

Impacts of COVID-19 on continuing care retirement communities

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Beginning in early 2020, the COVID-19 pandemic materially disrupted business activities throughout the United States. The health and long-term care (LTC) industries, including life plan communities—also known as continuing care retirement communities (CCRCs)—were among those most directly and adversely affected.

From the early stages of the pandemic, it became apparent that COVID-19 exerted a disproportionate impact on elderly individuals, residents of nursing homes or other skilled care facilities, and those with certain preexisting health conditions. These demographics, of course, overlap significantly with the CCRC population, making the COVID-19 pandemic an especially challenging and uncertain time for CCRCs.

In this article, we discuss the impact that COVID-19 could have on actuarial assumptions relevant to CCRCs—specifically, mortality and morbidity—as well as other experience, including especially the number of noncontractual residents in assisted living unit (ALU) and skilled nursing facility (SNF) levels of care. We develop and present representative population flow projections for a hypothetical community with three levels of care, focusing on how the pandemic may change experience over the next several years relative to pre-pandemic expectations. While not intended to be predictive of actual future experience, our projections highlight several important, potential trends that are of interest to CCRCs. These trends impact not only 2020, the year in which the immediate effects of the pandemic will be most directly observed, but also future years.

Potential impact of COVID-19 on CCRC mortality and morbidity

This section explores the potential impact of COVID-19 on both CCRC mortality and morbidity experience. COVID-19 exerts a disproportionate impact on elderly and those confined to nursing facilities. Data collected by the Centers for Disease Control and Prevention (CDC)¹ and Johns Hopkins² show increasing COVID-19 mortality rates by age. Some states associate a significant number of COVID-19 deaths with nursing homes and, in June 2020, AARP³ reported that 43,000 U.S. nursing home residents had died from COVID-19. At that point in time, 43,000 deaths represented more than a third of the total COVID-19 deaths in the United States. At least through the early stages of the pandemic, the disproportionate impact on elderly and nursing home populations has appeared to stem from both high infection rates (the likelihood that an individual will contract the disease) and high case mortality rates (the probability of dying from the disease given that one has contracted it); both infection rates and case mortality rates appear to increase with age and are higher for those residing in nursing facilities than for those living in private residences.

¹ CDC. COVID-19 Case Surveillance Public Use Data. Retrieved September 24, 2020, from <https://data.cdc.gov/Case-Surveillance/COVID-19-Case-Surveillance-Public-Use-Data/vbim-akqf>.

² Johns Hopkins. COVID-19 in the USA. Retrieved September 24, 2020, from <https://coronavirus.jhu.edu/>.

³ Paulin, E. (June 11, 2020). How to Track COVID-19 Nursing Home Cases and Deaths in Your State. AARP. Retrieved September 24, 2020, from <https://www.aarp.org/caregiving/health/info-2020/coronavirus-nursing-home-cases-deaths.html>.

Based on data we collected and analyzed through the early months of the pandemic, and discussed in the referenced article,⁴ we developed estimates of the potential impact COVID-19 could have on CCRC mortality rates. Our estimates reflect infection rates and case mortality rates observed in both the general population and LTC-insured groups. Our data, however, was not specific to CCRCs. We therefore adjusted the estimated mortality rates to be more suitable for a CCRC population; the adjustments leverage data Milliman collected related to the impact of COVID-19 on LTC-insured groups.⁵ We anticipate that the impact of COVID-19 on CCRC skilled nursing facility (SNF) mortality rates will be reasonably comparable to the impact of COVID-19 on LTC nursing home situs experience. Similarly, we expect that the impact of COVID-19 on CCRC independent living unit (ILU) mortality will be reasonably comparable to the impact of COVID-19 on LTC “healthy lives,” i.e., insureds not in a claim payment status. The impact of COVID-19 on CCRC assisted living unit (ALU) mortality will likely fall somewhere in between the impacts on ILU and SNF mortality.

There are, however, some important distinctions to draw between LTC mortality and CCRC mortality. To some degree, CCRC residents have the ability to control the timing of their transfers between various levels of care. If residents delay transfer to a higher level of care out of concern regarding exposure to COVID-19, then there would be consequential impacts on resulting mortality rates by level of care. For instance, if ILU residents delay transferring to ALU during the pandemic, this could further increase ILU mortality rates, both relative to “baseline” mortality rates (i.e., mortality rates observed prior to the pandemic) and relative to the impact COVID-19 may have on a group of LTC insureds (healthy lives). We discuss the potential impact of COVID-19 on CCRC morbidity later in this section.

While it is well-documented at this stage that COVID-19 has had a statistically significant adverse effect on mortality rates in 2020 (particularly among the elderly and nursing home residents), the long-term effects—i.e., beyond 2020—are more nuanced. On the one hand, our analysis suggests that a meaningful proportion of the COVID-19 deaths may be relatively near-term accelerations of deaths. That is, an elderly individual who dies from COVID-19 in 2020 may have otherwise died within one or two years. If those accelerations of deaths are associated with the less-healthy, more-susceptible residents of a community, then the surviving population will, on average, be healthier than the pre-pandemic population. Under this theory, mortality rates for all levels of care may decrease in 2021 and beyond, before gradually returning to a pre-pandemic, baseline level. On the other hand, it is possible that the pandemic may leave behind persistent health impairments for COVID-19 survivors, e.g., cardiovascular impairments or other unanticipated effects. If so, mortality rates could remain elevated for an extended period of time even after the pandemic is “over.” We favor the former theory—that the mortality curve will both flatten and decrease overall for a period of several years beyond 2020. However, we note that this is an area of particular uncertainty.

