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Long-Term Care Combo Products—Modeling, Assumptions, and Risks

Life Experience & Assumptions Committee

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Introduction

This paper is intended for actuaries and other insurance professionals looking for a practical overview of combination products (combo products) that integrate life insurance or annuities with long-term care (LTC) benefits. We are focused on the actuarial assumptions and risk considerations that distinguish them from standalone products. This paper reviews the current combo product market, modeling approaches, the development of key assumptions, product-specific risks, and the evolving regulatory and reserving frameworks that apply to combo products. Given the continued growth of the combo product market, actuaries play a central role in evaluating their financial performance, reserve implications, and risk management challenges.

Given the many variants of combo products, this paper will primarily discuss combo products with a base product of universal life (UL) or fixed index annuity (FIA) and LTC, and focus on key assumptions and risk considerations, reserves, and regulations.

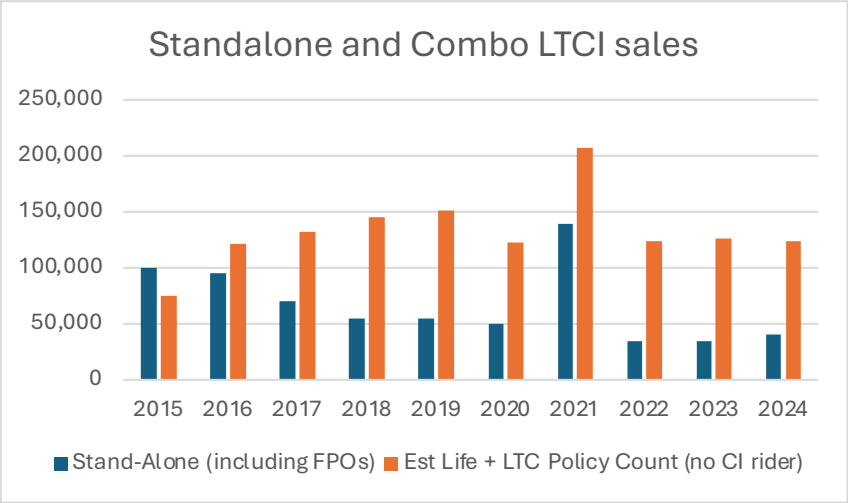
Combo Products and the Market

The foundation of combo products lies in their base products, such as individual or group life insurance products and fixed indexed annuities, which serve as the backbone for integrating LTC. Depending on the base product, policyholders have the right to accelerate a portion of their life insurance death benefit or draw down their annuity account value (or benefit base) when they are qualified for LTC benefits.

The market for combo products has increased significantly in recent years.[1] According to 2024 Insurance Barometer Study, the top reason given for buying a combo product is protection against the risk that LTC costs may deplete or exceed savings.[2] Sales of combo products began to eclipse sales of standalone LTC policies in 2014.[3] According to the Life Insurance Marketing and Research Association (LIMRA), 2024 LTC insurance (LTCI) sales included 124,000 Life + LTC policies compared with 39,000 standalone LTC policies (Figure 1 shows the LTCI sales by year).[4]

1 Hybrid insurance on the rise: a new era for long-term care protection; LIMRA/EY US individual life combination LTC survey; 2025.
2 "2024 Insurance Barometer Study: Report 1: The Generational Shift Has Arrived—The Path Forward for Life Insurers"; LIMRA and Life Happens; 2024.
3 "The State of Long-Term Care Insurance—2025"; American Academy of Actuaries; February 2025.
4 Individual Life Combination Products; LIMRA; Dec. 4, 2025.

Figure 1: Standalone and Combo LTCI Sales by Year[5]



While 27% of consumers said that a standalone LTC insurance policy was too expensive, an increasing number of people would consider combo products as an option, according to LIMRA.[6] Further, data from LIMRA's 2024 Insurance Barometer Study suggest that more than one quarter (28%) of American consumers would be extremely or highly likely to buy combo products, up from 17% in 2020.[7]

LTC riders for combo products may also qualify under Section 7702B of the Internal Revenue Code,[8] which can create benefits to cover LTC expenses. The benefits are tax-free in general, similar to standalone LTC policies. Furthermore, many combo products are designed to extend or continue LTC benefits even after the accelerated death benefit period has expired. The extension-of-benefit provision is useful for worksite and individual products, where employees keep life insurance coverage while they are receiving LTC benefits.

