

Pandemic risk on LTC insurance reserves

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As the 2019 novel coronavirus (COVID-19) continues to upend daily life and threaten millions across the globe, perhaps no group is more vulnerable than the population residing in long-term care (LTC) facilities or receiving LTC services. In fact, the Centers for Disease Control and Prevention (CDC) specifically identified those who live in a nursing home or long-term care facility as being at high risk for severe illness from COVID-19.¹

The “hands-on” types of care required of most LTC services often become a breeding ground for virus transmission. Given the frailty of and care required for the LTC population, COVID-19 will affect the LTC industry, though the directional impact is not certain. With these considerations in mind, we examine COVID-19 implications on current LTC insured populations, short-term (2020) and long-term (beyond 2020) projection assumptions, and the effects on the LTC industry as a whole. We focus our comments on the U.S. insurance market, but some observations may apply equally in other markets.

COVID-19 AND CURRENT LTC INSURANCE CLAIMANTS

COVID-19 disproportionately endangers older adults and those with high-risk health conditions, including chronic lung disease, serious heart conditions, and compromised immune systems, among others.² Older adults, often with underlying health

conditions, comprise the majority of the population receiving services covered by LTC insurance policies, making the LTC population especially susceptible to COVID-19. Research based on Milliman’s Long-Term Care Guidelines suggests approximately one-quarter of LTC claims commence with diagnoses related to the aforementioned high-risk conditions.

Long-term care facilities have been a significant focus during the COVID-19 pandemic. The frail populations, their close proximity to others, and the nature of the care provided by caregivers has led to waves of COVID-19 infections spread among at least 146 facilities in 27 states.³ In the early weeks of the pandemic, a disproportionate number of COVID-19-related deaths were attributable to residents within LTC facilities, even though less than 1% of Americans live in LTC facilities.⁴ As more fatality data emerges, long-term care facilities continue to report COVID-19 deaths.

COVID-19 threatens significant strain on services provided outside of skilled nursing facilities (SNFs). Multiple states have closed adult day care centers due to “stay-at-home” orders. A shortage of home health providers is possible as COVID-19 spreads, as providers may fear exposing themselves (or their patients) to potential infection, especially amidst the personal protective equipment (PPE) shortage across the country. Likewise, those in need of LTC services may fear infected aides coming into their homes and may instead rely on caregiving from family members.

Though these current LTC-related issues have been noteworthy (and newsworthy) in recent weeks, the COVID-19 impact to future LTC experience and the LTC insurance environment remains to be seen. We discuss assumption and industry considerations in the sections that follow.

¹ CDC (April 2, 2020). Coronavirus Disease 2019 (COVID-19): People Who Are at Higher Risk for Severe Illness. Retrieved April 3, 2020, from <https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/people-at-higher-risk.html>.

² Ibid.

³ Mettler, K. & Oldham, J. (March 30, 2020). Coronavirus limbo: Seniors need to leave hospitals but some nursing homes won’t let them return. Washington Post. Retrieved April 3, 2020, from <https://www.washingtonpost.com/health/2020/03/28/nursing-homes-coronavirus/>.

⁴ Whoriskey, P., Sacchetti, M., & Webster, R.A. (March 21, 2020). Coronavirus cases surge at nursing homes as workers battle “almost perfect killing machine.” Washington Post. Retrieved April 3, 2020, from <https://www.washingtonpost.com/business/2020/03/21/nursing-home-coronavirus-deaths/>.

Short-term implications

It is clear there will be short-term implications for those receiving LTC services in 2020 and potentially 2021 due to the pandemic. We will discuss these implications in the context of LTC assumptions used to calculate reserves. Typically, LTC assumptions are set based on reviewing multiple years of experience and LTC reserves calculated by projecting out many years in the future. If a vaccine and better treatments of COVID-19 become available, it is possible that assumption changes driven by the virus will only be temporary in 2020 and early 2021. In addition, for example, the 2008 recession lasted 18 months;⁵ and therefore it is possible any recessionary impact will also be temporary. Understanding and quantifying shorter term effects to 2020 and early 2021 are important for reviewing experience analyses and setting assumptions (which may need to back out temporary impacts).

