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**Individual Disability Valuation Standard
Report of the
Joint American Academy of Actuaries/Society of Actuaries
Individual Disability Tables Work Group**

**Presented to the National Association of Insurance Commissioners'
Health Actuarial Task Force**

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The American Academy of Actuaries is an 18,500+ member professional association whose mission is to serve the public and the U.S. actuarial profession. The Academy assists public policymakers on all levels by providing leadership, objective expertise, and actuarial advice on risk and financial security issues. The Academy also sets qualification, practice, and professionalism standards for actuaries in the United States.

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TABLE of CONTENTS

Executive Summary

- A) [Background and Purpose](#)
- B) [Influences and Scope](#)
- C) [Summary of Recommendations](#)

Development of Recommendations Regarding Standard

- D) [Valuation Table Development—2013 IDI Base Table Incidence Rates and Termination Rates](#)
- E) [Valuation Table Development—Base Table Margin](#)
- F) [Valuation Table Development—Mortality Improvement](#)
- G) [Company Specific Experience—Disabled Life Reserves](#)
- H) [Company Specific Experience—Own Experience Measurement](#)
- I) [Company Specific Experience—Own Experience Measurement Exemption](#)
- J) [Company Specific Experience—Credibility](#)
- K) [Company Specific Experience—Own Experience Margin](#)
- L) [Floor Reserves](#)
- M) [Mental Disorder and Other Limitations—Related Terminations](#)

Next Steps

- N) [New Valuation Standard Application and Transition Rules](#)
- O) [NAIC Adoption](#)

Appendices

- 1) [Proposed Revision to Health Insurance Reserves Model Regulation](#)
- 2) [Additional Background Information](#)
- 3) [Draft Actuarial Guideline](#)
- 4) [Employer Sponsored Claim Incidence Modifiers](#)

EXECUTIVE SUMMARY

A) Background and Purpose

Individual disability income (IDI) insurers hold reserves for future obligations. These include the following:

1. Active life reserves (ALRs)—for claims that have not yet been incurred. Key morbidity assumptions are claim incidence rates (probability of becoming disabled) and claim termination rates (probability of recovering or dying). ALRs are held for contracts when net premiums prefund future claim costs. This occurs when premiums are level and claim costs are non-level, but also may occur with other premium structures.
2. Disabled life reserve (DLRs)—for claims that have been incurred. The key morbidity assumption is claim termination rates. DLRs are held to recognize the full present value of the expected claim payments for claims that have been incurred.

Both of these reserves are typically calculated on a seriatim basis using assumptions that include measurement of the expected number of monthly payments and payment amounts.

The purpose of this report is to recommend to the National Association of Insurance Commissioners (NAIC) a new statutory valuation standard basis for morbidity—specifically, claim incidence and termination rates for use in calculating statutory ALRs and DLRs. The current statutory morbidity basis is the 1985 Commissioners Individual Disability Table A (85CIDA) for ALRs and the 1985 Commissioners Individual Disability Table C (85CIDC) for DLRs.

In 2012, the Society of Actuaries' Individual Disability Experience Committee (SOA IDEC) completed a study regarding claim experience for 1990-2007 (2006 for incidence). The study captured experience from 17 companies, representing 90 percent of 2011 sales (source: LIMRA—Disability Income Sales—2011 Annual Sales). One company's data represented approximately 50 percent of total exposure and was scaled back to 40 percent, resulting in a study of about 300,000 claims on a weighted basis. (No data was excluded. Factors were applied to lower the weighting of this company's data.) The SOA IDEC used the study results to build new experience tables (i.e., the 2012 IDEC Claim Incidence and Termination Tables). The SOA IDEC report was published in March 2013.

In December 2012, the SOA IDEC presented a new experience study to the Health Actuarial Task Force (HATF) of the NAIC. The objective was to initiate a project that would incorporate the new tables into IDI valuation standards. HATF asked the American Academy of Actuaries (Academy) to form a work group, the joint Academy/Society of Actuaries Individual Disability Tables Work Group (IDTWG), which was charged with revising the valuation standard to replace the 85CIDA and 85CIDC tables.

This report describes the IDTWG's proposal to amend the current NAIC Model Regulation by introducing the 2013 IDI Valuation Table and proposing a new actuarial guideline applicable to IDI tabular reserves. The IDTWG believes that the use of an actuarial guideline is

appropriate to handle the multiple segments of the 2013 IDI Valuation Table, the computations of a company's own experience, and the application of credibility, which normally are not found in model regulations.

This report documents the processes and deliberations the IDTWG used to arrive at its proposal. A draft of a revised model regulation is shown in Appendix 1. The report includes a draft of the new proposed actuarial guideline in Appendix 3.

This report was exposed for comments from Jan. 1, 2014, to June 30, 2014. The report has been modified to address comments received. In addition, the Academy Tax Work Group reviewed the report for potential federal tax implications and provided issues for consideration. These issues have been considered, and some changes were made in instances in which the IDTWG felt it was appropriate.

B) Influences and Scope

The IDTWG identified the following as key elements to consider in the effort to update the IDI valuation standard.

- Worksite individual disability income policies with a maximum benefit period of 24 months or less are out of scope of this report. Worksite disability policies are individual, short-term disability policies that are sold at the worksite through employer-sponsored enrollment, cover normal pregnancy, and have benefit periods up to 24 months. Worksite disability policies do not include personal disability policies sold to an individual and not associated with an employer-sponsored enrollment. They also do not include business overhead expense, disability buyout, or key-person policies, in whatever manner those policies are sold. For worksite disability policies, DLRs may be calculated using claim run-out analysis, claim triangles, or other methods that place a value on the reserves that are appropriate for the business and risks involved. For worksite disability policies, active life minimum reserves are based on the 2013 IDI Valuation Table.
- The proposal will focus on ALRs and DLRs;
 - Other liabilities, such as incurred but not reported (IBNR) reserves, will not be addressed.
- The proposal will focus only on incidence and termination assumptions;
 - Non-recovery and non-death assumptions (e.g., "limit terminations," Social Security and other benefit offset assumptions, and cost-of-living rider assumptions) will not be addressed. For these, companies could continue to use assumptions that they determine are appropriate.
- The proposal introduces credibility to balance use of the 2013 IDI Valuation Table and company experience as the morbidity basis;
- The IDTWG's deliberations consider theories and techniques applied in the development of other valuation standards; in particular, for the [2005 Group Life Waiver of Premium Valuation Table](#), the [2012 Group Long-Term Disability Table](#), and proposed principle-based reserve material; and

- Though not part of the proposal, it may be appropriate to include in the report a section discussing other aspects of reserving that could be useful to both valuation actuaries and state regulators.

With the above high-level guidance, subgroups were formed to develop a proposal regarding:

- Utilization of the 2012 IDEC Claim Incidence and Termination Tables as a starting point;
- Development of the 2013 IDI Base Table, which consists of table basic incidence and termination rates, multiplied by factors reflecting multiple parameters;
- Determination of margins to be applied to the 2013 IDI Base Table to derive the 2013 IDI Valuation Table;
- Computation and use of an insurer's own experience in the calculation of DLRs;
- Determination of margins applicable to an insurer's own experience in the calculation of DLRs;
- Credibility formulas used to define the maximum allowed use of own experience in the calculation of DLRs; and
- Floor reserves or other limits on minimum DLRs.

C) **Summary of Recommendations**

This section summarizes our recommendations for changes in the valuation standards; proposed wording for the relevant model regulations, actuarial guidelines, and manuals to implement those documents; and implementation procedures.

Changes in valuation standards include:

1. Use of the 2013 IDI Valuation Table as the basis for claim incidence and termination rates for ALR and DLR calculations. The table includes an appropriate level of margin; and
2. Established parameters for the use of company-specific experience for DLRs, including subjecting it to a reserve floor.

The report has included appendices that recommend wording for both the Health Insurance Reserves Model Regulation and actuarial guidelines that would affect the changes noted above.

The IDTWG also recommends allowing for a transition period of at least two years to implement the new table and methodology.

The remaining sections of this report address each key aspect of the work conducted by the IDTWG, as outlined in the following table.

Aspect	Report Sections
1. Valuation Table Development	
a. 2013 IDI Base Table	D
b. Base Table Margin	E
c. Mortality Improvement	F
2. Company-Specific Experience—Disabled Life Reserves	
a. Duration Bands	G
b. Own Experience Measurement	H
c. Own Experience Measurement Exemption	I
d. Credibility	J
e. Own Experience Measurement	K
3. Floor Reserves	L
4. Mental Disorder and Other Limitations	M
5. Implementation Recommendations	
a. New Valuation Standard Application and Transition Rules	N
b. NAIC Adoption	O

DEVELOPMENT OF RECOMMENDATIONS REGARDING STANDARD

D) Valuation Table Development—2013 IDI Base Table

The 2013 IDI Base Table represents aggregate industry experience from 1990 to 2006 for claim incidence and 1990 to 2007 for claim terminations. Studies were performed separately for two study periods, 1990-99 and 2000-07, and the results were combined for the purpose of constructing the 2013 IDI Base Table.

The following table lists the contributors to the studies

1990s and 2000s	2000s Only
Ameritas Life Insurance Corporation	Connecticut Mutual Life Insurance Company
Berkshire Life Insurance Company of America	Guardian Life Insurance Company
Illinois Mutual Life Insurance Company	Mutual of Omaha Insurance Company
Massachusetts Casualty	RiverSource Life Insurance Company
Massachusetts Mutual Life Insurance Company	Standard Life Insurance Company
Monarch Life Insurance Company / Penn Mutual	
Northwestern Mutual Life Insurance Company	
Paul Revere Life Insurance Company	
Principal Financial Group	
Provident Life & Accident	
Union Central Life Insurance Company	
Unum Life Insurance Company	

Note that, of the 17 contributors listed earlier, some companies have merged, leaving a current total of 12 companies.

The following table shows the total exposure years and total claims measured in terms of policy count and monthly indemnity for the claim incidence study, and the total monthly claim exposure and terminations measured in terms of claim count and monthly indemnity for the claim termination study. Submitted data is at the policy and claim level, and not at the insured and claimant level.

Claim Incidence	
Exposure - by Count	31,176,637
Exposure - by Monthly Indemnity	72,286,704,431
Claims - by Count	281,124
Claims - by Monthly Indemnity	488,992,473
Claim Terminations	
Exposure - by Count	9,501,594
Exposure - by Monthly Indemnity	20,734,197,904
Claims - by Count	144,187
Claims - by Monthly Indemnity	287,263,859

Structure of the 2013 IDI Base Table

The 2013 IDI Base Table has five occupation classes:

Occ Class	Description
Class M	All medical occupations - doctors, surgeons, dentists, nurses, podiatrists, veterinarians, psychologists, psychiatrists, pharmacists, etc.
Class 1	All other white collar and professional occupations
Class 2	Skilled labor occupations and most sales related occupations
Class 3	Blue collar occupations with light manual duties
Class 4	Blue collar occupations with heavy manual duties

The 85CIDA and 85CIDC tables only had occupation classes 1 through 4, with the medical occupation classes typically included in class 1 and 2. The following table compares the structures of the 2013 IDI Base Table and the 85CIDA and 85CIDC tables.