5 The jump in 2021 policy sales from LIMRA for both standalone and combo product sales can be attributed to Washington's Long-Term Services and Supports (LTSS) Trust Act, which mandated some LTCI coverage for residents of Washington. Group sales for employers based in Washington also contributed to national sales growth.
6 "LIMRA: Five Reasons to Discuss Long-Term Care Insurance Options with Your Clients;" LIMRA; Nov. 7, 2024.
7 See *supra*, note 2 "2024 Insurance Barometer Study: Report 1: The Generational Shift Has Arrived—The Path Forward for Life Insurers"; LIMRA and Life Happens; 2024.
8 26 U.S.C. § 7702B; 2024.

Target Market, Models, and Underwriting

Target Market

Through product design and risk diversification, the offsetting risk profiles inherent in combo products for insurers can reduce overall reserve requirements and improve capital efficiency compared with standard products. Combo product insurers target consumers ages 35 to 64, with those ages 45 to 64 representing the primary market because consumers in this age range are often at a life stage where their income and savings make combo products more financially accessible.[9] Consumers—led by millennials and Gen Z, and particularly those who have acted as primary caregivers—recognize the need for protection that combines LTC coverage with the opportunity for asset growth.[10]

There is also rising interest in worksite combo products, which are simplified issue (SI) or guaranteed issue (GI) and are typically offered as voluntary benefits.[11] With some potential to build future growth with the middle-income segment, carriers target mid to large employers.[12]

Models

One key consideration for insurance carriers is the actuarial modeling of combo products. The complexity of modeling can hinder an insurer's ability to offer more complex benefits. Many software platforms lack the capability to model combo products in a multi-state manner, i.e., a model that can track statuses such as those never on claim, those previously on claim, and those recovering to a healthy state. In addition, most insurance professionals recognize that the Combo Product market is relatively young, and that there are not many sources of sufficiently credible claims data.

Typically, two model types are used to model combo products: a claims-cost model, and a first-principles or integrated model. The actuary modeling the liabilities will need to evaluate considerations such as the size of the block, required accuracy, and model run-time when selecting the appropriate level of model complexity.

9 See *supra* note 1 Hybrid insurance on the rise: a new era for long-term care protection; LIMRA/EY US individual life combination LTC survey; Ernst & Young LLP, 2025.
10 Ibid.
11 "The next frontier: the evolving workplace life combination LTC market;" LIMRA/EY US workplace life combination LTC survey; 2025.
12 Ibid.

The claims-cost model is less effective in capturing assumption interactions and in calculating sensitivities. It is less complex, requiring pre-computed "claims costs" to be input alongside the life insurance model. These pre-computed claims cost tables typically compute the present value of a series of claim payments if an insured becomes disabled on a particular month/year. These tables require assumptions such as the incidence rate, a discount rate, disabled mortality recovery rates, and may require frequent recalculation as interest rates change.

Importantly, if the cash flows for the LTC components of the product are modeled distinctly from the life insurance policy cash flows, the model might not fully capture the risk trade-offs internal to combo products.[13] For instance, modeling active life mortality for those not on LTC claim is more difficult than in an integrated model, since the model does not track the number of people on claim and their specific disabled mortality.

Many companies model combo products on a "first principles" basis. This model computes the cash flows and statistical items across the various states that the policyholder can experience healthy, disabled, health and recovered, lapsed, or deceased. These models do not typically require externally input calculation, and the number of variables will be meaningfully greater than the claims-cost model.

Modeling some states, e.g., recoveries from claims or claims within a particular site of care, adds substantially more complexity than in the claims-cost models.

In contrast to the claims-cost models, these integrated first-principles models are able to balance the mortality and populations in each state to the total mortality, to conform to a company's assumption.