The table in Figure 1 summarizes our assumed adjustments to CCRC mortality rates, by level of care and calendar year. The adjustments apply multiplicatively to baseline mortality assumptions. For example, an adjustment of 135% represents a 35% increase in baseline mortality rates.

FIGURE 1: MULTIPLICATIVE ADJUSTMENT TO MORTALITY

Attained Age	ILU			ALU			SNF		
	2020	2021	2022	2020	2021	2022	2020	2021	2022
67	135%	101%	98%	129%	100%	98%	114%	96%	98%
72	139%	100%	97%	134%	99%	97%	119%	95%	97%
77	141%	99%	96%	138%	98%	96%	124%	94%	96%
82	136%	99%	96%	137%	98%	96%	126%	94%	96%
87	125%	99%	96%	130%	98%	96%	124%	94%	96%
92	116%	99%	96%	125%	98%	96%	124%	94%	96%
97	116%	98%	95%	124%	97%	95%	123%	93%	95%
102	116%	96%	93%	124%	95%	93%	122%	91%	93%

⁴ Dalton, A., Hamilton, J., Schmitz, A., & Spector, J. (April 2020). Pandemic Risk on LTC Insurance Reserves. Milliman White Paper. Retrieved September 24, 2020, from <https://milliman-cdn.azureedge.net/-/media/milliman/pdfs/articles/pandemic-risk-on-ltc-insurance-reserves.ashx>.

⁵ See, for instance, the article available at <https://milliman-cdn.azureedge.net/-/media/milliman/pdfs/articles/pandemic-risk-on-ltc-insurance-reserves.ashx> for additional reading on LTC mortality.

As discussed above, the adjustments show material increases in mortality rates for all levels of care, followed by a reduction and flattening of the mortality curve in 2021 and 2022. Beyond 2022, we assume mortality rates gradually return to baseline (pre-pandemic) levels by 2029.

CCRC morbidity relates to permanent transfer rates between levels of care. As of September 2020, there is still little consolidated industry experience that could serve as a basis to credibly quantify the impact the pandemic has had on permanent transfer rates in 2020. However, given concerns of COVID-19 infection rates associated with nursing homes and other skilled care facilities, it seems reasonable to estimate that the pandemic will materially reduce all permanent transfer rates to higher levels of care in 2020. Further, we expect that the impact will be more pronounced for transfers that involve some level of resident discretion—e.g., ILU to ALU transfers—relative to nondiscretionary transfers such as ILU to SNF. Residents transferring from ILU to ALU may be healthy enough that they can choose to delay such transfers for several months or longer, possibly using home healthcare for needed assistance, particularly if the resident is concerned that his or her exposure to COVID-19 may be elevated in the ALU. Residents transferring to a SNF may have less such discretion, especially in cases where the transfer follows an acute event. We anticipate that the reductions in transfer rates will be most pronounced in 2020, linger into 2021, and then fully recover by 2022. Both the magnitude and timing of such impacts are highly uncertain and will depend, to a large degree, on when a vaccine or effective therapeutic treatment for COVID-19 emerges.

Based on Milliman’s experience with CCRCs, we developed adjustments to typical morbidity rates that reflect our best judgment regarding resident behavior as a result of COVID-19. The adjustments reflect actuarial judgment, rather than experience observed in any particular community. The table in Figure 2 summarizes our assumed adjustments to CCRC morbidity rates by level of care and calendar year. The adjustments apply multiplicatively to baseline morbidity assumptions. For example, an adjustment of 85% represents a 15% reduction in baseline rates.

FIGURE 2: MULTIPLICATIVE ADJUSTMENT TO TRANSFER RATES

Attained Age	ILU-ALU			ILU-SNF			ALU-SNF		
	2020	2021	2022+	2020	2021	2022+	2020	2021	2022+
67	50%	85%	100%	90%	95%	100%	70%	90%	100%
72	50%	85%	100%	90%	95%	100%	70%	90%	100%
77	50%	85%	100%	90%	95%	100%	70%	90%	100%
82	50%	85%	100%	90%	95%	100%	70%	90%	100%
87	50%	85%	100%	90%	95%	100%	70%	90%	100%
92	50%	85%	100%	90%	95%	100%	70%	90%	100%
97	50%	85%	100%	90%	95%	100%	70%	90%	100%
102	50%	85%	100%	90%	95%	100%	70%	90%	100%

Figure 2 shows a 100% adjustment in 2022, meaning that transfer rates have fully returned to normal by 2022. We anticipate that transfer rates will rebound to baseline (pre-pandemic) levels more quickly than mortality rates.

Results

This section explores the impact that the assumption changes discussed in the prior section would have on a representative CCRC. We prepared population projections for a hypothetical three-level care community as of March 31, 2020. We selected the March 31, 2020, projection date to approximately coincide with the observable early stages of the pandemic in the United States.

We prepared five-year open group population projections on both a resident and unit basis for ILU, along with a resident basis (permanent contractual residents) for ALU and SNF under the following two scenarios:

1. A Baseline scenario, which uses actuarial assumptions we developed based on experience in the Milliman CCRC database that are intended to be applied in the absence of a pandemic.
2. A COVID-19 scenario, which applies the adjustments described in Figures 1 and 2 above.

We added estimates of non-contractual residents in both ALU and SNF. See discussion on page nine for details.

