

2005-2015 Experience Adjustments to the 2013 IDI Valuation Table Claim Incidence Rates

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2005-2015 Experience Adjustments to the 2013 IDI Valuation Table Policy Incidence Rates

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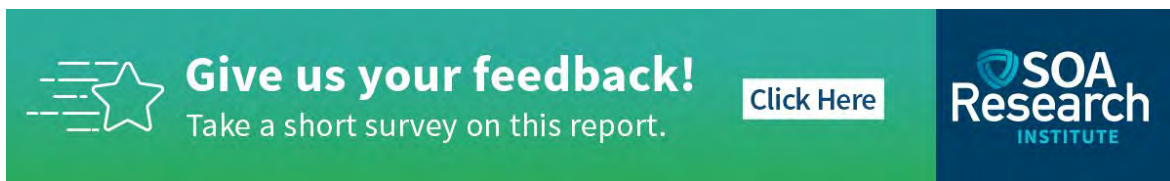
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2005-2015 Experience Adjustments to the 2013 IDI Valuation Table Incidence Rates

Section 1: Overview

The Society of Actuaries' report titled "Analysis of Claim Incidence Experience from 2006 through 2014"¹ was released in November 2019. This report, which was produced by the Individual Disability Experience Committee (IDEC), is referred to as the "2006-2014 Claim Incidence Experience Report" throughout this report. This report discusses how claim incidence rates for certain categories of individual disability income (IDI) claims were lower than what would be expected from the existing industry standard for IDI claim incidence experience, i.e., the 2013 IDI Valuation Table (2013 IDIVT). The differences were significant across most segments of the data.

This report discusses the development of policy reserves derived from the 2005-2015 claim incidence experience and the 2006-2014 claim termination experience from the Society of Actuaries' report titled "2006-2014 Experience Adjustments to the 2013 IDI Valuation Table Claim Termination Rates, Revised April 2022."² This report also discusses modifications to the 2013 IDIVT incidence rates to reflect experience observed from 2005 to 2015.

The prior report, which is referred to as the "2006-2014 IDI Termination Modifier Report" throughout this report, discusses how claim termination rates from 2006 through 2014 have decreased relative to the 2013 IDIVT after the first two claim years and shows the potential impact on claim reserves.

The analyses in this report show that the impact of lower claim incidence rates, offset somewhat by the impact of lower claim termination rates in recent years, serves to lower policy reserves. Furthermore, recent claim incidence and termination experience has lowered claim costs by 25% on average.

The primary steps involved in producing the analyses in this report included:

1. Development of the 2005-2015 IDI Experience Table (IDIET) incidence rate modifiers, discussed in the November 2019 report, as well as a description of how the IDIET should be used.
2. Development of a model office representing aggregate IDI industry policy reserves.
3. Development of policy reserves using recent claim incidence and termination experience and comparisons of those to policy reserves using the 2013 IDIVT.

¹ "Analysis of Claim Incidence Experience from 2006 through 2014," Society of Actuaries, <https://www.soa.org/resources/experience-studies/2019/claim-incidence-report/>

² "2006-2014 Experience Adjustments to the 2013 IDI Valuation Table Claim Termination Rates, Revised April 2022," Society of Actuaries, <https://www.soa.org/resources/experience-studies/2021/2006-14-idiet-report/>

1.1 INTRODUCTION

The purpose of this analysis is to provide a practical set of changes to the incidence rate modifiers of the 2013 Individual Disability Income Valuation Table to reflect recent industry individual disability income (IDI) claim experience trends from 2005 through 2015. The goal is to have resulting 2005-2015 experience-based incidence modifiers in a workable format to facilitate its use.

Recent claim incidence experience has been previously documented in the 2006-2014 Claim Incidence Experience Report. Although relevant information is provided here to support the recommended adjustments to the 2013 IDIVT, readers are encouraged to access the 2006-2014 Claim Incidence Experience Report to gain greater insight into IDI claim incidence trends over this period of time.

The 2006-2014 Claim Incidence Experience Report showed that recent incidence experience was substantially different than the 2013 IDIVT, which covered the experience years from 1990 to 2007. The 2005-2015 IDIET incidence rate modifiers developed in this report can be applied to the 2013 IDIVT incidence rates to better match recently observed experience. (Note: the 2005-2015 IDIET incidence rate modifiers were based on more experience years than the 2006-2014 Claim Incidence Experience Report to improve the credibility of small cells.) The IDEC confirmed that the additional data was suitable for this purpose.

The 2005-2015 IDIET incidence rates are developed by starting with the 2013 IDIVT base incidence rates, after the application of its four sets of prescribed modifiers, found in Appendix A. These modifiers adjust by contract type, smoker status, benefit period, and market and underwriting method.

The newly derived set of five 2005-2015 IDIET incidence rate modifiers developed in this report should then be multiplied by these 2013 IDIVT incidence rates (i.e., including the 2013 IDIVT modifiers) to arrive at the 2005-2015 IDIET incidence rates. Please note, the 2005-2015 IDIET incidence rate modifiers include a set varying by calendar year, which was not part of the 2013 IDIVT incidence structure. This is a new variable that could be incorporated into any modeling which uses the 2005-2015 IDIET.

The structure and development of the 2005-2015 IDIET incidence rate modifiers are described in sections 3 and 4. The resulting 2005-2015 IDIET incidence rates, combined with the 2006-2014 IDI termination rates from the 2006-2014 IDI Termination Modifier Report, are referred to as the "2005-2015 IDIET" for the purpose of this report.

The 2005-2015 IDIET is not intended to represent an official SOA experience table. The 2005-2015 IDIET has not gone through several of the steps that are normally appropriate for an official table, such as graduation and industry review. It is intended to assist companies in their own evaluation of industry experience for reserve adequacy testing. It is not intended to replace companies' own evaluations. There is no official or statutory requirement for companies to use the 2005-2015 IDIET, and the 2005-2015 IDIET does not replace the 2013 IDIVT as a statutory minimum reserve basis for IDI policies.

A model office representing the active policies in the experience study as of 12/31/2015 was developed from the 2005-2015 IDI experience study policy database. This model office was then used to compare policy reserves with the utilization of these 2005-2015 IDIET incidence rate modifiers and IDIET termination rate modifiers to policy reserves based on the 2013 IDIVT. Development of the model office and the resulting policy reserve comparisons are discussed in section 5.

1.2 BACKGROUND

The 2006-2014 Claim Incidence Experience Report provides a comprehensive analysis of IDI experience from 2006 through 2014. The analysis is presented mostly in terms of actual-to-expected (“A/E”) claim incidence ratios where the expected basis consists of the 2013 IDIVT base incidence rates multiplied by the prescribed incidence modifiers. This expected incidence basis, before the application of valuation margins, was intended to represent average industry IDI incidence experience from 1990 through 2007.

Following are the major conclusions from the 2006-2014 Claim Incidence Report:


The A/E claim incidence ratios:

- Were generally less than 100%. This implies industry experience was better than projected by the IDIVT incidence tables.
- Were similar by benefit period. This implies the 2013 IDIVT benefit period modifier is supported by the 2006 to 2014 data.
- Were lower for both younger (less than 40) and older (over 65) ages. This implies that a slight adjustment to the 2013 IDIVT incidence rates may be appropriate to better fit the observed age slopes.
- Were higher in employer-sponsored business (ERSP) plans than individual and association plans. These higher A/Es were even more prevalent in the voluntary ERSP market.
- Decreased steadily by calendar year. This decreasing trend was seen in all occupation classes. The decreasing trend was not as pronounced in the medical occupation group.

The observed differences noted above are substantial and lead to the conclusion that the 2013 IDIVT does not adequately reflect the 2005-2015 incidence experience. It is not a simple exercise for a company to adjust the 2013 IDIVT to reflect the 2005-2015 experience directly from the 2006-2014 Claim Incidence Report as the different variables interact with each other. Consequently, the IDEC undertook that task, which has resulted in this report, as well as the 2005-2015 IDIET incidence rates modifiers.


1.3 SCOPE

The 2005-2015 IDIET incidence rate modifiers apply to all IDI policy types. While most of the exposure (over 93%) is on traditional accident and sickness policies, development of the experience-based modifiers included other contract types, e.g., business overhead expense, disability buy-out, accident only, etc.



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Section 2: Summary of Results

This report discusses two separate but related topics.

The first topic is the 2005-2015 IDIET incidence rate modifiers. The report discusses the structure of the 2005-2015 IDIET incidence rate modifiers in section 3. Section 4 discusses how the 2005-2015 IDIET incidence rate modifiers were constructed and tested.

The second topic is the potential impact of the 2005-2015 IDIET incidence rate modifiers and 2006-2014 IDIET termination rates on policy reserves and claim cost relative to the 2013 IDIVT. A proxy model office was constructed, representing all active policies in the experience study as of 12/31/2015.

Analyses were performed to identify the potential impact across various parameters of the recent experience on overall industry policy reserves and claim cost. The recent-experience-based policy reserve calculations include both the 2005-2015 IDIET incidence rate modifiers and the modified 2006-2014 IDIET termination rates. For ease of discussion, this report uses the term "2005-2015 IDIET" to refer to the new incidence and termination rates combined. Where an analysis is based on the new incidence (or termination) rates only, the report will specifically mention "2005-2015 IDIET incidence rate modifiers" or "modified 2006-2014 IDIET termination rates."

The report discusses the model office and policy reserve impacts in section 5.

2.1 2005-2015 IDIET INCIDENCE RATE MODIFIERS

2.1.1 STRUCTURE OF THE 2005-2015 IDIET

The 2005-2015 IDIET incidence rates are equal to the 2013 IDIVT base incidence rates multiplied by the 2013 IDIVT incidence rate modifiers multiplied by the 2005-2015 IDIET incidence rate modifiers. The 2005-2015 IDIET incidence rate modifiers consist of five sets of factors:

1. Market and underwriting type modifiers
2. Occupation class and gender modifiers
3. Attained age modifiers
4. Elimination period modifiers
5. Calendar year modifiers

The formula to calculate the 2005-2015 IDIET Incidence rates is:

The 2005-2015 IDIET incidence rates = the 2013 IDIVT base incidence rates x the 2013 IDIVT incidence rate modifiers x the 2005-2015 IDIET incidence rate modifiers

2.1.2 CONSTRUCTION OF THE 2005-2015 IDIET

The 2005-2015 IDIET incidence rate modifiers were developed using a database constructed from the 2005-2015 IDI experience study data. Experience was measured in terms of A/E claim incidence ratios on a claim count basis. The resulting A/E ratios were then examined by indemnity amount and the committee determined that additional indemnity modifiers were not required. The basic approach was to calculate A/E incidence ratios for each potential key variable, where the expected basis was the 2013 IDIVT incidence rates after application of the 2013 IDIVT incidence rate modifiers. If A/E results for that variable varied significantly from 100%, a set of 2005-2015 IDIET incidence rate modifiers were developed to bring the results for that variable back to 100%. Generally, credibility adjustments and data smoothing were not used in the development of the 2005-2015 incidence rate modifiers. This resulted in five sets of modifiers addressing a total of seven variables. Other variables were also analyzed, but their impact did not require additional sets of modifiers.

