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Purpose

BCBSVT published an actuarial report on July 4, 2020 in response to Question 2 of the July 1, 2020 Inquiry Letter 4 from Lewis & Ellis in the Vermont Individual and Small Group Rate Filing (SERFF #BCVT-132371410) docket. The report quantified the impact various COVID-19 scenarios have on claims costs and BCBSVT's risk based capital (RBC) using information known as of July 1, 2020, including claims data incurred through May 2020.

The scale of the social and economic reaction to the pandemic has no precedent within the last century. Therefore, the only data upon which we can rely in attempting to quantify the significant uncertainties related to the pandemic is the data that is emerging as the event unfolds. At this early stage in the overall trajectory of the pandemic, one additional month of data represents an enormous amount of new information given that the event being studied has been underway for less than four months.

On July 7, BCBSVT's actuarial team completed the monthly incurred claims estimates that incorporated claims paid through June 30, 2020. Because of the wealth of new information that can be gleaned now that June data is available for analysis, we have chosen to publish this addendum to our July 4 report. The addendum integrates the additional month of data, reflects our current understanding of recent and expected changes to the legal and regulatory environment, and incorporates enhancements to the projections.

Oliver Wyman has published a letter to Department of Financial Regulation (DFR) Commissioner Pieciak[1] (hereafter "Oliver Wyman letter") wherein they opine that there is "some conservatism" in our modeling. Data that have emerged since the publication of our initial report clearly demonstrate otherwise, as do other actuarial studies. But while we disagree with the specific instances of conservatism that Oliver Wyman identified, we take their opinion very seriously, as it is contrary to our intention to present findings that include any element of conservatism. To that end, as we have continued to develop and enhance our model since publication of our initial findings, our selections of methodology and assumptions have been made with the goal of eliminating any potential or perceived conservatism in our approach. We are confident that the results presented in this addendum represent not a conservative range of outcomes but the most plausible range of outcomes specific to Vermont and to BCBSVT that can be modeled at this time given the breadth of unknowns with which we are dealing.

Except for the specific changes in data, assumptions and methodology described herein, we incorporate by reference the *Purpose*, *Data* and *Methodology* sections of the July 4 report. This addendum elaborates upon but does not replace those sections of the July 4 report.

Data

We have not altered our projections of 2020 and 2021 claims. They continue to rely upon estimates from the rate filings and internal membership reporting, as referenced in the July 4

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[1] DFR's July 7, 2020 solvency opinion explicitly incorporates the Oliver Wyman letter by reference. Both are available as part of the BCBSVT Vermont Individual and Small Group Rate Filing docket: https://ratereview.vermont.gov/sites/dfr/files/PDF/BCBSVT%20Solvency%20Opinion%20and%20Oliver%20Wyman%20letter.pdf

report. We now include costs directly related to COVID-19 incurred in March through June 2020 and completed using best estimates from BCBSVT's financial reporting models.

To calculate the level of deferred care, we use claims incurred from January 2019 through June 2020 for all BCBSVT members. We apply completion factors developed from the monthly financial reporting process (best estimates before margin). The slowdown period was quantified by comparing the PMPM of the slowdown period relative to a benchmark PMPM. The slowdown period begins in March 2020, when shelter in place restrictions were first implemented. Completed June incurred claims exceed the benchmark; the slowdown period is therefore defined as having ended in May 2020. For more detail, please refer to the *Deferred Care* section.

Methodology

Except as noted below, the methodology mirrors that described in the July 4 actuarial report. Specifically, we made no changes regarding vaccine development, treatment costs, baseline claims, nor the deferred care morbidity impact.

Diagnostic Testing

To estimate the cost of diagnostic testing, we calculate a weekly average of testing costs incurred by VISG and insured large group members. The assumed testing cost uses a 4-3-2-1 weighted average of incurred claims, wherein the week ending June 26, 2020 is weighted the most heavily and preceding three weeks weighted in descending order.

The Tri-Agencies issued guidance on June 23, 2020[2] that indicated health plans are only responsible for diagnostic testing ordered by a provider and within the context of a plan of care. We understand that the Vermont Department of Financial Regulation (DFR) intends to publish guidance clarifying that their interpretation of the Tri-Agencies guidance is that health insurance issuers are financially responsible for COVID-19 testing that follows Vermont Department of Health (VDH) guidelines promulgated on June 30, 2020[3]. The VDH guidance directs individuals to contact their health care provider to schedule a test if they have symptoms of COVID-19, if they wish to end a quarantine period early, or if they need a test to prepare for a medical procedure. If the guidance is followed precisely, utilization could be somewhat reduced from our previous assumption, but an office visit charge will also be part of the cost of testing for each scenario.

Due to the VDH guidance, we have updated our range for the frequency of testing to 0.20 to 0.40 tests per year except for months during which we are experiencing a second wave, wherein we double the range to 0.40 to 0.60 tests per year. The full range of 0.20 to 0.60 tests per year is taken from a study jointly published by Wakely and America's Health

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[2] https://www.cms.gov/files/document/FFCRA-Part-43-FAQs.pdf
[3] https://www.healthvermont.gov/response/coronavirus-covid-19/testing-covid-19

Insurance Plans (AHIP)[4] and corroborated with BCBSVT experience[5]. Due to the underlying uncertainty, we allow the model to choose with equal probability any figure within each range.

We have also added the cost of an office visit to the cost of testing. While perfect adherence to the VDH guidance would result in one office visit per test, BCBSVT data shows that the ratio of office visits per test has varied from 0.65 to 0.77 in recent months. We allow the model to select an office visit ratio according to a uniform distribution within the range of 0.65 to 0.90. The bottom of the range reflects the low end of the range of recent BCBSVT experience, while the top of the range is a point between the high end of recent experience and perfect adherence to VDH guidance. The cost of the office visit is calculated as the average office visit cost, exclusive of emergency room charges, for May and June[6].

Antibody Testing

Current VDH guidance does not recommend the use of antibody testing for use in the general population nor for places of employment. Emerging studies of the efficacy of antibody testing indicate that there may be little to no benefit to conducting this type of testing. We assume that antibody testing will not occur at significant levels in Vermont, and therefore include no future projected antibody testing costs in our modeling.