The IDTWG recognizes that many companies price their current products using multiple medical occupation classes. Also, they often have more non-medical occupation classes. Although there are similarities in the occupation class structure used by many companies, there generally is not much consistency. In addition, the industry data gathered that formed the basis for the table did not always have enough detail to differentiate other medical specialties. In

formulating these five occupation classes for the 2013 IDI Base Table, the IDTWG decided that it could only work with the data that was provided.

Companies are expected to map policies and claims to these five occupation classes as closely as possible in order to use the new valuation tables appropriately.

Claim Incidence	2013 IDI Base Table	85CIDA
Elimination Periods (Days)	0, 7, 14, 30, 60, 90, 180, 360, 720	0, 7, 14, 30, 90 (Incidence rates for other EPs were derived from incidence and termination rates for the 0-, 30-, and 90-day EPs.)
Occupation Classes	M, 1, 2, 3, and 4	1, 2, 3, and 4
Gender	Female, Male	Female, Male
Attained Ages	20 to 69	20 to 65
Age Basis	Age Nearest Birthday	Age Nearest Birthday
Cause	Accident and Sickness	Accident and Sickness
Claim Terminations—Select Durations	2013 IDI Base Table	85CIDA and 85CIDC
Select Claim Durations	Months 1-60, Years 6-10	Weeks 1-13, Months 4-24, Years 3-10
Elimination Periods (Days)	0, 7, 14, 30, 60, 90, 180, 360, 720	0, 7, 14, 30, 90 (Termination rates for other EPs were derived from the termination rates for 0-, 30-, and 90-day EPs.)
Occupation Classes	M, 1, 2, 3, and 4	1, 2, 3, and 4
Gender	Female, Male	Female, Male
Attained Ages	20 to 69	20 to 65
Age Basis	Age Nearest Birthday	Age Nearest Birthday
Cause	Accident CTRs obtained by applying termination rate modifiers by diagnosis (Other Injury)	Accident and Sickness
Claim Terminations—Ultimate Durations	2013 IDI Base Table	85CIDA and 85CIDC
Ultimate Claim Durations	Years 11+	Years 11+
Occupation Classes	Medical and Non-Medical	No distinction
Gender	Female, Male	Female, Male
Attained Ages	30 to 119	30 to 99
Age Basis	Age Nearest Birthday	Age Nearest Birthday
Cause	No distinction	No distinction

As noted in the above table, the 2013 IDI Valuation Table was derived on an Age Nearest Birthday (ANB) basis. To adjust the table to an Age Last Birthday (ALB) basis, the table should be aged by ½ year. For example, age 35 ALB claim incidence or termination rates can be derived by average ages 34 and 35 ANB claim incidence or termination rates.

The base incidence and termination rates of the 2013 IDI Base Table are adjusted by a set of claim incidence and termination rate modifiers that reflect experience differences among key policy and claim segments.

The IDTWG considered including incidence and CTR modifiers by state of issue (i.e., higher incidence in California, Florida, and New York, and lower CTRs in Florida). The IDTWG decided not to do this, which is consistent with statutory minimum reserve bases for other life and health business that does not differentiate by state of issue. Although the new IDI statutory minimum reserve basis will not vary by state of issue, valuation actuaries should be aware that their companies’ own experience may vary significantly for certain states and investigate the need to reflect these differences in their gross premium valuations and cash flow testing.

Claim Incidence Modifiers

Claim incidence modifiers are described below and are multiplicative. The claim incidence modifiers were derived to reflect the underlying differences by segment but not to materially affect the overall actual-to-expected (A/E).

- *Claim Incidence Modifier for Overhead Expense Policies*

The 2013 IDI Base Table claim incidence rates were derived from the experience of accident and sickness (AS) policies only, which represent personal DI policies rather than business policies. Therefore, the incidence modifiers for AS policies were set at 100 percent.

Experience from business policies such as overhead expense (OE), disability buy-out (DBO), and key person (KP) policies were studied by the IDTWG but not included in the data used to develop the Base Table. For OE policies, which had a credible exposure volume of experience, the aggregate ratio to the AS experience was used (66.9 percent).

Because of the low volume exposure from DBO and KP policies, separate claim incidence modifiers could not be developed; ALR for these policies are based on the same factors as OE policies.

Claim Incidence Modifiers by Contract Type

Contract Type	Modifier
AS	100.0%
OE, KP, DBO	66.9%

- *Claim Incidence Modifiers by Smoking Status*

2013 IDI Base Table claim incidence rates for all policies should be adjusted for smoker status, if known. Claim incidence modifiers by smoker status vary by occupation class, gender, and elimination period as provided in the following table.

Claim Incidence Modifiers by Smoking Status

Occupation Class	Gender	Elimination Period (Days)	Smoking Status	
			Nonsmoker	Smoker
M	F	30 and Under	98.6%	135.2%
		60	99.0%	125.8%
		90 and Over	98.8%	134.0%
	M	30 and Under	99.4%	120.5%
		60	98.2%	154.8%
		90 and Over	98.1%	166.4%
1	F	30 and Under	99.3%	108.3%
		60	99.0%	111.2%
		90 and Over	96.8%	135.5%
	M	30 and Under	97.9%	131.9%
		60	96.3%	155.4%
		90 and Over	96.2%	152.5%
2	F	All	98.4%	113.9%
	M	30 and Under	99.0%	114.7%
		60	97.2%	132.4%
		90 and Over	95.7%	149.4%
3-4	M & F	All	98.4%	113.9%

The smoking status claim incidence modifiers should be used whenever the company charges higher premiums to all policyholders who use tobacco. For policies in which the smoking status is unknown, the 2013 IDI Base Table claim incidence rates should not be modified.

- *Benefit Period Modifiers for AS Policies Only*

Claim incidence rates vary by benefit period; policies with longer benefit periods have higher incidence rates. The benefit periods are grouped as lifetime, to age 65-70, and short term for the purpose of classifying the claim incidence modifiers. These claim incidence modifiers also vary by occupation class and elimination period.

Claim Incidence Modifiers by Benefit Period (AS Policies Only)

Occupation Class	Elimination Period (Days)	Benefit Period		
		Lifetime	To Age 65-70	Short Term
M	30 and Under	103.2%	101.3%	95.1%
	60	104.8%	100.9%	90.0%
	90 and Over	118.9%	97.3%	88.7%
1	30 and Under	106.7%	103.9%	92.7%
	60	115.8%	100.3%	90.2%
	90 and Over	141.6%	96.2%	95.6%
2	All	117.2%	98.6%	98.7%
3-4	All	100.0%	100.0%	100.0%

Claim incidence modifiers by benefit period do not apply to non-AS policies.

- *Market Modifiers for AS Policies Only*

Two separate markets for IDI policies have emerged over the years. One market is the employer-sponsored market in which an employer will endorse an insurer's IDI policies for its employees and typically set up a group or list bill for the payment of premiums. The employer may pay all, a portion, or none of the premiums. The terms of coverage available to employees under these arrangements typically are restricted by an agreement between the insurer and the employer. Underwriting for employer-sponsored plans may range from traditional individual underwriting to guaranteed issue when appropriate group underwriting rules are applied. Policies issued under these employer-sponsored arrangements typically will receive a premium discount (e.g., 15 percent and require the participation of three or more lives at issue).

The other market is the individual-bill market in which the insured purchases an IDI policy that is not sponsored by his or her employer. Typically, traditional individual underwriting is used on these policies, although some may be issued as the result of exercising options under future guaranteed insurability riders. Policies issued under endorsements by professional associations for their membership are classified as individual-bill policies, although the endorsement may provide a premium discount for members.

Claim incidence rates for employer-sponsored policies generally have been lower than individual-bill policies because of the reduced level of anti-selection due to the group nature of the sale and the reduced selection of plan options available to employees. The IDTWG understands that there can be significant differences in employer-sponsored experience by the type of underwriting (i.e., traditional medical versus guaranteed standard issue) and who pays the premium (i.e., employee versus employer). However, the original IDEC data collected from companies was not robust enough to quantify these differences and reflect them in separate incidence modifiers. The original report recommended a modifier of 79.9 percent for all employer-

sponsored policies, but there was concern that this category was too broad. The IDTWG performed a separate study on this block, using 2007-12 data gathered from participating companies. Based on that survey, we derived modifiers for different splits of the employer-sponsored business. For individual bill and association policies, the market incidence modifier is 105.3 percent.

Claim Incidence Modifiers by Market

Market	Modifier
Employer-Sponsored—Individual Underwriting	81.2%
Employer-Sponsored—Voluntary GSI	96.7%
Employer-Sponsored—Mandatory GSI	57.4%
Individual Bill & Associations	105.3%

The claim incidence modifiers by market are not applicable to non-AS policies.

Claim Termination Modifiers

Claim termination modifiers are described below. They vary by claim duration and are not applied in the ultimate durations (i.e., Years 11+). Claim termination modifiers are multiplicative.

- *Claim Termination Modifiers by Contract Type*

Claim termination rates were derived from AS experience only. OE contracts have significantly higher termination rates after the first year on claim, which may reflect business dynamics, such as the selling of claimants' businesses, that are not present in typical AS claims.

Claim Termination Modifiers by Contract Type

Claim Duration	Contract Type	
	OE	All Other
Months 1-12	94.7%	100.0%
Months 13-24	259.4%	100.0%
Months 25-60	259.4%	100.0%
Years 6-10	259.4%	100.0%

- *Claim Termination Modifiers by Benefit Type and Cost-of-Living Adjustment (COLA)*

Claim termination rates vary by benefit period; longer benefit periods have lower termination rates. As with incidence modifiers, benefit periods are grouped into lifetime, to age 65-70, and short-term. COLA reduces the to age 65-70 claim termination rates. The impact of COLA on lifetime termination rates is observable, but the IDTWG determined that the impact was not significant enough to be reflected in

the termination modifiers. The claim termination modifiers by benefit type and COLA are not applicable to non-AS policies.

Claim Termination Modifiers by Benefit Type and COLA

Claim Duration	Without COLA Benefits		
	Lifetime	To Age 65-70	Short Term
Months 1-12	78.3%	100.0%	117.2%
Months 13-24	78.3%	100.0%	117.2%
Months 25-60	78.3%	100.0%	117.2%
Years 6-10	78.3%	100.0%	117.2%
Claim Duration	With COLA Benefits		
	Lifetime	To Age 65-70	Short Term
Months 1-12	78.3%	83.5%	117.2%
Months 13-24	78.3%	83.5%	117.2%
Months 25-60	78.3%	83.5%	117.2%
Years 6-10	78.3%	83.5%	117.2%

- *Claim Termination Rate Modifiers by Diagnosis (for DLR Only)*

Claim termination rates vary significantly by the claim diagnosis. Diagnoses have been grouped and then mapped to five sets of claim termination modifiers: 1) very high, 2) high, 3) mid, 4) low, and 5) very low. The claim termination modifiers by diagnosis are utilized only in the calculation of DLRs. ALRs generally take into account incurred claims from all diagnoses in the aggregate, and thus claim termination rate modifiers by diagnosis are not appropriate. An exception is in the case of accident-only policies for which claim termination modifiers for *other injury* should be used. A detailed description of the diagnosis groupings by ICD-9 and ICD-10 code is provided in the SOA IDTWG Tables Workbook:

Tables:

http://www.naic.org/documents/committees_b_ha_tf_exposure_idi_valuation_table_w_b.xlsm

Instructions:

http://www.naic.org/documents/committees_b_ha_tf_exposure_idi_valuation_table_w_b_instructions.pdf

The following table shows the mapping of the diagnosis groupings.