For ease of administration, the first four of the IDIET modifiers all use formats and ranges that are consistent with those currently used. The fifth set of IDIET modifiers, for calendar year, was not used in the 2013 IDIVT.

The table of 2005-2015 IDIET incidence rate modifiers by market and underwriting type was calculated first to better represent the overall change in IDI experience between the 1990-2007 and 2005-2015 study periods. The other modifier tables were then all derived to produce an aggregate A/E incidence ratio that was close to 100% when weighted by exposure (count). In other words, each of the last four modifier tables had an overall neutral impact on the aggregate A/E incidence ratio.

The most notable aspects of the 2005-2015 IDIET incidence rate modifiers:

- by market and underwriting type: greatly decreased the overall incidence rates of the 2013 IDIVT.
- by occupation class and gender: decreased slightly for bluer occupation classes.
- trended up with advancing age, except at the highest age band.
- by elimination period: consistently increased with increased elimination period duration.
- by calendar year: showed steady incidence rate improvement over the experience period.

2.2 POLICY RESERVE IMPACT

A model office was constructed to evaluate the impact of the 2005-2015 IDIET versus the 2013 IDIVT on policy reserves. The model office approximated the distribution of overall U.S. IDI industry policy reserves as of 12/31/2015 across multiple variables. It was estimated using an inventory of active IDI policies as of 12/31/2015 from the 2005-2015 IDEC study database. The model office consists of 110,791 cells, representing 1,493,034 policies, with a combined indemnity of \$10.2 billion. The average indemnity was \$6,852 across all policies and \$3,044 for personal indemnity policies.

Policy reserves were then calculated for each cell using the 2005-2015 IDIET (utilizing the 2005-2015 IDIET incidence rate modifiers and the 2006-2014 IDIET termination rates).

The incidence and termination rates used in the derivation of policy reserves for this comparison were not increased by valuation margins. The valuation interest rates were held at 3% for all policies, regardless of year of issue and basis. This allowed differences in policy reserves due to the change in the valuation incidence rates basis to be more in focus

Model office policy reserves calculated using the 2005-2015 IDIET resulted in a substantial (15%) decrease in policy reserves over reserves calculated using the 2013 IDIVT. Most of the segments in the analyses experienced a decrease in policy reserves. This pattern is shown in table 2.1 below.

Table 2.1

MODEL OFFICE POLICY RESERVES – 2013 IDIVT VS 2005-2015 IDIET BY BENEFIT PERIOD (\$ MILLIONS)

Benefit Period	2013 IDIVT	2005-2015 IDIET	Change in Policy Reserves	% Increase
Short-term	293	231	(62)	-21%
To Age 65	726	624	(101)	-14%
Lifetime	505	443	(62)	-12%
Total	1,524	1,298	(225)	-15%

Section 5 discusses changes in the model office policy reserves due to the change in the valuation basis across several variables:

- Overall, policy reserves decreased by 15% as a result of changing the basis from the 2013 IDIVT to the 2005-2015 IDIET. This consists of a 13% decrease due from incidence rate changes, and a 2% decrease from termination rate changes.
- Female policy reserves dropped less than male policy reserves (6% vs 15% decrease).
- The percentage reduction in policy reserves was generally consistent across all occupation classes.
- Fully underwritten Employee-Paid reserves dropped 7% and Employer-Paid dropped 5%. Employee-Paid not fully underwritten (voluntary plans) saw the policy reserves increase 12%, largely due to incidence modifiers in that segment.
- The reader should exercise caution in the implementation of these incidence rate modifiers without a related look at the triggers for changes in termination rates.

2.3 CLAIM COST IMPACT

Section 6 discusses the changes in the model office claim cost due to the change in the valuation basis. Claim cost reflects the incidence and termination rate of claims in the present value of future benefits. Claim cost uses the same assumptions (incidence, terminations, interest, COLA, etc.) as those used in the policy reserves.

Section 6 presents the claim cost change in the valuation basis across several variables:

- Overall, 2016 claim cost decreased by 25% due to changing the basis from the 2013 IDIVT to the 2005-2015 IDIET.
- Projected claim cost changes after 5 and 10 years showed decreases of 24% and 23%, respectively.
- Female claim cost dropped less than male claim cost (20% vs 27% decrease).
- Fixed benefit periods had claim cost reductions of 28%, while lifetime benefit period claim cost changes were only a 23% decrease.
- Employee-Paid claim cost dropped 7%, and Employer-Paid dropped 17%. Employee-Paid not fully underwritten saw the claim cost increase 5%, largely due to incidence modifiers in that segment.
- There was a slight claim cost difference by policy duration observed. Claim cost in years 1-5 dropped 28%, while most other durations observed a claim cost decrease of 25%.

2.4 CONCLUSIONS

The development of the 2005-2015 IDIET provides considerable understanding into how IDI claim incidence and termination experience has changed over the years since the 2013 IDIVT, which was based on experience from 1990 through 2007. In general, recent industry claim experience produced significantly lower policy reserves and claim cost than the 2013 IDIVT. However, as discussed in the 2006-2014 IDI Termination Modifier Report, recent industry claim experience increased claim reserves.

The 2005-2015 IDIET does not replace the 2013 IDIVT as a statutory minimum valuation basis for policy reserves. Consideration of whether the 2013 IDIVT should be replaced is outside the scope of this report. However, the committee believes that the 2005-2015 IDIET is a more appropriate industry benchmark than the 2013 IDIVT for companies to use when evaluating their own experience.

Section 3: Structure of the 2005-2015 IDIET Incidence Rate Modifiers

This section describes the structure of the 2005-2015 IDIET incidence rate modifiers. A goal in its development was to keep the structure as consistent with the structure of the 2013 IDIVT as was practical to simplify usage.

3.1 INCIDENCE RATE MODIFIERS

The 2005-2015 IDIET incidence rate modifiers were derived by applying new factors to the 2013 IDIVT base incidence rates after the application of the 2013 IDIVT incidence rate modifiers. The 2013 IDIVT incidence rate modifiers are provided in Appendix A; the 2005-2015 IDIET incidence rate modifiers are provided in Appendix B and are described below. The new incidence rate modifiers do not replace the 2013 IDIVT incidence rate modifiers but are applied, in addition to the 2013 IDIVT incidence rate modifiers, to the 2013 IDIVT base incidence rates.

Formulaically:

The 2005-2015 IDIET incidence rates = the 2013 IDIVT base incidence rates x the 2013 IDIVT incidence rate modifiers x the 2005-2015 IDIET incidence rate modifiers

The 2005-2015 IDIET incidence rate modifiers are presented below, and their development is discussed in section 4.

3.1.1 MARKET AND UNDERWRITING INCIDENCE RATE MODIFIERS

Table 3.1 provides the market and underwriting incidence rate modifiers (which were examined by, but did not vary significantly by, policy duration).

Table 3.1
2005-2015 IDIET INCIDENCE RATE MODIFIERS – MARKET/UNDERWRITING (UW)

Market/UW Type	Factor
Individual	67.4%
ERSP Voluntary - Fully UW	72.0%
ERSP Voluntary - Not Fully UW	88.5%
ERSP ER Paid	72.9%
ERSP Unknown Paid	72.9%
Associate	66.7%
Missing	43.1%

Note the ERSP (Employer-Sponsored) Unknown Paid and the Missing categories were established to maintain a complete dataset and not exclude records with incomplete fields. There were some “missing” fields that could not be assigned to any of these types.

A data call to the carrier, which had records flagged as “ERSP – Unknown payor,” determined that most of the records designated as unknown payor were likely ER paid. Therefore, in the establishment of the market factors, these records were grouped together.

Most market factors are set in the 66% to 73% range, except the ERSP voluntary market without underwriting. Those factors are somewhat higher than the other market factors, but still below the 2013 IDIVT incidence rates.

This set of factors does not aggregate to 100%.

3.1.2 OCCUPATION CLASS AND GENDER INCIDENCE RATE MODIFIERS

Table 3.2 provides the occupation class and gender incidence rate modifiers.

Table 3.2

2005-2015 IDIET INCIDENCE RATE MODIFIERS – OCCUPATION CLASS & GENDER

Occupation Class	Males	Females
1	102.8%	102.5%
2	93.6%	90.8%
3	106.2%	81.2%
4	90.4%	76.7%
M	92.5%	106.2%

Most modifications by occupation class and gender were under 10%. Females were less than Males for all except Occupation class M. These factors aggregate to 100%.

3.1.3 ATTAINED AGE INCIDENCE RATE MODIFIERS

Table 3.3 provides the attained age incidence rate modifiers.

Table 3.3

2005-2015 IDIET INCIDENCE RATE MODIFIERS – ATTAINED AGE

Age Band	Factor
Under 30	61.8%
30-34	85.8%
35-39	92.1%
40-44	96.5%
45-49	99.7%
50-54	105.2%
55-59	112.8%
60-64	109.9%
65+	79.9%

There were material drops in under age 40 incidence rates. There appears to be a steepening by age slope until age 65. These factors aggregate to 100%.

3.1.4 ELIMINATION PERIOD INCIDENCE RATE MODIFIERS

Table 3.4 provides the elimination period incidence rate modifiers

Table 3.4

2005-2015 IDIET INCIDENCE RATE MODIFIERS – ELIMINATION PERIOD

Elimination Period	Factor
Under 30 days	65.5%
30 days	86.1%
60 days	95.8%
90 days	100.5%
180+ days	105.8%

Shorter elimination periods saw better experience than the 2013 IDIVT and therefore produced lower elimination period modifiers. These factors aggregate to 100%.

3.1.5 CALENDAR YEAR INCIDENCE RATE MODIFIERS

Table 3.5 provides the calendar year incidence rate modifiers. Calendar year is a new variable introduced in the 2005-2015 IDIET incidence rate modifiers; it was not reflected in the 2013 IDIVT incidence rate modifiers. The calendar year modifiers are provided for informational purposes; but are not used in the derivation of policy reserves later in this report.

Table 3.5
2005-2015 CALENDAR YEAR INCIDENCE MODIFIERS

Calendar Year	Factor
2005	114.6%
2006	109.3%
2007	108.1%
2008	109.6%
2009	105.5%
2010	102.2%
2011	97.0%
2012	95.8%
2013	93.6%
2014	83.3%
2015	73.6%

This factor table reflects the improvement in incidence rates that was observed over the experience period. These factors aggregate to 100%. Caution should be exercised in the reliance on the trend seen in 2014 and 2015 as there may be a reporting lag to consider.

Section 4: Development of the 2005-2015 IDIET Incidence Rate Modifiers

This section describes the development of the 2005-2015 IDIET incidence rate modifiers. They are applied to the 2013 IDIVT incidence rates after the application of the 2013 IDIVT incidence rate modifiers to represent average industry claim incidence experience from 2005 through 2015. The 2013 IDIVT incidence rate modifiers are provided in Appendix A and the 2005-2015 IDIET incidence rate modifiers are provided in Appendix B.

4.1 AGGREGATED CLAIM DATA

Experience was measured in terms of A/E claim incidence ratios on a count basis. The resulting A/Es were then examined by indemnity amount and the committee determined that additional indemnity modifiers were not required. The aggregate impact of the 2005-2015 IDIET incidence rate modifiers validate to 2005-2015 experience by amount. The expected basis for the A/E incidence ratios is the 2013 IDIVT incidence rates after the application of the 2013 IDIVT incidence rate modifiers.

