MILLIMAN REPORT

Long-term care insurance valuation

An industry survey of assumptions and methodologies

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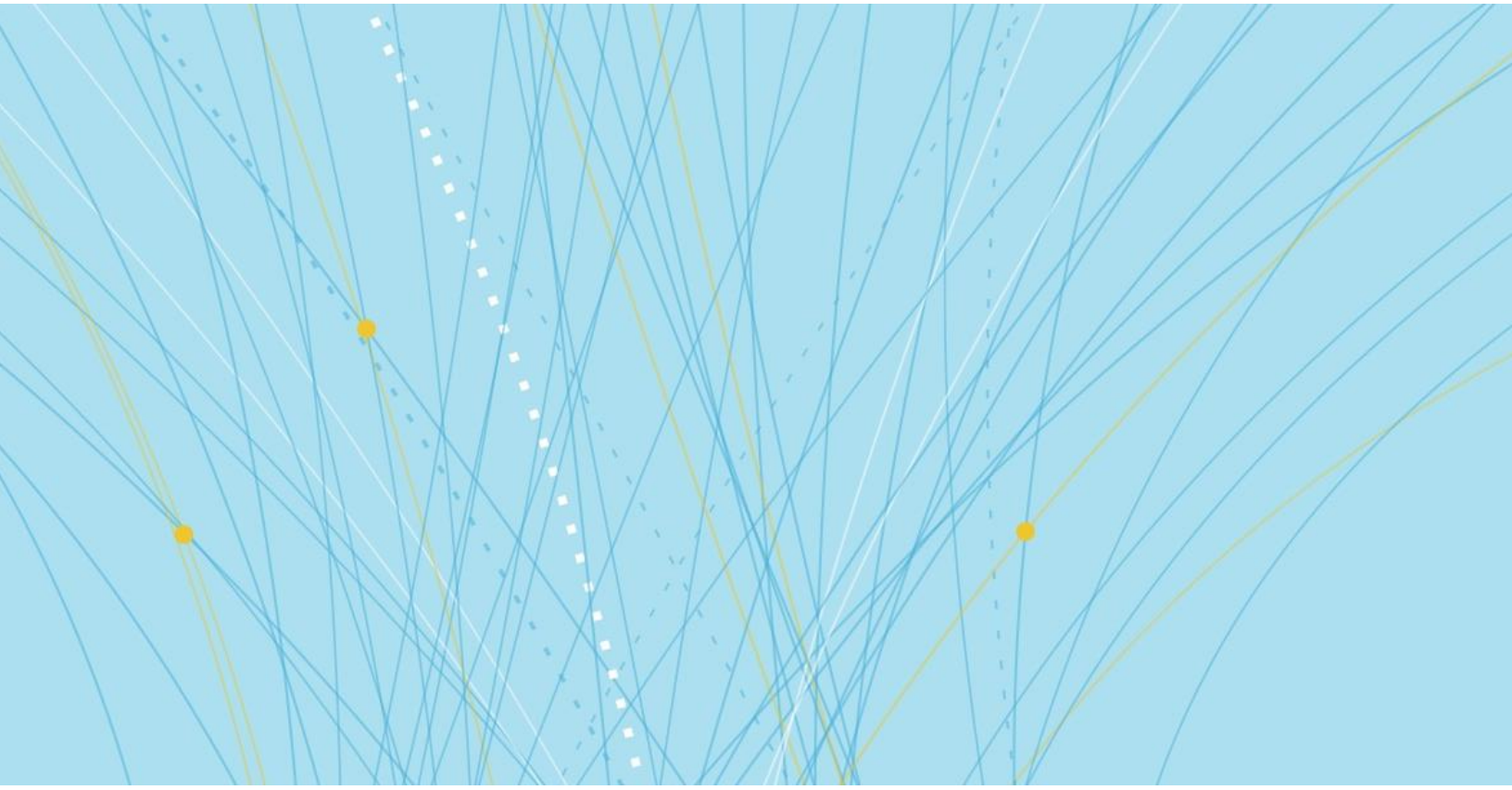

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Overview

Milliman has conducted its seventh triennial long-term care (LTC) insurance valuation survey. Previous valuation surveys have been conducted every three years from 2003 to 2018. We compiled survey responses from 21 individual carriers. This year's survey focused on individual LTC and did not include group business because there are only a limited number of companies in the group LTC insurance market. The focus on individual LTC is consistent with the 2018 survey. The survey does not include combination LTC products. Some of the survey questions remain consistent with the previous surveys, which allows for comparisons of the changes in responses over time. Additional topics include current LTC trends: predictive modeling, first principles assumptions, and long duration targeted improvement.

The objectives of this survey are to review and document the assumptions and methodologies related to the determination and testing of active life and disabled life reserves, as well as the asset strategies and investments backing the reserves.

The information presented includes brief commentary on the application of various methods and approaches of several technical LTC valuation issues. This report assumes the reader is familiar with LTC insurance (LTCI), including product design and benefits as well as current valuation standards.

The results of this survey are intended to provide interested parties with general benchmarks regarding insurers' current valuation assumptions. In preparing this summary of the valuation survey, we relied on companies to accurately report their valuation assumptions and methodologies. While we reviewed the responses for general reasonableness, we included them as reported. The survey is merely a tally of valuation assumptions, not necessarily a carrier's actual experience. The reader should keep this in mind when evaluating the results in this report.

This survey included questions regarding GAAP and statutory (STAT) reserve bases. Some companies do not hold GAAP reserves because of their financial structures. Therefore, GAAP results are presented for only a limited number of companies.

It should also be noted that not all companies answered every question, resulting in the number of responses varying by question.

The carriers included in the survey are listed in Appendix A. Please note that, when comparing to the 2018 survey, shifts in responses may be due to the mix of participating companies and may not reflect an overall shift in the market. We moved the Active Life Reserve Valuation Assumptions and Methodologies to Appendix B and condensed the section from what was reported on in previous years. Appendix C shows all figures but only with companies that participated in both the 2018 and 2021 surveys.

Finally, commentary offered throughout this report includes the authors' opinions, which do not necessarily represent those of Milliman. Because the articles and commentary prepared by the professionals of our firm are often general in nature, we recommend that our readers seek the advice of an actuary or attorney before taking any action.

We, Juliet Spector, Tim Kempen, and Evan Pollock, are associated with Milliman, Inc., and are members of the American Academy of Actuaries. We are qualified under the Academy's qualification standards to render the opinions regarding the actuarial calculations set forth herein.

Section 1: Reserve testing

This section describes the approach and methodologies used to test the adequacy of the contract reserves, also referred to as active life reserves (ALR). Details of the valuation assumptions and methodologies used to calculate the ALR balance are included in Appendix B.

The survey requested responses be provided separately for statutory versus GAAP reserves testing. Responses were largely identical between the two. Therefore, the information provided in Section 1 is based on the assumptions used to test statutory reserves. Comments are provided where GAAP testing assumptions differ from statutory.

Topics covered in this section include:

- Adequacy testing approach
- Projection modeling
- Monitoring and updating
- COVID-19 pandemic
- Predictive modeling
- Mortality assumptions (both Total and Active Life)
- Ultimate lapse rates
- Interest rate
- Morbidity
  - Morbidity sources
  - Incidence
  - Continuance
  - Utilization
  - Provision for adverse deviation
  - Morbidity improvement
- Future rate increases

ADEQUACY TESTING APPROACH

The survey asked what approach is used to test the active life reserves. The responses were categorized into those companies that only conduct a gross premium valuation (GPV) versus those that conduct some form of cash flow testing, which includes asset modeling and may include testing stochastic interest rate scenarios. Some companies reported doing both a GPV and cash flow testing. Figure 1 shows the results of the type of active life reserve adequacy testing performed.

FIGURE 1: ALR ADEQUACY TESTING APPROACH

METHOD	2018 SURVEY	2021 SURVEY
GPV ONLY	9%	15%
CASH FLOW TESTING AND GPV	39%	20%
CASH FLOW TESTING ONLY	52%	65%

Note: 20 responses in 2021 survey.
Note: 23 responses in 2018 survey.

Different approaches are followed for aggregating the reserve testing results. Figure 2 shows the three main approaches companies use for aggregating statutory results.

FIGURE 2: AGGREGATION OF STATUTORY RESERVE TESTING RESULTS

METHOD	2018 SURVEY	2021 SURVEY
LTC LINE OF BUSINESS	32%	40%
HEALTH OR LIFE BUSINESS LINES COMBINED	4%	10%
COMPANY LEVEL	64%	50%

Note: 20 responses in 2021 survey.
Note: 22 responses in 2018 survey.