Treatment Costs

We changed our treatment cost projections primarily by updating assumptions for the ongoing incidence of cases to reflect the latest information from the Vermont Department of Health and to better smooth potential increases in infection rate. We also made two enhancements that had little impact on results: we corrected a misalignment between the input and modeling regarding the duration of a second wave and, based on emerging data, we incorporated a one-month lag between the onset of a second wave and an increase in treatment costs.

In the absence of additional waves, we assume the ongoing incidence of cases will be similar to the incidence in the state of Vermont over the period of the SOA report[7]. We dampen the incidence rate by 50 percent in July and August of 2020 and 50 to 75 percent for the remainder of 2020 to reflect that ongoing severity will likely be less than the eight-week period from which the incidence rates are derived, but may escalate should students return

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[4] https://www.ahip.org/wp-content/uploads/AHIP-Wakely-COVID-19-Testing-Report.pdf

[5] The BCVSVT testing rate was about 0.20 PMPY in June. The Vermont testing rate is about 0.36 PPPY since the onset of the pandemic.

[6] While it is unlikely that there will be literally zero ER utilization in the future, we assume that Vermonters will, by and large, adhere to the VDH guidance. Assuming any ER utilization would increase the cost per visit, perhaps substantially.

[7] The calculated state incidence is analogous to the Burlington, VT Hospital Referral Region (HRR). The SOA report is available here: https://www.soa.org/globalassets/assets/files/resources/research-report/2020/illustrative-forecasts-covid-19.pdf

to school in the fall. Specifically, we used Vermont Department of Health data[8] to compare the number of new cases arising in Vermont during the period studied in the SOA report to the number of new cases emerging since the further relaxation of social distancing measures as of June 1, observing that the incidence of new cases in June was approximately 50 percent of the incidence of cases in the report period. New cases through the first nine days of July have been identified at a rate nearly identical to that reported in June. Similarly, we dampen the incidence rate in 2021 by a factor within a range from a minimum of the late 2020 dampening factor to a maximum of 25 percent higher than the late 2020 dampening factor. The 2021 incidence rate may be dampened to a lesser degree due to the anticipated continued lessening of social distancing measures and ongoing spread of the virus until the earlier of vaccine availability or the commencement of a second wave.

Deferred Care

Using the period identified in the *Data* section, we created the graph below showing the total monthly PMPMs spanning over the benchmark, slowdown, and post-slowdown periods. We calculate the benchmark PMPM as the monthly average PMPM less the monthly standard deviation PMPM divided by the square root[9] of three in order to ensure that we are isolating the deferred services from normal fluctuations. This difference is trended forward to the slowdown period using filed trends from the most recent rate filings for each line of business.
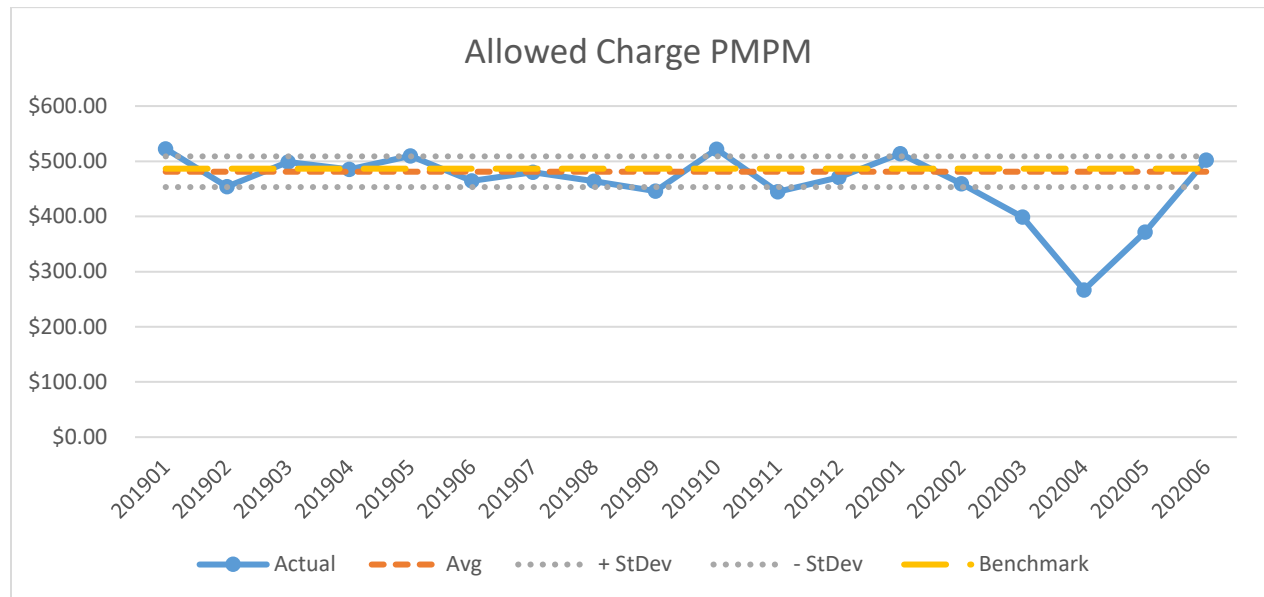
We updated our breakout of total claims by service category to reflect the magnitude of the slowdown period as measured with runout through June. We did not change for any category our assumption of the percentage of services expected to return. A table displaying the

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[8]https://www.healthvermont.gov/response/coronavirus-covid-19/current-activity-vermont, accessed July 10, 2020
[9] This was inaccurately documented in the July 4 report as the cubic root of three.

assumptions for each of the 33 categories can be found in Appendix A. Because of the refreshed data and change in the benchmark calculation, the weighted average across all service categories yields a different result.