Table 4.1 below shows the A/E claim incidence ratios by calendar year and each year's percentage of exposure by policy-year count. All calendar years were used in the development of the 2005-2015 IDIET incidence rate modifiers.

A/E is presented on both a 2013 IDIVT and 2005-2015 IDIET incidence basis. Both count and indemnity amount A/Es are presented.

Table 4.1

A/E CLAIM INCIDENCE RATIOS & PERCENT TOTAL EXPOSURE (BY POLICY-YEAR COUNT) FOR 2005-2015

Year	% of Exposure	Claims	IDIVT A/E (count)	IDIET A/E (count)	IDIVT A/E (amount)	IDIET A/E (amount)	Incidence Rate per 1000
2005	5%	8,864	73%	100%	87%	117%	6.6
2006	10%	17,441	70%	100%	74%	105%	6.3
2007	10%	17,503	70%	100%	74%	104%	6.3
2008	10%	17,893	71%	100%	81%	113%	6.4
2009	10%	17,167	68%	100%	68%	99%	6.3
2010	10%	16,546	67%	100%	68%	100%	6.1
2011	10%	15,644	63%	100%	67%	104%	5.8
2012	10%	15,336	63%	100%	61%	95%	5.8
2013	10%	14,897	62%	100%	60%	97%	5.6
2014	10%	13,139	55%	100%	51%	92%	5.0
2015	5%	5,912	49%	100%	43%	87%	4.4
Total	100%	160,342	65%	100%	66%	101%	5.9

Policy exposure was derived as follows:

- Full exposure was used for durations in which claim incidence occurred.
- Partial exposure was used in durations in which policy expiry occurred.
- Exposure ended at the latter of premium paid-through date for policy lapses or date of policy expiry.
- No policy was exposed past December 31, 2015.

The following data fields were reviewed to determine 2005-2015 IDIET incidence rate modifiers:

Variables applied as modifiers

- Market – Individual, Association, Employer-Sponsored (ERSP)
- ERSP Payor – Employer paid, Employee paid, Unknown payor
- Underwriting method – Full, Guaranteed Standard Issue/Guaranteed to Issue, Guaranteed Purchase Option.
- IDEC occupation class*
- Gender
- Attained age– Under 30, 30 to 34, 35 to 39, ..., 65+
- Elimination Period – Under 30 days, 30, 60, 90, 180+ days
- Calendar Year

*The 2013 IDIVT has five occupation classes:

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

Other variables considered, but not used as modifiers

- Cost-of-living adjustment (COLA) rider – Yes, No, Unknown. Note the amount of the COLA increase or method was not known.
- Policy type – Accident Only, Accident and Sickness, Business Overhead Expense, Key Person, Disability Buy-Out, Other/Unknown
- Benefit period – Short-term, To Age 65-70, lifetime
- Smoker Status
- Issue Year
- State of policy issue
- Indemnity amount groupings – under \$2,500, \$2,500 to \$4,999, \$5,000 to \$7,499, \$7,500 to \$9,999, \$10,000 to \$14,999, \$15,000 to \$19,999, \$20,000 and over

Note separate benefit and elimination periods (accident vs sickness) were part of the data submission. Based on submitted data, benefit periods were different less than 1.8% of the time and elimination periods were different 0.1% of the time. Therefore, sickness elimination period and benefit period only were used throughout this analysis.

The following data fields were calculated:

- Exposure by policy count and amount
- Claim occurrence by claim count and amount
- 2013 IDIVT expected incidences by claim count and amount – after the application of 2013 IDIVT claim modifiers
- 2005-2015 IDIET expected incidences by claim count and amount – after the application of 2013 IDIVT claim modifiers and the 2005-2015 IDIET incidence rate modifiers

4.2 2005-2015 IDIET INCIDENCE RATE MODIFIER DEVELOPMENT

A/E incidence ratios were calculated for each key variable. If A/E results for that variable varied significantly from 100%, an IDIET incidence rate modifier was developed to bring results for that variable back to 100%. Credibility and smoothing were not considered in the development of the incidence factors.

The 2005-2015 IDIET has five sets of incidence rate modifiers, in addition to those already applied to the 2013 IDIVT:

1. Market and Underwriting Type
 - Employer-Sponsored market (ERSP) was split into employer paid and voluntary/employee paid. As some records did not have a funding indicator, an unknown payor status was used for completeness. The Unknown payor status was mapped to ER paid based on a discussion with the contributing carrier.
 - Some records did not have market indicator. Those records noted market type as “missing” to maintain data completeness.
 - Underwriting types, fully underwritten, guarantee to issue/guaranteed standard issue, and guaranteed purchase option were aggregated for the individual, association, employer paid and missing market types. This was due to the materiality of splits and/or A/E ratios close enough to not warrant additional segmentation.
 - The employee paid/voluntary segment was split into fully underwritten and not fully underwritten cohorts. The not fully underwritten segment includes GSI/GTI and GIO underwriting types.
2. Occupation Class and Gender
3. Attained Age
 - Attained age groups – Under 30, then five-year quinquennial age bands were used. Policies over age 65 were grouped into one cohort.
4. Elimination Period
 - To increase credibility, short EPs (under 30 days) were grouped for factor development.
 - Likewise, long EPs (over 180 days) were grouped for factor development.
5. Calendar Year
 - This indicator represents the year in which the policy year begins. As data is from 1/1/2005 to 12/31/2015, the 2005 and 2015 years will have half years of exposure for most policies.

For ease of administrative update, the first four IDIET incidence rate modifiers do not require any splits that were not used in the 2013 IDIVT. The fifth set of IDIET modifiers, for calendar year, is new; this segmentation was not used in the 2013 IDIVT.

The market and underwriting incidence rate modifiers were calculated first to adjust the 2013 IDIVT incidence rates to represent the overall change in IDI experience between the 1990-2007 and 2005-2015 study periods. All the subsequent incidence rate modifier tables were then derived to produce an aggregate A/E incidence ratio that is close to 100% when weighted by (count) exposure. As a result, the last four 2005-2015 IDIET incidence rate modifiers have an overall neutral impact on the aggregate A/E incidence ratio.

4.3 A/E INCIDENCE RATIOS, BEFORE AND AFTER THE IDIET INCIDENCE RATE MODIFIERS

The impact of each of the 2005-2015 IDIET incidence rate modifiers on A/E incidence ratios are discussed below. For each of the five sets of incidence rate modifiers, the 2005-2015 experience is shown below as A/E ratios, using two different expected bases. The first expected basis is the 2013 IDIVT (with prescribed IDIVT modifiers), which basically shows what the IDIET incidence rate modifiers need to be. The second expected basis is the 2005-2015 IDIET incidence. The results in the tables confirm that, by applying the new incidence rate modifiers to the 2013 IDIVT (with prescribed modifiers), the 2005-2015 IDIET incidence rates validate to the aggregate 2005-2015 experience (i.e., A/E ratios that are close to 100%).

4.3.1 MARKET AND UNDERWRITING TYPE

Table 4.2 shows the impact of the 2005-2015 IDIET incidence rate modifiers on A/E incidence ratios by duration for all markets.

Table 4.2

COMPARISON OF A/E INCIDENCE RATIOS BY MARKET - EXPECTED EQUAL TO 2013 IDIVT VS 2005-2015 IDIET

Policy Duration	% of Exposure	Claims	2013 IDIVT A/E (count)	2005-2015 IDIET A/E (count)	Incidence Rate Per 1000
1	4%	3,675	62%	111%	3.7
2	3%	3,031	57%	98%	3.3
3	3%	3,183	63%	106%	3.8
4	3%	3,232	66%	108%	4.0
5	3%	3,166	66%	106%	4.1
6-10	13%	15,182	66%	101%	4.4
11-15	12%	17,932	69%	102%	5.6
16-20	12%	24,369	69%	100%	7.6
21+	16%	50,669	60%	95%	11.3
Invalid/Missing	0%	0	0%	0%	0.0
Total	69%	124,439	64%	99%	6.7
Employer-Sponsored Market – Employee Paid					
1	1%	1,173	75%	96%	3.0
2	1%	1,099	79%	99%	3.2
3	1%	1,025	80%	97%	3.3
4	1%	1,066	88%	105%	3.7
5	1%	933	82%	96%	3.5
6-10	4%	3,591	83%	96%	3.8
11-15	2%	2,003	79%	98%	4.3
16-20	1%	1,468	84%	108%	6.4
21+	1%	1,276	75%	107%	8.8
Invalid/Missing	0%	0	0%	0%	0.0
Total	12%	13,634	81%	99%	4.0
Employer-Sponsored Market – Employer Paid					
1	0%	211	52%	73%	1.6
2	0%	255	70%	97%	2.3
3	0%	213	66%	90%	2.2
4	0%	219	75%	103%	2.7
5	0%	178	68%	92%	2.6
6-10	1%	789	77%	105%	3.3
11-15	1%	719	87%	118%	5.2
16-20	1%	1,020	84%	111%	7.3
21+	1%	1,573	83%	118%	9.5
Invalid/Missing	0%	0	0%	0%	0.0
Total	4%	5,177	78%	108%	4.4

Policy Duration	% of Exposure	Claims	2013 IDIVT A/E (count)	2005-2015 IDIET A/E (count)	Incidence Rate per 1000
1	0%	162	47%	75%	1.6
2	0%	170	57%	88%	2.0
3	0%	170	66%	99%	2.4
4	0%	138	61%	89%	2.2
5	0%	138	67%	97%	2.5
6-10	1%	703	78%	106%	3.2
11-15	1%	722	74%	97%	3.8
16-20	0%	735	79%	107%	5.4
21+	0%	346	79%	115%	7.1
Invalid/Missing	0%	0	0%	0%	0.0
Total	4%	3,284	72%	100%	3.4
Associations					
1	0%	173	47%	85%	3.9
2	0%	173	51%	91%	4.1
3	0%	180	57%	101%	4.6
4	0%	144	49%	85%	3.9
5	0%	160	60%	103%	4.8
6-10	0%	578	58%	96%	4.8
11-15	1%	949	68%	96%	6.4
16-20	1%	1,777	72%	104%	8.7
21+	1%	1,563	63%	101%	10.8
Invalid/Missing	0%	0	0%	0%	0.0
Total	3%	5,697	64%	99%	7.0
Invalid/Missing Market					
1	1%	355	36%	81%	1.8
2	1%	309	38%	83%	1.9
3	1%	281	40%	86%	2.0
4	0%	283	46%	100%	2.4
5	0%	230	45%	94%	2.4
6-10	1%	980	53%	104%	2.7
11-15	1%	1,383	57%	112%	3.5
16-20	1%	2,013	59%	126%	5.3
21+	1%	2,277	52%	123%	7.9
Invalid/Missing	0%	0	0%	0%	0.0
Total	8%	8,111	51%	111%	3.8
Total					
1	7%	5,749	60%	101%	3.1
2	6%	5,037	59%	96%	3.0
3	6%	5,052	64%	102%	3.3
4	5%	5,082	68%	106%	3.7
5	5%	4,805	67%	103%	3.7
6-10	20%	21,823	68%	101%	4.1
11-15	17%	23,708	70%	102%	5.3
16-20	16%	31,382	70%	103%	7.3
21+	19%	57,704	61%	97%	11.0
Invalid/Missing	0%	0	0%	0%	0.0
Total	100%	160,342	65%	100%	5.9

4.3.2 OCCUPATION CLASS AND GENDER

Table 4.3 shows the impact of the 2005-2015 IDIET incidence rate modifiers on A/E incidence ratios by occupation and gender.