For cash flow testing, approximately half of responding companies typically ignore interim year deficiencies, as reserve testing is measured over the lifetime, or looked at interim results in aggregate for the company. The remaining companies evaluate these interim deficiencies for materiality, holding an additional reserve if necessary. Most companies reported utilizing an interest maintenance reserve (IMR) in cash flow testing, but only a few companies utilize an asset valuation reserve (AVR).

As a result of reserve testing, approximately half of responding companies indicated they currently hold a premium deficiency reserve (PDR) or asset adequacy reserve (AAR).

PROJECTION MODELING

We asked companies to report what projection system is used for gross premium valuation, asset adequacy, and/or planning. As demonstrated by Figure 3, many respondents use a homegrown approach, similar to the 2018 survey.

FIGURE 3: PROJECTION SYSTEM

SYSTEM	2018 SURVEY	2021 SURVEY
HOMEGROWN	19%	25%
MOODY'S AXIS	19%	20%
POLYSYSTEMS	19%	10%
MG-ALFA	5%	35%
MG-TRITON	19%	5%
PROPHET	10%	5%
OTHER	10%	0%

Note: 20 responses in 2021 survey.
Note: 21 responses in 2018 survey.

Approximately 25% of companies report performing stochastic testing on their models.

We also asked whether companies model using claim costs or first principles. A first principles model breaks down assumptions for policy behavior (e.g., incidence rates, claim termination rates, and utilization) to their components and models them. In contrast, a claim cost model composites these three assumptions before entering them into the model. Although actuaries still develop assumptions in aggregate (not at the policy level), a first principles approach allows companies to understand individual policy performance better.[1] In the 2021 survey, approximately 70% of companies reported utilizing a first principles approach (up from less than 60% in the 2018 survey).

MONITORING AND UPDATING

We asked how often companies monitor assumptions, as shown in Figure 4. Relative to the 2018 survey, the most common approach remains to monitor assumptions annually. However, of the cohort of companies monitoring more often than annually, there was a shift toward monitoring monthly rather than quarterly. Most companies updated assumptions annually.

FIGURE 4: FREQUENCY OF MONITORING ASSUMPTIONS

FREQUENCY	2018 SURVEY	2021 SURVEY
MONTHLY	13%	25%
QUARTERLY	22%	10%
ANNUALLY	65%	65%

Note: 20 responses in 2021 survey.
Note: 23 responses in 2018 survey.

[1] Gaspar, Nicole, Lu, Alyssa, & Spector, Juliet (July 2020). Key Insights From LTC First Principles Modeling. Retrieved October 6, 2021, from https://us.milliman.com/en/insight/key-insights-from-ltc-first-principles-modeling.

Actuarial Guideline 51 (“The Application of Asset Adequacy Testing to Long-Term Care Insurance Reserves”) requires all insurers with more than 10,000 in-force LTC contracts, issued on a gross basis or assumed through reinsurance transactions, to perform specific asset adequacy testing. The survey asked whether companies made any changes because of Actuarial Guideline 51 (AG51), and 76% reported no changes. Of the 24% of companies that made changes because of the Guideline, most reported adding additional documentation.

COVID-19 PANDEMIC

On the topic of assumptions monitoring, we asked respondents how the COVID-19 pandemic and response has affected their assumption-setting process. The respondents are fairly split on whether they made no changes or simply excluded 2020 data from any assumption setting. Respondents tend to agree that a longer-term view on assumption setting for LTCI products is appropriate.

Only a handful of companies did sensitivity testing specifically to test the impact of the COVID-19 pandemic, analyzing utilization, mortality, and morbidity metrics over the course of 2020. Almost all respondents maintained their normal sensitivity tests. Nearly all companies did not make any adjustments (either short-term or long-term) to their baseline assumptions because of the pandemic.

For more information on how COVID-19 has impacted the LTC industry, please refer to the Society of Actuaries COVID-19 survey report.

PREDICTIVE MODELING

As technology and modeling techniques continue to advance, we asked respondents how predictive modeling plays a role in their assumption-setting process, and six of the 21 companies reported that they use predictive modeling for some of their assumption setting. Of those that responded *yes*, mortality, incidence, and claim termination rate assumptions were the most common assumptions utilizing predictive modeling.

The most common predictive modeling techniques used include generalized linear models (GLMs) and penalized GLM.

MORTALITY

In recent years, the LTC industry has seen a shift toward contemplating active life mortality and disabled life mortality separately. Given the significant move to a first principles approach, this survey asked companies to comment on whether they project lives in aggregate (i.e., using a total life mortality approach) or split them between active lives and disabled lives. The aggregate approach, or total life mortality approach, is implicitly a blend of active and disabled life mortality. Approximately half of the companies surveyed reported they use mortality assumptions in aggregate, while the other half split their assumptions between active and disabled.

Total life mortality

Of the companies that reported using mortality assumptions in aggregate, the most common mortality table used in statutory reserve testing is the 2000 Annuity table. More companies than in 2018 indicated they use internal mortality studies to inform their assumption. See Figure 5 for a breakdown of responses. Note that, in the 2018 survey, we did not ask for the table underlying both total and active life mortality. Therefore, the 2018 survey results shown in Figure 5 include companies that use total life *and* companies that use active life mortality.

FIGURE 5: BASIS FOR TOTAL LIFE MORTALITY

MORTALITY TABLE	2018 SURVEY	2021 SURVEY
1983 GAM	4%	0%
1994 GAM	26%	0%
2000 ANNUITY	22%	56%
2012 IAM	17%	11%
INSURED EXPERIENCE	13%	33%
OTHER	17%	0%

Note: 9 responses in 2021 survey.
Note: 23 responses in 2018 survey
(includes both total lives and active lives respondents).

Two-thirds of the companies that use a total life mortality approach indicated they apply mortality selection factors. While there is a great deal of variability in the selection factors reported, many companies grade up their selection factors over 10 to 20 years.

Finally, 33% of the companies that use a total life mortality approach indicated they assume future mortality improvement. Some companies reported using one of the projection scales associated with the underlying tables, such as G2, while others reported using a flat amount, ranging from 0.5% to 1.0% per year. Generally, improvement was assumed to wear off over 20 years.

Active life mortality

Of companies that reported splitting their mortality assumptions between active and disabled, the most common mortality table used in statutory reserve testing by far is the 2012 Individual Annuitant Mortality (IAM) table. Nearly all the companies that provided details study active life mortality separately rather than back out disabled mortality from total mortality. See Figure 6 for a breakdown of responses. Note that, in the 2018 survey, we did not ask for the table underlying both total and active life mortality. Therefore, the 2018 survey results shown in Figure 6 include companies that use total life *and* companies that use active life mortality.

FIGURE 6: BASIS FOR ACTIVE LIFE MORTALITY

MORTALITY TABLE	2018 SURVEY	2021 SURVEY
1983 GAM	4%	0%
1994 GAM	26%	0%
2000 ANNUITY	22%	0%
2012 IAM	17%	82%
INSURED EXPERIENCE	13%	9%
OTHER	17%	9%

Note: 11 responses in 2021 survey.
Note: 23 responses in 2018 survey.
(includes both total lives and active lives respondents).

Of the companies that use an active life mortality approach, 60% indicated they apply mortality selection factors.

Finally, nearly all the companies that use an active life mortality approach indicated they assume future mortality improvement. Some companies reported using one of the projection scales associated with the underlying tables, such as G2, while others reported using a flat amount, ranging from 0.5% to 1.0% per year. Generally, improvement was assumed to wear off over 10 years, which was shorter than the companies that assumed total life mortality improvement.

ULTIMATE LAPSE RATES

To consistently compare lapse assumptions, we requested the ultimate lapse rates for the two different plans and demographic characteristics shown in Figure 7.

FIGURE 7: PLAN & DEMOGRAPHIC CHARACTERISTICS FOR LAPSE ASSUMPTIONS

Plan 1	Plan 2
- Issue age 55	- Issue age 65
- Male	- Female
- Single	- Married
- No inflation protection	- 5% compound inflation protection
- Lifetime benefit period	- Five-year benefit period

Approximately half of the respondents indicated they apply lapse rates to total lives with the remaining companies applying lapses to active lives only. Virtually all companies indicated they vary their lapse assumptions by some combination of issue age, attained age, gender, benefit period, inflation, marital status, premium payment option, and product. Figures 8 and 9 show respondents' ultimate lapse rates under each sample plan described above.