Mapping of Claim Diagnoses

Mapping	Diagnosis Grouping
Very Low	Diabetes
	Mental Disorder
	Nervous System
Low	Back
	Other Infectious Diseases
	Ill-Defined
Mid	Circulatory
	Other Musculoskeletal
	Respiratory
High	Alcohol and Drug
	Other Injury
	Other
Very High	Cancer
	Digestive
	Maternity

The following table shows the claim termination modifiers for each of the diagnosis mappings.

Claim Termination Modifiers by Diagnosis

Claim Duration	Diagnosis Mapping				
	Very Low	Low	Mid	High	Very High
Months 1-12	44.4%	87.0%	113.0%	115.0%	132.7%
Months 13-24	69.1%	97.4%	94.3%	114.1%	212.6%
Months 25-60	84.8%	85.6%	96.3%	134.3%	209.6%
Years 6-10	108.5%	92.9%	97.2%	122.2%	176.1%

- *Claim Termination Rates by Cause for Accident-Only and Sickness-Only Coverages*

The following table provides modifiers to the base CTRs to be used in the calculation of ALRs for accident-only and sickness-only coverages. These claim termination modifiers also should be used in the calculation of DLRs for **accident-only coverages**. DLRs for sickness-only and accident and sickness coverages should use the claim termination modifiers by diagnosis provided in the above table. ALRs for accident and sickness (combined) coverage should not use the claim termination modifiers in the table that follows.

Claim Termination Modifiers for Accident-Only and Sickness-Only Coverages

Claim Duration	Accident Only		Sickness Only	
	Male	Female	Male	Female
Months 1-12	131.8%	110.6%	94.0%	98.2%
Months 13-24	109.8%	111.7%	98.5%	98.2%
Months 25-60	92.5%	104.8%	101.1%	99.3%
Years 6-10	71.6%	100.9%	104.3%	99.9%

- *Change in Definition of Disability*

The SOA IDEC was not able to capture the definition of disability consistently among all contributors to the study, as the information typically was not stored electronically by companies in their policy and claim databases. As a result, the IDTWG has not been able to measure the effect of the definition of disability on either incidence or terminations. In contrast, the group LTD study provides claim termination rate adjustments to reflect the differences between “own occupation” and “any occupation” definitions, and the increase in the claim termination rates at the time the definition of disability changes.

The 2013 IDI Base Table claim termination rates reflect the distribution of the various definitions of disability represented in the exposure. Increases in claim termination rates due to changes in the definition of disability have been smoothed out for the most part as a result of graduation. The SOA IDEC plans to request better information on the definition of disability in future studies.

E) Valuation Table Development—Base Table Margin

Derived from a long study period, the 2013 IDI Base Table reflects experience variations across a range of economic cycles. Because of the large exposure, the 2013 IDI Base Table can be considered the mean of a wide range of economic scenarios changing industry norms.

Due to differences in policy provisions, markets, marketing methods, underwriting methods, and administrative practices, a specific insurer’s expected experience will differ from the industry mean.

Margins are added to the mean experience so that resulting claim incidence rate and claim termination rate assumptions will be adequate for most companies. In this context, the IDTWG has recommended margins sufficient to cover 10 of the 12 participating companies over the total study period.

For this purpose, sufficiency was defined by comparing each contributing company’s experience (A) to the 2013 IDI Valuation Table (2013 IDI Base Table with margins) rates (E) such that:

- Claim incidence A/E over the study period is less than 100 percent, and
- Claim termination A/E over the study period is greater than 100 percent.

Incidence Rates

Based on the range of companies' experience over the study period, the IDTWG determined that a 5 percent level margin applied to the 2013 IDI Base Table claim incidence rates would be appropriate to cover the targeted proportion of contributors. The result is shown in the table below. Claim incidence experience by company (A) is compared to the 2013 IDI Base Table claim incidence rates with the 5 percent margin (E) below. In the aggregate, 10 of the 12 companies exhibited sufficiency; the two companies that do not meet the aggregate sufficiency criteria are highlighted in bold italics in the total column. Thus, the claim incidence rates from the 2013 IDI Base Table with the 5 percent margin were selected as the claim incidence rates for the 2013 IDI Valuation Table.

Analyzing the table below, the new proposed valuation standard is inadequate for the 1990-1999 study period, particularly in the first half of that time frame (cells highlighted in bold italics). As described in the *Report of the Individual Disability Experience Disability Committee, Analysis of Experience from 1990 to 2007* (Society of Actuaries, March 2013), the data used to derive the 2013 IDI Base Table covers two eras in the U.S. IDI industry. The first era occurred during the first part of the 1990s when IDI insurers in total suffered historically high statutory financial losses. The second era was a result of actions taken by IDI insurers and a favorable economic environment. Positive statutory profits for the industry started to re-emerge during the last few years of the 1990s and for the 2000s. The first era was particularly dramatic for the industry, resulting in many insurers exiting the product line altogether. Those insurers that continued actively marketing IDI took appropriate risk management actions, and the resulting experience in the 2000s is indicative of future experience. As such, this is appropriate as a valuation basis.

Company Incidence Experience as a Percent of the 2013 IDI Valuation Table					
Company	1990-94	1995-99	2000-03	2004-06	Total
1	108.4%	84.0%	79.8%	76.6%	85.6%
2	74.5%	76.5%	100.3%	91.4%	86.0%
3	101.8%	73.4%		71.0%	84.7%
4	110.8%	100.7%	94.0%	77.8%	96.5%
5	131.2%	105.7%			121.1%
6	118.4%	104.4%	109.4%	87.6%	105.1%
7			99.5%	99.4%	99.4%
8	91.1%	144.3%	82.2%	66.4%	99.1%
9			61.3%	40.5%	51.0%
10	87.1%	77.8%	87.0%	74.5%	81.1%
11	104.4%	88.1%	83.9%	73.8%	86.3%
12			77.8%	68.6%	73.3%
Grand Total	110.6%	98.6%	92.8%	77.5%	95.1%

Claim Termination Rates

A similar approach was used to develop claim termination rate margins as was used to develop the claim incidence margin. However, the analysis is somewhat more complex because adequacy needs to be evaluated by company within specific claim duration groupings.

Claim termination experience by company is compared to the 2013 IDI Base Table claim termination rates below. In this context, the numerator (A) represents company experienced claim termination rates and the denominator (E) represents 2013 IDI Base Table claim termination rates. In bold italics is the “margin target,” which is the ratio that needs to be greater than 100 percent for the 2013 IDI Valuation Table to meet the sufficiency definition described above. The margin table underneath the experience table indicates the margins needed by duration segment so that each segment exhibits sufficiency.

Company Claim Termination Experience as Percent of Modified Base Table by Claim Duration						
Company	Year 1	Year 2	Years 3-5	Years 6-10	Years 11+	Total
1	<i>86.3%</i>	100.7%	<i>79.1%</i>	123.3%	<i>93.8%</i>	<i>88.3%</i>
2	<i>99.4%</i>	<i>84.8%</i>	134.4%	230.8%		102.5%
3	128.0%	<i>92.2%</i>	<i>87.1%</i>	104.6%		121.7%
4	100.5%	100.7%	103.3%	107.4%	131.9%	101.8%
5	102.1%	110.2%	<i>87.6%</i>	<i>75.4%</i>	117.1%	101.7%
6	119.0%	122.5%	<i>94.7%</i>	102.3%	124.7%	116.4%
7	112.8%	<i>88.7%</i>	<i>93.9%</i>	89.4%	133.2%	<i>93.0%</i>
8	<i>99.9%</i>	<i>98.3%</i>	<i>71.3%</i>	148.4%	341.7%	<i>98.5%</i>
9	103.8%	<i>94.3%</i>	<i>99.1%</i>	<i>67.6%</i>		<i>95.7%</i>
10	100.7%	<i>88.3%</i>	101.8%	140.4%	113.9%	<i>98.8%</i>
11	<i>97.6%</i>	<i>90.3%</i>	<i>91.1%</i>	<i>90.4%</i>	101.7%	<i>94.8%</i>
12	124.3%	<i>86.9%</i>	<i>82.7%</i>	138.6%	133.2%	109.3%
Grand Total	100.5%	97.0%	96.5%	98.8%	115.8%	99.6%
Margin	0.6%	13.3%	20.9%	11.8%	0.0%	5.5%

Company Claim Termination Experience as a Percent of the 2013 IDI Valuation Table by Claim Duration						
Company	Year 1	Year 2	Years 3-5	Years 6-10	Years 11+	Total
1	90.8%	118.4%	93.1%	145.3%	106.9%	95.8%
2	104.6%	99.8%	158.1%	271.5%		109.2%
3	134.7%	108.5%	102.5%	123.1%		130.8%
4	105.7%	118.4%	121.5%	126.4%	132.3%	111.3%
5	107.5%	129.6%	103.0%	88.7%	117.5%	109.6%
6	125.2%	144.1%	111.4%	120.4%	133.4%	126.5%
7	118.7%	104.4%	110.6%	105.2%	137.9%	109.4%
8	105.1%	115.7%	83.9%	174.6%	333.4%	106.7%
9	109.3%	110.9%	116.6%	79.5%		106.1%
10	106.0%	103.9%	119.8%	165.2%	124.6%	108.6%
11	102.7%	106.2%	107.1%	106.4%	109.6%	104.4%
12	130.9%	102.2%	97.4%	163.1%	148.9%	117.3%
Grand Total	105.9%	114.2%	113.5%	116.3%	121.4%	108.9%

Based on the previous table, a 6 percent level margin applied to the 2013 IDI Base Table termination rates would generate sufficiency in 10 of the 12 participating companies for all claim durations combined. However, due to concerns that a flat margin results in too many companies having an A/E below 100 percent in years 2-10, a margin of 5 percent in year 1 and 15 percent in years 2+ is applied to the 2013 IDI Base Table claim termination rates. The claim termination rates from the 2013 IDI Base Table with the 5 percent margin in claim duration 1 and a 15 percent margin in claim durations 2+ will be the claim termination rates for the 2013 IDI Valuation Table.

The final result is that 11 of 12 companies have positive margins overall using the 2013 IDI Valuation Table, and at least nine of 12 companies have positive margins in each of the durational groupings studied. The higher margins in years 11+ were discounted in this analysis because the data is relatively thin and many claim terminations occurring after age 65 due to the end of the benefit period may not have been thoroughly netted out of the company experience shown here.

The following table highlights the claim termination experience as a percent of the 2013 IDI Valuation Table by study period.