The Baseline scenario provides a reasonable expectation for population flows over the next five years in the absence of any pandemic. The COVID-19 scenario shows how the pandemic may alter those population flows. The tables in Figure 3 and 4 present our results. Figure 3 is for the Baseline scenario and Figure 4 for the COVID-19 scenario. Commentary on the results follows the tables.

FIGURE 3: BASELINE SCENARIO – GENERIC COMMUNITY POPULATION PROJECTION (5 YEARS)

Month	Year	Residents	Independent Living Units					Assisted Living Units					Skilled Nursing Facility				
			Units Occupied	Total Units	Occupancy	Units Released	New Move-ins	Contractual Residents	Non-Contract Residents	Total Units	Contractual Occupancy	Total Occupancy	Contractual Residents	Non-Contract Residents	Total Units	Contractual Occupancy	Total Occupancy
April	2020	328.00	243	260	93%	1.95	0.00	25.00	23.00	50	50%	96%	19.00	18.00	40	48%	93%
May	2020	324.87	241	260	93%	1.95	1.90	25.36	22.64	50	51%	96%	19.03	17.97	40	48%	93%
June	2020	324.41	241	260	93%	1.97	1.97	25.71	22.29	50	51%	96%	19.07	17.93	40	48%	93%
July	2020	324.02	241	260	93%	1.98	1.98	26.05	21.95	50	52%	96%	19.12	17.88	40	48%	93%
August	2020	323.64	241	260	93%	1.99	1.99	26.38	21.62	50	53%	96%	19.16	17.84	40	48%	93%
September	2020	323.26	241	260	93%	2.00	2.00	26.70	21.30	50	53%	96%	19.21	17.79	40	48%	93%
October	2020	322.91	241	260	93%	2.00	2.00	27.01	20.99	50	54%	96%	19.27	17.73	40	48%	93%
November	2020	322.54	241	260	93%	2.01	2.01	27.31	20.69	50	55%	96%	19.32	17.68	40	48%	93%
December	2020	322.19	241	260	93%	2.00	2.00	27.60	20.40	50	55%	96%	19.38	17.62	40	48%	93%
January	2021	321.85	241	260	93%	2.00	2.00	27.88	20.12	50	56%	96%	19.44	17.56	40	49%	93%
February	2021	321.51	241	260	93%	2.01	2.01	28.13	19.87	50	56%	96%	19.50	17.50	40	49%	93%
March	2021	321.19	241	260	93%	2.02	2.02	28.38	19.62	50	57%	96%	19.57	17.43	40	49%	93%
April	2021	320.86	241	260	93%	2.02	2.02	28.62	19.38	50	57%	96%	19.63	17.37	40	49%	93%
May	2021	320.54	241	260	93%	2.03	2.03	28.85	19.15	50	58%	96%	19.70	17.30	40	49%	93%
June	2021	320.24	241	260	93%	2.04	2.04	29.06	18.94	50	58%	96%	19.77	17.23	40	49%	93%
July	2021	319.94	241	260	93%	2.06	2.06	29.28	18.72	50	59%	96%	19.84	17.16	40	50%	93%
August	2021	319.64	241	260	93%	2.07	2.07	29.49	18.51	50	59%	96%	19.91	17.09	40	50%	93%
September	2021	319.35	241	260	93%	2.07	2.07	29.69	18.31	50	59%	96%	19.98	17.02	40	50%	93%
October	2021	319.08	241	260	93%	2.07	2.07	29.88	18.12	50	60%	96%	20.05	16.95	40	50%	93%
November	2021	318.80	241	260	93%	2.08	2.08	30.07	17.93	50	60%	96%	20.12	16.88	40	50%	93%
December	2021	318.53	241	260	93%	2.07	2.07	30.24	17.76	50	60%	96%	20.20	16.80	40	50%	93%
January	2022	318.27	241	260	93%	2.07	2.07	30.41	17.59	50	61%	96%	20.26	16.74	40	51%	93%
February	2022	318.01	241	260	93%	2.08	2.08	30.56	17.44	50	61%	96%	20.33	16.67	40	51%	93%
March	2022	317.76	241	260	93%	2.08	2.08	30.70	17.30	50	61%	96%	20.40	16.60	40	51%	93%
April	2022	317.52	241	260	93%	2.08	2.08	30.85	17.15	50	62%	96%	20.47	16.53	40	51%	93%
May	2022	317.28	241	260	93%	2.08	2.08	30.98	17.02	50	62%	96%	20.54	16.46	40	51%	93%
June	2022	317.05	241	260	93%	2.10	2.10	31.10	16.90	50	62%	96%	20.61	16.39	40	52%	93%
July	2022	316.82	241	260	93%	2.11	2.11	31.23	16.77	50	62%	96%	20.68	16.32	40	52%	93%
August	2022	316.60	241	260	93%	2.12	2.12	31.35	16.65	50	63%	96%	20.75	16.25	40	52%	93%