Typically, LTC modeling and reserving assumptions vary for individuals on claim (disabled lives) versus those not currently receiving services (active lives), and therefore the underlying assumptions and impact to mortality need to be considered separately.

ACTIVE AND DISABLED LIFE MORTALITY

Initial emerging data suggests significant case fatality rates for COVID-19. However, early in the outbreak, individuals have mainly been tested only when exhibiting severe symptoms related to the disease. Therefore, it is difficult to estimate true

infection rates and true case fatality rates, which makes it even more challenging to develop reasonable estimated mortality rates. We would also note that a population mortality rate is not usually the same as an insured mortality rate due, in part, to the insured population potentially having better access to services.

The table in Figure 1 illustrates how we might estimate an annual impact in 2020 to disabled life mortality and active life mortality assumptions that can be used to calculate the overall paid claims and reserve level for an insurance block. For the purpose of this illustration, we assume the following:

- LTC active and total life mortality based on the 2012 Individual Annuity Mortality (IAM) table and fit to “typical” LTC data (it is important to note that base insured data can vary quite a bit by carrier).
- Disabled life mortality based on an assumption of the number of lives on claim and the percentage of deaths that are disabled insureds.
- An illustrative COVID-19 mortality rate, which is the percentage of the total group assumed to die from the disease (which we note above is highly uncertain). This reflects both the mortality rate, given someone tests positive for COVID-19, as well as the infection rate. The infection rate is the percentage of the total group that tests positive for the virus. The infection rate excludes undiagnosed cases.
- An assumption that the disabled life COVID-19 mortality rate is twice as high as the average COVID-19 mortality rate.

FIGURE 1: ILLUSTRATIVE SHORT-TERM IMPACTS TO LTC INSURED MORTALITY

Attained Age	Additional Mortality Due to COVID-19*	Pandemic Disabled Life Mortality/Pre-Pandemic Disabled Life Mortality	Pandemic Active Life Mortality/Pre-Pandemic Active Life Mortality	Additive Disabled Life Impact	Additive Active Life Impact
57	0.0%	1.16	1.19	0.1%	0.0%
62	0.1%	1.17	1.21	0.1%	0.1%
67	0.1%	1.20	1.26	0.2%	0.1%
72	0.2%	1.25	1.30	0.4%	0.2%
77	0.4%	1.30	1.32	0.8%	0.4%
82	0.7%	1.33	1.27	1.5%	0.6%
87	1.2%	1.30	1.17	2.4%	0.8%
92	2.0%	1.30	1.08	4.1%	0.7%
97	3.4%	1.29	1.08	6.8%	0.7%
102	5.0%	1.28	1.08	10.0%	0.7%

* Estimated as additive to insured mortality (denominator is all LTC insureds).

⁵ U.S. National Bureau of Economic Research.

We could also assume that those who are receiving nursing home or assisted living services may be at a higher risk of infection than those receiving home healthcare services. We discuss scenarios below, but a scenario test might assume a load to the active life mortality, an additional load to disabled receiving home care services, and an even larger load to those receiving facility services.

LAPSES

Cash flow implications for some companies could be stressful if lapses decrease. Enhanced perception of the value in LTC policies and potential state mandates relating to premium payment could drive lapses down. Many state regulators have requested or mandated moratoriums on policy cancellation for nonpayment of premiums or have extended the grace period to pay premium before coverage lapses. Some insurers may voluntarily extend grace periods.

It is possible that macroeconomic conditions could drive lapses up; paying the premiums for an LTC policy may not be a high priority for those on fixed incomes. In this case, insurers may want to consider the possibility of policy reinstatements—either state-mandated or voluntarily offered by companies—as the economy recovers, along with the potential for associated anti-selection.