FIGURE 8: ULTIMATE LAPSE RATES APPLIED TO TOTAL LIVES

	2018 SURVEY		2021 SURVEY	
ULTIMATE LAPSE RATES	PLAN 1	PLAN 2	PLAN 1	PLAN 2
0% TO 0.5%	14%	24%	22%	56%
0.51% TO 1.0%	48%	52%	44%	22%
1.01% TO 1.5%	19%	10%	22%	22%
1.51% TO 2.0%	14%	10%	11%	0%
2.01% +	5%	5%	0%	0%

Note: 9 responses in 2021 survey.
Note: 21 responses in 2018 survey.

FIGURE 9: ULTIMATE LAPSE RATES APPLIED TO ACTIVE LIVES

	2018 SURVEY		2021 SURVEY	
ULTIMATE LAPSE RATES	PLAN 1	PLAN 2	PLAN 1	PLAN 2
0% TO 0.5%	14%	24%	25%	12%
0.51% TO 1.0%	48%	52%	64%	88%
1.01% TO 1.5%	19%	10%	0%	0%
1.51% TO 2.0%	14%	10%	12%	0%
2.01% +	5%	5%	0%	0%

Note: 8 responses in 2021 survey.
Note: 21 responses in 2018 survey.

Nine companies reported different ultimate lapse rates between the two sample plans. Most companies assume a lapse rate in the range of 0.5% to 1.0%. Approximately two-thirds of responding companies model exhaustion of benefits separately from lapse rates.

MORBIDITY

As mentioned above, more companies are shifting to a first principles modeling approach (from a claim cost approach). Therefore, in the 2021 survey, we asked companies to report on not only total morbidity assumptions (as would be used under a claim cost approach), but also incidence, continuance, and disabled life mortality assumptions (as would be used under a first principles approach). When surveying companies regarding their morbidity assumptions for testing the ALR, we asked for four pieces of information:

- Morbidity sources (incidence, utilization, and continuance)
- Continuance and claim termination rate assumptions
- Cost of care (and future utilization)
- Morbidity, incidence, and disabled life mortality improvement

Morbidity sources (incidence, utilization, and continuance)

Because of confidentiality concerns, we did not ask each company for a sample of its claim cost assumptions. Instead, we simply asked companies for the source of the claim cost assumptions that are used in the testing of their active life reserves. The results are summarized in Figure 10. The source of the assumptions is split between a company's own data and that of an external source. Most external sources are from consultants, although a few companies use the Society of Actuaries (SOA) Intercompany Study or other industry tables. The most common approach used for "external sources" is to use the external data as a starting point and adjust to company experience. Base incidence had an even mix of companies that have increased, decreased, and stayed the same since the prior survey.

FIGURE 10: MORBIDITY DATA SOURCE

SOURCE	2018 SURVEY	2021 SURVEY
COMPANY DATA	35%	30%
CONSULTANT DATA	57%	65%
SOA DATA	9%	5%

Note: 20 responses in 2021 survey.
Note: 23 responses in 2018 survey.

Continuance and claim termination rate assumptions

New for the 2021 survey, we asked respondents to comment on their continuance and claim termination rate assumptions used for projection modeling. As Figure 11 shows, most participating companies choose to vary their assumptions by care setting—e.g., skilled nursing facility (SNF), assisted living facility (ALF), and home healthcare (HHC)—and about two-thirds of the companies base the care setting on the first situs of care.

FIGURE 11: CONTINUANCE ASSUMPTIONS

METHOD	2021 SURVEY
VARY BY CARE SETTING – FIRST SITUS	67%
VARY BY CARE SETTING – CURRENT SITUS	25%
AGGREGATE	8%

Note: 12 responses in 2021 survey.

Approximately half of the companies use consultant data (or a blend of company experience and consultant data) while most of the rest use their own experience to set these assumptions. A couple companies use industry tables to set these assumptions.

Over half of respondents review and update continuance and claim termination rate assumptions annually, with the remaining companies updating less than annually (typically every two to three years). When updating assumptions, approximately half of respondents note that their updates are indicating longer lengths of stay than prior assumptions would indicate (while the other half report stable lengths of stay).

Most companies vary their continuance assumptions by at least age gender, and benefit period. Many companies also vary by elimination period or care setting. Finally, more than half of the companies report using claim termination rate studies for the purpose of determining disabled life mortality and recoveries, and typically vary these assumptions by age, gender, benefit period, and care setting.

Cost of care (and future utilization)

Utilization (also known as salvage) generally refers to the proportion of available benefits per day (or week or month) actually paid relative to the contractual maximum. Most companies vary utilization by at least care setting (and many companies vary by many other factors, such as age, benefit period, and/or additional policy features).

About half of respondents indicated they have made minimal to no changes to their utilization assumptions. A few companies, however, did decrease their utilization assumptions, citing the cost of care trend mentioned below. Two companies increased their utilization rates.

We asked companies to comment on how they determine utilization in future durations. Several companies report inflating current levels at a flat percentage for future claim durations. In recent years, the level of LTC inflation has been lower than 5%,[2] suggesting overall utilization may be decreasing for a plan that includes a 5% compound inflation benefit. About one-third of all companies reported that they peg LTC cost of care trend to either a consumer price index (CPI) or long-term Treasury rates.

Morbidity, incidence, and disabled life mortality improvement

Future morbidity improvement in projections has been a topic of increased focus the past several years in the LTC insurance industry. There has been an SOA study[3] and request for additional experience support in the AG51 memo. Of the companies reporting future incidence improvement, on average, the level of morbidity improvement reported was 0.75% to 1.6% per year for generally 10 to 25 years or scale G2. Only a few companies reported past incidence improvement. Also, only a few companies reported assuming a claim cost improvement of approximately 1% for 10 to 25 years. No companies reported using past or future claim termination improvement. One company reported assuming disabled life mortality improvement.

FUTURE RATE INCREASES

We asked several questions related to how future rate increases were assumed in reserve testing. The results of those answering each question affirmatively are shown in Figure 12. Most companies reflected future increased premium for rate increases that were approved but not yet implemented. For future increases not yet approved, there is a wide range of assumptions. For those assuming future increases, most assume multiple rounds of increases.

FIGURE 12: FUTURE RATE INCREASES

QUESTION	2018 SURVEY	2021 SURVEY
DO YOU ASSUME ANY FUTURE RATE INCREASES (NATIONWIDE, NOT NEW YORK)?	70%	79%
APPROVED BUT NOT IMPLEMENTED	70%	79%
FILED BUT NOT APPROVED	52%	59%
FUTURE ROUNDS	43%	63%
IS THERE A SHOCK LAPSE ASSUMPTION?	44%	50%
IS THERE ANY INCIDENCE ANTI-SELECTION ASSUMPTION?	27%	33%
IF YES, IS THE ANTI-SELECTION PERMANENT?	50%	50%
ARE ANY REDUCED BENEFIT OPTIONS ASSUMED TO BE ELECTED?	47%	50%

Note: 19 responses in 2021 survey.

Note: 23 responses in 2018 survey.

[2] Genworth (December 2020). Genworth Cost of Care Survey: Summary and Methodology. Retrieved October 6, 2021, from https://pro.genworth.com/riiproweb/productinfo/pdf/131168.pdf.

[3] SOA. Researching Long-Term Care Insurance Incidence Rates Over Time. Retrieved October 6, 2021, from https://www.soa.org/resources/experience-studies/2018/researching-ltc-insurance-incidence/.

For companies that assume future rate increases, 50% include assumptions for shock lapses and 50% include assumptions for reduced benefit offerings associated with the rate increases. Thirty-three percent of companies that assume future rate increases include an assumption for anti-selection impacting incidence. Half of this 33% assume the anti-selection is permanent. Additional details on rate increases will be published in our rate increase survey, which will be publicly available in March 2022.

INTEREST RATE

For testing statutory reserves, companies report interest rates varying from 2.7% to 5.9%, with an average of about 4.4%. In general, these interest rates come in slightly lower than the 2018 survey.

The survey also asked about the assumed structure of the risk-free interest rates. About 50% of companies indicated they use a level risk-free interest rate assumption, while other companies use a variety of structures, including implied forward curve, mean reversion, and prescribed scenarios.

PROVISION FOR ADVERSE DEVIATION

We found that most responding companies do not include explicit provisions for adverse deviation (PADs) in their assumptions used for reserve testing. See Figure 13 for a distribution of responding companies' PADs by cash flow testing assumption. In the previous survey, we only asked for PADs specific to morbidity.

FIGURE 13: PROVISIONS FOR ADVERSE DEVIATION (PAD)

ASSUMPTION	NO PAD	0-2%	> 2%
MORTALITY	61%	11%	28%
LAPSE	67%	22%	11%
INCIDENCE	50%	22%	28%
CLAIM TERMINATION RATES	72%	11%	17%
UTILIZATION	78%	11%	11%

Note: 18 responses in 2021 survey.