Month	Year	Independent Living Units						Assisted Living Units					Skilled Nursing Facility				
		Residents	Units Occupied	Total Units	Occupancy	Units Released	New Move-ins	Contractual Residents	Non-Contract Residents	Total Units	Contractual Occupancy	Total Occupancy	Contractual Residents	Non-Contract Residents	Total Units	Contractual Occupancy	Total Occupancy
September	2022	316.38	241	260	93%	2.12	2.12	31.47	16.53	50	63%	96%	20.81	16.19	40	52%	93%
October	2022	316.18	241	260	93%	2.12	2.12	31.58	16.42	50	63%	96%	20.88	16.12	40	52%	93%
November	2022	315.97	241	260	93%	2.13	2.13	31.69	16.31	50	63%	96%	20.94	16.06	40	52%	93%
December	2022	315.77	241	260	93%	2.12	2.12	31.79	16.21	50	64%	96%	21.00	16.00	40	53%	93%
January	2023	315.57	241	260	93%	2.12	2.12	31.88	16.12	50	64%	96%	21.06	15.94	40	53%	93%
February	2023	315.38	241	260	93%	2.12	2.12	31.96	16.04	50	64%	96%	21.12	15.88	40	53%	93%
March	2023	315.20	241	260	93%	2.13	2.13	32.04	15.96	50	64%	96%	21.18	15.82	40	53%	93%
April	2023	315.01	241	260	93%	2.12	2.12	32.12	15.88	50	64%	96%	21.23	15.77	40	53%	93%
May	2023	314.84	241	260	93%	2.13	2.13	32.18	15.82	50	64%	96%	21.29	15.71	40	53%	93%
June	2023	314.67	241	260	93%	2.14	2.14	32.25	15.75	50	64%	96%	21.34	15.66	40	53%	93%
July	2023	314.50	241	260	93%	2.15	2.15	32.31	15.69	50	65%	96%	21.39	15.61	40	53%	93%
August	2023	314.34	241	260	93%	2.16	2.16	32.38	15.62	50	65%	96%	21.44	15.56	40	54%	93%
September	2023	314.18	241	260	93%	2.16	2.16	32.44	15.56	50	65%	96%	21.49	15.51	40	54%	93%
October	2023	314.03	241	260	93%	2.16	2.16	32.50	15.50	50	65%	96%	21.54	15.46	40	54%	93%
November	2023	313.88	241	260	93%	2.16	2.16	32.55	15.45	50	65%	96%	21.59	15.41	40	54%	93%
December	2023	313.73	241	260	93%	2.15	2.15	32.60	15.40	50	65%	96%	21.63	15.37	40	54%	93%
January	2024	313.59	241	260	93%	2.15	2.15	32.64	15.36	50	65%	96%	21.67	15.33	40	54%	93%
February	2024	313.45	241	260	93%	2.16	2.16	32.68	15.32	50	65%	96%	21.71	15.29	40	54%	93%
March	2024	313.31	241	260	93%	2.16	2.16	32.72	15.28	50	65%	96%	21.75	15.25	40	54%	93%
April	2024	313.18	241	260	93%	2.16	2.16	32.75	15.25	50	66%	96%	21.79	15.21	40	54%	93%
May	2024	313.05	241	260	93%	2.16	2.16	32.78	15.22	50	66%	96%	21.83	15.17	40	55%	93%
June	2024	312.93	241	260	93%	2.17	2.17	32.81	15.19	50	66%	96%	21.87	15.13	40	55%	93%
July	2024	312.81	241	260	93%	2.18	2.18	32.83	15.17	50	66%	96%	21.90	15.10	40	55%	93%
August	2024	312.69	241	260	93%	2.18	2.18	32.86	15.14	50	66%	96%	21.93	15.07	40	55%	93%
September	2024	312.58	241	260	93%	2.18	2.18	32.89	15.11	50	66%	96%	21.96	15.04	40	55%	93%
October	2024	312.47	241	260	93%	2.18	2.18	32.91	15.09	50	66%	96%	21.99	15.01	40	55%	93%
November	2024	312.36	241	260	93%	2.19	2.19	32.93	15.07	50	66%	96%	22.02	14.98	40	55%	93%
December	2024	312.26	241	260	93%	2.18	2.18	32.95	15.05	50	66%	96%	22.05	14.95	40	55%	93%
January	2025	312.16	241	260	93%	2.17	2.17	32.96	15.04	50	66%	96%	22.07	14.93	40	55%	93%
February	2025	312.06	241	260	93%	2.18	2.18	32.97	15.03	50	66%	96%	22.10	14.90	40	55%	93%
March	2025	311.96	241	260	93%	2.18	2.18	32.98	15.02	50	66%	96%	22.12	14.88	40	55%	93%

FIGURE 4: COVID-19 SCENARIO – GENERIC COMMUNITY POPULATION PROJECTION (5 YEARS)