Company Claim Termination Experience as Percent of 2013 IDI Valuation Table by Study Period					
<i>Company</i>	<i>1990-94</i>	<i>1995-99</i>	<i>2000-03</i>	<i>2003-07</i>	<i>Grand Total</i>
1	117.1%	91.9%	98.4%	93.9%	95.8%
2	109.9%	108.6%	110.2%	107.5%	109.2%
3	132.8%	128.4%	115.6%	124.2%	130.8%
4	119.4%	111.8%	103.5%	109.7%	111.3%
5	115.1%	101.3%	104.1%	105.2%	109.6%
6	128.4%	124.9%	120.3%	118.1%	126.5%
7	112.2%	114.3%	103.0%	99.7%	109.4%
8	62.9%	133.1%	100.1%	104.3%	106.7%
9	112.0%	100.6%	105.9%	103.6%	106.1%
10	118.2%	102.8%	99.9%	101.7%	108.6%
11	94.3%	103.9%	107.6%	102.0%	104.4%
12	150.0%	101.9%	112.9%	100.8%	117.3%
Grand Total	116.1%	111.6%	106.2%	104.5%	108.9%

The final result highlights that at least 10 of 12 companies have margins in any study period using the 2013 IDI Valuation Table. There is a downward trend in claim termination rates over the study period. Even though the most recent study period still meets the definition of adequacy (and the data still may be somewhat incomplete due to reporting lags), the downward trend suggests erosion in the margins. Therefore, the committee recommends that industry data be gathered and analyzed by the SOA IDEC every three to five years so that adjustments to the 2013 IDI Valuation Table can be recommended when appropriate.

F) Valuation Table Development—Mortality Improvement

The industry experience data did not differentiate between claim terminations from recovery and claim terminations from death. Although no IDI industry data is available to support this conclusion, the IDTWG members state that claim terminations by death account for the vast majority of the claim terminations in claim durations 11+, based on their own companies' experience. (This is also evident in the 2008 LTD Experience Study.) Therefore, the later duration data was used as a proxy for measuring mortality improvement, if any.

The following tables highlight the claim terminations count and A/E for claim durations 11+. Since 70 percent of the claim terminations in durations 11+ occurred in the 2000-07 study period, the IDTWG decided to focus its analysis of potential mortality improvement over the 2000-07 period for stability purposes because the 1990s results were too volatile.

As can be observed, the 2000-07 study period data does not exhibit any discernible mortality improvement. Applying four years of 1 percent annual mortality improvement from the middle of the exposure period of 2000-03 to the middle of 2004-07 would yield an A/E of 88 percent

for 2004-07. As can be seen in the next table, the A/E for 2004-07 is only 0.1 percentage points lower than the A/E for 2000-03.

One potential explanation for the lack of noticeable mortality improvement in the disabled population compared to mortality improvement measured using general population, insured (life, LTD, etc.), or annuitant data is that the IDI market is dominated by white-collar professionals, especially doctors, which may have an impact on the mortality improvement dynamic. Mortality improvement in general population data has been attributed to the decline in risk factors associated with smoking and obesity. For medical and other professionals, these risk dynamics may be different.

Attained Age	A/E Claim Termination - Duration 11+ E = Base Table				
	1990-94	1995-99	2000-03	2004-07	Total
Under 40	182.1%	326.5%	1.0%	0.0%	51.7%
40-44	98.0%	154.1%	76.5%	160.6%	126.5%
45-49	233.0%	170.5%	89.3%	116.8%	115.8%
50-54	209.4%	167.7%	83.5%	95.3%	100.2%
55-59	203.6%	142.8%	94.3%	77.0%	89.8%
60-64	242.3%	133.6%	101.9%	99.3%	105.7%
70-74	90.2%	118.4%	108.0%	78.6%	88.2%
75-79	0.0%	217.7%	75.1%	34.4%	50.7%
80+		0.0%	4.6%	62.8%	45.2%
Total	209.8%	152.2%	91.6%	91.5%	99.0%

Attained Age	Number of Terminations - Duration 11+ E = Base Table				
	1990-94	1995-99	2000-03	2004-07	Total
Under 40	18	23	1	0	42
40-44	27	67	60	78	232
45-49	80	146	171	135	532
50-54	94	194	257	243	787
55-59	88	207	355	372	1,023
60-64	145	188	467	621	1,421
70-74	5	39	43	131	218
75-79	0	9	33	41	83
80+		0	3	11	14
Total	457	874	1,390	1,632	4,352

Attained Ages 65-69 (Excluded from Study)*					
	1990-94	1995-99	2000-03	2004-07	Total
A/E	517.8%	221.3%	234.0%	76.3%	138.3%
# Terminations	80	109	310	248	747

* Excluded due to claim expirations identified as terminations by some contributing companies.

Because the available experience study data does not support mortality improvement, the IDTWG decided not to build in any mortality improvement in the 2013 IDI Valuation Table. Instead, as mentioned in the previous section, the IDTWG recommends that industry data be gathered and analyzed by the SOA IDEC every three to five years so that adjustments to the 2013 IDI Valuation Table are recommended when appropriate. These additional industry data calls could request identification of terminations from mortality and recovery separately, allowing for emerging mortality improvement or other trends observed in subsequent experience studies to be reflected in the minimum valuation standard.

G) Company-Specific Experience—Disabled Life Reserves

The IDTWG considered applying credibility theory to both ALRs and DLRs. Applying credibility to ALRs presents additional challenges with the two decrements of incidence and claim termination that can result in unintended consequences to the ALRs. For example, company experience that is worse than the 2013 IDI Valuation Table for both incidence and claim termination can result in ALR decreases because of the impact the own company experience modification may have on the slope of the claim costs. In addition, the 2013 IDI Base Table modifiers for both incidence and claim termination rates will allow company-appointed actuaries to better reflect their unique mix of business in the calculation of the ALRs.

To meet the disabled life reserve standard, a company will be expected to use a credibility weighted combination of its own termination experience and the 2013 IDI Valuation Table to create its own company-specific blended table. This blending process shall be computed separately for each of five duration groupings using the formula $T \times S$, in which:

- 1) T is computed as $T = [Z \times (F \times (1-M)) + (1 - Z)]$;
- 2) Z is a credibility weighting factor, between 0 and 1, as defined in section J. Small companies may be exempt from their own experience measurement, in which case they would set Z equal to 0.00;
- 3) F is the ratio, for the period defined in Section H, of the company's actual claim termination experience to the expected claim termination experience according to the 2013 IDI Valuation Table with margin (by disability duration grouping);
- 4) M is the margin percentage specified in section K, applicable to the company's own experience according to its expected number of terminations based on its exposure applied to the 2013 IDI Valuation Table (by disability duration grouping); and
- 5) S is the termination rates in the 2013 IDI Valuation Table.

The minimum floor to the above recommended calculated company-specific blended table requires that the company will not use termination rates that produce total reserves for claims disabled for more than two years that are less than the reserves produced for these claims by computing T as $T = 1.30$.

Henceforth, the value T shall be referred to as the valuation table modification factor.

Duration Bands

Accurately reflecting the experience adjustment of termination rates by duration is considered critical for valuation purposes. For example, an insurer with more successful claim management in the early durations might have actual termination rates higher than the 2013 IDI Valuation Table in early durations and termination rates lower than the 2013 IDI Valuation Table in later durations. A single adjustment factor across all durations, therefore, would produce inadequate reserves for claims in the later durations.

Duration is measured from the disablement date. The selected duration bands make it possible to recognize different A/E termination patterns observed among insurers in the 2013 IDI study of experience in the 1990-2007 period, while keeping the overall approach simple. For example, differences in definition of disability often alter the pattern of termination rates. The IDTWG designed the duration bands to reflect enough variation to capture any meaningful changes resulting from the disability definition effect on termination rates for a specific insurer.

The measurement of own experience, the credibility formula, and the development of own experience margins will be determined separately for each of the duration bands. The IDTWG aggregated claim duration for these purposes as follows:

- Year 1 (months 1 to 12 following disability)
- Year 2 (months 13 to 24)
- Years 3 to 5 (months 25 to 60)
- Years 6 to 10 (months 61 to 120)
- Years 11+ (months 121+)

First 12 Months and Months 13 to 24

These durations represent the initial stage of claims management. It is typical for IDI policies to have 90-day or 180-day elimination periods, but there also are individual disability policies with 60-day, 30-day, or even shorter elimination periods. The termination rates, before application of modifiers, are usually highest at three months' duration and generally decrease monotonically through 60 months (except for any intervening change in definition of disability).

Months 13 to 24 represent the second stage of claims management. Initial determination of liability acceptance takes place in the first year for claims that are not reported late, with the second year representing the first year of ongoing claims management. The definition of disability for some IDI policies may change after the first, second, or fifth year of disability, or not change at all over the coverage period of the policy.

Months 25 to 60

These durations represent the next stage of claim management. Nearly all the changes in definition of disability (CIDD) occur within this duration band. The average termination rates are significantly higher around the CIDD duration, with a significant drop in termination rates in the months following such duration. The level of claim management success in the 1 to 24 month duration band may have a significant impact on this duration band.

Months 61 to 120 and 121+

These durations represent the final stage of claim management and are dominated by claimants with permanent disabilities. These durations also have the largest portion of claimants that terminate as a result of death, especially in the later durations. Overall termination rates generally fall after the CIDD and then increase toward the end of the benefit period (e.g., age 65, age 67, or lifetime).

These durations were split into two bands (months 61 to 120 and 121+) to recognize that the first band may not reflect the experience of the second band, which might have little to no experience for some insurers, and which typically is dominated more by deaths.

H) Company-Specific Experience—Own Experience Measurement

State insurance commissioners might expect insurers and their appointed actuaries to develop and maintain appropriate own experience measurements on a timely basis. It is recommended that the appointed actuary also review at least once every year the company's claim termination experience applicable to the DLR calculation. This review can range from a detailed experience study to a high-level analysis.

The IDTWG recommends that company experience analyses:

- (I) Be reviewed and, if necessary, updated at least once a year.
- (II) Be segmented into any major subgroups that the appointed actuary believes may produce significantly different results (e.g., market niches, risk management practices, unique benefit designs, etc.).
- (III) Be experience specific to each company. It is often appropriate to combine affiliated entities or assumed reinsurance in cases in which claims management is under a common structure. Examples of appropriate combination includes a situation in which a company may have acquired closed blocks of business from other carriers, for which each block has similar product features and the claims are now managed by a common unit using consistent processes. It also may be appropriate to calculate separate A/E ratios in cases in which separate blocks of company business have distinct risk management practices or significantly different risk characteristics. An example of a situation in which it may be appropriate to segment the blocks would be where a company has an older closed block of policies with lifetime benefit periods and its own

occupation definition of disability and another block with shorter benefit periods and more conservative definitions of disability.

- (IV) Include all relevant experience the company is capable of providing for as many of the last five years (not including the lag period described below) as is appropriate.
- (V) Include a suitable lag period. Some claims may close retroactively and others initially thought to be closed may reopen retroactively. Therefore, based on company experience, a suitable lag period is needed. The appointed actuary may use a lag period of up to 12 months if company experience shows it is appropriate. The five-year period mentioned above does not include the lag period.
- (VI) Measure A/E based on monthly indemnity consistent with the development of the 2013 IDI Valuation Table. The A/E ratio is defined as the ratio of actual claim termination experience to the expected claim termination experience, according to the 2013 IDI Valuation Table (by disability duration grouping). The A/E ratio is referred to as the variable F in section G.

For companies that can develop A/E studies only based on claim termination counts, an adjustment factor of 0.962 should be multiplied by the respective A/E ratio for each claim duration to convert it to an indemnity basis. The 0.962 factor was developed based on the relationship of the indemnity-based A/E to count-based A/E for the industry table.