CLAIM INCIDENCE RATES AND UTILIZATION

It is possible those with comorbid conditions who were not currently seeking long-term care could become dependent for support of activities of daily living (ADLs) and qualify for LTC services after extended hospitalization and subsequent recovery from COVID-19. As shown in the Mortality section below, the COVID-19 infection recovery rate is relatively high.

The Milliman LTC Guidelines estimate about 25% of claims have a diagnosis at the time of claim that appears to make the insured more vulnerable to becoming seriously ill from COVID-19.

A living spouse's ability to serve as an informal caregiver typically delays or reduces claim incidence. During the COVID-19 pandemic, a spouse's presence may proliferate infection rates and subsequent claim incidence of one or both spouses. Prior Milliman "spousal contagion" research suggests that, if one spouse commences an LTC claim or passes away, the healthy spouse is three to four times more likely to need LTC services in the year that follows.⁶

On the other hand, concerns regarding infection in facilities and/or infected home healthcare workers entering homes may temporarily reduce claim incidence rates for avoidable claims.

Healthcare shortages and social distancing may lead to lower use of home healthcare services and thus decrease utilization. However, sicker patients may need more care, increasing utilization.

INTEREST RATES

Interest rates already experienced a significant drop from December 31, 2018, to December 31, 2019. Figure 2a shows a sample 10-year Treasury curve for a level scenario, the forward curve, and the two negative scenarios for year-end 2018 and year-end 2019. Figure 2b shows Treasury rates are down sharply during March, even from the already low levels of year-end 2019. However, the credit spread on A-rated corporate bonds increased sharply during March—corporate bond spreads were up approximately 200 basis points (bps) during March. Gross yields, therefore, are meaningfully higher at March 23, 2020, than February 28, 2020. Short-term default risk is pronounced—Moody's shows one-year default rates of 4% to 7% for some heavily affected industries. Net yields, then, are highly uncertain and likely adverse relative to capital market conditions at December 31, 2019. LTC actuaries may want to consider carefully the current interest rate environment when running COVID-19 stress scenarios. Figures 2a and 2b show how the interest rate assumptions would have affected investment income and discount rates calculated at various points in time.

⁶ Schmitz, A., Yeager, A., & Hamilton, J. (October 2019). Is Your Spouse Contagious? Long-Term Care News. Retrieved April 3, 2020, from https://sections.soa.org/publication/?m=59906&i=624148&view=articleBrowser&article_id=3496815.

FIGURE 2A: INTEREST RATE SCENARIOS, YEAR-END 2018 AND YEAR-END 2019

10-year Treasury Curve

Projection Year	Level - 12/31/18	Forward - 12/31/18	Falling- 12/31/18	Pop Down- 12/31/18	Level- 12/31/19	Forward- 12/31/19	Falling- 12/31/19	Pop Down- 12/31/19
Initial	2.69%	2.69%	2.69%	2.69%	1.68%	1.68%	1.68%	1.68%
1	2.69	2.72	2.19	1.44	1.92	1.99	1.46	1.08
2	2.69	2.78	1.69	1.44	1.92	2.07	1.08	1.08
3	2.69	2.85	1.44	1.44	1.92	2.15	1.08	1.08
4	2.69	2.90	1.44	1.44	1.92	2.23	1.08	1.08
5	2.69	2.95	1.44	1.44	1.92	2.31	1.08	1.08
6	2.69	2.98	1.44	1.44	1.92	2.37	1.08	1.08
7	2.69	3.02	1.44	1.44	1.92	2.42	1.08	1.08
8	2.69	3.05	1.44	1.44	1.92	2.49	1.08	1.08
9	2.69	3.08	1.44	1.44	1.92	2.57	1.08	1.08
10	2.69	3.11	1.44	1.44	1.92	2.66	1.08	1.08
11	2.69	3.15	1.44	1.44	1.92	2.70	1.08	1.08