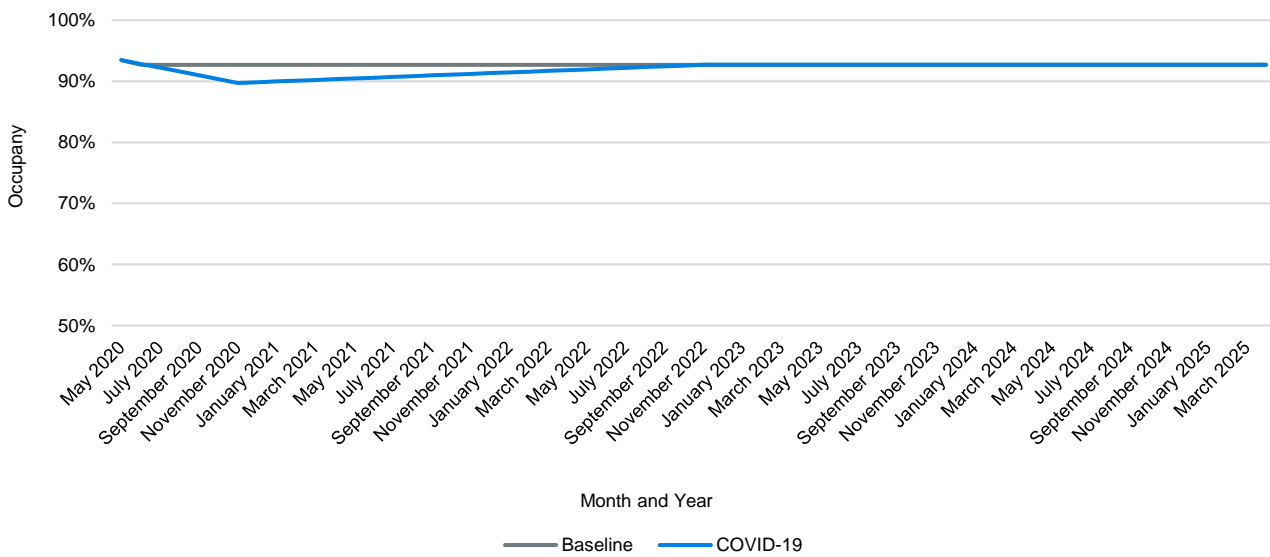
Month	Year	Residents	Independent Living Units					Assisted Living Units					Skilled Nursing Facility				
			Units Occupied	Total Units	Occupancy	Units Released	New Move-ins	Contractual Residents	Non-Contract Residents	Total Units	ALU Occupancy	Total Occupancy	Contractual Residents	Non-Contract Residents	Total Units	SNF Occupancy	Total Occupancy
April	2020	328.00	243	260	93%	1.61	0.00	25.00	22.00	50	50%	94%	19.00	16.00	40	48%	88%
May	2020	325.38	241	260	93%	1.61	0.00	24.68	21.00	50	49%	91%	18.92	10.00	40	47%	72%
June	2020	322.76	239	260	92%	1.62	0.00	24.37	20.00	50	49%	89%	18.84	5.00	40	47%	60%
July	2020	320.13	238	260	92%	1.63	0.00	24.08	19.00	50	48%	86%	18.76	2.00	40	47%	52%
August	2020	317.50	236	260	91%	1.63	0.00	23.80	18.00	50	48%	84%	18.68	2.00	40	47%	52%
September	2020	314.87	234	260	90%	1.63	0.00	23.53	17.00	50	47%	81%	18.60	2.00	40	46%	51%
October	2020	312.26	233	260	90%	1.62	1.95	23.27	16.00	50	47%	79%	18.52	5.00	40	46%	59%
November	2020	312.37	233	260	90%	1.64	1.96	23.02	15.00	50	46%	76%	18.43	10.00	40	46%	71%
December	2020	312.50	233	260	90%	1.64	1.96	22.78	15.00	50	46%	76%	18.35	15.00	40	46%	83%
January	2021	312.62	234	260	90%	1.64	1.96	22.56	15.00	50	45%	75%	18.27	15.00	40	46%	83%
February	2021	312.76	234	260	90%	1.65	1.97	22.34	15.00	50	45%	75%	18.19	19.00	40	45%	93%
March	2021	312.89	234	260	90%	1.66	1.98	22.14	15.00	50	44%	74%	18.12	19.00	40	45%	93%
April	2021	313.03	235	260	90%	1.87	2.19	21.95	17.00	50	44%	78%	18.05	19.00	40	45%	93%
May	2021	313.18	235	260	91%	1.88	2.20	22.26	19.00	50	45%	83%	18.07	19.00	40	45%	93%
June	2021	313.33	235	260	91%	1.89	2.22	22.55	21.00	50	45%	87%	18.11	19.00	40	45%	93%
July	2021	313.49	236	260	91%	1.91	2.23	22.85	23.00	50	46%	92%	18.14	19.00	40	45%	93%
August	2021	313.66	236	260	91%	1.92	2.24	23.13	23.00	50	46%	92%	18.18	19.00	40	45%	93%
September	2021	313.83	236	260	91%	1.93	2.25	23.41	23.00	50	47%	93%	18.23	18.97	40	46%	93%
October	2021	314.01	237	260	91%	1.93	2.25	23.68	23.00	50	47%	93%	18.27	18.93	40	46%	93%
November	2021	314.19	237	260	91%	1.94	2.26	23.93	23.00	50	48%	94%	18.32	18.88	40	46%	93%
December	2021	314.37	237	260	91%	1.94	2.26	24.19	23.00	50	48%	94%	18.37	18.83	40	46%	93%
January	2022	314.56	238	260	92%	1.94	2.26	24.42	23.00	50	49%	95%	18.42	18.78	40	46%	93%
February	2022	314.76	238	260	92%	1.95	2.27	24.65	23.00	50	49%	95%	18.47	18.73	40	46%	93%
March	2022	314.96	238	260	92%	1.95	2.27	24.87	23.00	50	50%	96%	18.52	18.68	40	46%	93%
April	2022	315.17	239	260	92%	2.08	2.41	25.08	22.92	50	50%	96%	18.58	18.62	40	46%	93%
May	2022	315.37	239	260	92%	2.09	2.41	25.47	22.53	50	51%	96%	18.66	18.54	40	47%	93%
June	2022	315.58	239	260	92%	2.11	2.43	25.85	22.15	50	52%	96%	18.74	18.46	40	47%	93%
July	2022	315.79	240	260	92%	2.12	2.44	26.21	21.79	50	52%	96%	18.82	18.38	40	47%	93%
August	2022	316.01	240	260	92%	2.13	2.45	26.56	21.44	50	53%	96%	18.90	18.30	40	47%	93%
September	2022	316.24	240	260	93%	2.13	2.45	26.90	21.10	50	54%	96%	18.99	18.21	40	47%	93%
October	2022	316.48	241	260	93%	2.13	2.13	27.23	20.77	50	54%	96%	19.07	18.13	40	48%	93%