- (VII) Assign credibility based on claimant termination counts, and not monthly indemnity terminated counts. Companies should use claimant termination counts and not claim termination counts in determining the number of terminations for their own company experience credibility.

Each company will need to make appropriate adjustments based on its average number of claims per claimant if it is not able to determine claimant termination counts directly and can only directly measure claim termination counts. For example, on average, if a company has 1.5 open claims per claimant and if it had 100 claim terminations in a duration segment over its five-year study period, then it would divide 100 by 1.5 and use 67 claimant terminations when determining credibility.

- (VIII) Update at least once every five years. Termination assumptions also should be adjusted whenever the company's own annual experience study produces credibility weighted results that would decrease the 2013 IDI Valuation Table modification factor by more than 10 percent (in absolute value) for any of the standard duration groups. All claims valued using the 2013 IDI Valuation Table share the same company experience factors. When the company experience factors are updated, the new factors apply to all claims valued using the 2013 table, including claims incurred prior to the update of the experience factors.
- (IX) Be used to derive A/E data to construct a valuation basis that is a credibility weighted modification of the 2013 IDI Valuation Table. It is not to be used to construct any

unique 2013 IDI Valuation Table based on company experience. When appropriate, the valuation actuary may recognize that there will be some situations in which the data is unknown or the actuary is not confident in the accuracy of the underlying data, such as the historical data needed to determine expected terminations by diagnosis code and occupation class and should use appropriate judgment in determining the appropriateness and use of historical data needed for the 2013 claim termination rate modifiers. In a situation in which the historical data is not available for occupation class M, the actuary should default to using the CIDA occupation classes for the historical data. In a situation in which historical data by diagnosis is not available, the actuary should default to using 100 percent as a default modifier for diagnosis for the historical data. In addition, it should be possible for the actuary to obtain written permission from the domiciliary commissioner to produce some unique company-specific modifications based on actuarial principles, credible experience, and sufficient margins.

- (X) Not include as terminations those claims that closed due to settlement (i.e., a lump sum replacing a series of potential future payments); reach the end of the maximum benefit duration; or are closed due to a contractual limit, such as a mental disorder limitation. Terminations of residual or partial disability claims count as total disability terminations. Changes in the definition of disability do not count as a termination unless the claim actually terminates. If a claim closes when the definition of disability changes, that is counted as a claim termination;
- (XI) Otherwise be relevant, in accordance with the professional judgment of the appointed actuary.
- (XII) Not be deemed inappropriate or likely to produce significantly inadequate reserves by the commissioner.

I) Company-Specific Experience—Own Experience Measurement Exemption

For companies with a small claim portfolio, the measurement of own experience may be irrelevant because of lack of credibility. The IDTWG elected to create a threshold defining when the computation of own experience measurement would be optional. This exemption is determined at the statutory company level and not at any segmented level that might be used in determining the own experience modifier.

The minimum claim threshold is based on open claimants as of the time of the valuation, because this is easier to define and to evaluate. The recommendation is that an insurer count current open claimants in two duration categories—durations less than two years and durations greater than two years. If either the first number is greater than 50 or the second number is greater than 200, then the insurer should compute an own experience measurement. This report notes that, based on modeling, this threshold equates to approximately 10 percent credibility in each claim segment.

J) Company-Specific Experience—Credibility

The IDTWG elected to define credibility using what is called the Limited Fluctuation Credibility (LFC) model. For reference, see the Academy practice note on credibility: [*Practice Note on Applying Credibility Theory \(July 2008\)*](#).

This model uses two different parameters to determine the level of credibility: the confidence factor and the allowable error. The assumption is that the percentage variance of the observed outcomes diminishes as the number of expected observations increases. One hundred percent credibility is defined as when the number of expected observations is sufficiently large that there is an X percent probability (confidence interval) that the observed outcomes will be within plus or minus Y percent (allowable error) of the expected outcome.

The IDTWG selected a confidence factor of 85 percent and an allowable error of 5 percent. However, the IDTWG also noted that one of the key assumptions underlying the LFC model is independent of the event being measured. The IDTWG noted that IDI claim terminations are not completely independent events. Actuarial and statistical literature is essentially silent on how to address variables that are not independent. Therefore, the IDTWG followed the approach developed by the GLTDWG to address this. The GLTDWG's approach included conservatism it felt was sufficient to address the potential additional variability caused by this lack of independence. While the true distribution of outcomes is likely not strictly normal, and also not measured by the study, the IDTWG expects that the deviations from normal more likely will affect the shape of the distributions for less probable outcomes. Because the IDTWG's selected allowable error is fairly large, it has assumed that the normal distribution will be reasonably representative within its selected interval.

However, the IDTWG did make a subjective adjustment to increase the expected variance of the outcomes. A purely random assumption would result in percent standard deviation equal to one divided by the square root of the expected outcomes. In reality, the IDTWG expects greater variability than the purely random case due to the lack of independence. In any study period, the IDTWG would expect additional variances could be caused by:

1. Claims management or operational change;
2. Economic or other external factors;
3. Business portfolio changes; and/or
4. Other unexpected changes.

The IDTWG decided to represent this additional variance by adding selected variance factors that vary for the five durational groups. The selected variance factor is a margin (multiplier) that is applied to the strictly random process variances to reflect that actual claims are not strictly independent variables. The selected variance factors diminish as we move from low to high duration, representing that claim dynamics are more volatile in the early durations, and that in the later durations, the terminations are dominated more by deaths, which are less sensitive to external influences.

The following table shows the selected variance factors for each duration group.

Duration Group (Months)	Selected Variance Factor
1 to 12	4.0
13 to 24	4.0
25 to 60	3.0
61 to 120	2.5
> 120	2.0

The actual expected variance is equal to the strictly random process variance times the selected variance factor.

The number of expected terminations needed to achieve 100 percent credibility can be found by determining the variance of the adjusted distribution, such that there is an 85 percent chance that the observed outcome would be within plus or minus 5 percent of the expected outcome. A review of the normal distribution shows that 85 percent of expected outcomes fall between plus or minus 1.44 times the standard deviation, so 5 percent should equal 1.44 times the expected standard deviation. If N is the number of expected terminations, this value is defined by the relationship:

$$5\% = 1.44 * \sqrt{K/N}$$

Full credibility is therefore achieved when the expected terminations (N) are greater than or equal to the 100 percent credibility values (M) given in the following table. For example, for duration group 1 to 24 months, the selected variance factor (K) equals 4, and full credibility is

reached when $5\% \geq 1.44 * \sqrt{4/N}$. This is achieved when $N \geq 3,316$.

100% Credibility Values			
Duration Group (Months)	Raw (M)	Selected (M)	Approx. Life Years Claimant Exposure*
1 to 12	3,316	3,300	6,000
13 to 24	3,316	3,300	6,000
25 to 60	2,487	2,500	18,000
61 to 120	2,022	2,100	40,000
> 120	1,658	1,700	40,000

*Approximate exposure required to general required level of expected terminations.

If the number of expected terminations falls below the 100 percent credibility value, then credibility is defined as the square root of the ratio of the expected terminations to the selected target. Hence, the resulting credibility formula is defined as follows:

$$Credibility = Minimum \left(100\%, \sqrt{N/M} \right)$$

N is the number of *expected* terminations for the same period used in performing the own experience measurement, and M is the 100 percent credibility value selected from the previous table. Note that limited fluctuation theory specifies that the credibility be determined from the expected terminations and not the actual terminations. For purposes of simplicity, the IDTWG considered modifying the formula to use the actual terminations, but because that approach would give increased credibility when experience was good and reduced credibility when experience was poor, decided that modification would produce a less conservative approach.

K) Company-Specific—Own Experience Margin

The margin that should be added to each insurer’s own experience before blending with the 2013 IDI Valuation Table is based on similar assumptions the IDTWG used for setting the credibility. As in the case of the margin included in the 2013 IDI Valuation Table, when margin is added according to a fixed percent, it means that the termination expectation is reduced by that same percent. To select the margin, the IDTWG assumed that, for each insurer, the distribution of observed terminations will be normally distributed around the true expectation, with a percentage standard deviation equal to the square root of the product of the selected variance factor (*K*) and the number of expected terminations. The IDTWG first set a base margin so that there would be a 95 percent probability that the true expected terminations would be greater than the adjusted observed results. To capture any additional unexpected deviations, the IDTWG added an additional margin (3 percent) that is independent of the number of terminations. The final margin is equal to the base margin plus the additional margin, the total of which is then capped using a lower limit of 5 percent and an upper limit of 15 percent.

The calculation works as follows: For a normal distribution, 95 percent of observations fall below 1.65 standard deviations above the mean. This means that the needed margin will be 1.65 times the square root of the selected variance factor (*K*) divided by the number of expected terminations. The IDTWG modified the formula to replace expected with actual observed terminations (*C*) so that low actual terminations will produce additional margin. The resulting own experience margin formula is as follows:

$$Own\ Experience\ Margin = Min \left(15\%, Max \left(5\%, 3\% + 1.65 * \sqrt{K/C} \right) \right)$$

The following table shows sample indicated margins for the different duration groups and different numbers of actual terminations.

Own Experience Margin by Duration Group					
Duration Group	<=== Actual Terminations (C) ===>				
	100	500	1,000	5,000	10,000
1 to 12 Mo	5%	5%	5%	5%	5%
13 to 24 Mo	15%	15%	13%	8%	6%
25 to 60 Mo	15%	15%	12%	7%	5%
61 to 120 Mo	15%	15%	11%	7%	6%
> 120 Mo	15%	13%	10%	6%	5%

The 2013 IDI Valuation Table has a margin of 5 percent for yearly duration 1 (months up to the first 12 months) claim termination rates and 15 percent for yearly durations 2+ (months 24+). For the first 12 months claim duration, an own company margin of 5 percent would be used, regardless of the number of actual terminations. This is the same margin as the 2013 IDI Valuation Table for the duration one to 12 months claim termination rates. We will use the own experience margin formula shown above for durations 2+. The margin for durations 2+ is capped at 15 percent so that the own experience margin does not exceed the 2013 IDI Valuation Table margin. If the own experience margin is larger than the 2013 IDI Valuation Table margin, a company could have experience that is better than the 2013 IDI Valuation Table, but be required to use an own-experience adjustment that produces higher reserves. The floor was set to 5 percent, based on the IDTWG’s judgment for prudence.

L) Floor Reserves

A company should be allowed to reflect its more favorable experience but in a manner that assures the regulator that a reasonable relationship to the 2013 IDI Valuation Table is retained. The IDTWG recommends a maximum reserve termination assumption of 130 percent of the 2013 IDI Valuation Table for claims disabled after two years. Under this constraint, a company would be allowed to reflect its favorable experience, but the use would be limited to termination rate assumptions that are capped at 30 percent above the industry 2013 IDI Valuation Table. The first two years are explicitly excluded from this floor, because insurer practices can produce ongoing and credible termination results in excess of this ratio. Furthermore, the current valuation standards allow the use of own experience without constraint for claims in these durations. As such, an imposition of this floor would penalize insurers with good termination results. We note that the proposed standard provides for explicitly required margin, while the prior standard made no explicit reference to margin.

