. (DRAFT)

Modeling

Background

In casualty insurance, actuaries in their pricing and reserving work-products often had to relay the models dealing with natural catastrophes (hurricanes, e.g.) that were developed by other professionals. As a result, ASOP No. 38 was issued dealing with this specifice practice.

In recent years, many insurers have developed models applicable to their life and annuity business. Almost all actuarial work involves modeling to some extent. This ASOP focuses on on general practices recognizing there are many deviations possible.

Purpose and Scope

The ASOP applies to actuaries who (a) use, (b) design, (c) build, (d) develop or (e) modify models in performing actuarial services. It applies to all models in all practice areas. There are many instances where this ASOP will not apply.

Definitions

Assumptions. A type of input to a model that represents (a) expectations or (b) possibilities based upon the professional judgment of someone.

Data. Facts and documentation to be inputted into the model that comes from records, experience or observation.

Granularity. A term that dnotes the extent to which he model has numerous (as opposed to few) cells or subsets. The more cells, or greater the granularity, the more accurate will be the model.

Implementation. This is the executable form or te model; exempless are (a) computer program, (b) spreadsheet, (c) database or (d) any combination thereof.

Input. Such is in three parts: (a) data, (b) assumptions and (c) parameters.

Intended Application. The designer's planned purpose for rhe model.

Intended Purpose. Such may be one of the following: (a) planned application or (b) project's objective or (c) both. The *Intended Application* applies if the role of the actuary includes (a) designing, (b) developing or (c) building the model. The *Project's Objective*

applies if the actuary is(a) selecting or (b) using the model in an actual project without regard to the model's derivation.

Margin. The adjustment in the model for uncertainty.

Model. It is a (a) representation of relationships (b) among entities or events using (c) statistical, economic, financial or mathematical (d) concepts and equations. The uses of models include (a) help explain a system, (b)study the effects of different components, (c) derive estimates and (d) guide decisions. A model is in three parts: (a) the specifications that that describe the input and their relationships, (b) the implementation that results from formulas and algorithms and (c) the realization that produces the output.

Neutral. Model-related input or methodologies which are not loaded for any anticipatory risk-related margins or loadings.

Organization. The entity that is being modeled in whole or in part.

Parameter. The in,put to the models (financial, mathematical, economic or statistical).

Principal. A client or employer of the actuary.

Project's Objective. This is the specific goal or question that is being sought by the model.

Realization This term is synonymous with model results.

Reproducible. The model should yield the same results so long as the input is the same.

Specification. Such are also referred to as the computer specs.

Analysis of Issues and Recommended Practices

Application of ASOP Guidance

This ASOP applies to all models and to all practice areas.

Model Reliance and Financial Impiortance
The full application of this ASOP sould be applied when (a) the users rely heavily on the results and (b) the results are financially significant.

Models Develped by Others
The using actuary should make a good-faith effort to (a) know the model's objectives, (b) understand its basic workings, (c) discern the major sensitivities and dependencies of the model and (d) be familiar with its strengths and limitations.

How the Actuary May Avoid Litigation

Incidence of Litigation Involving Actuaries is Increasing

The reasons are four in number: (a) actuaries are more prominent and active than in the past, (b) under-reserving is a more frequent phenomenon in a stagnant economy, (c) the commercial world is becoming more litigious and (d) the actuary with predictable E&O has become an easy target.

Litigation Nearly Always Involves the Elements of Malpractice

There are four such in number: (a) violating actuarial standards of practice, (b) injuring a party to whom the actuary has a legal and professional duty, (c) causing a definable financial loss to the client and (d) resulting in damages that are measurable and that should be paid to the client. Even if the negligence of the client contributed to the loss, such will be no defense if the actuary mal-practiced.

Helpful Guides to the Avoidance of Litigation

Carefully follow the following: (a) Code of Professional Conduct, (b) Qualification Standards and (c) the Actuarial Standards of Practice. It is malpractice to violate any of these actuarial standards. Three operational rules are these: (a) keep all relevant standards in mind, (b) if guides are not followed, so state in the opinion and then be prepared to defend and (c) carefully document. Documentation is a huge and important subculture; it is not possible to over-document if the actuary is serious about avoiding litigation. It is a bad experience to be in litigation and also to have mal-practiced. The actuary my be in litigation even when there are no ASOPs.

Helpful Steps to Avoidance of Litigation

There are four in number: (a) carry EE&O coverage, (b) be sure all of the actuary's business relationships are appropriate and above reproach, (c) be very careful with high risk engagements and (d) perform off the checks and balances that are reasonable. Study the Enron and the Arthur Anderson scandals.

About Documentation