Month	Year	Residents	Independent Living Units					Assisted Living Units					Skilled Nursing Facility				
			Units Occupied	Total Units	Occupancy	Units Released	New Move-ins	Contractual Residents	Non-Contract Residents	Total Units	ALU Occupancy	Total Occupancy	Contractual Residents	Non-Contract Residents	Total Units	SNF Occupancy	Total Occupancy
November	2022	316.26	241	260	93%	2.14	2.14	27.54	20.46	50	55%	96%	19.16	18.04	40	48%	93%
December	2022	316.05	241	260	93%	2.13	2.13	27.84	20.16	50	56%	96%	19.25	17.95	40	48%	93%
January	2023	315.85	241	260	93%	2.13	2.13	28.12	19.88	50	56%	96%	19.34	17.86	40	48%	93%
February	2023	315.65	241	260	93%	2.13	2.13	28.38	19.62	50	57%	96%	19.43	17.77	40	49%	93%
March	2023	315.46	241	260	93%	2.14	2.14	28.63	19.37	50	57%	96%	19.51	17.69	40	49%	93%
April	2023	315.26	241	260	93%	2.14	2.14	28.88	19.12	50	58%	96%	19.60	17.60	40	49%	93%
May	2023	315.08	241	260	93%	2.14	2.14	29.11	18.89	50	58%	96%	19.69	17.51	40	49%	93%
June	2023	314.90	241	260	93%	2.15	2.15	29.32	18.68	50	59%	96%	19.78	17.42	40	49%	93%
July	2023	314.73	241	260	93%	2.16	2.16	29.54	18.46	50	59%	96%	19.87	17.33	40	50%	93%
August	2023	314.56	241	260	93%	2.17	2.17	29.74	18.26	50	59%	96%	19.96	17.24	40	50%	93%
September	2023	314.40	241	260	93%	2.17	2.17	29.94	18.06	50	60%	96%	20.04	17.16	40	50%	93%
October	2023	314.24	241	260	93%	2.17	2.17	30.12	17.88	50	60%	96%	20.13	17.07	40	50%	93%
November	2023	314.09	241	260	93%	2.17	2.17	30.30	17.70	50	61%	96%	20.21	16.99	40	51%	93%
December	2023	313.93	241	260	93%	2.16	2.16	30.47	17.53	50	61%	96%	20.29	16.91	40	51%	93%
January	2024	313.79	241	260	93%	2.16	2.16	30.63	17.37	50	61%	96%	20.37	16.83	40	51%	93%
February	2024	313.64	241	260	93%	2.17	2.17	30.77	17.23	50	62%	96%	20.45	16.75	40	51%	93%
March	2024	313.50	241	260	93%	2.17	2.17	30.91	17.09	50	62%	96%	20.53	16.67	40	51%	93%
April	2024	313.37	241	260	93%	2.17	2.17	31.05	16.95	50	62%	96%	20.61	16.59	40	52%	93%
May	2024	313.23	241	260	93%	2.17	2.17	31.17	16.83	50	62%	96%	20.68	16.52	40	52%	93%
June	2024	313.11	241	260	93%	2.18	2.18	31.29	16.71	50	63%	96%	20.75	16.45	40	52%	93%
July	2024	312.98	241	260	93%	2.19	2.19	31.41	16.59	50	63%	96%	20.83	16.37	40	52%	93%
August	2024	312.86	241	260	93%	2.19	2.19	31.52	16.48	50	63%	96%	20.90	16.30	40	52%	93%
September	2024	312.75	241	260	93%	2.19	2.19	31.63	16.37	50	63%	96%	20.97	16.23	40	52%	93%
October	2024	312.64	241	260	93%	2.19	2.19	31.73	16.27	50	63%	96%	21.03	16.17	40	53%	93%
November	2024	312.52	241	260	93%	2.19	2.19	31.83	16.17	50	64%	96%	21.10	16.10	40	53%	93%
December	2024	312.42	241	260	93%	2.19	2.19	31.92	16.08	50	64%	96%	21.16	16.04	40	53%	93%
January	2025	312.31	241	260	93%	2.18	2.18	32.00	16.00	50	64%	96%	21.22	15.98	40	53%	93%
February	2025	312.21	241	260	93%	2.19	2.19	32.08	15.92	50	64%	96%	21.28	15.92	40	53%	93%
March	2025	312.11	241	260	93%	2.19	2.19	32.15	15.85	50	64%	96%	21.34	15.86	40	53%	93%

Before discussing the results, we note several key assumptions aside from mortality and morbidity, discussed earlier. These assumptions were used in preparing the population flow projections. We assumed that there would be no new entrants (move-ins) to the ILU during April 2020 through September 2020. Beyond September 2020, we assumed new entrants would gradually rebound such that ILU occupancy returns to 93% by September 2022, which is a typical target of ILU occupancy across the industry. We see no reason to assume that CCRCs will not continue to appeal to significant numbers of potential new residents after the spike in infection and mortality rates subsides. We further assumed that the CCRC would fill some of the units or beds in the ALU and SNF with noncontractual residents. We assumed significantly fewer noncontractual residents in the COVID-19 scenario, especially in the SNF. The assumptions with respect to noncontractual residents are based on professional judgment and limited experience from clients, rather than specific industry data.