LONG DURATION TARGETED IMPROVEMENT

The Financial Accounting Standards Board (FASB) released Accounting Standards Update (ASU) 2018-12, Targeted Improvements for Long-Duration Contracts (LDTI), in August 2018. It represents a fundamental change in the measurement and reporting of long-duration insurance contracts that will alter the incidence and volatility of reported income and equity.[4]

The LDTI standard introduces the following specific major improvements.

- First, the standard updates best estimate assumptions used to measure the future liability for traditional and limited-payment contracts (including LTC contracts).
- Second, a new category of benefits, market risk benefits (MRBs), is introduced and measured at fair value.
- Third, straight-line amortization of deferred acquisition costs (DAC) is now required.
- Fourth, more detailed disclosures are required, including such items as liability roll-forwards and information about assumptions and methods used in the measurement.

FASB originally required reporting on the new basis starting in 2021 but has since approved two delays that allow U.S. Securities and Exchange Commission (SEC) reporters to delay implementation to 2023 (and 2025 for small insurers).

[4] Dauphin, Francois & Hines, William (April 2019). Observations on Emergence of Earnings Under U.S. GAAP Targeted Improvements. Milliman Report. Retrieved October 6, 2021, from https://www.milliman.com/en/insight/observations-on-emergence-of-earnings-under-us-gaap-targeted-improvements.

In terms of the survey results, a quarter of the companies that currently report under U.S. GAAP already use first principles models for calculating their reserves and another quarter is planning to migrate to a first principles model. However, the other half of the companies do not plan to change their current modeling approaches.

The process of updating net premium ratios is quite similar across companies; however, the timing on when to update actual experience and net premium ratios varies. The general consensus is that net premium ratio will fall between 75% and 100%. One company's ratio is already capped at 100%.

For companies using a reserving approach that combines the ALR and DLR, most chose to use level equivalent locked-in discount rates at transition. The primary source of current discount rate going forward for most companies is underlying bond data collected from Bloomberg.

Almost all U.S. GAAP-reporting companies do not intend to report the ALR and DLR separately on the balance sheet. However, when it comes to required disclosures, companies are split on whether to show ALR and DLR separately.

Section 2: Disabled life reserves

Disabled life reserves (DLR), also referred to as claim reserves, reflect the value of future claim payments for claims that have already been incurred. The amount of disabled life reserves associated with a block of LTC insurance business generally increases as the block ages, which is due to the increasing claim incidence by policyholder age.

Participating companies were surveyed regarding the following topics:

- Continuance tables and related reserve methodologies
  - Data sources
  - Continuance table variables
  - Future transfer methodology
  - Waiver of premium methodology
  - Utilization adjustments
- Explicit provision for adverse deviation
- Provision for loss adjustment expense
- Incurred but not reported (IBNR) methodology
- Adequacy
- System
- Reserving approach for complex riders
- Claim status definitions and adjustments

CONTINUANCE TABLES AND RELATED RESERVE METHODOLOGIES

All companies surveyed followed a continuance table approach (or model mortality and recovery separately), when establishing the claim reserve for known claims, as opposed to using a completion factor method or some other methodology.

Data sources

Figure 14 shows the source of the continuance table assumptions. Consistent with the morbidity assumptions for ALR testing, the source of the assumptions is split between a company's own data and that of an external source. Most external sources are from consultants, although a few companies use the SOA Intercompany Study or other industry tables. The most common approach used for "external sources" is to use the external data as a starting point and adjust to company experience. Compared to the 2018 survey, approximately the same percentage of companies are using external sources versus relying solely on the company's own data.

FIGURE 14: CONTINUANCE TABLE DATA SOURCE

DATA SOURCE	2018 SURVEY	2021 SURVEY
COMPANY DATA	27%	32%
EXTERNAL SOURCES	73%	68%

Note: 19 responses in 2021 survey.
Note: 22 responses in 2018 survey.

Half of the companies indicated that they review the continuance tables at least annually. The remainder responded that they perform an update less frequently, but several indicated they review the tables at least every three years. More companies report updating these assumptions annually than in the 2018 survey. Also, most companies indicated that the updates were showing equal or longer lengths of stay.

Continuance table variables

Figure 15 shows the most common variables used in the continuance tables. Consistent with prior updates to the survey, companies are continuing to use more variables in their DLR calculations. The number of variables used generally increased compared to the 2018 survey. This may indicate that companies are developing more sophisticated and detailed assumptions as they try to develop better claim reserve estimates.

FIGURE 15: CONTINUANCE TABLE VARIABLES

VARIABLE	2018 SURVEY	2021 SURVEY
AGE	91%	83%
GENDER	96%	100%
CARE SETTING	74%	89%
BENEFIT PERIOD	52%	56%
DIAGNOSIS	30%	17%
OTHER (INCLUDING EP, CLAIM DURATION, ETC.)	N/A	33%

Note: 18 responses in 2021 survey.
Note: 22 responses in 2018 survey.

As shown above, almost all companies report varying continuance assumptions by care setting. Of companies that vary, approximately half reference first site of care and the other half use current site of care to categorize claimants.

When updating assumptions, approximately 30% of respondents note their updates are indicating longer lengths of stay than prior assumptions would project (while the other half report stable lengths of stay). One company reported shorter lengths of stay.

Future transfer methodology

Figure 16 shows the approach taken in reflecting transfers between care settings for comprehensive plans (plans that cover care in both a facility and at home) and companies that vary the continuance tables by care setting (some companies use a composite continuance table and are not included in Figure 16). For the companies that do vary the continuance tables by care setting, the majority also account for transfers. Consistent with the 2018 survey, approximately 60% of companies reported making explicit or implicit adjustments for future transfers.

FIGURE 16: FUTURE TRANSFERS METHODOLOGY

METHODOLOGY	2018 SURVEY	2021 SURVEY
TRANSFERS NOT REFLECTED	38%	43%
EXPLICIT ADJUSTMENT	50%	38%
IMPLICIT ADJUSTMENT	13%	19%

Note: 16 responses in 2021 survey.
Note: 16 responses in 2018 survey.

To demonstrate the care setting transfer issue, consider the following example. A carrier may offer home care-only policies, as well as comprehensive policies. Some carriers hold an identical reserve if a policyholder goes on claim while receiving home care under the two different policy types. If the underlying continuance tables are based solely on home care experience, this methodology can potentially understate the comprehensive liability because the claimant will continue to be benefit-eligible even if transferred to a facility. The materiality of these transfers depends on how the underlying continuance curves are constructed.

The survey responses classified as "explicit" refer to companies that make an explicit adjustment with respect to transfers. As an example of an explicit adjustment for transfers of care, a company might adjust all comprehensive facility DLRs by X% and adjust all comprehensive non-facility DLRs by Y%.

The companies with "implicit adjustments" take an approach in which the underlying continuance tables are developed from comprehensive policies, based on starting care site. These companies assume that the transfers are then implicitly reflected in the DLR calculation because any historical transfer experience is reflected in the claim runoff assumed. This assumption relies on a consistent mix of nursing home and home care claim experience over time.

Waiver of premium methodology

Most companies reflect waiver of premium benefits in their claim reserve calculations, as shown in Figure 17. This is similar to prior surveys. It is important to carefully consider the treatment of waiver of premium in the ALR and DLR calculations.

FIGURE 17: DLR WAIVER OF PREMIUM METHODOLOGY

METHODOLOGY	2018 SURVEY	2021 SURVEY
WAIVER REFLECTED IN DLR	83%	79%
WAIVER NOT REFLECTED IN DLR	17%	21%

Note: 19 responses in 2021 survey.
Note: 23 responses in 2018 survey.

Utilization adjustments

As shown in Figure 18, most companies make explicit utilization adjustments in their claim reserve calculations. The number of companies that made an explicit utilization adjustment continued to increase, as it has in every survey since 2009. These calculations account for paid claim experience that is less than the maximum daily, weekly, or monthly amount specified in the policy contract.

Utilization adjustments may be determined on a seriatim or aggregate basis. Each approach has its own merits when considering variability, credibility, and calculation issues.

FIGURE 18: DLR UTILIZATION METHODOLOGY

METHODOLOGY	2018 SURVEY	2021 SURVEY
NOT REFLECTED	13%	5%
SERIATIM	30%	32%
AGGREGATE	57%	63%

Note: 19 responses in 2021 survey.
Note: 23 responses in 2018 survey.

EXPLICIT PROVISIONS FOR ADVERSE DEVIATION

The results in this year's survey indicate an increase in the percentage of companies that include explicit PADs in the DLR calculation. In the 2018 survey, half of the companies did not include explicit PADs, whereas over 60% of companies reported in the 2021 survey that they include explicit PADs.