Overall, we now estimate that 51.7 percent of the services that were deferred during the slowdown period will be made up. This can be calculated by taking the weighted average of the 'percent rescheduled services' and 'slowdown PMPM' from the table by type of service provided in Appendix A. We note the independent BCBSVT analysis remains closely aligned with industry sources[10,11], which lends additional credence to our assumption.[12]

In any month where services are less than 100 percent of our non-COVID expectation, it is assumed that a mean of 51.7 percent of the claims will return at a later date, split into 100 percent of surgeries and 22.4 percent of all other care. This includes any months during a second wave where non-emergent care is deferred such that claims are less than expected. In the stochastic model, we assume the level of deferred care is normally distributed with a mean of 51.7 percent and a standard deviation of one-tenth the mean. This standard deviation allows for a reasonable range of results around our best estimate, roughly equivalent to the "high" and "low" estimates within the above-referenced Milliman study and the Society of Actuaries report. Using a statistically generated range rather than a point estimate further ensures that there is no conservatism built into our modeling or results.

Changes in Demand

The 'Stay Home, Stay Safe' order changed the way many Vermonters access care. BCBSVT actuarial staff worked with medical directors to make assumptions about persistent changes in utilization resulting from the pandemic and economic crisis.

June incurred data allows a first look at post-slowdown utilization. Completed incurred claims for all mental health services are very close to our future demand estimates (projected 12.3 percent increase above historical norms versus an observed 13.0 percent increase). Unexpectedly, emergency room and urgent care utilization returned to just above historical norms, in contrast to the ongoing 14 percent drop we expected. We will continue to closely monitor ER and urgent care utilization, but at this time we choose not to adjust our assumptions for changes in demand.

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[10] https://milliman-cdn.azureedge.net/-/media/milliman/pdfs/articles/estimating-the-financial-impact-covid19.ashx
[11] https://www.soa.org/globalassets/assets/files/resources/research-report/2020/illustrative-forecasts-covid-19.pdf
[12] While the Oliver Wyman letter expresses skepticism about certain of our 33 distinct assumptions, it is the *aggregate* percentage of returning care that directly impacts the modeling results. Because our aggregate percentage is well-aligned with best estimate ranges published by other respected actuarial sources, we are comfortable stating that our aggregate assumption does not include any conservatism.

Returning Care

We have changed our capacity assumptions only insofar as we now have a first look into actual June claims. We continue to assume a maximum capacity of 108 percent for surgical procedures and 115 percent for non-surgical procedures. These assumptions are equivalent to a plausible total maximum capacity range of 106 to 112 percent.

To model the return of care, we randomly generate capacity factors to apply for each month from June 2020 through December 2021. Completed incurred and paid June experience is running at 105 percent of benchmark. That is to say that emerging evidence demonstrates that the return of deferred care appears to have begun in June[13]. To reflect the uncertainty in completed claims estimates, we allow the June capacity to randomly fluctuate between 95 percent and 105 percent of benchmark.

The capacity in any given month is not allowed to exceed the maximum noted above. For months during a second wave, the factors are dampened to reflect the deferral of care. In the two months following a wave, we apply the additive factors to account for the return of services. We also apply dampening factors that revert care to 100 percent, based on the extent to which care exceeds normal volume, to reflect that the health care system likely cannot operate at maximum capacity for an extended duration. We include an additive term that helps prevent the dampening factors from returning the maximum capacity to 100 percent before returning care reaches the percentage randomly selected for the simulation. Lastly, we end any excess capacity upon reaching the modeled percent of care returning. We assume any modeled returning care not incurred by the end of 2021 will be performed in 2022. At the mean, 5 percent of returning care is modeled to not be performed by the end of 2021.

Capacity Factors	Provider Max	June 2020	Wave (1 Month from Start/End)	Wave (2 Months from Start/End)	Post Wave Additive Factor (2 Months)
Low	106%	95%	85%	75%	+15%
High	112%	105%	95%	85%	+30%

See Appendix B for a sample of capacity distributions randomly generated by these mechanics.

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[13] We observe that this emerging data directly refutes the second and third instances noted by Oliver Wyman of specific "conservatism" in our modeling. See Oliver Wyman letter, page 8.

Summary of Modeling Changes

As described in the preceding sections, we have made the following changes to the COVID model since the initial publication of results on July 4:

- Applied trend to the calculation of the benchmark in the determination of deferred care *(favorable impact to projected BCBSVT solvency position)*;
- Corrected misalignment within the duration of a second wave *(neutral to favorable impact)*;
- Adjusted the infection rate dampening for future months that are not part of a second wave of illness and deferred care *(favorable impact)*;
- Reflected the observed one-month lag between wave emergence and treatment costs *(neutral impact)*;
- Changed our testing incidence assumptions to better reflect emerging baseline experience and specified a separate range during a second wave *(favorable impact)*;
- Updated testing incidence and cost assumptions to reflect June 30 Vermont Department of Health guidance and the anticipated DFR bulletin *(unfavorable impact)*; and
- Refreshed data to incorporate claims information through June *(unfavorable impact, due primarily to June recovering more swiftly than anticipated and March through May incurred claims estimates restating higher than expected)*.

New information emerges daily relative to the pandemic. We have worked swiftly to incorporate new information and the latest data, while also implementing model enhancements that further eradicate any potential conservatism in results.

Analysis & Results

The presence and severity of a second wave remains the most impactful assumption. Below, we examine the cumulative RBC impact of each of the five second wave severity scenarios described in the *Treatment Costs* section of the July 4 Supplemental Actuarial Memorandum. For each of these five scenarios, we have run 10,000 simulations using the inputs noted in the *Methodology* section. Appendix C provides the summary statistics of the stochastic modeling, with the geographic distribution noted in the *Methodology* section. Note that while the modeling does not consider the minimum or maximum to be likely, and in certain instances the values are more than three standard deviations from the mean, we believe it is important to consider their possibility in the modeling without giving them an inordinate amount of weight.

Results by Severity of Second Wave

No Second Wave

In scenarios where there is no second wave of illness necessitating an economic shutdown, the majority of scenarios fall between a -25 to +25 RBC change. In 2020, the deferral of care

experienced in the spring of 2020 dampens claims, but the direct costs of COVID-19, vaccination costs, and the return of deferred services result in the RBC returning toward its beginning value in the vast majority of scenarios.