Table 4.3

COMPARISON BY OCCUPATION BY GENDER - EXPECTED EQUAL TO 2013 IDIVT VS 2005-2015 IDIET

Males					
Occupation	% of Exposure	Claims	IDIVT A/E (count)	IDIET A/E (count)	Incidence Rate per 1000
1	42%	46,957	69%	100%	4.2
2	6%	10,933	60%	100%	6.6
3	3%	12,058	65%	100%	14.5
4	2%	5,083	57%	100%	12.2
M	23%	40,399	61%	100%	6.5
Total	75%	115,430	64%	100%	5.7
Females					
Occupation	% of Exposure	Claims	IDIVT A/E (count)	IDIET A/E (count)	Incidence Rate per 1000
1	14%	19,568	70%	100%	5.3
2	2%	3,510	60%	100%	7.3
3	0%	1,012	50%	100%	10.5
4	0%	538	47%	100%	9.9
M	9%	20,284	69%	100%	8.3
Total	25%	44,912	68%	100%	6.6
Total					
Occupation	% of Exposure	Claims	IDIVT A/E (count)	IDIET A/E (count)	Incidence Rate per 1000
1	55%	66,525	69%	100%	4.4
2	8%	14,443	60%	100%	6.8
3	3%	13,070	63%	100%	14.1
4	2%	5,621	56%	100%	11.9
M	32%	60,683	63%	100%	7.0
Total	100%	160,342	65%	100%	5.9

Table 4.4 shows the impact of the 2005-2015 IDIET incidence rate modifiers on A/E incidence ratios by occupation and duration. Note occupation class 3 had a higher distribution of lower EPs than occupation class 4, leading to higher overall incidence rates.

Table 4.4

COMPARISON OF A/E INCIDENCE RATIOS BY DURATION BY OCCUPATION - EXPECTED EQUAL TO 2013 IDIVT VS 2005-2015 IDIET

Duration	Occupation 1			Occupation 2		
	Claims	IDIVT A/E (count)	IDIET A/E (count)	Claims	IDIVT A/E (count)	IDIET A/E (count)
1	2,593	66%	102%	438	54%	102%
2	2,327	67%	100%	363	50%	92%
3	2,205	68%	99%	408	62%	109%
4	2,285	74%	106%	406	66%	113%
5	2,087	71%	99%	416	71%	118%
6-10	9,748	74%	102%	1,735	64%	102%
11-15	9,754	75%	105%	1,748	62%	98%
16-20	12,222	74%	103%	2,244	63%	99%
21+	23,304	64%	95%	6,685	58%	99%
Invalid/Missing	0	0%	0%	0	0%	0%
Total	66,525	69%	100%	14,443	60%	100%
Duration	Occupation 3			Occupation 4		
	Claims	IDIVT A/E (count)	IDIET A/E (count)	Claims	IDIVT A/E (count)	IDIET A/E (count)
1	320	65%	117%	222	62%	129%
2	294	63%	109%	183	63%	123%
3	343	75%	125%	175	68%	128%
4	320	69%	114%	216	90%	165%
5	372	79%	126%	162	69%	124%
6-10	1,815	70%	109%	864	71%	124%
11-15	2,005	69%	105%	897	66%	113%
16-20	2,384	67%	100%	972	57%	99%
21+	5,217	56%	91%	1,930	43%	80%
Invalid/Missing	0	0%	0%	0	0%	0%
Total	13,070	63%	100%	5,621	56%	100%
Duration	Occupation M			All Occupations		
	Claims	IDIVT A/E (count)	IDIET A/E (count)	Claims	IDIVT A/E (count)	IDIET A/E (count)
1	2,176	54%	96%	5,749	60%	101%
2	1,870	52%	90%	5,037	59%	96%
3	1,921	58%	98%	5,052	64%	102%
4	1,855	60%	99%	5,082	68%	106%
5	1,768	61%	98%	4,805	67%	103%
6-10	7,661	62%	96%	21,823	68%	101%
11-15	9,304	66%	99%	23,708	70%	102%
16-20	13,560	69%	104%	31,382	70%	103%
21+	20,568	62%	102%	57,704	61%	97%
Invalid/Missing	0	0%	0%	0	0%	0%
Total	60,683	63%	100%	160,342	65%	100%

4.3.3 ATTAINED AGE

Table 4.5 shows the impact of the 2005-2015 IDIET incidence rate modifiers on A/E incidence ratios by attained age and gender.

Table 4.5

COMPARISON OF A/E INCIDENCE RATIOS BY ATTAINED AGE & GENDER - EXPECTED EQUAL TO 2013 IDIVT VS 2005-2015 IDIET

Males					
Age Band	% of Exposure	Claims	IDIVT A/E (count)	IDIET A/E (count)	Incidence Rate per 1000
Under 30	2%	590	43%	108%	1.2
30-34	4%	1,493	54%	96%	1.4
35-39	7%	3,348	62%	103%	1.8
40-44	10%	6,789	67%	106%	2.5
45-49	13%	12,314	66%	101%	3.6
50-54	14%	21,550	66%	100%	5.5
55-59	13%	31,729	69%	99%	8.7
60-64	9%	29,861	65%	99%	12.0
65+	3%	7,756	45%	100%	10.7
Total	75%	115,430	64%	100%	5.7
Females					
Age Band	% of Exposure	Claims	IDIVT A/E (count)	IDIET A/E (count)	Incidence Rate per 1000
Under 30	1%	692	40%	95%	2.1
30-34	2%	2,395	62%	103%	4.0
35-39	3%	3,378	63%	98%	4.2
40-44	4%	4,180	61%	91%	4.3
45-49	4%	6,289	67%	98%	5.5
50-54	5%	9,021	71%	101%	7.4
55-59	4%	10,324	75%	102%	10.2
60-64	2%	7,319	73%	104%	12.9
65+	0%	1,314	51%	102%	11.3
Total	25%	44,912	68%	100%	6.6
Total					
Age Band	% of Exposure	Claims	IDIVT A/E (count)	IDIET A/E (count)	Incidence Rate per 1000
Under 30	3%	1,282	41%	101%	1.6
30-34	6%	3,888	58%	100%	2.3
35-39	10%	6,726	63%	100%	2.5
40-44	14%	10,969	65%	100%	3.0
45-49	17%	18,603	66%	100%	4.0
50-54	19%	30,571	68%	100%	6.0
55-59	17%	42,053	70%	100%	9.0
60-64	11%	37,180	66%	100%	12.2
65+	3%	9,070	46%	100%	10.8
Total	100%	160,342	65%	100%	5.9

The previous tables show that the 2005-2015 IDIET incidence rate modifiers align the incidence rates to the observed experience by attained age bands for each gender.

4.3.4 ELIMINATION PERIOD

Table 4.6 shows the impact of the 2005-2015 IDIET incidence rate modifiers on A/E incidence ratios by elimination period. Ninety-day elimination periods are 62% of the total exposure in the study.

Table 4.6

COMPARISON OF A/E INCIDENCE RATIOS BY ELIMINATION PERIOD - EXPECTED EQUAL TO 2013 IDIVT VS 2005-2015 IDIET

Elimination Period	% of Exposure	Claims	IDIVT A/E (count)	IDIET A/E (count)	Incidence Rate per 1000
Under 30 days	1%	5,300	46%	100%	25.3
30 days	8%	39,129	60%	100%	17.6
60 days	7%	18,191	67%	100%	9.9
90 days	62%	81,726	68%	100%	4.9
180+ days	22%	15,996	75%	100%	2.7
Total	100%	160,342	65%	100%	5.9

4.3.5 CALENDAR YEAR

Table 4.7 shows the impact of the 2005-2015 IDIET incidence rate modifiers on A/E incidence ratios by calendar year.

Table 4.7

COMPARISON OF A/E INCIDENCE RATIOS BY CALENDAR YEAR - EXPECTED EQUAL TO 2013 IDIVT VS 2005-2015 IDIET

Calendar Year	% of Exposure	Claims	IDIVT A/E (count)	IDIET A/E (count)	Incidence Rate per 1000
2005	5%	8,864	73%	100%	6.6
2006	10%	17,441	70%	100%	6.3
2007	10%	17,503	70%	100%	6.3
2008	10%	17,893	71%	100%	6.4
2009	10%	17,167	68%	100%	6.3
2010	10%	16,546	67%	100%	6.1
2011	10%	15,644	63%	100%	5.8
2012	10%	15,336	63%	100%	5.8
2013	10%	14,897	62%	100%	5.6
2014	10%	13,139	55%	100%	5.0
2015	5%	5,912	49%	100%	4.4
Total	100%	160,342	65%	100%	5.9

The 2005-2015 IDIVT A/E incidence ratios are 100% for all calendar years combined. A decreasing trend in raw incidence rates and A/E IDIVT can be seen in table 4.8. However, please keep the data completeness in mind when considering experience for the years 2014 and 2015.

4.4 OTHER FACTORS CONSIDERED

This section discusses the impact of the 2005-2015 IDIET on other variables. These other variables were reviewed both on the 2013 IDIVT and 2005-2015 IDIET bases. The A/E incidence ratios were close enough to 100% to not warrant the inclusion of any of these other variables in the 2005-2015 IDIET incidence rate modifiers.

4.4.1 CONTRACT TYPE

Table 4.8 shows the impact of the 2005-2015 IDIET incidence rate modifiers on A/E incidence ratios by contract type.

Table 4.8

COMPARISON OF A/E INCIDENCE RATIOS BY CALENDAR YEAR - EXPECTED EQUAL TO 2013 IDIVT VS 2005-2015

Contract Type	% of Exposure	Claims	IDIVT A/E (count)	IDIET A/E (count)	Incidence Rate per 1000
Policies Covering Accident & Sickness	94%	148,022	65%	100%	5.8
Business Overhead Expense	4%	10,247	67%	112%	8.9
Disability Buy-Out	1%	313	52%	77%	1.0
Accident only policies	0%	264	28%	46%	5.1
Key Person	0%	57	52%	88%	2.7
Other	1%	1,439	60%	90%	7.7
Total	100%	160,342	65%	100%	5.9

The 2005-2015 IDIET A/E incidence ratios by contract type are close to 100% for material contract types. Note the 2013 IDIVT has modifiers for business contract types.

4.4.2 COST OF LIVING ADJUSTMENTS

Table 4.9 shows the impact of the 2005-2015 IDIET incidence rate modifiers on A/E incidence ratios by COLA provision.

Table 4.9

COMPARISON OF A/E INCIDENCE RATIOS BY COLA PROVISION - EXPECTED EQUAL TO 2013 IDIVT VS 2005-2015 IDIET

COLA Provision	% of Exposure	Claims	IDIVT A/E (count)	IDIET A/E (count)	Incidence Rate per 1000
No COLA	66%	124,934	66%	102%	7.0
COLA	34%	35,408	63%	95%	3.9
Total	100%	160,342	65%	100%	5.9

Since both with and without COLA A/Es are within 5% of 100%, it was decided that adding new incidence rate modifiers for the COLA presence was not advisable as it would increase complexity without having a significant impact on the overall experience.