PROVISION FOR LOSS ADJUSTMENT EXPENSE

We surveyed the participating carriers regarding the provisions for loss adjustment expense (LAE) that are included in their claim reserve calculations. Almost all companies include a flat percentage load to their DLRs and IBNRs. The range of the LAE load varies by company, as shown in Figure 19.

FIGURE 19: DLR LOSS ADJUSTMENT EXPENSE (LAE)

	2018 SURVEY		2021 SURVEY	
LAE AS % OF DISABLED LIFE RESERVES (DLR)	STAT	GAAP	STAT	GAAP
0%	0%	0%	17%	9%
0.1% - 2.5%	29%	30%	28%	27%
2.6% - 5.0%	65%	70%	50%	64%
> 5.0%	6%	0%	6%	0%

Note: Some companies do not hold GAAP reserves. We received 18 responses for STAT and 11 for GAAP in the 2021 survey.
Note: We received 21 responses for STAT and 11 for GAAP in the 2018 survey.

Average LAE held on a statutory basis is 2.9%, which is lower than the 2018 survey's 3.5% average. All companies that reported holding a LAE for GAAP reported the same amount for statutory and GAAP. Differences in the percentage mix in Figure 19 are due to the mix of companies responding to statutory and GAAP. Unlike the case with ALR, where most companies only load GAAP ALR for the LAE liability, most companies load both statutory and GAAP DLR bases for LAE.

INCURRED BUT NOT REPORTED METHODOLOGY

The table in Figure 20 indicates the approach taken by companies with respect to their incurred but not reported (IBNR) calculations. Among the wide variety of approaches used to calculate the IBNR, the completion method (or claim triangle approach) is the most common. Another approach is to subtract the reported incurred loss ratio from the anticipated loss ratio times earned premium to estimate the amount of IBNR claims. A similar approach would be to subtract the reported incurred claims from the amount of expected claims. In Figure 20, the "other" approaches include a combination of the completion method and loss ratio approaches or high-level estimation. A few more companies used a completion method or loss ratio approach than in the 2018 survey.

FIGURE 20: INCURRED BUT NOT REPORTED (IBNR) METHODOLOGY

METHODOLOGY	2018 SURVEY	2021 SURVEY
COMPLETION / LAG TRIANGLE	48%	61%
LOSS RATIO / % OF PREMIUM OR EXPECTED CLAIMS	4%	11%
COMBINATION OF COMPLETION AND LOSS RATIO	4%	6%
OTHER	43%	22%

Note: 18 responses in 2021 survey.
Note: 23 responses in 2018 survey.

ADEQUACY

Almost all companies perform some form of reserve adequacy testing on their claim reserves, such as a claim retrospective reserve analysis. Most companies (74% of the 19 responses) indicated that these tests were performed annually while others were more frequent (11% reported quarterly and 5% reported monthly). Results were similar to the 2018 survey.

SYSTEM

Figure 21 shows the number of carriers that use a commercial valuation system for their disabled life reserves versus those that have a “homegrown” system.

FIGURE 21: DLR SYSTEM

SYSTEM	2018 SURVEY	2021 SURVEY
HOMEGROWN	38%	35%
COMMERCIAL	62%	65%

Note: 20 responses in 2021 survey.
Note: 21 responses in 2018 survey.

The use of homegrown systems is more common for DLRs than ALRs. Two companies that use commercial systems for their ALRs use homegrown systems for their DLRs.

RESERVING APPROACH FOR COMPLEX RIDERS

Companies were asked about the modeling approach for two of the more complex riders for LTC: nonforfeiture and shared care benefits. Most companies responded that they either ignore nonforfeiture benefits, such as the shortened benefit period, or conservatively hold the reserve calculated based on the full benefit period (as opposed to only holding the claim reserve for the shortened period).

For shared care benefits, 44% of the companies that responded indicated they adjust the claim reserve to account for shared care benefits. The most common approach to account for shared care benefits was to assume that the full benefit period of both spouses was available to the current claimant.

CLAIM STATUS DEFINITIONS AND ADJUSTMENTS

As the size of claim reserves increases, more companies are refining the claim reserve calculation to address claim situations other than the typical “open and in claim payment status” situations. Some of those other situations include “claims during the elimination period,” “pending claims waiting for approval,” “closed claims that may reopen,” and “claims in final payment status.”

Figure 22 shows that the most common approach for claims in the elimination period is to explicitly account for them in the disabled life reserve. Some companies reported holding a percentage of the DLR for claims in the elimination period. Another approach is to implicitly include them in the IBNR development.

FIGURE 22: CLAIMS DURING THE ELIMINATION PERIOD

APPROACH	2018 SURVEY	2021 SURVEY
EXPLICITLY ACCOUNTED FOR IN DLR	55%	74%
IMPLICITLY INCLUDED IN IBNR	45%	26%

Note: 19 responses in 2021 survey.
Note: 23 responses in 2018 survey.

Most companies also explicitly reserve for pending claims (though fewer report doing so since the 2018 survey), as shown in Figure 23. These claims are known to the company but are in the process of having their benefit eligibility verified. The most common approach is to include these claims with the known disabled life reserve, with some companies applying an adjustment factor to reflect the probability that the claim will be approved.

FIGURE 23: PENDING CLAIMS WAITING FOR APPROVAL

APPROACH	2018 SURVEY	2021 SURVEY
EXPLICITLY ACCOUNTED FOR IN DLR	73%	63%
IMPLICITLY INCLUDED IN IBNR	27%	37%

Note: 19 responses in 2021 survey.
Note: 23 responses in 2018 survey.

Figure 24 shows the most common approach for closed claims that may reopen is to reflect an explicit adjustment. This is different from the 2018 survey results, when 59% of companies reported making no adjustment. Depending on the definition of a claim, some claims may close but reopen later as the same claim. For example, a claimant may recover and stop claiming benefits but relapse a couple months later and need to resume benefits. In that situation, the previously closed claim will reopen. Most of the companies making an explicit adjustment indicated that they make separate calculations to hold reserves for those types of claims. A few indicated that those types of claims are covered in the general IBNR.

FIGURE 24: CLOSED CLAIMS THAT MAY REOPEN

APPROACH	2018 SURVEY	2021 SURVEY
NOT REFLECTED	59%	26%
SOME ADJUSTMENT MADE	41%	74%

Note: 19 responses in 2021 survey.
Note: 23 responses in 2018 survey.

Figure 25 shows about half of the companies do not make any adjustment for claims that are known to be in a final payment status, though that percentage is less than in the 2018 survey. Sometimes it is known that an open claim is about to be closed, but there is only one payment left (such as in the case of death, but the final bill is outstanding). Some companies make an adjustment for those claims, reducing the claim reserves.

FIGURE 25: CLAIMS IN FINAL PAYMENT STATUS

APPROACH	2018 SURVEY	2021 SURVEY
NOT REFLECTED	68%	53%
SOME ADJUSTMENT MADE	32%	47%

Note: 19 responses in 2021 survey.
Note: 23 responses in 2018 survey.

Section 3: Asset assumptions

The valuation survey asked companies about their assets supporting the reserves. We included questions related to asset allocation, actual portfolio yield, and current pricing interest rate relating to each company's LTC product line. In addition, we asked about any investment hedging strategies that may be used.

ASSET ALLOCATION

Figure 26 summarizes the average asset allocation by different asset classes and compares the responses from this year's survey with the responses from the 2018 survey. The average asset allocation shown is based on taking a simple average of the responses.

The asset allocation varied considerably by company. Some companies hold large portions of their assets in Treasuries and AAA and AA bonds, while other companies hold greater proportions of riskier assets. Since the 2018 survey, the asset allocation has remained fairly consistent, with the largest increases in more risk-averse assets (i.e., Treasuries, AAA bonds, and AA bonds), as well as public and private equity and real estate. These increases offset some sharper decreases in A bonds, BBB bonds, and commercial mortgages.

FIGURE 26: ASSET ALLOCATION

ASSET CLASS	2018 SURVEY	2021 SURVEY	CHANGE
TREASURIES	3.5%	6.0%	2.5%
AAA BONDS	4.8%	8.2%	3.4%
AA BONDS	8.8%	11.2%	2.4%
A BONDS	28.9%	20.7%	-8.2%
BBB BONDS	27.3%	22.4%	-4.9%
BB BONDS AND LOWER	4.3%	3.4%	-0.9%
PREFERRED STOCK	0.4%	0.6%	0.2%
PUBLIC EQUITY	1.0%	2.8%	1.8%
REAL ESTATE	1.0%	2.4%	1.4%
COMMERCIAL MORTGAGES	7.2%	5.9%	-1.3%
RESIDENTIAL MORTGAGES	0.4%	0.5%	0.1%
PRIVATE EQUITY	1.3%	2.9%	1.6%
COMMERCIAL REAL ESTATE	0.7%	1.5%	0.8%
HEDGE FUNDS	0.0%	0.4%	0.4%
SECURITIES LENDING	0.0%	0.3%	0.3%
OTHER	11.2%	10.7%	-0.5%

Note: 21 responses.