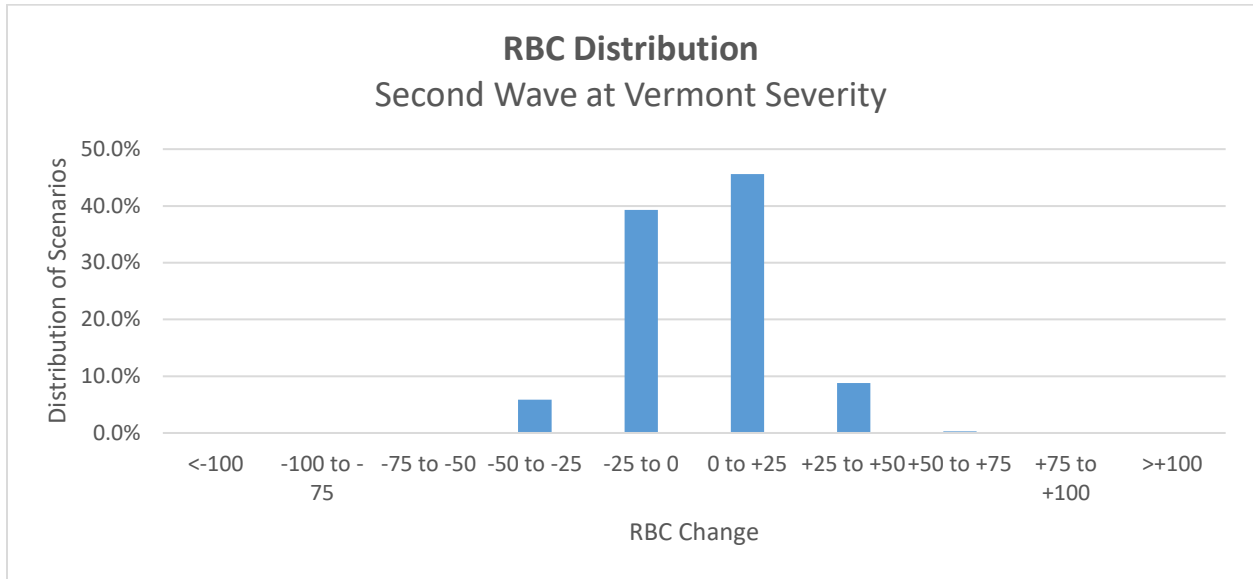## RBC Distribution
No Second Wave
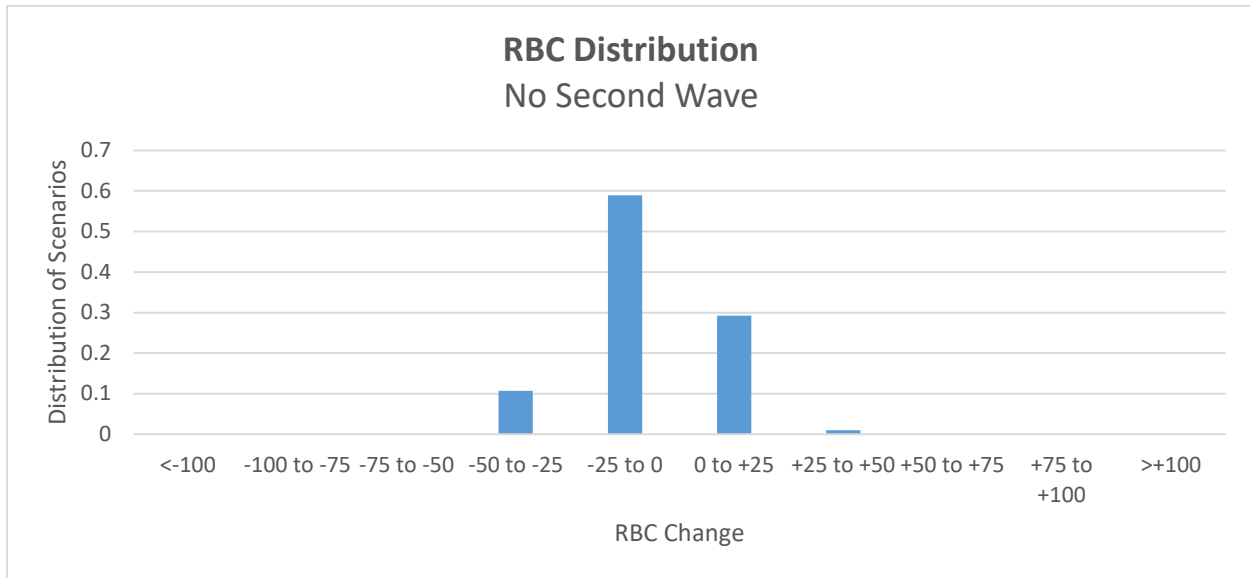
It seems unlikely, particularly in light of current events nationally, that Vermont will be able to avoid a second wave of increased incidence accompanied by stronger social distancing measures and the deferral of non-emergent services. Nonetheless, this scenario is useful to consider as it simulates a plausible range of outcomes in the instance that events to date represent the only significant wave of COVID infection or economic shutdown in Vermont. In the absence of more complete information, it may seem tempting to conclude that the tens of millions of dollars of deferred services to date are a "windfall" to BCBSVT. This simulation demonstrates that, to the contrary, even in the event that Vermont never sees another spike in COVID infection, the net claims impact of the pandemic is likely to be very close to breakeven.

Vermont Severity

In scenarios where the second wave is aligned with the severity experienced in Vermont's first wave, the slight majority of scenarios produced by the stochastic model show a modest increase to RBC. As noted above, the concept of a second wave not only considers COVID-19 incidence, but a corresponding economic shutdown and the deferral of non-emergent care. As noted in the *Treatment Costs* section, we consider it likely that incidence would need to surpass the infection rate experienced during the first wave for the state to consider further periods of economic shutdown; nevertheless, we consider it important to model the impact of such a scenario on RBC. In this scenario, a second wave creates additional deferred care, but the limited direct costs drive the increase to RBC in most scenarios.