Underwriting

Individual combo products typically require a supplemental LTC application as part of the underwriting process. Depending on the comprehensiveness of the benefits provided, the underwriting process ranges from a simpler two-page application to a longer application requiring medical records, an Attending Physician Statement (APS), and other accessible data such as prescription drugs and medical diagnoses.

Companies will underwrite worksite or voluntary group combo products at the case level, with GI or SI underwriting for the employees or members.

13 "Integrated and First Principles Modeling for Hybrid Life and Health Products;" Society of Actuaries; last visited Sept. 1, 2026.

State Requirements

The base policy of life insurance must be filed as life insurance in every jurisdiction. Combo products that provide LTC benefits in addition to the life chassis policy values are generally filed as an LTC type of insurance, and must meet the requirements for LTC filings, including actuarial certifications and loss ratio requirements in some states. These may be filed on an individual or group basis with individual states or the Interstate Insurance Product Regulation Commission (IIPRC or Compact), though the Compact currently does not accept filings for group LTC policies.

The life and LTC filings may be submitted for review by the state at the same time, or separately. Given the complexity of the product and the diversity of product designs, there is considerable variation in state approval processes today for combo product filings.

Assumptions

In life insurance products, actuarial assumptions are developed for an expected policyholder within a defined underwriting risk class, gender, etc. For combo products, assumptions for the base life insurance products apply, but they also vary by the policyholder's state while alive, which are commonly referred to as active or healthy, (i.e., not on claim) or disabled on (i.e., on claim). These assumptions form the basis for both pricing and valuation functions.

Mortality

Combo products are typically built on a life insurance chassis, and thus mortality is a critical assumption. One common approach that actuaries use is to begin with an assumption for total mortality, representing the aggregate mortality of all insured lives, regardless of claim status. This assumption is often informed by company-specific experience where credible, or by industry experience when internal data are limited.

Actuaries typically form expectations for mortality by policyholder state. Disabled mortality assumptions are commonly based on industry experience from standalone LTC insurance, or from life and LTC combo product studies, reflecting elevated mortality following claim onset. The disabled mortality tends to be higher in the short-term following LTC incidence and lower, but still elevated, in later durations, until age-related mortality again becomes dominant.

If the actuary begins with an expectation of total mortality and disabled mortality, then healthy mortality is generally not set independently, but is instead derived implicitly within the model.

A widely used modeling concept in this context is the conservation of mortality (sometimes referred to as the preservation of deaths). Under this approach, the actuary specifies assumptions for total mortality, disabled life mortality, and claim incidence. The active life mortality is then mathematically derived such that the weighted combination of active and disabled mortality reconciles to the total mortality assumption. While not mandatory, this framework promotes internal consistency and transparency across assumptions.[14]

Mortality assumptions may differ between pricing and valuation. Valuation assumptions are often more conservative, reflecting regulatory requirements, margins for uncertainty, or prescribed guidance. Pricing assumptions are typically based on best-estimate expectations, before the addition of required margins.

Morbidity

Morbidity assumptions describe the likelihood and magnitude of LTC claims. These assumptions are typically decomposed into claim incidence and claim termination. In addition to those assumptions, if a combo product reimburses rather than indemnifies for LTC expenses, then the actuary must make an assumption of benefit utilization.

Incidence assumptions reflect how frequently policyholders enter claim status. There is no single industry standard applicable to combo products, and assumptions may be informed by company experience, consulting studies, or other external sources.

Incidence rates are typically set separately for males and females by attained age (and duration, according to the company's underwriting) and describe the likelihood that the policyholder qualifies for LTC benefits.

For standalone LTC products, companies commonly determine incidence rates separately for policyholders receiving home health care, assisted living, or skilled nursing benefits which are the predominant modalities of LTC today. For combo products, due to the modeling complexity in pricing, the incidence and claim termination assumptions are commonly combined into a composite assumption across all sites of care. Currently, this composite approach is necessary to manage compute-time constraints. However, modeling practice may evolve to incorporate additional precision if determined to be material to risk management.

14 "Conservation of mortality and assumption integrity;" Milliman.com; Dec. 7, 2021.