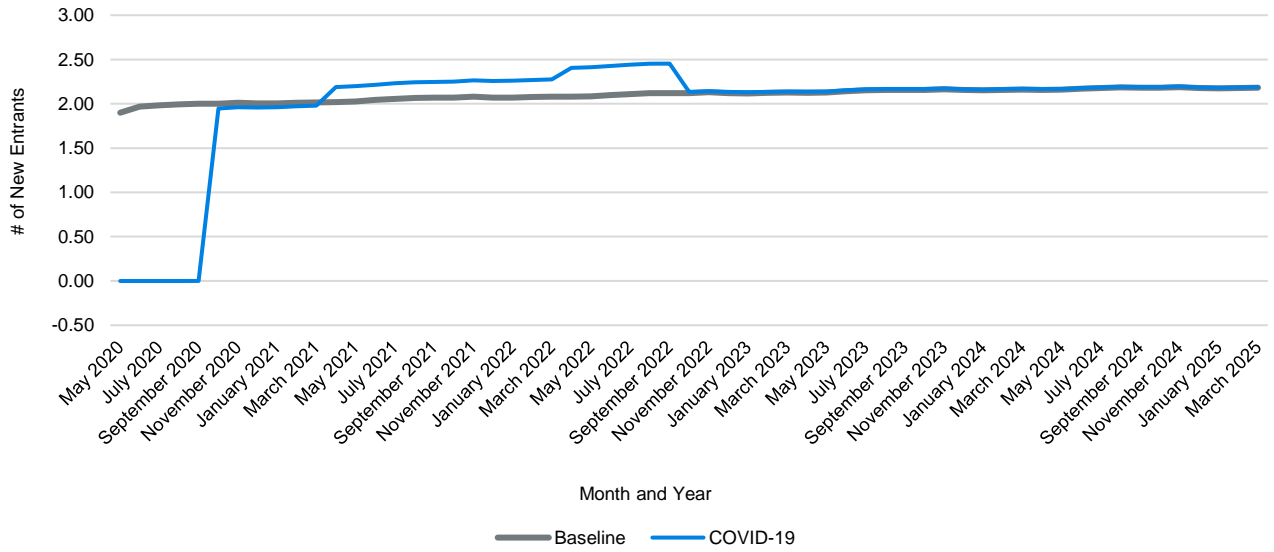
Comparing ILU occupancy in Figures 3 and 4, we see only a modest decrease in the COVID-19 scenario. Figure 5 illustrates this comparison.

FIGURE 5: ILU OCCUPANCY, BASELINE VS. COVID-19 SCENARIOS



Though the pandemic-related increase in ILU mortality rates is certainly material in 2020, it is largely offset by reductions in ILU-ALU transfer rates and, to a lesser extent, ILU-SNF transfer rates. Voluntary delays in transfer tend to keep occupancy rates near normal levels, even during the period we assume no new entrants to the community. Beyond 2021, both mortality and morbidity begin to return to normal and, at the same time, we assume new entrants begin to rebound to target occupancy by September 2022. Figure 6 illustrates the dynamic of new move-ins over the projection horizon.

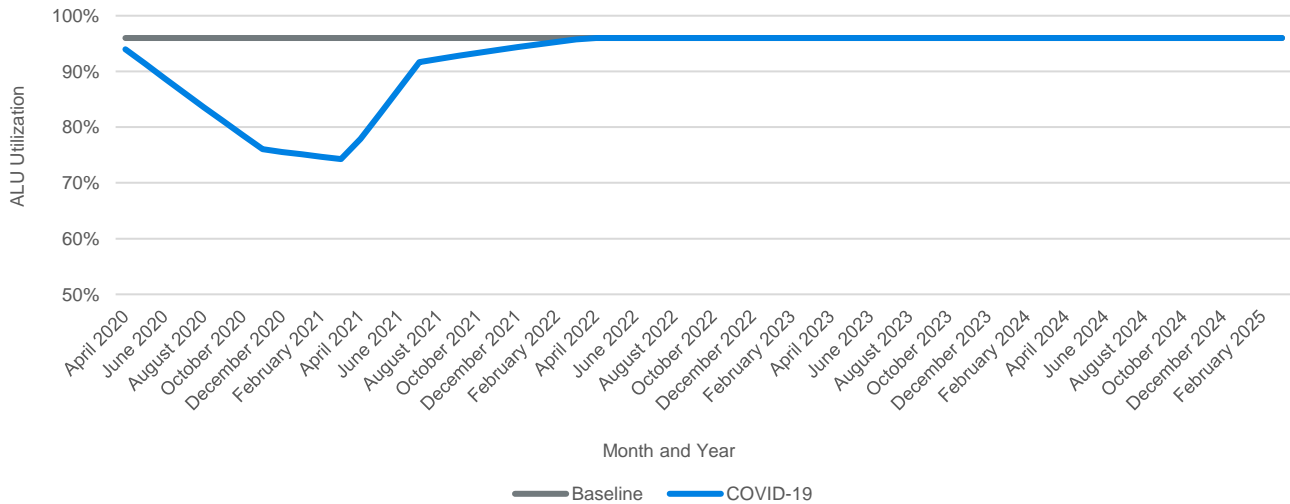
FIGURE 6: ILU NEW MOVE-INS (UNITS) BY MONTH, BASELINE VS. COVID-19 SCENARIOS



We see the complete elimination of new move-ins through September 2020, followed by the rebound in late 2020 and beyond. In fact, new move-ins in the COVID-19 scenario move above the Baseline scenario in 2021 and early 2022 as the long-term target occupancy is restored.