RBC Distribution

Second Wave at Vermont Severity

Chart: Bar chart titled "RBC Distribution — Second Wave at Vermont Severity". Y-axis: Distribution of Scenarios (0.0% to 50.0%). X-axis: RBC Change with categories: <-100, -100 to -75, -75 to -50, -50 to -25, -25 to 0, 0 to +25, +25 to +50, +50 to +75, +75 to +100, >+100. Bars: -50 to -25 ≈ 6%, -25 to 0 ≈ 39%, 0 to +25 ≈ 46%, +25 to +50 ≈ 9%, +50 to +75 ≈ 0.5%.
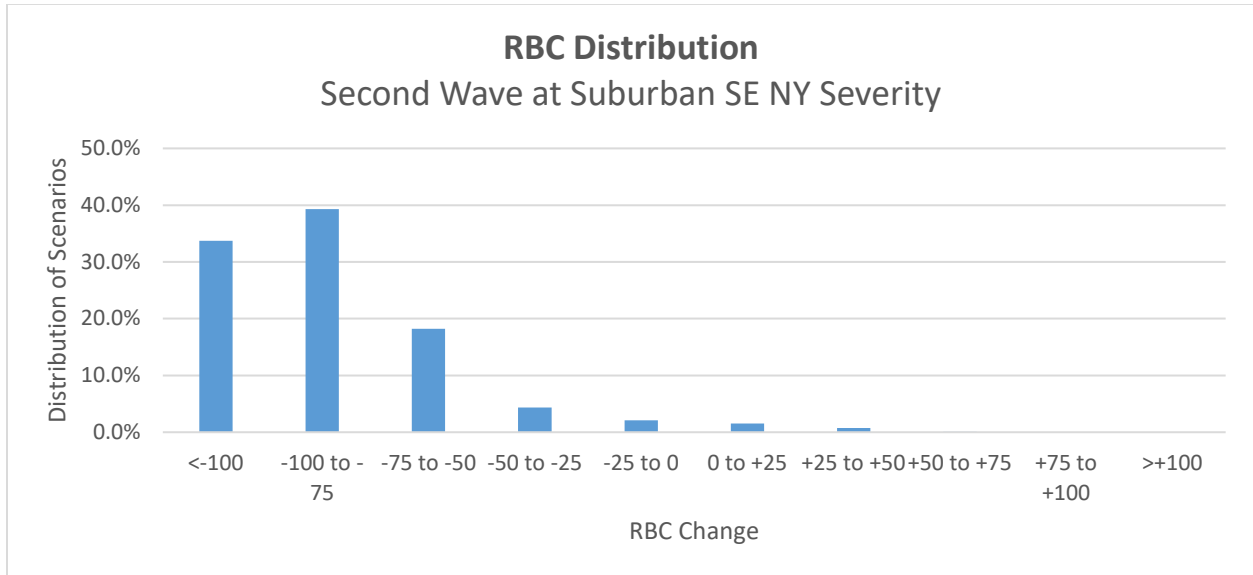
From the perspective of BCBSVT's financial position, this can be viewed as a best-case scenario, as this view maximizes the deferral of care while minimizing the realistic rate of infection that could provoke another round of severe social and economic restrictions. Even in this outlook, the improvement in claims costs has only a modestly favorable impact on BCBSVT RBC in most simulations—a vanishingly small number of simulations result in an increase in RBC of more than 50 percentage points.

Suburban Southeastern New York Severity

The New York City metropolitan area experienced some of the highest incidence of COVID-19 cases in the country during the spring of 2020. As we discuss in the *Methodology* section, we consider it important to model not the probability of a specific outcome occurring, but rather the extent to which various plausible scenarios affect BCBSVT's RBC. It is therefore critical to model the results of a severe second wave. In this set of simulations, the direct costs of COVID-19 are profound, vastly overshadowing the dampening of claims in the spring of 2020 and the deferral of care during the second wave.

RBC Distribution
Second Wave at Suburban SE NY Severity

Chart: Distribution of Scenarios (vertical axis, 0.0% to 50.0%) vs. RBC Change (horizontal axis). Bars: <-100 ≈ 34%; -100 to -75 ≈ 39%; -75 to -50 ≈ 18%; -50 to -25 ≈ 4%; -25 to 0 ≈ 2%; 0 to +25 ≈ 1.5%; +25 to +50 ≈ 0.5%; +50 to +75 ≈ 0%; +75 to +100 ≈ 0%; >+100 ≈ 0%

While we hope and believe that this is not the most likely path of COVID infection in Vermont, it is a plausible scenario that merits careful consideration. In almost all simulations, this level of disease burden would have a highly deleterious impact on BCBSVT's financial health.

<u>NY Capital Region Severity</u>

The last two scenarios examine incidence levels of geographic regions close to Vermont that exceeded Vermont's level of COVID-19 cases during the first wave. First, we consider the Capital Region of New York, which saw a case rate approximately 3.5 times that of Vermont but less than 20 percent of that experienced in suburban southeastern New York. The scenarios are largely centered around a modest decrease to RBC. The second wave of shutdown creates additional deferred care, but this is offset to some degree by higher direct costs than those experienced in the first wave. These results are strikingly similar to those produced using an assumption of no second wave at all.