4.4.3 INDEMNITY AMOUNT BAND

Table 4.10 shows the impact of the 2005-2015 IDIET incidence rate modifiers on A/E incidence ratios by indemnity band.

Table 4.10

COMPARISON OF A/E INCIDENCE RATIOS BY INDEMNITY BAND - EXPECTED EQUAL TO 2013 IDIVT VS 2005-2015 IDIET

Indemnity Band	% of Exposure	Claims	IDIVT A/E (count)	IDIET A/E (count)	Incidence Rate per 1000
Under \$2,500	55%	101,274	64%	99%	6.8
\$2,500-\$4,999	24%	31,944	67%	101%	5.0
\$5,000-\$7,499	11%	14,252	66%	100%	4.7
Over \$7,500	10%	12,872	67%	106%	4.7
Total	100%	160,342	65%	100%	5.9

Note incidence rate per 1000 decreases with increasing indemnity amount, probably due to the concentration of blue-collar occupations in the lower indemnity band. As the IDIET A/E is within 6% of 100% by indemnity band, it was decided that adding new incidence rate modifiers by indemnity was not advisable as it would increase complexity without having a significant impact on the overall experience.

Note indemnity band is determined on a per policy basis, not on a per insured basis. For example; if an insured had a \$2,000 policy and a \$4,000 policy, that data would appear in the under \$2,500 and \$2,500 to \$4,999 bands, respectively.

4.4.4 ISSUE YEAR

Table 4.11 shows the impact of the 2005-2015 IDIET incidence rate modifiers on A/E incidence ratios by issue year.

Table 4.11

COMPARISON OF A/E INCIDENCE RATIOS BY ISSUE YEAR - EXPECTED EQUAL TO 2013 IDIVT VS 2005-2015 IDIET

Issue Year	% of Exposure	Claims	IDIVT A/E (count)	IDIET A/E (count)	Incidence Rate per 1000
Pre-1990	17%	53,099	62%	96%	11.5
1990-1994	17%	34,927	70%	104%	7.6
1995-1999	15%	21,569	68%	101%	5.2
2000-2004	20%	23,050	71%	103%	4.3
2005-2009	21%	19,425	64%	101%	3.5
2010-2015	10%	8,272	53%	99%	2.9
Total	100%	160,342	65%	100%	5.9

Note incidence rate per 1000 decreases with increasing issue years. This is due to recently issued policies being present in the more current issue years (i.e., the average age is lower in band 2010-2015 vs Pre- 1990). As the IDIET A/E is within 4% of 100% by issue year group, it was decided that adding new incidence rate modifiers by issue year was not advisable as it would increase complexity without having a significant impact on the overall experience.

4.4.5 BENEFIT PERIOD

Table 4.12 shows the impact of the 2005-2015 IDIET incidence rate modifiers on A/E incidence ratios by benefit period.

Table 4.12

COMPARISON OF A/E INCIDENCE RATIOS BY BENEFIT PERIOD - EXPECTED EQUAL TO 2013 IDIVT VS 2005-2015 IDIET

Benefit Period	% of Exposure	Claims	IDIVT A/E (count)	IDIET A/E (count)	Incidence Rate per 1000
Short Term	24%	60,000	62%	102%	9.2
To Age 65-70	68%	83,462	67%	99%	4.5
Lifetime	8%	16,857	66%	99%	7.5
Invalid/Missing	0%	23	17%	32%	4.4
Total	100%	160,342	65%	100%	5.9

As the IDIET A/E is close to 100% by benefit period, this implies the benefit period modifier in the IDIVT is appropriate and no additional modification is required.

4.4.6 SMOKER STATUS

Table 4.13 shows the impact of the 2005-2015 IDIET incidence rate modifiers on A/E incidence ratios by smoker status.

Table 4.13

COMPARISON OF A/E INCIDENCE RATIOS BY SMOKER STATUS - EXPECTED EQUAL TO 2013 IDIVT VS 2005-2015 IDIET

Smoker Status	% of Exposure	Claims	IDIVT A/E (count)	IDIET A/E (count)	Incidence Rate per 1000
Non-Smoker	89%	127,462	66%	100%	5.3
Smoker	6%	14,998	64%	98%	8.7
Unknown	4%	17,882	61%	101%	14.8
Total	100%	160,342	65%	100%	5.9

As the IDIET A/E is close to 100% by smoker status, this implies the smoker status modifier in the IDIVT is appropriate and no additional modification is required.

4.5 STATE AND REGIONAL FACTORS

The policy database had policy situs state as a field available for analysis. States with over 5,000 claims were observed over the experience period and analyzed separately. If a state had less than 5,000 claims, regional factors were developed by grouping with like states geographically. If a state had more than 5,000 claims and was issued a stand-alone factor, that state was NOT considered in the development of the regional factor.

Below are the factors for states with over 5,000 claims observed.

Table 4.14
FACTORS FOR STATES WITH OVER 5,000 CLAIMS

State	Factor
California	125.1%
New York	112.7%
New Jersey	111.0%
Florida	109.5%
Michigan	108.4%
Wisconsin	101.6%
Pennsylvania	99.5%
Massachusetts	95.8%
Illinois	91.8%
Ohio	90.8%
Texas	82.6%

Historically, many IDI carriers have had rating surcharges on California- and Florida-issued policies. This analysis notes that New York, New Jersey, and Michigan may also have had incidence rates higher than other locations in the United States.

Illinois, Ohio, and Texas had incidence rates about 10% lower than other states.

Regional Factors are generally around 95%, with the midwestern states seeing materially lower A/Es than other regionals. Non-U.S. issues have A/Es around 105%.

Table 4.15
REGIONAL FACTORS

Regional Grouping	Factor	States
Northeast	95.10%	CT, DC, DE, MD, ME, NH, RI, VT
Midwest	86.90%	IA, IN, KS, MN, MO, ND, NE, OK, SD
Southeast	94.70%	AL, AR, GA, KY, LA, MS, NC, SC, TN, VA, WV
West	97.50%	AK, AZ, CO, HI, ID, MT, NM, NV, OR, UT, WA, WY
Other	104.70%	non-U.S. and PR

The state and regional factors are presented for information only. Due to the complexity of administration, these factors are not included in the IDIET incidence modifier basis.

An additional note, state of issue was not a data element available when studying claim termination rates, so when using any state/regional incidence rate modifiers, be aware claim termination rates modifiers by state are not available.

Section 5: Impact on Policy Reserves

This section discusses the potential impact of the 2005-2015 IDIET on policy reserves relative to the 2013 IDIVT. The impact can vary by occupation class, attained age, gender, policy duration, market, and many other variables, which can make this type of analysis unwieldy and difficult to assess the overall impact. The analysis of the potential impact of the 2005-2015 IDIET on policy reserves relative to the model office is discussed below.

As mentioned above, policy reserves were calculated for each cell using the 2005-2015 IDIET incidence rate modifiers, except for the calendar year modifiers, and the 2006-2014 IDIET termination rates. The combination of these is referred to as the "2005-2015 IDIET."

To focus only on how policy reserves can change due to the incidence and termination rates, the valuation interest rate in all comparisons was kept at 3% for all issue years. Furthermore, the 2013 IDIVT incidence and termination rates used in the calculation of policy reserves were before the application of valuation margins.

5.1 MODEL OFFICE

To obtain a comprehensive understanding on the change in realistic (i.e., no-morbidity-margin) policy reserves going from the 2013 IDIVT to the 2005-2015 IDIET, a model office of active IDI policies as of 12/31/2015 was constructed from the most recent IDEC policy database. Policy reserves were then calculated using each of the two expected bases using a modified version of the 2013 IDI Valuation Workbook.

5.1.1 MODEL OFFICE ASSUMPTIONS

Several items are important to note for the development of this inventory.

- Record characteristics – Only policy records noted as "active" as of 12/31/2015 were considered, as this was the latest date in the study. The valuation date of 12/31/2015 is consistent with that.
- Record selection – In order to maintain data confidentiality, policy numbers and company identifiers were not part of the database. Records in the database were aggregations of multiple policy records that had common demographic and plan parameter characteristics.
- Record keying – Model office cells were determined by rolling up database records with like characteristics (policy duration band, attained age band, contract type, market/UW type, occupation, gender, EP and BP, COLA presence and smoker status).
- Policy duration for each valuation record – As the database aggregated policy durations, issue dates were assumed to occur on July 1 of each year. For example, if the record was for duration 3, the assumed issue date for the aggregated record was 7/1/2013.
- Policy duration on 5-year banded records – The issue date was assumed to be the mid-point of the 5-year duration band, so policies in years 16 to 20 were assumed to be issued on 7/1/1998.

To maintain confidentiality of the records, no actual dates were maintained in the model office database. The date of birth and date of issue for each model office record were estimated using the available information in the model office database.

The dates of birth were determined as follows: Attained ages were grouped in quinquennial age bands. For example, with ages 30 to 34 and ages 35 to 39, the midpoints (ages 32 and 37, respectively) were used to estimate the current age for all policies within the age band.

The indemnity amount for each model office record was set equal to the total exposure indemnity amount divided by the exposure count, rounded to the nearest \$100.

Claims with COLA benefits were assumed to be compounded on each disability anniversary date after 360 days, using a constant COLA index rate of 2.5%. COLA increases were assumed to cease on the disability anniversary of the claimant's 65th birthday.

5.1.2 ANALYSIS OF MODEL OFFICE RECORDS

The model office consisted of 110,791 cells, representing almost 1.5 million policies with a combined indemnity of \$10.2 billion. The committee believes that, in general, the model office provides a reasonable representation of industry IDI active policies around 12/31/2015.

Table 5.1 shows the distribution of the indemnity for the model office records by benefit period and IDEC occupation class.

Table 5.1

DISTRIBUTION OF MODEL OFFICE INDEMNITY BY BENEFIT PERIOD & OCCUPATION CLASS (ALL CONTRACT TYPES)

Benefit Period	Occ Cl M	Occ Cl 1	Occ Cl 2	Occ Cl 3	Occ Cl 4	Total
Short Term	19.60%	41.46%	2.28%	0.68%	0.41%	64.43%
To Age 65-70	12.37%	18.19%	1.58%	0.09%	0.00%	32.25%
Lifetime	2.19%	1.04%	0.09%	0.00%	0.00%	3.32%
Total	34.17%	60.69%	3.96%	0.77%	0.42%	100.00%

Short-term benefit periods are skewed by the presence of business products (business overhead and disability buyout). Therefore, all subsequent distributions will only include traditional IDI accident and sickness policies.

Table 5.2

DISTRIBUTION OF MODEL OFFICE INDEMNITY BY BENEFIT PERIOD & OCCUPATION CLASS (A&S POLICIES ONLY)

Benefit Period	Occ Cl M	Occ Cl 1	Occ Cl 2	Occ Cl 3	Occ Cl 4	Total
Short Term	3.65%	6.93%	1.14%	1.15%	0.81%	13.68%
To Age 65-70	30.03%	44.15%	3.84%	0.23%	0.01%	78.26%
Lifetime	5.31%	2.52%	0.23%	0.00%	0.00%	8.06%
Total	38.99%	53.60%	5.21%	1.38%	0.82%	100.00%

To Age 65-70 benefit periods makeup almost 80% of all industry indemnity amounts. Occupations M and 1 comprise almost 93% of the total industry indemnity.