FIGURE 2B: INTEREST RATE SCENARIOS, FEBRUARY-MARCH 2020

10-year Treasury Curve

Projection Year	Level 2/28/2020	Forward 2/28/2020	Corp A-Rated Spread at 2/28/2020	Level 3/23/2020	Forward 3/23/2020	Corp A-Rated Spread at 3/23/2020
Initial	1.13%	1.13%	0.98%	0.76%	0.76%	2.65%
1	1.13	1.36	0.98	0.76	1.06	2.65
2	1.13	1.41	0.98	0.76	1.11	2.65
3	1.13	1.45	0.98	0.76	1.15	2.65
4	1.13	1.49	0.98	0.76	1.19	2.65
5	1.13	1.53	0.98	0.76	1.23	2.65
6	1.13	1.58	0.98	0.76	1.27	2.65
7	1.13	1.62	0.98	0.76	1.31	2.65
8	1.13	1.66	0.98	0.76	1.36	2.65
9	1.13	1.71	0.98	0.76	1.40	2.65
10	1.13	1.75	0.98	0.76	1.44	2.65
11	1.13	1.79	0.98	0.76	1.48	2.65

Longer-term implications

This section discusses the potential effects of COVID-19 on LTC experience beyond 2020. While the impacts discussed in the prior section will be observed in the near term, and certainly in advance of year-end 2020 financial reporting, the impacts in this section are more subtle and will only emerge over a period of several years or longer.

TOTAL LIFE MORTALITY

The near-term impact on mortality rates, discussed above, may result in increased claim terminations and active life mortality during 2020. This could result in short-term financial gains for LTC insurers, either through release of redundant claim reserves (due to the short-term spike in claim termination rates resulting from more disabled deaths) or favorable persistency experience (fewer policies remaining in-force throughout the year).

The longer-term impact on mortality is more nuanced and depends, in large part, on the proportional impact that COVID-19 exerts by attained age. Based on current data, COVID-19 has a disproportionately large impact on mortality for cases with older attained ages and those with certain preexisting medical conditions that appear to make one especially susceptible to severe, acute lung infections. From an LTC perspective, the exact nature of this disproportional impact by age, as well as the rate of infection by age, will have implications for total life mortality (mortality rates for active lives and disabled lives combined) beyond 2020.

To illustrate the point, we hypothesize the following:

- Our total life mortality assumption is accurately stated—that is, had a pandemic not occurred, the mortality assumption would have accurately forecast mortality rates, by age, in 2020 and beyond.
- A portion of COVID-related deaths are accelerations of deaths that would have otherwise occurred within a defined period of time—for instance, we might assume that 25% of the deaths related to COVID-19 would have occurred within the next three years had a pandemic not occurred. We further hypothesize that the observed increase in mortality rates as a result of COVID-19 will be confined to a relatively short period of time (12 to 18 months at most), rather than creating a more permanent increase in older age mortality rates. There is, of course, no empirical data at this point on which to base such assumptions. Given the nature of the virus to disproportionately affect those with certain preexisting conditions and the prevalence of some of these conditions in an LTC claimant population (see earlier discussion), the notion that COVID-19 may accelerate mortality experience that would otherwise develop over a small number of years seems well-founded.
- Excess mortality rates—i.e., the increase in total life mortality rates during 2020 as a result of the pandemic—exhibit an increasing pattern by attained age.
- Infection rates—i.e., the percentage of a given population that contracts and tests positive for the virus—also exhibits an attained age pattern (we assume an increasing pattern, but this is not a necessary assumption).

Under such hypotheses, we can make several observations related to future total life mortality rates:

- Future mortality rates, on a total life basis, will decrease. This is a direct consequence of the hypothesis that our total life mortality assumption is accurately specified prior to the pandemic, and may be called “temporal preservation of total life mortality.” Temporal preservation

of total life mortality preserves the mortality rates over an extended period. The phenomenon of temporal preservation of total life mortality arises from shifting observed deaths between time periods (in this case, an acceleration of deaths in 2020).

- The total life mortality curve is expected to flatten in future years—i.e., the reductions caused by temporal preservation of total life mortality are more pronounced at older attained ages.