RBC Distribution

Second Wave at NY Capital Region Severity
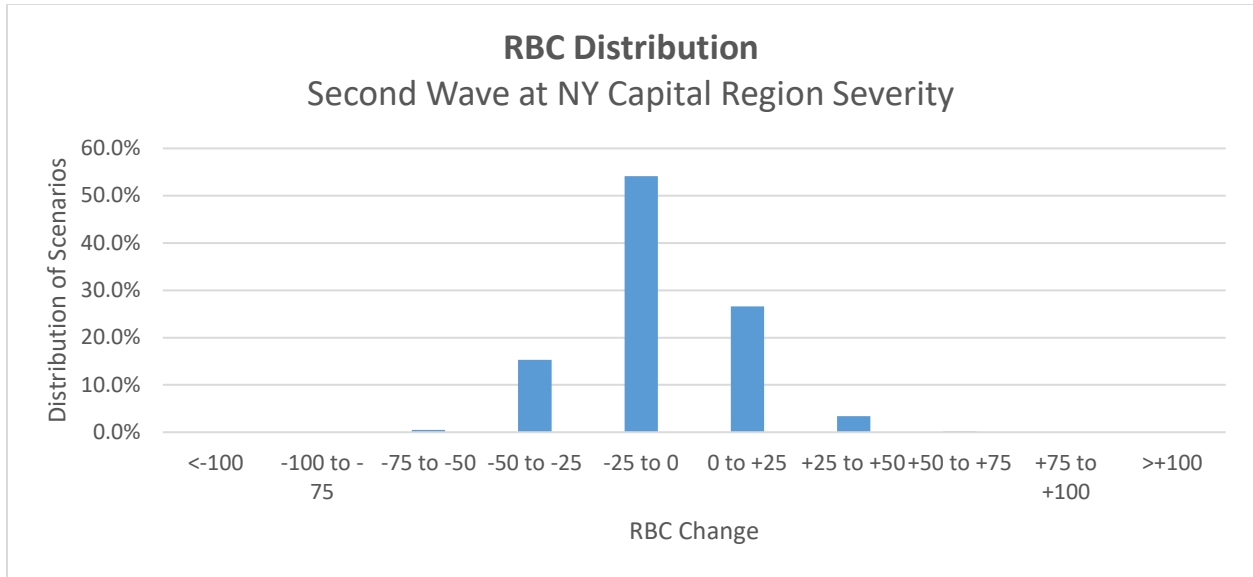
We consider this to be a reasonably plausible scenario in that an infection rate surpassing that experienced earlier this year in Vermont and tracking closer to that seen in a nearby region may very well lead to another partial shutdown of the Vermont economy and implementation of stringent social distancing measures. The impact to claims of such a scenario is neutral to slightly unfavorable—it is unlikely that BCBSVT would benefit from a windfall or that financials would be significantly pressured based on the level of paid claims.

<u>Boston Severity</u>

Lastly, we model the RBC impact of a second wave where the incidence is analogous to that of Boston's first wave. Boston experienced an infection rate nearly nine times that of Vermont, but less than half of the incidence recorded in suburban southeastern New York. The RBC impact is centered around a range of -50 to -25 percentage points, indicative of the higher direct costs exceeding the deferral of care in the second wave.

RBC Distribution

Second Wave at Boston Severity
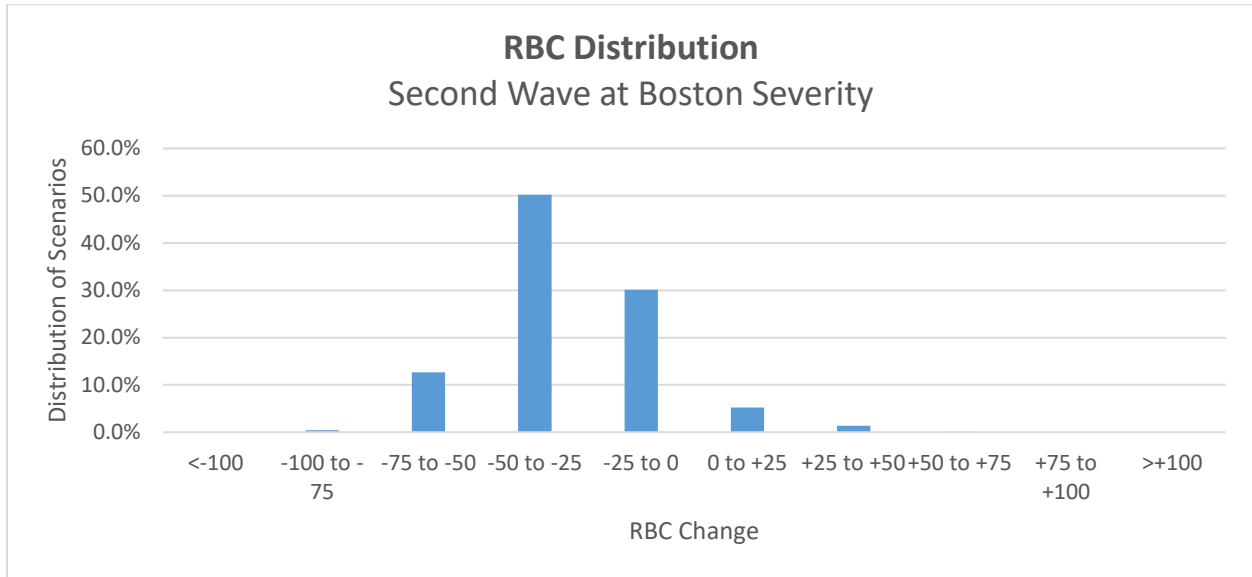
This is a relatively severe scenario that models the outlook should the spread of the disease throughout rural New England simply be delayed relative to, but not ultimately different from, urban New England. This plausible, yet perhaps not most likely, sequence of events results in most simulations in a modest decline in RBC position due to an escalation of claims cost above the level anticipated in the 2021 VISG rate filing.

Appendix D provides summary statistics for the geographic scenarios noted above.

Summary of Results by Year

We provide in the table below the modeled RBC impact by year for the above geographic scenarios. The 2022 impact includes only the completion of returning care from waves in 2020 and 2021, along with any vaccine costs incurred in 2022 (see *Purpose* section for a more thorough description).