Table 5.3 shows the distribution of the indemnity for the model office records by attained age and gender.

Table 5.3

DISTRIBUTION OF MODEL OFFICE INDEMNITY BY ATTAINED AGE & GENDER (A&S POLICIES ONLY)

Attained Age	Females	Males
Under 30	0.92%	1.37%
30 to 34	2.53%	4.23%
35 to 39	3.25%	7.79%
40 to 44	3.35%	10.38%
45 to 49	3.49%	12.67%
50 to 54	3.64%	13.99%
55 to 59	3.29%	13.46%
60 to 64	1.97%	9.58%
65+	0.47%	3.62%
Total	22.92%	77.08%

Males represent 77% of the model office active policy indemnity and females represent 23%.

Table 5.4 shows the distribution of the model office indemnity by benefit period and policy duration.

Table 5.4

DISTRIBUTION OF MODEL OFFICE INDEMNITY BY BENEFIT PERIOD & POLICY DURATION (A&S POLICIES ONLY)

Duration	Short Term	To Age 65-70	Lifetime	Total
1	1.58%	6.54%	0.02%	8.14%
2	1.31%	6.00%	0.02%	7.33%
3	1.17%	5.47%	0.03%	6.67%
4	0.93%	5.10%	0.08%	6.11%
5	0.78%	4.88%	0.10%	5.76%
6-10	2.72%	16.98%	0.86%	20.56%
11-15	1.59%	12.61%	0.93%	15.14%
16-20	1.10%	8.61%	0.74%	10.45%
21+	2.51%	12.07%	5.28%	19.85%
Total	13.68%	78.26%	8.06%	100.00%

Only 8% indemnity is on lifetime policies.

Table 5.5 shows the distribution of the model office indemnity by gender and smoker status.

Table 5.5

DISTRIBUTION OF MODEL OFFICE INDEMNITY BY GENDER & SMOKING STATUS (A&S POLICIES ONLY)

Gender	Non-Smoker	Smoker	Total
Males	72.66%	4.42%	77.08%
Females	22.01%	0.91%	22.92%
Total	94.67%	5.33%	100.00%

Almost 95% of the model office indemnity was issued to non-smoker policies.

Table 5.6 shows the distribution of the model office indemnity by benefit period and the presence of COLA benefits.

Table 5.6
DISTRIBUTION OF MODEL OFFICE INDEMNITY BY BENEFIT PERIOD & COLA BENEFITS (A&S POLICIES ONLY)

Benefit Period	Without COLA	With COLA	Total
Short-term	11.17%	2.51%	13.68%
To Age 65-70	39.52%	38.74%	78.26%
Lifetime	3.45%	4.61%	8.06%
Total	54.14%	45.86%	100.00%

Over 45% of the indemnity of the issued policies have COLA benefits.

Table 5.7 shows the distribution of the model office indemnity by indemnity amount band per policy record and benefit period.

Table 5.7
DISTRIBUTION OF MODEL OFFICE INDEMNITY BY INDEMNITY AMOUNT & BENEFIT PERIOD (A&S POLICIES ONLY)

Indemnity Amount	Short-term	To Age 65-70	Lifetime	Total
Under \$2,500	6.92%	15.37%	1.62%	23.91%
\$2,500-4,999	3.76%	20.92%	2.12%	26.80%
\$5,000-7,499	1.76%	17.97%	2.15%	21.88%
\$7,500 & Over	1.23%	24.00%	2.18%	27.41%
Total	13.68%	78.26%	8.06%	100.00%

Total indemnity of active policies is evenly distributed by band. However, table 5.8 below shows most policies have less than \$2,500 in monthly indemnity.

Table 5.8
DISTRIBUTION OF MODEL OFFICE INDEMNITY BY INDEMNITY AMOUNT & BENEFIT PERIOD (POLICY COUNT BASIS) (A&S POLICIES ONLY)

Indemnity Amount	Short-term	To Age 65-70	Lifetime	Total
Under \$2,500	19.69%	35.03%	3.62%	58.33%
\$2,500-4,999	3.34%	18.01%	1.80%	23.15%
\$5,000-7,499	0.90%	8.86%	1.06%	10.82%
\$7,500 & Over	0.29%	6.76%	0.64%	7.69%
Total	24.22%	68.66%	7.12%	100.00%

5.2 POLICY RESERVE CALCULATION AND RESULTS

The 2013 IDIVT Workbook, a tool developed to calculate reserves utilizing different SOA bases, was modified to calculate policy reserves using either the 2013 IDIVT or the 2005-2015 IDIET. The model office policy reserves for the two expected bases are compared in a variety of ways below.

Analyses were performed to identify the potential impact across various parameters of the recent experience on overall industry policy reserves using the model office. The recent-experience-based policy reserve calculations include both the 2005-2015 IDIET incidence rate modifiers and the 2006-2014 IDIET termination rates (referred to as the 2005-2015 IDIET). The 2005-2015 incidence rate modifiers were calculated for all product types. The 2006-2014 IDIET termination rates were calculated for accident and sickness policies only, since termination rates have a significant impact on accident and sickness policies, but minimal impact on other policy types due to their short-term nature of their benefit period.

5.2.1 POLICY RESERVE IMPACT FOR MODEL OFFICE

Table 5.9 compares the model office policy reserves, split by benefit period groupings, calculated using the two different bases. No valuation margins are added to either basis.

Table 5.9

MODEL OFFICE POLICY RESERVES – 2013 IDIVT VS 2005-2015 IDIET (\$ MILLIONS) (ALL POLICY TYPES)

Benefit Period	2013 IDIVT	2005-2015 IDIET	Increase in Policy Reserves	% of Increase
Short-term	293	231	(62)	-21%
To Age 65-70	726	624	(101)	-14%
Lifetime	505	443	(62)	-12%
Total	1,524	1,298	(225)	-15%

Table 5.10

MODEL OFFICE POLICY RESERVES – 2013 IDIVT VS 2005-2015 IDIET (\$ MILLIONS) – BY CONTRACT TYPE

Benefit Period	2013 IDIVT	2005-2015 IDIET	Increase in Policy Reserves	% of Increase
Accident & Sickness	1,361	1,172	(190)	-14%
Business Overhead	50	37	(14)	-27%
Buy Out	108	87	(21)	-19%
Key Person	3	2	(1)	-25%
Accident Only	1	1	(0)	-22%
Total	1,524	1,298	(225)	-15%

For the contract analysis, both Disability Buy Out and Key Person were assumed to pay lump sums after the satisfaction of the elimination. Business Overhead was assumed to have a benefit period of 12 months.

Table 5.11 compares the model office policy reserves, split by benefit period groupings, calculated using the two different bases for accident and sickness policies only. No valuation margins are added to either basis.

Table 5.11

MODEL OFFICE POLICY RESERVES – 2013 IDIVT VS 2005-2015 IDIET (\$ MILLIONS) (A&S POLICIES ONLY)

Benefit Period	2013 IDIVT	2005-2015 IDIET	Increase in Policy Reserves	% of Increase
Short-term	131	104	(27)	-20%
To Age 65-70	726	624	(101)	-14%
Lifetime	505	443	(62)	-12%
Total	1,361	1,172	(190)	-14%

Note the large decrease in total policy reserves for the short-term BPs when only accident and sickness policies are considered. The differences in total policy reserves between IDIVT and IDIET remain similar with or without the business products.

All subsequent analyses will be for accident and sickness policies only.

The 2005-2015 IDIET decreases the model office policy reserves for accident and sickness policies by \$190 billion, or 14%, which represents most of the policy reserves in the experience study.

5.2.2 POLICY RESERVE IMPACT DECOUPLING INCIDENCE RATE IMPACT FROM CLAIM TERMINATION RATE IMPACT

The policy reserve results in the report show the combined impact of both claim termination rate experience and claim incidence experience. Overall, there is a 14% decrease in the policy reserves from using the 2013 IDIVT. The table below splits the 14% change into the incidence and claim termination components by benefit period.

Table 5.12

MODEL OFFICE POLICY RESERVES – 2013 IDIVT VS 2005-2015 IDIET (\$ MILLIONS) (A&S POLICIES ONLY)

Benefit Period	2013 IDIVT	2005-2015 IDIET Both Incidence and Termination	2005-2015 IDIET Incidence Only	2006-2014 IDIET Termination Only
Short-term	131	104	100	135
To Age 65-70	726	624	688	662
Lifetime	505	443	416	532
Total	1,361	1,172	1,204	1,329

Table 5.13

MODEL OFFICE POLICY RESERVES – 2013 IDIVT VS 2005-2015 IDIET (% CHANGE) (A&S POLICIES ONLY)

Benefit Period	2005-2015 IDIET Both Incidence and Termination	2005-2015 IDIET Incidence Only	2006-2014 IDIET Termination Only
Short-term	-20%	-24%	3%
To Age 65-70	-14%	-5%	-9%
Lifetime	-12%	-18%	5%
Total	-14%	-12%	-2%

The first column of table 5.13 shows the overall impact by benefit period with both IDIET incidence and claim termination rate modifiers applied. The next two columns isolate the impact on policy reserves separately for incidence and claim termination. Most of the policy reserve impact is due to incidence rate experience (12%). Claim termination modifiers decreased the policy reserves 2% in total.

Lifetime policies saw an increase of 5% in policy reserves due to termination rates of IDIET. This is primarily due to reductions in the ultimate claim termination rates. On the other hand, To Age 65-70 claims saw a decrease in policy reserves of 9%, primarily due to reductions in early duration claim termination rates.

5.2.3 POLICY RESERVE IMPACT BY OCCUPATION CLASS

Table 5.14 compares the change in the model office policy reserves by occupation class.

Table 5.14

MODEL OFFICE POLICY RESERVES – IMPACT OF 2005-2015 IDIET BY IDEC OCCUPATION CLASS (\$ MILLIONS)

IDEC Occupation Class	Short-term Benefit Periods		To Age 65-70 Benefit Periods		Lifetime Benefit Period		All Benefit Periods	
	2013 IDIVT	2005-2015 IDIET	2013 IDIVT	2005-2015 IDIET	2013 IDIVT	2005-2015 IDIET	2013 IDIVT	2005-2015 IDIET
M	34	25	446	379	389	341	869	745
1	41	33	241	210	103	91	384	334
2	15	12	35	31	13	11	63	54
3-4	41	34	4	4	0	0	45	38
Total	131	104	726	624	505	443	1,361	1,172
% Change from the 2013 IDIVT Policy Reserves								
M	-	-26%	-	-15%	-	-12%	-	-14%
1	-	-19%	-	-13%	-	-11%	-	-13%
2	-	-23%	-	-11%	-	-15%	-	-15%
3-4	-	-16%	-	-2%	-	-7%	-	-15%
Total	-	-20%	-	-14%	-	-12%	-	-14%

5.2.4 POLICY RESERVE IMPACT BY INDEMNITY BAND

Table 5.15

MODEL OFFICE POLICY RESERVES – IMPACT OF 2005-2015 IDIET BY INDEMNITY BAND (\$ MILLIONS)

Market	Short-term Benefit Periods		To Age 65-70 Benefit Periods		Lifetime Benefit Period		All Benefit Periods	
	2013 IDIVT	2005-2015 IDIET	2013 IDIVT	2005-2015 IDIET	2013 IDIVT	2005-2015 IDIET	2013 IDIVT	2005-2015 IDIET
Under \$2,500	90	71	104	98	82	71	276	241
\$2,500-4,999	29	23	177	156	147	128	353	307
\$5,000-7,499	9	7	173	145	136	119	318	271
\$7,500 & Over	3	2	272	225	141	125	415	352
Total	131	104	726	624	505	443	1,361	1,172
% Change from the 2013 IDIVT								
Under \$2,500	-	-20%	-	-6%	-	-13%	-	-12%
\$2,500-4,999	-	-20%	-	-12%	-	-13%	-	-13%
\$5,000-7,499	-	-20%	-	-16%	-	-12%	-	-15%
\$7,500 & Over	-	-25%	-	-17%	-	-11%	-	-15%
Total	-	-20%	-	-14%	-	-12%	-	-14%

The policy reserve differences between IDIVT and IDIET amongst indemnity bands are due solely to the 2006-2014 IDEC termination indemnity modifier. The 2005-2015 IDIET incidence does not have modifiers by indemnity band.