Figure 3 illustrates the concept for a representative set of assumptions. Specifically, Figure 3 assumes 25% of deaths related to COVID-19 are three-year accelerations of deaths. The case fatality rates, which are the conditional probabilities of death given an individual is infected with the virus, range from 0.5% to 25.0% by age. Confirmed infection rates range from 1.0% to 15.0%, by age.

FIGURE 3: TEMPORAL PRESERVATION OF TOTAL LIFE MORTALITY

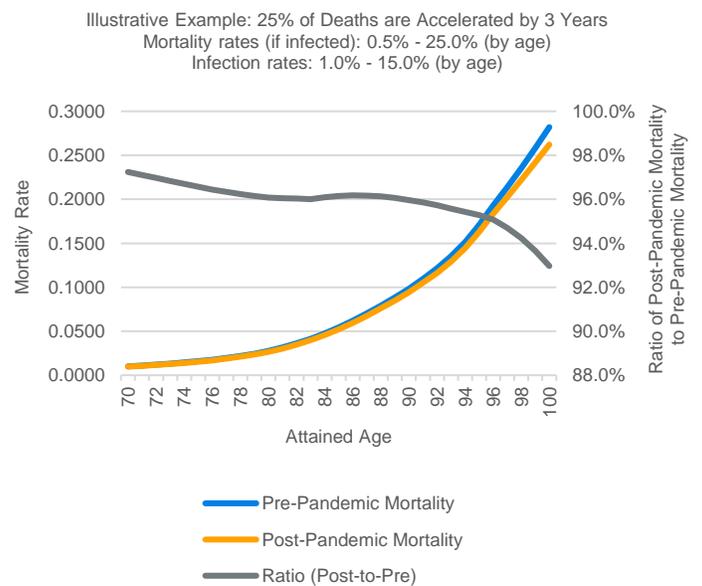


Figure 3 shows a flatter, post-pandemic mortality curve relative to the pre-pandemic assumption. Both the overall magnitude of the decrease and the change in slope of the mortality table depend on the key assumptions. As one might expect, the level of decrease in future mortality rates is directly proportional to the percentage of deaths that are assumed to be near-term accelerations of deaths, the conditional mortality rates given infection, and the infection rates.

The table in Figure 4 illustrates the potential range of impacts on 2020 and 2021 and later total life mortality rates over a set of assumptions for conditional mortality rates and infection rates. The entries in Figure 4 show changes in 2020 and 2021 and later total life mortality rates, e.g., (+0.3%;-0.1%) means a 0.3% increase in mortality during 2020 and 0.1% decrease in mortality during 2021 and later.

FIGURE 4: COMPARISON OF SHORT-TERM VS. LONG-TERM TOTAL LIFE MORTALITY IMPACTS

Entries Represent Additive Impact to Mortality Rates in 2020 vs. 2021+

Maximum Conditional Mortality Rate	Maximum Infection Rate		
	5%	15%	25%
10%	(+0.1%; 0.0%)	(+0.2%; -0.1%)	(+0.3%; -0.1%)
20%	(+0.2%; -0.1%)	(+0.4%; -0.1%)	(+0.7%; -0.2%)
30%	(+0.3%; -0.1%)	(+0.7%; -0.2%)	(+1.0%; -0.3%)

As a point of reference, Solvency II⁷ contemplates a pandemic risk scenario that involves an additive shock of 0.15% to all mortality rates contained in a single year, which is considered a one in 200-year event. Although U.S. insurers are not subject to Solvency II capital levels, this is an instructive data point. To put our analysis in context, the highlighted cells in Figure 4 represent scenarios that are generally consistent with the Solvency II pandemic scenario.

It is interesting to note that prior pandemics—e.g., the 1918 Spanish Flu and the 1957 H2N2 influenza pandemic—appear to have had an observable impact on mortality slope.⁸ These pandemics had a different dynamic from COVID-19. The 1918 Spanish Flu, for instance, appears to have: 1) decreased mortality rates in 1919 relative to 1918, but 2) increased the slope. The Spanish Flu, however, appears to have exerted a proportionally larger impact on mortality rates for younger people, which explains, at least in part, why the impact on slope is different from COVID-19. Temporal analysis of the Spanish Flu is also complicated by excess mortality related to World War I.