When determining asset allocation for LTC products, it is important to consider matching asset and liability risks. For example, the prepayment risk in some callable bonds and mortgages should be carefully considered for LTC. When interest rates drop, callable bonds and mortgages are more likely to be called, reducing the portfolio yield. As a result, unlike other product lines, for LTC there is no offsetting adjustment on the liability side for changes in asset yield (such as changing the crediting rate), thereby making these assets potentially riskier for LTC than for other products.

In addition, companies should be aware of the potential risk-based capital implications with respect to asset allocation selection. For example, the National Association of Insurance Commissioners (NAIC) requires more risk-based capital to be held on more risky assets. Therefore, the additional yield from those riskier assets is reduced by the additional cost of capital for holding those assets, as well as the higher default risk.

We asked whether companies had changed any investment decisions because of the COVID-19 pandemic and, of the 14 companies that responded, a couple indicated a shift away from Treasuries.

DURATION FOR LONG-TERM CARE

The survey asked for the asset duration for the LTC product line. There was a wide range of responses. Of 13 responses, the duration ranged from 8.7 to 25.0 years, with an average of 12.1 years. However, most responses (69% of 13 companies) fell within the range of 8.0 to 13.0 years. Compared with the 2018 survey, the average duration increased slightly. The 2018 survey reported an average duration of 11.1 years.

CURRENT PORTFOLIO YIELD

Figure 27 shows the current portfolio yields of the companies that responded. The average yield was 4.9% and ranged between 3.4% and 6.2%. Overall, the average yield declined from 5.4% in the 2018 survey. Under LDTI, insurers will be required to discount their liabilities using A-rated investment yields. With liabilities sensitive only to movements in A-rated yields, there may be a disconnect with the movements in asset portfolio yields that are typically distributed across various asset qualities.

FIGURE 27: CURRENT PORTFOLIO YIELD

ASSET CLASS	2018 SURVEY	2021 SURVEY
LESS THAN OR EQUAL TO 4.50%	23.8%	28.6%
4.51% TO 5.00%	19.0%	42.9%
5.01% TO 5.50%	23.8%	7.1%
5.51% TO 6.00%	14.3%	14.3%
GREATER THAN 6.00%	19.0%	7.1%

Note: 14 responses in 2021 survey.
Note: 21 responses in 2018 survey.

MOST RECENT PRICING INTEREST RATE ASSUMPTION

Figure 28 shows the most recent pricing interest rate. The average response was 4.5% and ranged from 3.0% to 5.8%. Compared with the 2018 survey, the average pricing interest rate increased from 4.1%. However, please note that the 2018 survey was limited only to companies currently selling LTC insurance.

FIGURE 28: MOST RECENT PRICING INTEREST RATE ASSUMPTION

ASSUMPTION	2018 SURVEY	2021 SURVEY
LESS THAN OR EQUAL TO 4.00%	42.9%	21.4%
4.01% TO 4.50%	14.3%	21.4%
4.51% TO 5.00%	28.6%	28.6%
5.01% TO 5.50%	14.3%	0.0%
GREATER THAN 5.50%	0.0%	7.1%

Note: 11 responses in 2021 survey.
Note: 7 responses in 2018 survey.

INTEREST RATE HEDGING APPROACH

The survey also asked about the use of any interest rate hedging strategies, either internally between various product lines or with external parties. Figure 29 shows the interest rate hedging responses. Most companies (71%) do not utilize any form of interest rate hedging. Four companies use an external hedge, such as an interest rate swap. Two companies use an internal hedge between different product lines. This is generally consistent with the 2018 survey. As may be expected, companies that employ hedging strategies tend to have larger blocks of business where they achieved the critical mass needed for efficiently establishing an external hedging approach.

FIGURE 29: INTEREST RATE HEDGING APPROACH

APPROACH	2018 SURVEY	2021 SURVEY
DO NOT HEDGE	73%	71%
INTERNAL AND EXTERNAL HEDGE	9%	6%
EXTERNAL HEDGE	18%	24%

Note: 17 responses in 2021 survey.
Note: 22 responses in 2018 survey.

Appendix A

LIST OF PARTICIPATING COMPANIES

Berkshire Life Insurance Company of America

CNA

Continental General Insurance Company

Employers Reassurance/Union Fidelity

Genworth

Lincoln National Life

MassMutual

MedAmerica Insurance Company

Metropolitan Life Insurance Company

Nassau

New York Life Insurance Company

Northwestern Mutual

Physicians Mutual Insurance Company

Principal Financial Group

Prudential Financial

Senior Health Insurance Company of Pennsylvania

State Farm Mutual Automobile Insurance Co.

Thrivent Financial

Note: Three additional companies opted to remain anonymous, and one company provided limited information.

Appendix B: Active life reserves

Active life reserves (ALR) reflect the liability for future contingent claim events and are typically the largest reserve held by LTC insurance companies. Active life reserves, contract reserves, and policy reserves are assumed to be synonymous in this report.

This section summarizes the responses relating to the valuation assumptions and methodologies used. We opted to include this section on ALR valuation as an appendix as many of these assumptions have prescribed elements. In previous versions of the survey, we only included companies that were selling. In this version of the survey, we include all companies and thus will not make comparisons to the 2018 survey. Topics covered in this section relating to active life reserves include:

- Mortality
- Ultimate lapse rates
- Morbidity sources
- Provision for adverse deviation
- Morbidity improvement
- Methodology and other issues
- Provision for loss adjustment expense
- Interest rate
- Waiver of premium methodology
- Active life reserves for disabled lives
- Reserving for rate increases
- System
- Reserving approach for complex riders
- Premium reserves

MORTALITY

As shown in Figure 30, the 1994 Group Annuity Mortality (GAM) table is the most common valuation assumption used throughout the industry for calculating active life reserves. This may be because the 1994 GAM table is the referenced table for LTC insurance in the current version of the National Association of Insurance Commissioners (NAIC) Health Insurance Reserves Model Regulation. The current prescribed table is presently under review by the NAIC, which may be proposing a new prescribed mortality and lapse rate soon.

The survey indicates 44% of responding companies use 1994 GAM for statutory active life reserves.

Additionally, 50% of responding companies report using mortality selection factors in statutory valuation, and very few companies include future total life mortality improvement in their valuation assumptions.

FIGURE 30: VALUATION MORTALITY TABLE USED

MORTALITY TABLE USED	STAT	GAAP
1983 GAM	11%	0%
1994 GAM	44%	40%
2000 ANNUITY	0%	0%
2012 IAM	28%	40%
INSURED EXPERIENCE	0%	20%
OTHER	17%	0%

Note: Some companies do not hold GAAP reserves. We received 18 responses for statutory and 10 for GAAP.

In this year's survey, we asked companies for more information about how the mortality rates are applied. About 75% of companies indicated they apply mortality rates to total lives, as opposed to splitting between active and disabled lives.

ULTIMATE LAPSE RATES

A summary of ultimate lapse rates assumed by insurers in their active life reserve calculations is shown in Figures 8 and 9 above. Please note that survey respondents were asked to provide the statutory lapse rates prior to any NAIC lapse-limiting formulas. Companies indicated they vary their valuation lapse assumptions by issue age, attained age,

gender, benefit period, inflation, marital status, premium payment option, and product. To consistently compare lapse assumptions, we requested the ultimate lapse rate for the two different plans and demographic characteristics shown in Figure 31.

FIGURE 31: PLAN & DEMOGRAPHIC CHARACTERISTICS FOR LAPSE ASSUMPTIONS

Plan 1	Plan 2
- Issue age 55	- Issue age 65
- Male	- Female
- Single	- Married
- No inflation protection	- 5% compound inflation protection
- Lifetime benefit period	- Five-year benefit period

In this year's survey, the median ultimate lapse rate assumed for statutory reserving is 0.8% for Plan 1 and 0.7% for Plan 2. The ultimate lapse rate for Plan 1 is slightly down from the rate in the 2018 survey while the ultimate lapse rate for Plan 2 is in line with the 2018 survey rate. Companies that reported GAAP ultimate lapse rates generally reported the same assumptions as for statutory. Given the consistency of the assumptions between statutory and GAAP, Figure 32 only shows the ultimate lapse assumptions for statutory.