5.2.5 POLICY RESERVE IMPACT BY POLICY DURATION

Table 5.16 compares the change in the model office policy reserves by policy duration.

Table 5.16

MODEL OFFICE POLICY RESERVES – IMPACT OF 2005-2015 IDIET BY POLICY DURATION (\$ MILLIONS)

Policy Duration	Short-term Benefit Periods		To Age 65-70 Benefit Periods		Lifetime Benefit Period		All Benefit Periods	
	2013 IDIVT	2005-2015 IDIET	2013 IDIVT	2005-2015 IDIET	2013 IDIVT	2005-2015 IDIET	2013 IDIVT	2005-2015 IDIET
1 to 5	10	8	68	59	8	7	85	74
6 to 10	32	26	188	164	66	59	286	249
11 to 15	30	25	200	173	103	90	333	287
16 to 20	24	19	147	124	72	63	243	207
Over 20	34	26	124	104	257	225	415	355
Total	131	104	726	624	505	443	1,361	1,172
% Change from the 2013 IDIVT								
1 to 5	-	-20%	-	-13%	-	-13%	-	-14%
6 to 10	-	-19%	-	-12%	-	-11%	-	-13%
11 to 15	-	-19%	-	-13%	-	-13%	-	-14%
16 to 20	-	-20%	-	-16%	-	-12%	-	-15%
Over 20	-	-23%	-	-16%	-	-13%	-	-14%
Total	-	-20%	-	-14%	-	-12%	-	-14%

Note: As a two-year preliminary term basis was used, early duration policy reserve amounts are low.

The percentage change in the policy reserves by duration is fairly stable.

5.2.6 POLICY RESERVE IMPACT BY MARKET AND UNDERWRITING TYPE

Table 5.17 shows the change in the model office policy reserves by market and underwriting type.

Table 5.17

MODEL OFFICE POLICY RESERVES – 2013 IDIVT VS 2005-2015 IDIET (\$ MILLIONS)– BY MARKET/UNDERWRITING (UW) TYPE

Market /UW Type	2013 IDIVT	2005-2015 IDIET	Increase in Policy Reserves	% of Increase
Individual	1,007	866	(141)	-14%
ES - EE Pay fully UW	59	55	(4)	-7%
ES - EE Pay not fully UW	66	73	8	12%
ES- ER Paid	52	50	(3)	-5%
Association	97	84	(13)	-13%
Missing Market	81	44	(37)	-45%
Total	1,361	1,172	(190)	-14%

All segments experienced decreases in policy reserves except the employer-sponsored employee pay without full underwriting.

5.2.7 POLICY RESERVE IMPACT BY COLA PROVISION

Table 5.18 shows the decrease in the model office policy reserves by the COLA provision.

Table 5.18

MODEL OFFICE POLICY RESERVES – 2013 IDIVT VS 2005-2015 IDIET (\$ MILLIONS) – BY COLA PROVISION

COLA Provision	2013 IDIVT	2005-2015 IDIET	Increase in Policy Reserves	% of Increase
No COLA	691	559	(132)	-19%
COLA	671	613	(58)	-9%
Total	1,361	1,172	(190)	-14%

Policies without COLA had a larger decrease in policy reserves than policies with COLA. Note, the 2005-2015 IDIET incidence rates do not have modifiers for COLA.

5.2.8 POLICY RESERVE IMPACT BY GENDER

Table 5.19 shows the decrease in the model office policy reserves by gender.

Table 5.19

MODEL OFFICE POLICY RESERVES – 2013 IDIVT VS 2005-2015 IDIET (\$ MILLIONS) – BY GENDER

Gender	2013 IDIVT	2005-2015 IDIET	Increase in Policy Reserves	% of Increase
Males	1,185	1,006	(179)	-15%
Females	176	165	(11)	-6%
Total	1,361	1,172	(190)	-14%

Male policies had a larger decrease in policy reserves than female policies with COLA.

5.2.9 POLICY RESERVE IMPACT OVER TIME

In addition to calculating estimated policy reserves at 12/31/2015, future policy reserves (assuming 100% policy survival) were calculated. Policy reserves were calculated at year-ends for 20 years. The committee hoped to provide insight into how policy reserves may change over time.

Table 5.20

MODEL OFFICE POLICY RESERVES – 2013 IDIVT VS 2005-2015 IDIET BY MARKET PROJECTED TO FUTURE YEARS (\$ MILLIONS) (A&S POLICIES ONLY)

Market	UW Type	Future Years				Total
		2016-2020	2021-2025	2026-2030	2031-2035	
Individual	All	85%	85%	85%	86%	85%
Association	All	86%	85%	86%	89%	86%
ERSP - Employee Pay	Full UW	92%	92%	92%	93%	92%
	Not Full UW	111%	110%	108%	109%	110%
	All	101%	100%	99%	100%	100%
ERSP - Employer Pay	All	93%	93%	93%	94%	93%
Invalid Market	All	54%	52%	51%	50%	52%
Total	All	86%	86%	86%	87%	86%

Since the policy reserves relationship (IDIET to IDIVT) seems very similar over time, no additional segmentation is presented as part of this report.

Section 6: Impact on Claim Cost

By using the 2005-2015 IDIET incidence rates to determine claim frequency and the 2006-2014 IDIET termination rates to determine the present value of future benefits, a reasonable estimation of average industry claim cost from 2005 through 2015 can be calculated. This section compares these claim costs to those derived from the 2013 IDIVT, which reflects average industry experience from 1990 through 2007 to the 2005-2015 IDIET.

To focus only on how claim cost has changed due to the incidence and termination rates, the interest rate in all comparisons was kept at 3%. Furthermore, the 2013 IDIVT incidence and termination rates used in the calculation of claim cost were before the application of valuation margins.

The model office described in section 5 was used to compare the impact on claim cost. The model office represents the distribution of active life policies as of 12/31/2015. For most analyses, the claim cost comparisons focus on estimated claim cost during the 12 months following 12/31/2015, i.e., referred to as year 0.

6.1 CLAIM COST COMPARISON BY CONTRACT TYPE

Table 6.1 compares the ratios of claim cost derived from using the 2005-2015 IDIET (i.e., the 2005-2015 IDIET incidence rates and the 2006-2014 IDIET termination rates) to the claim cost derived from using the 2013 IDIVT for the various contract types. In addition to deriving claim cost incurred in year 0, claim cost was also calculated for years 5 and 10 in order to determine whether the ratios of claim cost change significantly over time. The claim cost in years 5 and 10 were derived by aging the attained ages of the 12/31/2015 active policies by 5 years and 10 years, respectively. However, no policy terminations were applied to the 12/31/2015 active policies to project the claim cost.

Table 6.1

RATIOS OF CLAIM COST BASED ON 2005-2015 IDIET TO 2013 IDIVT – BY CONTRACT TYPE

Contract Type	Year 0	Year 5	Year 10
Accident & Sickness	75%	76%	77%
Business Overhead	65%	67%	68%
Buy Out	74%	77%	78%
Accident Only	76%	76%	74%
Key Person	69%	74%	77%
All Contract Types	75%	76%	77%

With all contract types combined, the average claim cost in year 0 based on the 2005-2015 IDIET was 75% of the claim cost based on the 2013 IDIVT. Most of the reduction in claim cost was driven by favorable incidence experience in years 2005 through 2015, albeit offset somewhat by the unfavorable claim termination experience in years 2006 through 2014. The lower claim termination rates in these years were observed mostly in claim durations 3 and later.

Accident and sickness claim cost ratios tend to increase somewhat over time but not significantly.

The most prominent contract type is accident and sickness, representing 93% of the active policies. The claim cost ratios for the other contract types varied somewhat but, in total, when all contract types were combined, the claim cost ratios were the same as those for accident and sickness claims.

In the following claim cost analyses, claim cost comparisons pertain only to year 0, and analyses are limited to accident and sickness policies only.

6.2 CLAIM COST COMPARISON BY OCCUPATION CLASS AND GENDER

Table 6.2 compares the ratios of the 2016 claim cost based on the 2005-2015 IDIET to claim cost based in the 2013 IDIVT by occupation class and gender. The analysis is limited to accident and sickness policies only.

Table 6.2

RATIOS OF CLAIM COST BASED ON 2005-2015 IDIET TO 2013 IDIVT – BY OCCUPATION CLASS & GENDER (A&S POLICIES ONLY)

Occupation Class	Males	Females	Total
M	68%	79%	72%
1	80%	82%	81%
2	72%	75%	73%
3-4	75%	66%	74%
Total	73%	80%	75%

For male policies, occupation class M claim cost ratios dropped the most among the occupation classes and occupation class 1 claim cost ratios dropped the least. It should be noted that, although male policies in occupation class M had a materially larger drop in claim cost ratio than those in occupation class 1, the resulting male claim cost in occupation class M was still substantially higher than those in occupation class 1. For female policies, occupation class 3-4 dropped the most while occupation class 1 dropped the least.

6.3 CLAIM COST COMPARISON BY ELIMINATION PERIOD AND BENEFIT PERIOD

Table 6.3 compares the ratios of the 2016 claim cost based on the 2005-2015 IDIET to the claim cost based on the 2013 IDIVT by elimination and benefit periods. The analysis is limited to accident and sickness policies only.

Table 6.3

RATIOS OF CLAIM COST BASED ON 2005-2015 IDIET TO 2013 IDIVT – BY ELIMINATION & BENEFIT PERIODS (A&S POLICIES ONLY)

Elimination Period	Benefit Period			
	Short-term	To Age 65-70	Lifetime	All
Under 30 Days	59%	55%	47%	59%
30 Days	67%	62%	62%	63%
60 Days	73%	69%	73%	72%
90 Days	75%	73%	78%	74%
180+ Days	80%	82%	83%	82%
Total	72%	74%	77%	75%

The claim cost ratios increase as the benefit period lengthens. Lifetime policies had the highest claim cost ratios, and short-term policies had the lowest. This is most likely the result of the decrease in the ultimate claim termination rates.