M) Mental Disorder or Other Limitations—Related Terminations

The 2013 IDI Valuation Table does not provide for explicit handling of terminations related to the application of contractual benefit duration limit for mental disorder claims or the application of similar contractual limitations for other claims categories, such as subjective disability or special conditions. Therefore, the formula recommended in this document explicitly excludes such terminations in the computation of actual claim termination count.

In the 1990-2007 Experience Study, on which the proposed 2013 IDI Valuation Table is based, the submitting companies were asked to identify both the terminations due to these limits and the limit termination date, as applicable. When developing the recovery and death expectations, these limit terminations were explicitly excluded, along with all non-death terminations that occurred at the limit date.

Because there is significant variation in valuation practice within the industry on the handling of these limit terminations, the IDTWG decided not to recommend how the 2013 IDI Valuation Table tables should be used. Instead, the IDTWG recommends that the resolution of claims identified as subject to a contractual limit be an item of consideration in setting non-recovery and non-death valuation assumptions.

NEXT STEPS

N) New Valuation Standard Application and Transition Rules

It is recommended that the new valuation standard be effective Jan. 1, 2017. It is also recommended that there be a transition period of three years to implement the 2013 IDI Valuation Table after the effective date to allow time for companies and software vendors to modify their systems to handle the additional complexity of the new tables. The new valuation standard would be required for claims incurred after the effective date of the new standard. Under recommended rules discussed in Appendix 1, the new valuation standard also may be applied to prior claim incurrals. The new valuation standard will be required for new policies issued after the effective date of the new standard. Under the recommended rules of Appendix 1, the new valuation standard also may be applied for prior years' issues.

Because the new standard creates company-specific valuation assumptions for DLRs based on the combination of credible company experience and the 2013 IDI Valuation Table, this could be interpreted to mean an additional valuation basis is created each time the company updates its termination rates. It is not the IDTWG's intent to have each termination rate update act as a "new valuation basis" strictly applicable to a specific cohort of claims. Instead, reserves for claims subject to the new standard will use the latest set of assumptions based on the combination of credible company experience and the 2013 IDI Valuation Table regardless of their incurral year (i.e., the valuation basis will not be "frozen" by year of incurral). The IDTWG's proposal provides details on how the assumption set is monitored and when it needs to be updated.

The 2013 IDI Valuation Table is based on the first comprehensive industry study of the IDI risk in more than 20 years. The analysis supporting this table shows the extent to which the past statutory morbidity bases (e.g., 85CIDA, 85CIDC, 64CDT) no longer accurately represent the IDI business. Consequently, it makes theoretical and practical sense to allow companies to use the 2013 IDI Valuation Table as the basis for statutory minimum reserves for all IDI business, regardless of the year of issue of policies, or the year of incurral for claims.

The IDTWG is recommending that companies have the option to move to the new standard for DLRs for all incurral years and ALRs for all issue years, as long as the following conditions are met:

- DLRs related to claims incurred before the new standard effective date may be computed under the new standard if an insurer chooses to do so, subject to:
 - The election to move prior incurral years to the new standard can be made any time within the transition period after the new standard effective date;
 - The election applies to all DLRs related to claims incurred prior to the effective date; and
 - The transition to the new basis is final (no option to move back).
- Companies also may choose to use the new standard for ALRs, but only in conjunction with using the new standards for DLRs, and can do so only if:
 - They are also moving to the new standard for DLRs, so that all business is on the new standard;
 - The election to move prior issue years to the new standard can be made any time within the transition period after the new standard effective date, but at the same time they are moving DLRs to the new standard;
 - The election applies to all ALRs related to policies issued prior to the effective date; and
 - The transition to the new basis is final (no option to move back).
- The option to move to the new standard for DLRs for all incurral years and ALRs for all issue years is contingent upon companies' maintaining policy and claims records that allow them to use the 2013 IDI Valuation Table appropriately.

Appendix 1 shows the proposed revision to the current model regulation amended to introduce the new standard and the proposed transition rules. The IDTWG has provided proposed revisions but recommends the model regulation be more thoroughly revised.

O) NAIC Adoption

The IDTWG recommends that the NAIC revises the model regulation, which involves following certain NAIC processes. The IDTWG will help move the process forward by identifying issues and drafting documents to present to HATF as requested.

As a result of this revision to the NAIC model regulation, both the NAIC Health Insurance Reserve Model Regulation and the Accounting Practices & Procedures Manual Appendix A-010 will need to be updated. Section 25 of the proposed valuation manual (VM-25) will need to be modified as well. The basic requirements of the new valuation process would be in these documents, with the actual table maintained on a website. Sufficient detail should be provided for companies to know about the need to combine company experience with the approved table values. The IDTWG recommends that calculation details, including credibility rules, be incorporated into a new actuarial guideline rather than the model regulation. The actuarial guideline also would identify the location of the 2013 IDI Valuation Table. The actuarial guideline could be updated by the NAIC as appropriate (including the 2013 Valuation Table), without requiring state-by-state adoption of revised regulations. A proposed actuarial guideline is in Appendix 3, subject to modification by NAIC staff, Academy staff, and the IDTWG.

Appendix 1—Proposed Revision to Health Insurance Reserves Model Regulation

This appendix contains proposed wording changes to two sections of the Health Insurance Reserves Model Regulation. The two sections are Section 2 (Claim Reserves) and Appendix A.

Section 2. B. (1) Claim Reserves

Current Wording

- (i) For individual disability income claims incurred on or after [January 1, 2005], assumptions regarding claim termination rates for the period less than two (2) years from the date of disablement may be based on the insurer's experience, if such experience is considered credible, or upon other assumptions designed to place a sound value on the liabilities.
- (ii) *[section (ii) applies to group long-term disability and is excluded from here]*
- (iii) For disability income claims incurred prior to [January 1, 2005] each insurer may elect which of the following to use as the minimum morbidity standard for claim reserves:
 - (I) The minimum morbidity standard in effect for claim reserves as of the date the claim was incurred, or
 - (II) The standards as defined in Items (i) and (ii), applied to all open claims. Once an insurer elects to calculate reserves for all open claims on the standard defined in Items (i) and (ii), all future valuations must be on that basis.

Proposed Changes—Context

- [Date 1] refers to the date the model regulation was initially adopted (January 1, 2005, in the current wording);
- [Date 2] refers to the date the 2013 IDI Valuation Table is adopted, which is expected to be Jan. 1, 2017;
- Section (i) will cover claims incurred prior to [Date 1] for completeness;
- Section (ii) is the current Section (i), but will end at the date the 2013 IDI Valuation Table is adopted;
- Section (iii) will cover the period after the 2013 IDI Valuation Table is adopted;
- Section (iv) allows the insurer to apply (iii) retrospectively;
- Actuarial guideline [XX] refers to the draft actuarial guideline in Appendix 3; and
- Clarify issue date versus incurral date and scope of coverage

Proposed Changes—Wording

Section 2. Claim Reserves – under “A. General” add the following wording:

(4) For claim reserves on policies that require contract reserves, the claim incurral date is to be considered the "issue date" for determining the table and interest rate to be used for claim reserves

In Section 2. B. Minimum Standards for Claim Reserves – (B) Morbidity

- (i) For individual disability income claims incurred prior to [Date 1], each insurer may elect which of the following to use as the minimum morbidity standard for claim reserves:

- a. The minimum morbidity standard in effect for claim reserves as of the date the claim was incurred
- (ii) For individual disability income claims incurred on or after [Date 1], but before [Date 2], the minimum standards with respect to morbidity are those specified in Appendix A, except that, at the option of the insurer, assumptions regarding claim termination rates for the period less than two (2) years from the date of disablement may be based on the insurer's experience.
- (iii) For individual disability income claims incurred on or after [Date 2], the minimum standards with respect to morbidity are those specified in Appendix A, except that the insurer may do the following:
 - a. Use the insurer's own experience computed in accordance with Actuarial Guidelines [XX], and
 - b. Make an adjustment to include an own experience measurement margin derived in accordance with Actuarial Guidelines [XX], and
 - c. Apply a credibility factor derived in accordance with Actuarial Guidelines [XX].
 - d. For worksite plans with benefit periods of up to two years, at the option of the insurer, disabled life reserves may be based on the insurer's experience, if such experience is considered credible, or upon other assumptions and methods designed to place a sound value on the liabilities.
- (iv) Within two years of [Date 2], the insurer may elect to apply (iii) above for all claims incurred prior to [Date 2]. This can be done if the following conditions are met:
 - a. The insurer must apply (iii) to all open claims; and
 - b. Once an insurer elects to calculate reserves for all open claims based on (iii), all future valuations must be on that basis.

Appendix A—Morbidity section

Proposed changes are **bolded**

- [Year 1] refers to what was the effective date of this amendment (presumably to adopt the 85CIDC)
- [Year 2] refers to date of adoption of the 2013 IDI Valuation Table, expected to be Jan. 1, 2017

I. MORBIDITY

A. Minimum morbidity standards for valuation of specified individual contract health insurance benefits are as follows:

(1) Disability Income Benefits Due to Accident or Sickness.

(a) Contract Reserves:

Contracts issued on or after January 1, 1965 and prior to January 1, [YEAR]:

The 1964 Commissioners Disability Table (64 CDT).

Contracts issued on or after January 1, [YEAR] **and prior to January 1, [YEAR 2]**:

The 1985 Commissioners Individual Disability Tables A (85CIDA); or

The 1985 Commissioners Individual Disability Tables B (85CIDB).

Contracts issued during [YEAR or YEARS]:

Optional use of either the 1964 Table or the 1985 Tables.

Each insurer shall elect, with respect to all individual contracts issued in any one statement year, whether it will use Tables A or Tables B as the minimum standard. The insurer may, however, elect to use the other tables with respect to any subsequent statement year.

Contracts issued on or after January 1, [YEAR 2]

The 2013 IDI Valuation Table with modifiers as described in the Actuarial Report for the 2013 Table.

Within three years of [Year 2], the insurer may elect to apply the current morbidity standards for all policies issued prior to [YEAR 2]. This can be done if the following conditions are met:

- a. The insurer must apply the morbidity standard to all inforce policies;
- b. The insurer has elected to apply the 2013 IDI Valuation Table to all claims incurred prior to [Year 2];
- c. The insurer maintains adequate policy records on policies issued prior to [Year 2] that allow the insurer to apply the 2013 IDI Valuation Table appropriately;
- d. Once an insurer elects to calculate reserves for all inforce policies based on the current morbidity standard, all future valuations must be on that basis.

(b) Claim Reserves:

- (i) For claims incurred on or after [~~effective date of this amendment~~YEAR 1] and prior to [YEAR 2]:

The 1985 Commissioners Individual Disability Table C (85CIDC).

- (ii) **For claims incurred on or after [YEAR 2]**

The 2013 IDI Valuation Table with modifiers as described in the Actuarial Report and adjustments for company experience as prescribed in the Actuarial Guideline, except for worksite disability policies with benefit periods of 24 months or less.

Worksite disability policies are individual short-term disability policies that are sold at the worksite through employer-sponsored enrollment, cover normal pregnancy, and that have benefit periods up to 24 months. Worksite disability policies do not include personal disability policies sold to an individual and not associated with employer-sponsored enrollment. They also do not include business overhead expense, disability buyout, or key person policies, in whatever manner those policies are

sold. For worksite disability policies, DLRs may be calculated using claim run-out analysis or claim triangles, or other methods that place a sound value on the reserves that are appropriate for the business and risks involved.