We expect to learn much more in the coming months regarding reasonable assumptions for case fatality rates and infection rates. We intend the foregoing scenarios to help guide actuaries as they begin to think about reflecting the long-term impact of COVID-19 on mortality assumptions for year-end 2020 reserve testing.

CLAIM INCIDENCE RATES

In a similar way to mortality, we expect some degree of “claim shifting” between years as a result of COVID-19. It is too early to say with certainty how COVID-19 will affect claim incidence experience. On the one hand, it seems reasonable to expect that concerns about infection rates in facilities, and/or infected home healthcare workers entering homes, may temporarily (but perhaps materially) reduce claim incidence rates. On the other hand, it seems possible that COVID-19 could create an acute and immediate need for care for insureds who may have already been close to filing a claim anyway. As noted earlier, many LTC claimants present diagnoses that may make them especially vulnerable to COVID-19.

At this point, it seems prudent to monitor emerging claim incidence experience with careful consideration of claim shifting. To the extent claims are front-loaded as a result of the pandemic, that may warrant a claim incidence curve-flattening in a similar manner to COVID-19 impact on total life mortality. It is also possible that COVID-19 will have a disproportionately large impact on active life mortality of those less-healthy insureds who may have filed claims in the future, which, if so, would also have a claim incidence curve-flattening impact. To the extent claims are delayed, that may produce a claim incidence curve steepening consistent with the Spanish Flu impact on total life mortality. Additionally, it is possible that survivors of COVID-19 may suffer long-term lung impairments, increasing the likelihood of future claims from these individuals, and steepening the claim incidence rate curve.

BENEFIT UTILIZATION

As a result of COVID-19, benefit utilization may decrease in the short term, caused either by a shortage of home healthcare (HHC) workers or concerns among claimants vulnerable to COVID-19 about inviting caregivers into their homes. If so, this has the potential to decrease, perhaps materially, LTC claim payments in 2020. Although the net impact of lower utilization is favorable, extension of benefit provisions may push some of those claim payments into 2021 or beyond. Using the Milliman Long Term Care Guidelines and assuming a three-year benefit period, we estimated the increase in average claim length for a home health claim that could result from various reductions in benefit utilization levels for a representative block of LTC business. The table in Figure 5 summarizes our results. The benefit utilization level and the extension of benefit periods will ultimately have an impact on future paid claims, which will affect the underlying reserve level.

⁷ Defines the level of capital insurance companies doing business in the European Union (and certain other jurisdictions throughout the world) need to hold.

⁸ CDC (April 2, 2020). Death Rates for Selected Causes by 10-Year Age Groups, Race, and Sex: Death Registration States, 1900-32, and United States, 1933-98. Retrieved April 3, 2020, from <https://www.cdc.gov/nchs/nvss/mortality/hist290.htm>.

FIGURE 5: INCREASE IN TOTAL CLAIM LENGTH (FROM DISABILITY DATE)

Age at Claims	Reduction in HHC Utilization		
	5%	10%	15%
65	2.4%	5.1%	7.9%
70	2.1%	4.5%	6.9%
75	1.9%	4.0%	6.1%
80	1.8%	3.7%	5.6%
85	1.4%	2.9%	4.4%
90	1.1%	2.2%	3.3%
95	0.9%	1.8%	2.6%
100	0.9%	1.7%	2.6%

Scenario testing

Projecting LTC cash flows (paid claims, expenses, premiums, and investment income) and reserve levels has historically provided significant challenges due to the long-term nature of the projections, often 30 or more years into the future, and the multiple variables and parameters that can affect the projections. The impact of COVID-19 on these projections should be analyzed through various scenarios that capture the short-term effects, the long-term effects, and the interactions of key variables. One of the most important interactions is the general relationship of morbidity and mortality. If COVID-19 has a larger impact on mortality than on morbidity, or vice versa, the overall impact to LTC projections may be significant.