The low claim cost ratios for elimination periods under 30 days indicate that the 2013 IDIVT incidence rates for these elimination periods may require a proportionally greater adjustment to reflect recent claim experience than the other elimination periods. Note elimination periods of 60 days or less represent about 5% of all policies in the model office.

6.4 CLAIM COST COMPARISON BY MARKET AND UNDERWRITING TYPE

Table 6.4 compares the ratios of the 2016 claim cost based on the 2005-2015 IDIET to claim cost based on the 2013 IDIVT by market. As discussed in section 3, all underwriting types have been combined for all market segments except ERSP – Employee Pay. For the ERSP – Employee Pay segment, the underwriting type has been split between Full Underwriting and Not Full Underwriting. The latter is comprised of policies issued via voluntary guaranteed issue underwriting, as well as policies issued via guaranteed insurability option riders.

The claim cost ratios in table 6.4 are shown separately by policy year groupings in order to identify whether any material selection by policy year exists in the 2005-2015 IDIVT. The 2005-2015 incidence modifiers did not vary by policy year because statutory valuation regulations do not permit the utilization of claim cost select factors except for guaranteed renewable policies. However, for some markets, there is evidence of moderate amounts of selection in the first five policy years.

Table 6.4
RATIOS OF CLAIM COST BASED ON 2005-2015 IDIET TO 2013 IDIVT – BY MARKET (A&S POLICIES ONLY)

Market	UW Type	Policy Years					Total
		1-5	6-10	11-15	16-20	21+	
Individual	All	67%	73%	75%	76%	77%	74%
Association	All	65%	70%	70%	75%	77%	74%
ERSP - Employee Pay	Full UW	73%	78%	81%	83%	85%	78%
	Not Full UW	103%	108%	108%	106%	105%	105%
	All	90%	96%	98%	97%	89%	93%
ERSP - Employer Pay	All	84%	84%	83%	80%	80%	83%
ERSP - Unknown Pay	All	72%	79%	82%	81%	83%	78%
Invalid Market	All	53%	55%	54%	52%	50%	52%
Total	All	72%	75%	77%	75%	75%	75%

The ERSP – employee pay – not fully underwritten segment has the highest claim cost ratios among the various market segments, which is primarily due to the impact of voluntary guaranteed issue underwriting. The claim cost ratios for the ERSP – employer-pay segment are lower than those for the ERSP – employee-pay segment, but are still higher than the claim cost ratios for the individual and association market segments. Guaranteed issue underwriting in the ERSP – employer-pay segment is mandatory, which experiences significantly less anti-selection than the voluntary guaranteed issue underwriting in the ERSP – employee-pay segment.

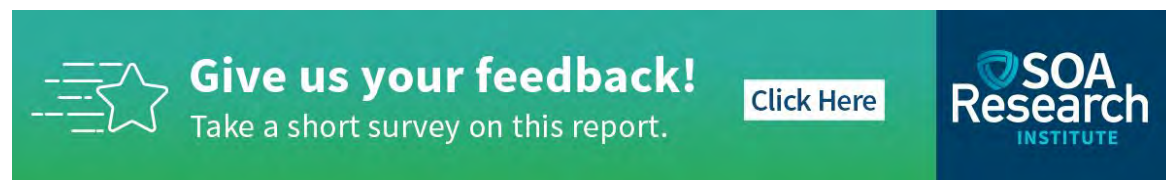
The reader should keep in mind that the claim cost ratios do not reflect the absolute differences in claim cost among the market segments, but rather differences between claim cost based on the 2013 IDIVT and the 2005-2015 IDIET. The incidence modifiers of the 2013 IDIVT use market and underwriting type. However, the claim cost ratios in table 6.4 show the extent that the 2013 IDIVT incidence modifiers do not reflect recent claim cost experience in the ERSP segments. The A/E claim incidence analysis by market and underwriting discussed in the 2006-2014 Claim Incidence Report provide greater detail into the relative differences in claim incidence experience among the various market segments.


Lower claim cost ratios in table 6.4 in the individual and association segments show the favorable impact of selection during the first 10 policy years. The individual and association markets combine policies that were fully underwritten at issue with policies that were issued via the exercising of guaranteed insurability option (GIO) riders. The selection associated with fully underwritten business is dampened somewhat by the anti-selection associated with coverages arising from exercising GIO riders.

Section 7: Reliance and Limitations


No assessment has been made concerning the applicability of this experience to other purposes. In developing this report, the SOA relied on data and information supplied by the participating companies. For each participant, this information includes, but is not limited to, the data submissions for policy experience and the responses to follow-up questions.

The results in this report are technical in nature and dependent on certain assumptions and methods. No party should rely on these results without a thorough understanding of those assumptions and methods. Such an understanding may require consultation with qualified professionals. This report should be distributed and reviewed only in its entirety.



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Section 8: Acknowledgements

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Section 9: List of Participating Companies

Ameritas Life Insurance Corporation (Union Central)

Assurity Life Insurance Company

Berkshire Life Insurance Company of America

Guardian Life Insurance Company

Illinois Mutual Life Insurance Company

Massachusetts Casualty Insurance Company

Massachusetts Mutual (including Connecticut Mutual)

Monarch Life Insurance Company (including Penn Mutual)

Mutual of Omaha Insurance Company

Northwestern Mutual Life Insurance Company

Paul Revere Life Insurance Company

Principal Financial Group

Provident Life & Accident Insurance Company

RiverSource Life Insurance Company

Standard Life Insurance Company

Trustmark Life Insurance Company

UNUM

Appendix A: 2013 IDIVT Incidence Rate Modifiers

There are four types of incidence rate modifiers for the 2013 IDIVT:

1. By contract type
2. By smoker (i.e., all tobacco use) status
3. By maximum benefit period
4. By market and underwriting

The policy incidence modifiers by diagnosis rating are only applied in the calculation of policy reserves

Table A.1

INCIDENCE RATE MODIFIERS BY CONTRACT TYPE

Contract Type	Factor
Accident & Sickness	100.0%
Business Overhead Expense	66.9%
Disability Buy Out	66.9%
Key Person	66.9%
Other	100.0%

Table A.2

INCIDENCE RATE MODIFIERS BY GENDER & SMOKER STATUS

Occupation Class	Gender	Elimination Period	Non-Smoker	Smoker
M	F	30 & under	98.6%	135.2%
		60	99.0%	125.8%
		90 & over	98.8%	134.0%
	M	30 & under	99.4%	120.5%
		60	98.2%	154.8%
		90 & over	98.1%	166.4%

Occupation Class	Gender	Elimination Period	Non-Smoker	Smoker
1	F	30 & under	99.3%	108.3%
		60	99.0%	111.2%
		90 & over	96.8%	135.5%
	M	30 & under	97.9%	131.9%
		60	96.3%	155.4%
		90 & over	96.2%	152.5%

Occupation Class	Gender	Elimination Period	Non-Smoker	Smoker
2	F	30 & under	98.4%	113.9%
		60	98.4%	113.9%
		90 & over	98.4%	113.9%
	M	30 & under	99.0%	114.7%
		60	97.2%	132.4%
		90 & over	95.7%	149.4%

Occupation Class	Gender	Elimination Period	Non-Smoker	Smoker
3&4	F	30 & under	98.4%	113.9%
		60	98.4%	113.9%
		90 & over	98.4%	113.9%
	M	30 & under	98.4%	113.9%
		60	98.4%	113.9%
		90 & over	98.4%	113.9%

Table A.3
INCIDENCE RATE MODIFIERS BY OCCUPATION & BENEFIT PERIOD

Occupation Class	Elimination Period	Lifetime	To 65 - 70	Fixed
M	30 & under	103.2%	101.7%	95.1%
	60	104.8%	100.9%	90.0%
	90 & over	118.9%	97.3%	88.7%
1	30 & under	106.7%	103.9%	92.7%
	60	115.8%	100.3%	90.2%
	90 & over	141.6%	96.2%	95.6%
2	30 & under	117.2%	98.6%	98.7%
	60	117.2%	98.6%	98.7%
	90 & over	117.2%	98.6%	98.7%
3&4	30 & under	100.0%	100.0%	100.0%
	60	100.0%	100.0%	100.0%
	90 & over	100.0%	100.0%	100.0%

Table A.4
INCIDENCE RATE MODIFIERS BY MARKET/UNDERWRITING (UW)

Market/UW	Lifetime
Individual – All UW	105.3%
Associations – All UW	105.3%
Employer-sponsored	-
Medical UW	81.2%
Voluntary GSI UW	96.7%
Mandatory GSI UW	57.4%

Appendix B: 2005-2015 IDIET Incidence Rate Modifiers

There are five types of incidence rate modifiers for the select durations (to apply in addition to the 2013 IDIVT modifiers):

1. Market/Underwriting type modifiers
2. Occupation class and gender modifiers
3. Attained age modifiers
4. Elimination period modifiers
5. Calendar year modifiers

Table B.1

2005-2015 IDIET INCIDENCE RATE MODIFIERS – MARKET/UNDERWRITING (UW) TYPE

Policy Duration	Individual	ERSP Voluntary with UW	ERSP Voluntary without UW	ERSP ER Paid	ERSP Unknown Payor	Association	Unknown
Year 1	67.4%	72.0%	88.5%	72.9%	72.9%	66.7%	43.1%
Year 2	67.4%	72.0%	88.5%	72.9%	72.9%	66.7%	43.1%
Year 3	67.4%	72.0%	88.5%	72.9%	72.9%	66.7%	43.1%
Year 4	67.4%	72.0%	88.5%	72.9%	72.9%	66.7%	43.1%
Year 5	67.4%	72.0%	88.5%	72.9%	72.9%	66.7%	43.1%
Years 6 to 10	67.4%	72.0%	88.5%	72.9%	72.9%	66.7%	43.1%
Years 11 to 15	67.4%	72.0%	88.5%	72.9%	72.9%	66.7%	43.1%
Years 16 to 20	67.4%	72.0%	88.5%	72.9%	72.9%	66.7%	43.1%
Years 21+	67.4%	72.0%	88.5%	72.9%	72.9%	66.7%	43.1%

Table B.2

2005-2015 IDIET INCIDENCE RATE MODIFIERS – OCCUPATION CLASS & GENDER

Occupation Class	Males	Females
1	102.8%	102.5%
2	93.6%	90.8%
3	106.2%	81.2%
4	90.4%	76.7%
M	92.5%	106.2%

Table B.3

2005-2015 IDIET INCIDENCE RATE MODIFIERS – ATTAINED AGE

Age Band	Factor
Under 30	61.8%
30-34	85.8%
35-39	92.1%
40-44	96.5%
45-49	99.7%
50-54	105.2%
55-59	112.8%
60-64	109.9%
65+	79.9%

Table B.4
2005-2015 IDIET INCIDENCE RATE MODIFIERS – ELIMINATION PERIOD

Elimination Period	Factor
Under 30 days	65.5%
30 days	86.1%
60 days	95.8%
90 days	100.5%
180+ days	105.8%

Table B.5
2005-2015 IDIET INCIDENCE RATE MODIFIERS – CALENDAR YEAR

Calendar Year	Factor
2005	114.6%
2006	109.3%
2007	108.1%
2008	109.6%
2009	105.5%
2010	102.2%
2011	97.0%
2012	95.8%
2013	93.6%
2014	83.3%
2015	73.6%



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