Claim termination assumptions are expressed as disabled life mortality and claim recovery. These assumptions are commonly set based on the age of the policyholder at the time of claim, and the assumptions describe monthly rates of death or recovery. In addition to age-at-claim, the claim termination assumptions often vary by sex, initial site of care, and other factors. Similar to the incidence assumption, the claim termination assumptions are often combined across sites of care into a composite assumption.

Benefit exhaustion is not an explicit assumption, but rather an emergent model result driven by the policyholder's available pool of LTC benefits, and accounting by the incidence, claim duration, benefit design, and benefit utilization when using first-principles models.

For policies that reimburse incurred services, the company will make an assumption about how much of the contractual maximum payment it expects to make. This assumption is often developed by reviewing historical experience of monthly costs of care, and projecting increases in that cost of care in the future. Common industry sources include the Cost of Care Survey,[15] and the LTC Cost of Care Index.[16] The increased cost of care is either used directly in the model or expressed as a fraction of the maximum contractual benefit paid.

Policy Persistency

Persistency assumptions, often expressed as lapse or policy termination rates, are a major financial driver for combo products. Persistency interacts with other assumptions in complex ways, including premium recovery, anti-selection, and the timing of claims relative to policy duration. As a result, slight changes in persistency assumptions can materially affect projected profitability and risk profiles.

Partial withdrawals may be an important feature for certain product designs, particularly those with flexible cash value access. While not central to all combo products, partial withdrawals can affect future premiums, death benefits, and LTC benefits, and are typically modeled consistently where applicable.

In the standalone LTC market, products were priced initially assuming higher ultimate lapse rates than what eventually emerged. LTC insurers recognized that the product was "lapse supported": when more policyholders live to older claim ages than anticipated (via lower lapses), premiums over the life of the policy were insufficient to fund future benefits and expenses. Actuaries frequently evaluate the extent to which similar dynamics may exist in combo products, recognizing that the presence of death benefits or return-of-premium

15 Calculate the cost of long-term care near you; CareScout; last visited Sept. 1, 2026.
16 "2025 Milliman Long-Term Care Index"; Milliman.com; Jan. 21, 2026.

features can alter the lapse-supported nature of the product compared to standalone LTC. Testing of the size and shape of the lapse assumption is key to understanding the risks inherent in combo products.

Expenses

Expense assumptions are generally developed at a high level based on the company's allocation of overhead to the business, as well as other contract-specific expenses.

For combo products, expenses associated with the LTC rider such as maintenance and claim incurred expenses are often marginal relative to the base life insurance policy. Acquisition expenses are commonly considered on a combined basis for the full product, reflecting the integrated nature of the sales and underwriting process.

Commissions

Commission structures for combo products are typically aligned with the base life insurance policy. As with other acquisition expenses, commissions are often viewed as a combined cost of the base policy and LTC rider, rather than as a distinct rider-specific expense.

Risks

The risks of combo products include product, reputational, and regulatory risks. Additionally, because combo products inherently pool multiple risk types, such as mortality and morbidity, managing the interaction of these risks is a key consideration for actuaries.

Product Risks:

- The interaction between base policy and LTC rider risks is not always linear or well understood. While longer life expectancy generally reduces life insurance risk and increases the LTC risk, the correlation between life insurance claims and LTC claims remains unclear. Similarly, the extent to which mortality improvements offset life insurance risk while simultaneously increasing LTC risk is difficult to quantify.

- Living longer does not necessarily mean living healthier.[17] Healthy life expectancy, which can be measured as the number of years an insured is considered in good health, is as important as overall life expectancy. The increasing longevity risks with mortality

17 "The Geneva Papers: Special issue on Longevity Risks | Summary;" Geneva Association; Aug. 19, 2024.

improvements put increasing pressure on insurance companies. Combo products address the differences in life and healthy life expectancy and the growing need for LTC; however, there are still gaps in the literature related to understanding combined mortality, morbidity, and dependency risks.

- The limited experience of combo products presents challenges to quantify and model the interaction between base policy and LTC riders. Combo products can exhibit natural hedging, because LTC benefits are often funded through acceleration of the death benefit. The utilization of LTC benefits would reduce death claims, which can partially offset higher LTC claims.