FIGURE 32: ULTIMATE LAPSE RATES

ULTIMATE LAPSE RATES	PLAN 1	PLAN 2
0% TO 0.5%	44%	50%
0.51% TO 1.0%	33%	33%
1.01% TO 1.5%	0%	0%
1.51% TO 2.0%	17%	11%
2.01% +	6%	6%

Note: 18 responses.

In this year's survey, we asked companies for more information about how the lapse rates are applied. Similar to the mortality assumption, about 75% of companies indicated they apply lapse rates to total lives, as opposed to active lives only.

MORBIDITY

As there is no standardized morbidity table for LTC, companies can set their own assumptions for statutory and GAAP reserves. The magnitude and slope of the age-cost curve can have a dramatic impact on the durational development of LTC active life reserves. When surveying companies regarding their morbidity assumptions, we limited the survey to three pieces of information:

- Morbidity sources
- Provision for adverse deviation (PAD)
- Morbidity improvement

Morbidity sources

We asked companies for the source of the morbidity assumptions (i.e., claim costs or incidence and continuance) that are used in the development of their active life reserves. The results are summarized in Figure 33. Note that the Company Data category in Figure 33 implies that the assumptions were developed solely from company data and not blended with a second source.

FIGURE 33: MORBIDITY SOURCES

SOURCE	RESPONSES
COMPANY DATA	22%
CONSULTANT DATA	61%
SOA DATA	17%

Note: 18 responses.

Provision for adverse deviation

Based on the survey, we found the use of morbidity PADs varies widely, with many companies not including an explicit PAD altogether. Some companies apply a flat percentage increase to total incurred claims while others apply separate PADs to incidence, claim termination rates, and utilization. A few companies include a PAD on mortality and lapse. Given how the use of PADs varies widely, it is not feasible to provide a numerical representation of how much margin is included in the assumptions. It should also be noted that there may be additional margins in the reserves due to the prescribed valuation interest rates.

Morbidity improvement

The survey asked companies if they included future morbidity improvement in their valuation assumptions. The NAIC Health Insurance Reserves Model Regulation prohibits the use of morbidity improvement in the calculation of statutory active life reserves. However, four companies indicated they assumed future morbidity improvement for GAAP reserves. These results are generally consistent with prior years. It should be noted that, while companies do not assume morbidity improvement when calculating their statutory reserves, some do include it when testing their reserves (see Section 1 above for details).

PROVISION FOR LOSS ADJUSTMENT EXPENSE

Survey respondents were asked what, if any, provision for loss adjustment expense (LAE) is made in their active life reserve calculations. Figure 34 includes a summary of the LAE loads, as a percentage of the active life reserves (percentage of ALR is generally equivalent to percentage of incurred claims).

FIGURE 34: LOSS ADJUSTMENT EXPENSE (LAE)

LAE AS % OF ACTIVE LIFE RESERVES (ALR)	STAT	GAAP
0%	63%	33%
0.1% - 2.5%	11%	17%
2.6% - 5.0%	26%	50%
> 5.0%	0%	0%
IMPLICITLY INCLUDED	0%	0%

Note: Some companies do not hold GAAP reserves. We received 19 responses for statutory and 12 for GAAP.

Consistent with the surveys from previous years, most companies exclude explicit provisions for LAE in their statutory active life reserve bases.

Because of GAAP reserving requirements and because GAAP reserves are typically developed with best estimate assumptions and modest PADs, most companies include more explicit LAE assumptions in the GAAP active life reserve development. GAAP LAE is typically reflected via a load to the benefit reserves or a separate expense reserve. In general, the level of GAAP LAE is consistent with prior surveys.

INTEREST RATE

From a statutory perspective, most companies surveyed used the prescribed valuation interest rate (3.5% for recent years until 2020, 3.0% in 2021). The average GAAP interest rate was between 4% and 5%, which is consistent with the 2018 survey.

WAIVER OF PREMIUM METHODOLOGY

The survey asked about the treatment of waiver of premium in the active life reserve calculations. The most common approach, used by approximately 75% of responding companies, is to increase benefit payments in the reserve calculation to reflect the cost associated with the waiver (waiver of premium is included in both premium and claims). The remaining companies assume that only active policyholders (versus both active and disabled policyholders) pay premiums (waiver of premium is excluded from both premium and claims).

ACTIVE LIFE RESERVE FOR DISABLED LIVES

Consistent with the prior survey, almost all companies in the survey reported holding active life reserves for those on claim.

UNLOCKING RESERVES

We asked if any valuation assumptions have been unlocked for statutory for any business segment, and 70% of companies indicated assumptions had not been unlocked.

SYSTEM

Figure 35 shows the number of companies using a commercial valuation system for their active life reserves versus those that have “homegrown” systems. In general, the results are consistent with prior surveys.

FIGURE 35: ALR SYSTEM

SYSTEM	RESPONSES
HOMEGROWN	20%
COMMERCIAL	80%

Note: 20 responses.

RESERVING APPROACH FOR COMPLEX RIDERS

Modeling for some riders for LTC can be quite complex. In the 2021 survey, we asked companies how they model nonforfeiture and shared care benefit riders. For the nonforfeiture rider, approximately half of responding companies said they followed a simple approach of increasing the reserve by applying an adjustment to expected claim costs. The other companies indicated they followed a complex calculation of the benefits. Slightly more companies said they used a simple approach for the shared care rider.

PREMIUM RESERVES

The survey asked whether the unearned premium reserve was held on a gross or net basis (net valuation premium). The NAIC Health Insurance Reserves Model Regulation states that the sum of the unearned premium reserve and active life reserve cannot be less than the gross unearned premium reserve. Therefore, after the first few policy durations, companies can hold the net unearned premium reserve. Figure 36 summarizes the responses for statutory reserving. We note most companies followed the same approach for GAAP.

FIGURE 36: UNEARNED PREMIUM RESERVE METHODOLOGY

METHODOLOGY	RESPONSES
GROSS	40%
NET	60%

Note: 13 responses.

Appendix C: Tables with companies responding in both 2018 and 2021

This appendix contains all figures from the report but only for companies that participated in both the 2018 and 2021 survey.

TABLES

FIGURE 37: ALR ADEQUACY TESTING APPROACH

METHOD	2018 SURVEY	2021 SURVEY
GPV ONLY	7%	7%
CASH FLOW TESTING AND GPV	50%	21%
CASH FLOW TESTING ONLY	43%	71%

Note: 14 responses.

FIGURE 38: AGGREGATION OF STATUTORY RESERVE TESTING RESULTS

METHOD	2018 SURVEY	2021 SURVEY
LTC LINE OF BUSINESS	29%	29%
HEALTH LINES COMBINED	7%	14%
COMPANY LEVEL	64%	57%

Note: 14 responses.

FIGURE 39: PROJECTION SYSTEM

SYSTEM	2018 SURVEY	2021 SURVEY
HOMEGROWN	23%	23%
MOODY'S AXIS	15%	23%
POLYSYSTEMS	8%	0%
MG-ALFA	8%	38%
MG-TRITON	31%	8%
PROPHET	8%	8%
OTHER	8%	0%

Note: 14 responses.

FIGURE 40: FREQUENCY OF MONITORING ASSUMPTIONS

FREQUENCY	2018 SURVEY	2021 SURVEY
MONTHLY	21%	36%
QUARTERLY	21%	7%
ANNUALLY	57%	57%

Note: 14 responses.

FIGURE 41: BASIS FOR TOTAL LIFE MORTALITY

MORTALITY TABLE	2018 SURVEY	2021 SURVEY
1983 GAM	7%	0%
1994 GAM	21%	0%
2000 ANNUITY	21%	71%
2012 IAM	29%	14%
INSURED EXPERIENCE	14%	14%
OTHER	7%	0%

Note: 7 responses in 2021 survey.
Note: 14 responses in 2018 survey.
(includes both total lives and active lives respondents).

FIGURE 42: BASIS FOR ACTIVE LIFE MORTALITY

MORTALITY TABLE	2018 SURVEY	2021 SURVEY
1983 GAM	7%	0%
1994 GAM	21%	0%
2000 ANNUITY	21%	0%
2012 IAM	29%	71%
INSURED EXPERIENCE	14%	14%
OTHER	7%	14%

Note: 7 responses in 2021 survey.
Note: 14 responses in 2018 survey.
(includes both total lives and active lives respondents).