Shifting our attention to ALU, we see a much more pronounced reduction in ALU occupancy than we observed in ILU. Consider Figure 7, which compares ALU occupancy in the Baseline and COVID-19 scenarios.

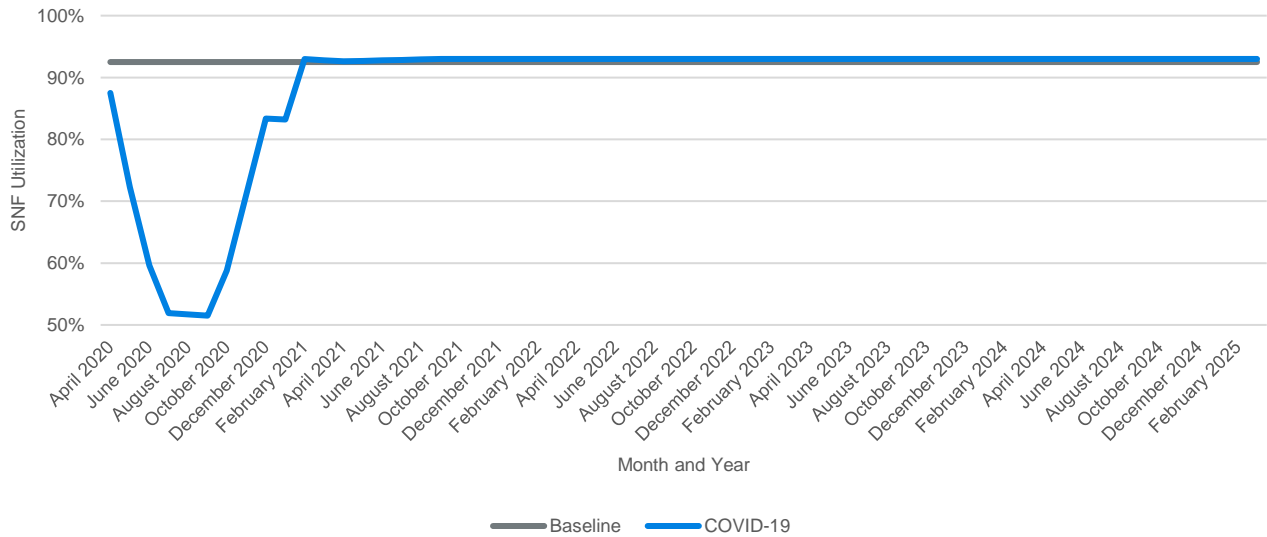
FIGURE 7: ALU OCCUPANCY, BASELINE VS. COVID-19 SCENARIOS



The sharp drop in 2020 through late 2021 arises from the combination of elevated ALU mortality rates, lower contractual ILU-ALU transfer rates, and lower non-contractual utilization (no new non-contractual admissions until late 2020).

Turning finally to SNF, Figure 8 graphically summarizes our results.

FIGURE 8: SNF OCCUPANCY, BASELINE VS. COVID-19 SCENARIOS



In this case, the COVID-19 impact is yet more pronounced than we observed in the ILU and ALU levels. Again, the decrease in occupancy arises from a combination of elevated SNF mortality rates, decreased ILU-SNF and ALU-SNF transfer rates, and lower non-contractual utilization (no new non-contractual admissions until late 2020). The SNF effect is more pronounced than ILU or ALU because: 1) the COVID-19 impact on mortality is largest for the SNF level of care, 2) residents may transfer to SNF from either ILU or ALU (we have assumed the pandemic will suppress transfers from both ILU and ALU), and 3) the impact of no non-contractual admissions is much more significant, as many of these admissions are Medicare-qualified short-term rehabilitation residents.

Summary

This article provides an illustrative scenario for how the COVID-19 pandemic could impact CCRCs. We intend the COVID-19 scenario to demonstrate, in general terms, how the pandemic could impact the industry; not to make specific predictions about how any community's experience may emerge. Nevertheless, the analysis allows for certain general observations and conclusions, which we expect could apply broadly across the industry. Specifically, we see that:

- The impact of COVID-19 on ILU occupancy may be muted compared to ALU and SNF experience. Even if new move-ins temporarily decrease, ILU occupancy remains high. The impact of COVID-19 on ILU mortality is lower (due to lower underlying mortality rates in ILU), and transfer rates are suppressed.
- ALU and SNF utilization may drop materially for a limited period of time, but will ultimately recover to pre-pandemic levels (perhaps as soon as late 2021 or early 2022). ALU and SNF utilization may be partly managed through noncontractual residents, but these residents will likely not be sufficient to keep utilization near historical levels, as admissions of private pay and Medicare residents may be limited during this period.
- While this article does not present any financial projections, one might reasonably infer from the foregoing discussion that communities with limited healthcare guarantees will experience larger financial impacts than those with extensive guarantees. With limited healthcare guarantees, the loss of monthly fee income on the ALU units and SNF beds will be larger than in communities with extensive guarantees. In addition, communities with larger numbers of ALU units and SNF beds used for noncontractual residents may experience larger financial impacts than communities that are closed to noncontractual residents. A complete analysis of the financial impact of COVID-19 is likely to involve significant additional factors and is outside the scope of this article.

As the pandemic progresses, we expect that communities will closely monitor emerging experience with respect to mortality and morbidity rates. We hope this article provides a useful framework for analyzing the way in which results may develop over the coming years.



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