The testing of various scenarios can help inform and capture some of the potential interactions of competing and offsetting impacts. Some of the key variables to test in some sample scenarios include:

- Disabled life mortality
- Active life mortality
- Policy lapse rates
- Interest rate rates
- Benefit utilization for those on claim
- Incidence rate

The impact to these variables from COVID-19 may be different in the short term and long term and a given scenario should examine both. One potential scenario might be:

Short term:

- Modest increase in disabled mortality.
- Modest increase in active mortality.
- No lapse impact.
- For asset investments, use March 31, 2020, capital market conditions with a significant increase in one-year default rates, at least for certain sectors.
- Significant reduction in home healthcare utilization rates for those who are benefit-eligible.
- No perceptible change in incidence rates.

Long term:

- Minor decrease in disabled mortality.
- Minor decrease in active mortality.
- No lapse impact.
- Assume a modest recovery in interest rates and/or regulatory relief for year-end financial reporting, with default rates returning to historically normative levels.
- A portion of the 2020 reduction in claim payments due to lower benefit utilization shifts to future years.
- No perceptible change in incidence rates.

The long-term assumptions will be influenced by whether there is an annual season similar to the flu or whether there is a vaccine or “herd immunity” that wipes it out. The number of different scenarios is unlimited and testing extreme optimistic or pessimistic scenarios can be informative.

Long-term care market

COVID-19 will affect different parts of the LTC insurance environment differently. Some of the most activity and interest in LTC insurance recently has been in the areas of rate increases, mergers and acquisitions (M&A), the combination product market, and state reform activity.

RATE INCREASES

Rate increases are a very hot topic from a regulatory and in-force management standpoint. COVID-19 may affect projections and potentially the level of rate increases needed. In addition, potential filing delays, as state insurance departments attend to other matters, may ultimately hurt the overall financial position of many carriers. The short-term experiences in the LTC market may also incentivize LTC insurers to consider other options for de-risking their LTC business, such as LTC buyouts.

MERGERS AND ACQUISITIONS

It may be too early to tell, but the M&A market for LTC insurance in terms of closed deals has been relatively slow. However, the interest and discussions around various blocks has been steady and we expect that level of activity to continue. Early indications suggest that interest in pursuing LTC deals may continue to exist, but with careful consideration given to which party will bear the “COVID-19 risk.” COVID-19 risk includes the anticipated impact on capital and surplus resulting from COVID-19 experience, e.g., reductions in capital and surplus arising from either short-term experience, long-term liability impacts, or capital market conditions. One possibility includes explicit definition and quantification of a “COVID-19 liability,” along with earnout provisions that share the development of that liability in a defined way between the parties to the transaction. This could allow parties to agree upon a purchase price based on observable historical experience, while separately negotiating how the COVID-19 risk will be shared.

COMBINATION PRODUCTS

Insurance product sales that have typically been a face-to-face encounter may suffer. However, technology will continue to provide avenues for sales. This is true for both standalone LTC insurance products as well as combination products. Pandemic risk highlights the relationship between mortality and morbidity risk. As there is a natural morbidity and mortality hedge in many combination products, companies may continue to look to develop and innovate in this market. The long-term impact may increase the growth of the combination product market.

STATE REFORM ACTIVITY

Several states are examining potential LTC reforms. The state of Washington is working on implementation of the reform passed last year. In the short run, state resources may be diverted to more acute health needs, but it is expected that it will not significantly delay state activity.

Given the population affected by COVID-19, discussions on the vulnerability of that population may increase future reform activity.

Conclusion

There are many underlying unknowns about how the COVID-19 pandemic will affect the world. However, it is clear that it will affect underlying LTC insurance cash flows and the LTC insurance market. This paper is intended to provide a useful framework to develop appropriate assumptions in order to project future cash flows.



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