(iii) For claims incurred prior to **[effective date of this amendment YEAR 1]**:

Each insurer may elect which of the following to use as the minimum standard for claims incurred prior to [effective date of this amendment]:

- (I) The minimum morbidity standard in effect for contract reserves on currently issued contracts, as of the date the claim is incurred, or
- (II) The standard as defined in Item (i), applied to all open non-worksite claims, provided the insurer maintains adequate claim records to allow the insurer to apply the standard defined in Item (i) appropriately. Once an insurer elects to calculate reserves for all open claims on the standard defined in Item (i), all future valuations must be on that basis. This option may be selected only if the insurer maintains adequate claim records for claims incurred prior to [Year2] to use the 2013 IDI Valuation Table appropriately.**

Appendix 2—Additional Background Information

Purpose:

The IDTWG believes its observations on several issues related to IDI reserving that were not within the scope of the IDTWG’s assignment could be useful to valuation actuaries and regulators. The first issue is IDI benefit offsets and why they were excluded from the scope. The second issue is an explanation of the importance of retrospective claim reserve adequacy testing.

Benefit Offsets

IDI covers potential lost income if a person is physically or mentally incapacitated and unable to work. One key to keeping IDI affordable is benefit offsets. The contract is designed as an umbrella coverage that coordinates with other sources of disability income to ensure that one would be paid a certain total amount of income. These other sources may pay using different definitions of disability and eligibility. To calculate the IDI benefits at any one time, the amounts received from these other resources are subtracted from the total insured (i.e., “offset”). If offsets are greater than the gross benefit, there is often a stated minimum IDI benefit. Offsets lower the price of the product by lowering the net amount paid.

Any single claim may have no offsets, a partial offset, or even a 100 percent offset (subject to any minimum benefit being available). Because often there are significant delays in the awarding of offsets, it is can be necessary for the valuation actuary to estimate the available offsets and the frequencies with which they are awarded to the claimants.

Potential offsets include, but are not limited to, Social Security, Workers’ Compensation, State Teachers Retirement System, Public Employees Retirement System, Railroad Retirement, other group or IDI disability coverage, state cash sickness disability plans, salary continuance or fully paid sick leave plans, disability income from automobile accidents, and income received from rehabilitative work or part-time employment. Several of these are not common and therefore may be introduced only in the DLR calculation when they are received or specifically anticipated on a given claim.

For example, Social Security award probabilities will vary materially based on company-specific claim administration practice. Offset frequencies and amounts will vary significantly for each underlying state teachers or public employee group insured. Workers’ compensation award rates will vary significantly among employer groups, especially across states. The IDTWG reached the conclusion that it is not practical to develop standardized valuation assumptions regarding offsets. The GLTDWG reached the same conclusion.

It should be noted that benefit offsets are more prevalent with group LTD. The GLTDWG also did not include benefit offsets in its scope.

Retrospective Claim Reserve Adequacy Studies

Although standardized assumptions for offsets are not available, there is a standard test for measuring the adequacy of aggregate reserves held as of prior points in time. A retrospective claim reserve adequacy study tests the overall adequacy of the combination of all the morbidity assumptions used in reserving, including those for offsets. (Any interest margins or inadequacies would be addressed through cash flow testing.)

The general method is to recalculate the DLR for claims open as of a prior date (the valuation date), using all of the current assumptions for termination rates and offsets. Then, the past claim payments subsequent to the valuation date up to present are identified. Each payment is discounted back to the past valuation date at the valuation rate of interest. Next, the DLR as of study end date for claims that remain active is calculated with the same assumptions; this is also discounted back to the valuation date. If the sum of discounted claim payments and discounted current DLR is less than the recalculated DLR as of the valuation date, then the past DLR was adequate (there should be an excess that reflects margins in the reserve morbidity assumptions).

The reserve adequacy study is often designed to test how margins emerge over different claim durations. This may be done by breaking up a multiple-year study into yearly stages. In a test of Dec. 31, 2008, DLR as of Dec. 31, 2012, the test could first be run as of Dec. 31, 2009, then as of Dec. 31, 2010, and then as of Dec. 31, 2011. Similarly, the analysis is often broken down by incurral year within the observation year; this allows evaluation of adequacy at the later claim durations.

The margins in the Dec. 31, 2008, reserves should continue to emerge each year; however, there are acceptable situations in which that may not happen. For instance, when analysis is broken into subgroups, credibility decreases and one or two large claims can have a disproportionate impact. Generally, overall patterns of inadequacy should indicate to the actuary to the need for potential assumptions changes. However, any inadequacies should be examined and explained to the actuary's satisfaction.

Appendix 3—Draft Actuarial Guideline

A. Background

The 2013 IDI Valuation Table as included in the Health Insurance Reserves Model Regulation is the valuation standard to replace the 1985 Commissioner's Individual Disability Tables (85CIDA/85CIDC). The links below bring one to the 2013 IDI Valuation Table workbook and instructions:

http://www.naic.org/documents/committees_b_ha_tf_exposure_idi_valuation_table_wb.xlsm

http://www.naic.org/documents/committees_b_ha_tf_exposure_idi_valuation_table_wb_instructions.pdf

An actuarial guideline is more appropriate to handle the multiple segments of the 2013 IDI Valuation Table, the computations of own experience, the application of credibility, and successor updates to the table, which are not normally found in model regulations.

B. Purpose

The purpose of this actuarial guideline is to provide instructions for the use of the 2013 IDI Valuation Table that is referenced in the Health Insurance Reserves Model Regulation. This guideline pertains to IDI claims consistent with the conditions defined in the model regulation, and governs the selection of claim termination rates for the purpose of calculating IDI claim reserves. This guideline does not address reserve adequacy, which remains the concern of the insurer according to the terms expressed in the model regulation.

Although the various detailed formulas in this guideline do not address or define reserve adequacy directly, it is assumed that appropriate adequacy tests will be made periodically. Such adequacy testing is considered to be an additional tool for the actuary to make appropriate choices in cases in which leeway from any prescription made herein is allowed (A/E calculation, margin, etc.) so that the calculation of the reserve generally will be adequate and the actuary does not need to continually rely on other measures to achieve adequacy. In addition to the instances in which leeway from prescription is mentioned below, nothing in this guideline should be assumed to prohibit the actuary from building a case and requesting permission from the state insurance commissioner for other appropriate variations. Many such situations, because they would apply to fully credible blocks of business and are intended for continual use, should be considered for approval by the commissioner for a period tied to the updates required by section C.vi. and not approved on an annual basis.

When the insurer follows the instructions provided in this guideline, the selected claim termination rates meet the minimum valuation standard defined in the model regulation.

C. Valuation Table Modifications

If not invoking the small company exception specified in Section E, a company should use a credibility weighted combination of its own claim termination experience with the 2013 IDI Valuation Table to create its specific valuation table for the purpose of calculating disabled life reserve DLRs.

For claims in duration group 1 (months 1 to 12 following disability incurral) or greater, the valuation termination rates are computed using the termination rates from the 2013 IDI Valuation Table (S) multiplied by experience adjustment factors (T) that are calculated separately for four different duration groups.

$$\text{Valuation Termination Rate} = T \times S$$

The duration groups are defined as follows:

- Group 1: duration 1 to 12 months
- Group 2: duration > 12 months and duration <= 24 months
- Group 3: duration > 24 months and duration <= 60 months
- Group 4: duration > 60 months and duration <= 120 months
- Group 5: duration > 120 months

S is the claim termination rates from the 2013 IDI Valuation Table; and

T is computed as $T = [Z \times F * (1-M) + (1 - Z)]$.

Z is a credibility weighting factor, between 0 and 1, developed for each duration group according to the following specifications:

Group 1-5: $Z = \text{Min} \left(\sqrt{\frac{N}{K}}, 1 \right)$ N is the number of expected claimant termination counts from the 2013 IDI Valuation Table.

K is a set of constants defined by duration group as follows:

- Group 1 and 2: $K = 3,300$
- Group 3: $K = 2,500$
- Group 4: $K = 2,100$
- Group 5: $K = 1,700$

F is the ratio of the company's actual total of termination counts to the expected termination counts for the 2013 IDI Valuation Table for each duration group specified above;

The A/E ratio (F) is to be determined based on monthly indemnity. If the actuary has reserve adequacy or other significant analysis that demonstrates that some other weighting of claims (claim or claimant counts, gross benefit, net benefit, etc.) is appropriate for measuring A/E, and also is expected to produce reserves not less than those produced by using a monthly indemnity measurement, such alternative measurement is deemed appropriate. If the actuary cannot produce A/E ratios based on monthly indemnity and only based on claim count or claimant count, an adjustment factor on 0.962 should be multiplied by the A/E ratios in each duration segment to convert them to an indemnity basis. The 0.962 factor is based on the observed relationship for indemnity- versus count-based claim termination experience in the IDI Valuation Table.

M is the company experience margin, determined for each duration group 2 or greater according to the following formula:

$$M = \text{Min} \left(15\%, \text{Max} \left(5\%, 3\% + 1.65 * \sqrt{A/C} \right) \right)$$

This is the minimum value for the definition of M prior to any reserve adequacy analysis. Adequacy tests and analysis of experience (sharpness of fluctuations, trends over the period of the termination rate study, changing claims practices, etc.) may indicate that a larger value of M may be more appropriate. If so, such a value is deemed appropriate. For duration group 1 (1 to 12 months), M is 5 percent, the same as the 2013 IDI Valuation Table margin for duration 1.

A is a set of constants defined by duration group as follows:

Group 1 and 2: A = 4.0

Group 3: A = 3.0

Group 4: A = 2.5

Group 5: A = 2.0

C is the company's actual number of total claimant termination counts by duration group. If an actuary cannot directly determine claimant termination counts, he or she may approximate it using the average number of claims per claimant for their block of claims.

The company should not use termination rates that produce total reserves for claims disabled for more than two years that are less than the reserves produced for these claims by computing T as T = 1.30.