Wave 2 Severity	Average RBC Impact as of December 31,			
	2020	2021	2022	Total
No Second Wave	+35	-37	-5	-7
Vermont	+60	-52	-6	+2
NY Capital Region	+56	-58	-6	-8
Boston	+50	-73	-7	-30
Suburban SE New York	+27	-107	-7	-87

These results demonstrate rather dramatically the peril in considering only the 2020 impact of the pandemic on BCBSVT's financial position. To an even greater extent, BCBSVT's financial strength cannot be assessed using its RBC position as of May 31, 2020 or June 30, 2020. This follows because the bulk of deferred care has yet to return, while ongoing COVID-related claims are likely to escalate. As BCBSVT has stressed throughout the rate review process, it has not added any COVID-related costs to its filed 2021 premiums and will instead pay any and all such costs through policyholder reserves. It is therefore necessary to consider the full projected impact of a reasonable range of scenarios projecting the future path of the pandemic through 2021. It is only through such an assessment that one can reasonably evaluate the financial outlook of the company.

These results demonstrate that, while 2020 operating results are likely to be favorable, the claims impact of the full pandemic is likely to be fairly close to neutral in most scenarios, with the plausible outcomes ranging from modestly favorable to significantly unfavorable.

Sensitivity to Assumptions other than Severity

The timing of a vaccine directly affects the modeling results. Direct costs of COVID escalate with a later vaccine availability date, which drives the scenarios toward a decline in RBC as vaccine availability stretches later into 2021. In other words, BCBSVT's financial position will tend to deteriorate the longer it takes an effective vaccine to reach the market, all else being equal.

RBC Impact by Vaccine Availability						
Vaccine Availability	Q4 2020	Q1 2021	Q2 2021	Q3 2021	Q4 2021	After 2021
RBC Points	+13	-3	-14	-23	-31	-31

Lastly, we also consider the effects of returning care on RBC. As noted in the *Methodology* section, we consider 51.7 percent of deferred care returning to be our best estimate and set that as the mean in the stochastic model. Below, we provide the cumulative RBC impact under various ranges of returning care. Here, we find that, as expected, the deterioration of BCBSVT's financial position is directly correlated with the amount of care that ultimately returns.

RBC Impact by Deferred Care Returning Range						
Range	Above 60%	55%-60%	50%-55%	45%-50%	40%-45%	Below 40%
RBC Points	-37	-26	-22	-16	-10	0

Conclusions

The COVID-19 pandemic has created unprecedented uncertainty in the level of paid claims BCBSVT will incur in the next 18 months. There is significant uncertainty beyond 2021 as well, related to waves of infection, vaccine availability, and vaccine efficacy, all of which may present profound impacts to BCBSVT's members, employer groups, and risk-based capital position. This analysis exclusively considers direct costs in 2020 and 2021—the costs presented beyond 2021 only represent the tail of the claims impact of the 2020 and 2021 course of the pandemic. This is the most useful and appropriate information to consider in assessing BCBSVT's financial position for purposes of the 2021 VISG filing.

BCBSVT has implemented several programs in recent months to help our members, employer groups, providers, and community. While this analysis considers a number of scenarios over the next 18 months, it does not take into account all of the COVID-19 costs or risks faced by BCBSVT in the coming months and years. The additional operating costs that have a material impact on BCBSVT's financial position are displayed in separate documentation delivered in response to Inquiry Letter 4.

As explained below, we disagree with Oliver Wyman's opinion regarding the "conservatism" they perceived in our initial modeling. Oliver Wyman cited four specific elements that supported their overall opinion. We combine their closely related second and third points as we address their arguments.

First, they address our assumptions for returning care by category, noting that it "seems unlikely" that 100 percent of care would return for any type of service. For three reasons, we respectfully disagree with the opinion that there is conservatism embedded in our returning care assumptions. First, while we concede that those service categories for which we assume 100 percent returning care can only potentially be wrong on the "conservative" side (it is not possible for more than 100 percent of deferred care to return), we observe that the opposite is true for certain services (e.g. laboratory, radiology and evaluation and management services identified as other than chronic) for which we used an assumption of zero percent returning care. Second, there is little material difference between assuming 100 percent for a certain category and, say, 95 percent[14]. Third, and by far most importantly, the aggregate answer of 51.7 percent is well-aligned with estimates published by both Milliman and the Society of Actuaries—in fact, our recalculated figure is lower than (that is, less conservative than) the midpoint of the range constructed by Milliman clinicians and actuaries. It is also less conservative than the estimate used by the Society of Actuaries in their scenario that analyzes a relatively short period of "strong social distancing."

Second, Oliver Wyman anticipates that "risk aversion" is likely to yield a period of "dampened utilization" while COVID-19 infections continue to occur in Vermont, and that utilization net of deferred and returning care is unlikely to increase above benchmark levels

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[14] The assumption for returning surgeries would need to be reduced to approximately 56 percent—a figure significantly below any reasonable assumption—to produce an overall RBC impact that is as much as 25 percentage points higher than the results presented within this addendum.

by July. With the benefit of an additional month of data, we can observe that June claims costs have already exceeded normal levels. Several key providers in Vermont have been actively promoting and marketing a return to normal use of health care[15], and the data makes it clear that Vermonters are not allowing the ongoing incidence of the virus to prevent them from seeking the care they need. Given that June claims exceeded pre-COVID levels, we do not consider it likely that utilization will be dampened by concerns about the virus. Furthermore, it seems extremely likely given the current trajectory that July claims will also exceed pre-COVID levels. June data have demonstrated that our previous assumptions were, in fact, not conservative enough. We have updated our modeling to incorporate the emerging data.

Third, Oliver Wyman observes that "[g]enerally, carriers are showing some overall favorable COVID-19 financial impact[16]." We have reviewed studies suggesting that the 2020 impact is likely to be favorable[17] and we note that our modeling has reached the same conclusion. Yet, it is inappropriate to consider only 2020 results when assessing the anticipated impact of the pandemic on solvency or on 2021 rates. We have reviewed information from proprietary Blue Cross Blue Shield Association surveys that yield similar conclusions to those we have modeled regarding the outcome of the entirety of the pandemic: specifically, an unfavorable 2021 impact that offsets or modestly surpasses the favorable 2020 result. Furthermore, we observe that publicly available 2021 ACA filings that include an adjustment for COVID-19 anticipate with near unanimity an increase to 2021 claims experience due to the pandemic. Finally, we point out that the studies to which Oliver Wyman alludes almost certainly do not exclusively use Vermont experience data nor form conclusions specific to Vermont or Vermont issuers.