- Although there is an embedded hedging effect in combo products, the aggregation of base product and LTC risks can amplify tail exposures, particularly when extreme events affect both life/annuity base policy and the rider at the same time. The tail risk uncertainty in available data complicates efforts to set best estimated assumptions and increases the volatility of risks. Volatility varies depending on the specific design of the combo product.[18]

- Reinsurance capacity for combo products may be limited, especially when the underlying risk correlations and tail behaviors are difficult to quantify.

- Combo products may cause different lapses, utilization, and other policyholder behaviors compared to standalone products, which makes historical standalone experience not applicable. The source of the difference in behavior between the two product types may be due to differences in the purchasers themselves, as well as the incentives that the contracts provide.

- Policyholder demographics and motivations, which could differ between standalone and combo products, can lead to potential bias to assumptions without appropriate adjustments. First, compared to standalone LTC, combo products often utilize different, and sometimes less intensive, underwriting standards and processes (e.g., simplified issue). Second, combo products are much more complicated than standalone life, annuity, or LTC products, which would attract different groups of customers. Third, the tax advantages of combo products may appeal to customers seeking LTC rider tax benefits.[19]

18 "Quantification of the Natural Hedge Characteristics of Combination Life or Annuity Products Lined to Long-Term Care Insurance;" Milliman; March 2012.
19 "Is a Long-Term Care 'Hybrid' Policy Right for You?;" Morningstar.com; Aug. 25, 2025.

- To reduce these risks, insurance companies could use expert judgment, scenario analysis, and stress testing, although these methods bring additional subjectivity risk.

Reputational Risks:

- Similar to standalone LTC products, adverse claim experience relative to expectations and best-estimate assumptions can cause policyholder dissatisfaction and result in reputational harm to combo product market and the insurance industry.
- Any negative news or regulatory actions may decrease customers' and agents' confidence, reducing the sales of new products.
- The additional complexity of the benefits and potentially ambiguous contracts can increase the risk of disputes and litigation.

Regulatory Risks:

- Combo products are subject to the regulations governing both the base policy and the LTC rider, which can result in more complicated and lengthy filing and evaluation processes.
- Regulators could conduct more rigorous reviews on combo products, leading to a longer and more complex process for rate increases, reserve, capital adequacy, etc.
- Insurance companies could spend additional efforts to monitor experience and adjust assumptions and provide detailed reports and justifications to regulators for any future changes. Additional compliance functions and communications with regulators are needed for any emerging regulatory changes or trends.

Reserves and Regulations

Because combo products intersect multiple lines of business, reserves and product designs must align with several specific frameworks. Given this overlap, regulators often subject combo products to highly rigorous reviews regarding capital adequacy and reserve calculations. Consequently, insurance companies must monitor emerging experience,

regularly adjust assumptions, and provide detailed reports and justifications to regulators for any future changes.

The reserves and regulations for combo products would follow the following model laws or their state-specific alternatives:

- NAIC 10: Health Insurance Reserves Model Regulation
- NAIC 620: Accelerated Death Benefits
- NAIC 640: Long-Term Care Insurance Model Act
- NAIC 641: Long-Term Care Insurance Model Regulation
- AG 51: The Application of Asset Adequacy Testing to Long-Term Care Insurance Reserves

All ASOPs pertaining to life insurance and long-term care apply to combination products as well. These include but are not limited to:

- ASOP No. 18 (Long-Term Care)
- ASOP No. 2 (Nonguaranteed Elements)
- ASOP No. 5 (Incurred Health and Disability Claims)
- ASOP No. 54 (Pricing of Life Insurance and Annuity Products)

This complexity is ongoing with the shift to Principle-Based Reserving (PBR), which fundamentally changes reserve construction. LTC riders are directly impacted when attached to base contracts governed by these frameworks:

- VM-20: Industry impact has largely stabilized.
- VM-22: Will fundamentally reshape the balance sheet for non-variable annuity writers.
- Asset Optimization & ALM: As ALM practices evolve beyond AG 53 requirements, some actuaries incorporate strategic asset allocation into their modeling. The potential benefits of considering ALM & asset optimization for combo products include minimizing cash flow mismatches, lowering required assets, and reducing reserve volatility.

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