D. Company-Specific Experience—Own Company Experience Measurement

In computing values F and S to comply with section B above, the appointed actuary should:

1. Segment the company claim termination experience into any major subgroups that may produce significantly different results (e.g., market niches, risk management practices, unique benefit designs, etc.);
2. Combine affiliated statutory entities and assumed reinsurance, in which claim management is under a common structure, when considering company experience. It also is appropriate to evaluate experience separately when specific blocks of company business have distinct risk management practices or significantly different risk characteristics;
3. Include all relevant experience the company is capable of providing for as many of the last five years (not including the lag period described below) as is appropriate;
4. Include a suitable lag period. Some claims may close retroactively, and others initially thought to be closed may reopen retroactively. Therefore, based on company experience, a suitable lag period is needed. The appointed actuary may use a lag period of up to 12 months if company experience shows it is appropriate. The five-year period mentioned above does not include the lag period;

5. Measure A/E based on monthly indemnity consistent with the development of the 2013 IDI Valuation Table. The A/E ratio is defined as the ratio of actual claim termination experience to the expected claim termination experience, according to the 2013 IDI Valuation Table with margin (by disability duration grouping). The A/E ratio is referred to as the variable F in section B, paragraph 4 of this actuarial guideline. For companies that can develop A/E studies only based on claim termination counts, an adjustment factor of 0.962 should be multiplied by their A/E ratio for each claim duration to convert it to an indemnity basis. The 0.962 factor was developed based on the relationship of the indemnity-based A/E to count-based A/E for the industry table;
6. In calculating expected claim terminations based on the 2013 IDI Valuation Table, companies should use all variables and modifiers with two exceptions:
 - a. If a company has not maintained appropriate diagnosis codes on historical claim records, the company may set the diagnosis CTR modifier to 1.00.
 - b. If a company has not maintained appropriate occupation codes on historical claim records to identify occupations and assign them to the five occupation classes of the 2013 IDI Valuation Table consistent with definitions of these occupation classes, the company may assign claims to Occ Classes 1, 2, 3, and 4 based on the way the company has assigned claims to the 85CIDA occupation classes.
7. Assign credibility based on claimant termination counts, and not monthly indemnity terminated. Companies should use claimant termination counts and not claim termination counts in determining the number of terminations for their own company experience credibility. Each company will need to make appropriate adjustments based on its average number of claims per claimant if it is not able to determine claimant termination counts directly and can only directly measure claim termination counts. For example, on average, if a company has 1.5 open claims per claimant and if it had 100 claim terminations in a duration segment over its five-year study period, it would divide 100 by 1.5 and use 67 claimant terminations when determining credibility;
8. Update the minimum valuation basis in accordance with section B above at least once every five years. In addition, the valuation basis also should be updated whenever the company's annual own experience study produces, in accordance with section B, a value T that changes by more than 10 percent from the one used in the current valuation basis for any of the five duration groups. All claims valued using the 2013 IDI Valuation Table share the same company experience factors. When the company experience factors are updated, the new factors apply to all claims valued using the 2013 table, including claims incurred prior to the update of the experience factors;
9. Do not count as terminations those claims that are closed due to settlement (i.e., a lump sum replacing a series of potential future payments); that have reached the end of the maximum benefit duration; or that are closed due to a contractual limitation, such as a mental disorder limitation. For this purpose a termination due to a change in definition of disability is not considered a termination due to reaching the maximum benefit duration. Terminations of residual or partial disability claims count as total disability terminations. Changes in the

definition of disability do not count as a termination unless the claim actually terminates. If a claim closes when the definition of disability changes, that is counted as a claim termination;

10. Use experience that is otherwise relevant in accordance with the professional judgment of the appointed actuary;
11. Do not use experience that the commissioner has deemed inappropriate or likely to produce significantly inadequate reserves; and
12. In the above paragraphs, the term “company” refers to a single company or a group of legally related companies subject to the same claim management.

E. Own Experience Measurement Exemption

If, at the time of valuation, a company has fewer than 50 open claimants disabled within two years of the effective date of the valuation, and fewer than 200 open claimants disabled more than two years prior to the effective date of the valuation, the insurer is exempt from the requirement that the 2013 IDI Valuation Table be modified by the company’s own experience. Said company should use 100 percent of the 2013 IDI Valuation Table for calculating claims termination rates in order to comply with the minimum valuation standard. This exemption is determined at the statutory company level and not at any segmented level that might be used in determining the own experience modifier.

Appendix 4 - Employer-Sponsored Claim Incidence Modifiers by Underwriting Type

Background

The purpose of this appendix is to discuss the development of the claim incidence modifiers for employer-sponsored business that vary by underwriting type.

Originally the IDTWG proposed modifying claim incidence rates for the individual-bill and employer-sponsored markets. Policies issued in the individual-bill market would have a modifier of 105.3 percent while the policies issued in the employer-sponsored business would have a market modifier of 79.9 percent.

There are three main types of underwriting used in the employer-sponsored market:

1. Individual Medical

Individual medical underwriting in the employer-sponsored market involves the company reviewing the medical history of applicants similar to the underwriting in the individual-bill market and deciding whether to decline or accept as standard or substandard with a premium rating and/or condition exclusion.

2. Mandatory Guaranteed Standard Issue (GSI)

Mandatory GSI underwriting is utilized in employer-sponsored cases in which typically 100 percent of the eligible employees receive disability coverage for amounts under a limit specified by the company. Employees who are receiving coverage higher than the specified limit undergo individual medical underwriting. In general, most if not all of the premium for the disability coverage is paid by the employer.

3. Voluntary GSI

Voluntary GSI underwriting is utilized in employer-sponsored cases in which the choice to purchase the disability coverage is made by each employee who pays the premium. Policies with disability coverage under a specified limit will be issued standard without individual medical underwriting. Employees who are receiving coverage higher than the specified limit undergo individual medical underwriting. Because of the risk of anti-selection, the specified limits under voluntary GSI cases typically are lower than those for mandatory GSI, and companies often require or target a minimum participation of eligible employees.

The IDTWG received comments related to concerns the original employer-sponsored market modifier (79.9 percent) did not take into account differences in claim experience by underwriting type. In particular, this concern was focused on expected higher claim experience from employer-sponsored cases issued via voluntary GSI underwriting. In response to this concern, the IDTWG recognized that there are most likely differences by underwriting type, but the industry database from which the 2013 IDI valuation table was derived could not separate experience by these three underwriting types. The experience supporting the single market modifier contained the aggregate of all three types of underwriting.

During a teleconference to discuss this concern, the HATF approved a modification to the market incidence modifier, under which employer-sponsored business issued with individual medical underwriting or mandatory GSI underwriting would be assigned the 79.9 percent market incidence modifier while voluntary GSI business would be assigned the same modifier as derived for individual-billed business only (i.e., 105.3 percent).

Seven IDI carriers, who are currently the most active in the employer-sponsored business, agreed to submit their own relatively recent employer-sponsored claim incidence experience to the IDTWG for a supplemental claim incidence study that could produce a more meaningful split of the single employer-sponsored market incidence modifier by underwriting type. This memo includes a discussion of the supplemental claim incidence study, which resulted in another set of modifications to address the HATF's goals.

Based on the above, the IDWTG had three alternative sets of modifiers to choose from:

1. Original report (October 2015)
2. October 2015 HATF call
3. November 2015 IDTWG Supplemental study

The Supplemental Incidence Study

The following table shows the seven IDI carriers who contributed to this supplemental study. These companies are currently the most active in the employer-sponsored IDI market.

Contributors to Employer Sponsored Market Claim Incidence Study
Ameritas Life Insurance Corporation
Guardian Life Insurance Company
Massachusetts Mutual Life Insurance Company
Metropolitan Life Insurance Company
Principal Financial Group
Standard Life Insurance Company
Unum Life Insurance Company

Key characteristics of the study:

- Contributors provided exposures, actual claims, and expected claims from their own claim incidence studies, summarized by the three underwriting types. The expected basis was the 1985 CIDA table. Exposure and claims were measured in terms of monthly indemnity.

- The three underwriting types are individual medical, voluntary GSI, and mandatory GSI. Individual medical includes all employer-sponsored business that was not voluntary or mandatory GSI.
- Study periods for the various company studies were generally 2007 to 2012 with a few companies varying.
- For the most part, policies were in their first 10 policy years.
- As was done in the development of the 2013 IDI Valuation table, exposure from Unum Life Insurance Company in this study was limited to 40 percent of the total exposure.
- The IDTWG did not audit the incidence study results submitted by the seven companies.

The following table summarizes the distribution of exposure, actual claims, and expected claims by underwriting type for all contributors in the aggregate.

Combined Exposure, Actual Claims, Expected Claims and A/E Ratios				
Expected = 1985 CIDA				
Underwriting Type	Exposure	Actual Claims	Expected Claims	A/E
Individual Medical	3,826,873,771	9,085,856	17,778,430	51.1%
Voluntary GSI	2,775,452,751	5,471,272	8,982,961	60.9%
Mandatory GSI	2,344,143,893	2,799,883	7,742,336	36.2%
Total	8,946,470,415	17,357,011	34,503,726	50.3%

Although the values in the above table are presented in terms of monthly indemnity, we estimate that the exposure is comprised of approximately 2.7 million life years and 7,000 claims.

The next table shows the A/E ratios by company, labeled A, B, ...,G to protect the anonymity of the companies' results.

Actual/Expected Incidence Ratios - Employer Sponsored Market By Underwriting Type and Company Expected Incidence = 1985 CIDA				
Actual/Expected	A	B	C	D
Individual Medical	65.2%	41.9%	59.6%	NA
Voluntary GSI	73.2%	41.5%	65.0%	60.2%
<u>Mandatory GSI</u>	<u>40.4%</u>	<u>28.5%</u>	<u>42.5%</u>	<u>29.5%</u>
Total	63.6%	35.8%	57.8%	45.9%
Actual/Expected	E	F	G	Combined
Individual Medical	37.8%	50.1%	39.7%	51.1%
Voluntary GSI	57.1%	57.8%	85.6%	60.9%
<u>Mandatory GSI</u>	<u>49.4%</u>	<u>30.7%</u>	<u>41.5%</u>	<u>36.2%</u>
Total	39.0%	47.2%	49.6%	50.3%

Suggested Market Incidence Modifiers for Employer-Sponsored Business by Underwriting Type

The above A/E ratios are based on the 1985 CIDA table as the expected basis. To convert to the 2013 IDI Valuation Table as the expected basis, we divided the A/E ratio for each of the underwriting types, to the total ratio assuming the 1985 CIDA as the expected basis, and multiplied the result times the 79.9 percent.

A/E Incidence Ratios By Expected Basis		
Underwriting Type	1985 CIDA	2013 IDI Valuation
Individual Medical	51.1%	81.2%
Voluntary GSI	60.9%	96.7%
<u>Mandatory GSI</u>	<u>36.2%</u>	<u>57.4%</u>
Total	50.3%	79.9%

The seven contributing companies have reviewed the IDTWG study methodology and results and confirmed their satisfaction with both.

Comparison of Alternatives

The table below shows a comparison of the alternative modifiers. Splitting the employer-sponsored incidence modifier by underwriting type will increase the reserve margins in the 2013 IDI valuation table, but this increase is much smaller using the incidence modifiers based on the November study.

Impact of Different Market Incidence Modifiers					
			Market Incidence Modifiers		
Market	% ES Claims	% Total Claims	Original Report	October Call	November Study
Employer-Sponsored Individual Medical	43.9%		79.9%	79.9%	81.2%
Voluntary GSI	33.4%		79.9%	105.3%	96.7%
Mandatory GSI	22.7%		79.9%	79.9%	57.4%
ES Total	100.0%	23.0%	79.9%	88.4%	81.0%
Individual Bill		77.0%	105.3%	105.3%	105.3%
Total		100.0%	99.5%	101.4%	99.7%
Additional margin in ES			0.0%	10.6%	1.3%
Additional margin in Total			0.0%	2.0%	0.2%

Notes: The original report column reflects no differentiation of modifiers within the employer-sponsored business; the October call column reflects what HATF approved on the October call, and the November study column reflects what is being recommended based on a subsequent study of employer-sponsored claim incidence.

At a December 2015 call with HATF, the modifiers recommended in the November Supplemental study were approved and subsequently incorporated into this report.