FIGURE 43: ULTIMATE LAPSE RATES APPLIED TO TOTAL LIVES

	2018 SURVEY		2021 SURVEY	
ULTIMATE LAPSE RATES	PLAN 1	PLAN 2	PLAN 1	PLAN 2
0% TO 0.5%	23%	31%	25%	50%
0.51% TO 1.0%	46%	46%	38%	25%
1.01% TO 1.5%	8%	8%	25%	25%
1.51% TO 2.0%	15%	8%	13%	0%
2.01% +	8%	8%	0%	0%

Note: 8 responses in 2021 survey.
Note: 13 responses in 2018 survey.
(includes both total lives and active lives responses).

FIGURE 44: ULTIMATE LAPSE RATES APPLIED TO ACTIVE LIVES

	2018 SURVEY		2021 SURVEY	
ULTIMATE LAPSE RATES	PLAN 1	PLAN 2	PLAN 1	PLAN 2
0% TO 0.5%	23%	31%	20%	0%
0.51% TO 1.0%	46%	46%	80%	100%
1.01% TO 1.5%	8%	8%	0%	0%
1.51% TO 2.0%	15%	8%	0%	0%
2.01% +	8%	8%	0%	0%

Note: 5 responses in 2021 survey.
Note: 13 responses in 2018 survey.
(includes both total lives and active lives responses).

FIGURE 45: MORBIDITY DATA SOURCE

SOURCE	2018 SURVEY	2021 SURVEY
COMPANY DATA	21%	29%
CONSULTANT DATA	71%	64%
SOA DATA	7%	7%

Note: 14 responses.

Figure 46 (Continuance Assumptions) is not included in this appendix as it is based on a new question in the 2021 survey.

FIGURE 47: FUTURE RATE INCREASES

QUESTION	2018 SURVEY	2021 SURVEY
DO YOU ASSUME ANY FUTURE RATE INCREASES (NATIONWIDE, NOT NEW YORK)?	57%	71%
APPROVED BUT NOT IMPLEMENTED	57%	71%
FILED BUT NOT APPROVED	46%	58%
FUTURE ROUNDS	46%	58%
IS THERE A SHOCK LAPSE ASSUMPTION?	44%	38%
IS THERE ANY INCIDENCE ANTI-SELECTION ASSUMPTION?	25%	31%
IF YES, IS THE ANTI-SELECTION PERMANENT?	50%	50%
ARE ANY REDUCED BENEFIT OPTIONS ASSUMED TO BE ELECTED?	56%	46%

Note: 14 responses.

Figure 48 (Provisions for Adverse Deviation) is not included in this appendix as it is based on a new question in the 2021 survey.

FIGURE 49: CONTINUANCE TABLE DATA SOURCE

DATA SOURCE	2018 SURVEY	2021 SURVEY
COMPANY DATA	21%	36%
EXTERNAL SOURCES	79%	64%

Note: 14 responses.

FIGURE 50: CONTINUANCE TABLE VARIABLES

VARIABLE	2018 SURVEY	2021 SURVEY
AGE	100%	100%
GENDER	100%	100%
CARE SETTING	79%	86%
BENEFIT PERIOD	50%	57%
DIAGNOSIS	29%	14%
OTHER (INCLUDING EP, CLAIM DURATION, ETC.)	N/A	29%

Note: 14 responses.

FIGURE 51: FUTURE TRANSFERS METHODOLOGY

METHODOLOGY	2018 SURVEY	2021 SURVEY
TRANSFERS NOT REFLECTED	20%	40%
EXPLICIT ADJUSTMENT	70%	50%
IMPLICIT ADJUSTMENT	10%	10%

Note: 10 responses.

FIGURE 52: DLR WAIVER OF PREMIUM METHODOLOGY

METHODOLOGY	2018 SURVEY	2021 SURVEY
WAIVER REFLECTED IN DLR	86%	79%
WAIVER NOT REFLECTED IN DLR	14%	21%

Note: 14 responses.

FIGURE 53: DLR UTILIZATION METHODOLOGY

METHODOLOGY	2018 SURVEY	2021 SURVEY
NOT REFLECTED	7%	7%
SERIATIM	29%	36%
AGGREGATE	64%	57%

Note: 14 responses.

FIGURE 54: DLR LOSS ADJUSTMENT EXPENSE (LAE)

	2018 SURVEY		2021 SURVEY	
LAE AS % OF DISABLED LIFE RESERVES (DLR)	STAT	GAAP	STAT	GAAP
0%	8%	0%	15%	17%
0.1% - 2.5%	23%	17%	31%	17%
2.6% - 5.0%	62%	83%	46%	67%
> 5.0%	8%	0%	8%	0%

Note: Some companies do not hold GAAP reserves. We received 13 responses for STAT and 6 for GAAP in 2021 survey.

FIGURE 55: INCURRED BUT NOT REPORTED (IBNR) METHODOLOGY

METHODOLOGY	2018 SURVEY	2021 SURVEY
COMPLETION / LAG TRIANGLE	54%	77%
LOSS RATIO / % OF PREMIUM OR EXPECTED CLAIMS	15%	8%
COMBINATION OF COMPLETION AND LOSS RATIO	0%	8%
OTHER	31%	8%

Note: 13 responses.

FIGURE 56: DLR SYSTEM

SYSTEM	2018 SURVEY	2021 SURVEY
HOMEGROWN	46%	38%
COMMERCIAL	54%	62%

Note: 13 responses.

FIGURE 57: CLAIMS DURING THE ELIMINATION PERIOD

APPROACH	2018 SURVEY	2021 SURVEY
EXPLICITLY ACCOUNTED FOR IN DLR	50%	79%
IMPLICITLY INCLUDED IN IBNR	50%	21%

Note: 14 responses.

FIGURE 58: PENDING CLAIMS WAITING FOR APPROVAL

APPROACH	2018 SURVEY	2021 SURVEY
EXPLICITLY ACCOUNTED FOR IN DLR	64%	64%
IMPLICITLY INCLUDED IN IBNR	36%	36%

Note: 14 responses.

FIGURE 59: CLOSED CLAIMS THAT MAY REOPEN

APPROACH	2018 SURVEY	2021 SURVEY
NOT REFLECTED	64%	29%
SOME ADJUSTMENT MADE	36%	71%

Note: 14 responses.

FIGURE 60: CLAIMS IN FINAL PAYMENT STATUS

APPROACH	2018 SURVEY	2021 SURVEY
NOT REFLECTED	79%	64%
SOME ADJUSTMENT MADE	21%	36%

Note: 14 responses.

FIGURE 61: ASSET ALLOCATION

ASSET CLASS	2018 SURVEY	2021 SURVEY	CHANGE
TREASURIES	5.7%	7.7%	2.0%
AAA BONDS	3.0%	9.6%	6.6%
AA BONDS	8.7%	10.7%	2.0%
A BONDS	29.5%	21.4%	-8.1%
BBB BONDS	24.8%	24.4%	-0.3%
BB BONDS AND LOWER	4.3%	3.2%	-1.2%
PREFERRED STOCK	0.7%	0.8%	0.0%
PUBLIC EQUITY	1.8%	0.8%	-1.0%
REAL ESTATE	0.0%	1.9%	1.9%
COMMERCIAL MORTGAGES	6.4%	5.3%	-1.0%
RESIDENTIAL MORTGAGES	0.6%	0.2%	-0.4%
PRIVATE EQUITY	0.4%	2.0%	1.6%
COMMERCIAL REAL ESTATE	0.9%	1.2%	0.3%
HEDGE FUNDS	0.0%	0.3%	0.3%
SECURITIES LENDING	0.0%	0.3%	0.3%
OTHER	13.2%	10.3%	-2.8%

Note: 14 responses.

FIGURE 62: CURRENT PORTFOLIO YIELD

ASSET CLASS	2018 SURVEY	2021 SURVEY
LESS THAN OR EQUAL TO 4.50%	18.2%	27.3%
4.51% TO 5.00%	27.3%	36.4%
5.01% TO 5.50%	9.1%	9.1%
5.51% TO 6.00%	36.4%	18.2%
GREATER THAN 6.00%	9.1%	9.1%

Note: 11 responses.

FIGURE 63: MOST RECENT PRICING INTEREST RATE ASSUMPTION

ASSUMPTION	2018 SURVEY	2021 SURVEY
LESS THAN OR EQUAL TO 4.00%	25.0%	18.2%
4.01% TO 4.50%	25.0%	18.2%
4.51% TO 5.00%	25.0%	27.3%
5.01% TO 5.50%	0.0%	0.0%
GREATER THAN 5.50%	25.0%	9.1%

Note: 8 responses.

FIGURE 64: INTEREST RATE HEDGING APPROACH

APPROACH	2018 SURVEY	2021 SURVEY
DO NOT HEDGE	69%	69%
INTERNAL AND EXTERNAL HEDGE	15%	8%
EXTERNAL HEDGE	15%	23%

Note: 13 responses.

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