In both our original modeling and the modeling described within this addendum, we have used a stochastic approach, rather than modeling deterministic point estimates for all assumptions, precisely so that the users of this report and addendum can understand the impact of the pandemic under a broad range of plausible assumptions. Oliver Wyman suggests that the "more likely" range of results comprises a range of +21 to +105 percentage points of RBC[18]. To the contrary, our modeling shows that it is difficult to construct *any* scenario specific to Vermont that results in a favorable impact of greater than 75 percentage points of RBC[19].

Finally, we observe that this modeling includes many assumptions that may be not "conservative" but "aggressive." That is to say, there is every possibility that actual results will be more unfavorable to BCBSVT's RBC position than the ranges posed within this addendum. For instance: we have assumed a persistent reduction in claims due to changing

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[15] https://www.uvmhealth.org/medcenter/pages/coronavirus-covid-19/coronavirus-covid-19.aspx
https://www.dartmouth-hitchcock.org/patient-education/covid-19-recovery.html
https://www.cvmc.org/covid-19-information/community-updates
[16] See Oliver Wyman letter to DFR, page 8.
[17] See, for instance, https://us.milliman.com/en/insight/Estimating-the-impact-of-COVID19-on-healthcare-costs-in-2020
[18] See Oliver Wyman letter to DFR, page 9.
[19] Zero simulations of the sixty thousand generated for this analysis yielded a favorable RBC impact of greater than 75 basis points through December 31, 2021.

patterns of care that have yet to manifest in the data; we select a testing incidence range on the low end of actual Vermont experience and published actuarial studies; we assume no emergency room utilization for testing moving forward; we model no ongoing cost for antibody testing; we choose to ignore the unit cost impact of deferring services to the following fiscal year; we do not model the significantly elevated costs that would arise should a vaccine require annual administration[20]; we do not model the potential for significantly higher hospital unit costs pursuant to Green Mountain Care Board budget guidance allowing hospitals to request a temporary adjustment related to COVID-19[21]. We have made a number of modeling enhancements for this release, each of which further reduces the possibility of conservatism in our results. At the same time, we have continued to incorporate new data and regulatory developments as swiftly as possible in order to present the users of our report with the most plausible range of outcomes specific to Vermont and to BCBSVT that can be modeled at the present time.

The modeling outlined in this addendum presents several scenarios under varying assumptions that produce disparate results. New information regarding the factors outlined in this report and addendum continues to emerge and will directly affect BCBSVT's financial position. Based on the best information known at the time this modeling was performed, the COVID-19 pandemic is likely to have an impact on claims costs ranging from modestly favorable to substantially unfavorable, with the majority of simulated results being fairly neutral. The modeling also shows that, over the full course of the pandemic, the likelihood of a significantly favorable impact on claims costs resulting in a "windfall" to BCBSVT is vanishingly small. While a significant deterioration of BCBSVT's financial position due solely to escalated COVID-related claims costs may not be the most likely outcome, it would be imprudent to ignore the very real potential for such a scenario in considering possible rate actions. For this reason, and in light of the more complete RBC development provided within the response to L&E Inquiry Letter 4, BCBSVT cannot responsibly reduce its 2021 VISG rate request below actuarially sound levels.

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[20] See Prefiled Testimony of Dr. Kate McIntosh dated July 7, 2020, page 8.
[21] https://gmcboard.vermont.gov/sites/gmcb/files/Hospital-Budgets/FY21%20Hospital%20Budget%20Guidance-%20Final.pdf
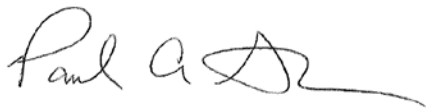
Actuarial Certification

This document is an addendum to the full actuarial report issued on July 4, 2020 in response to Question 2 of the July 1, 2020 Inquiry Letter 4 from Lewis & Ellis in the Vermont Individual and Small Group Rate Filing (SERFF #BCVT-132371410) docket. This addendum is not a standalone document; rather, it incorporates by reference the *Purpose*, *Data* and *Methodology* sections of the July 4 actuarial report. This addendum can only be considered compete when reviewed in conjunction with the full actuarial report.

The purpose of this addendum is to model possible scenarios related to the COVID-19 pandemic on paid claims for Blue Cross and Blue Shield of Vermont and The Vermont Health Plan insured individual, small group, and large group plans. The model and results are intended to quantify the impact varying scenarios have on BCBSVT's risk based capital ratio as a means of additional support for its Vermont Individual and Small Group Rate Filing. This report is not intended to be used for other purposes.

Appendix E lists applicable limitations and disclosures.

It is my opinion that the modeling presented in this report is reasonable and has been prepared in accordance with applicable Actuarial Standards of Practice. I am a Fellow of the Society of Actuaries and a Member of the American Academy of Actuaries, and I meet the Academy's Qualification Standards to render this opinion.

_____
Paul A Schultz, F.S.A., M.A.A.A.

July 14, 2020

Appendix A: Derivation of the Estimated Percentage of Returning Deferred Services

Type of Service	Benchmark PMPM	Slowdown PMPM	Percent Rescheduled Services
Mental Health (Inpatient)	$4.92	$1.63	0%
Mental Health (Other)	$14.79	$0.00	0%
Pregnancy/Newborn	$22.50	$0.82	0%
Influenza/Pneumonia	$1.53	$0.68	0%
Emergency and Urgent Care	$38.18	$16.76	100%
Medical – Rx	$29.11	$14.94	100%
Ambulance	$4.64	$2.44	100%
DME	$14.79	$4.82	100%
Home Health & Hospice	$9.74	$4.15	100%
Laboratory – Chronic	$8.70	$3.35	100%
Laboratory – Other	$2.88	$1.14	100%
Radiology – Chronic	$11.88	$1.39	100%
Radiology – Other	$12.92	$3.49	100%
Evaluation and Management - Chronic	$9.57	$4.34	30%
Evaluation and Management – Other	$8.26	$0.00	100%
Ophthalmology Services	$44.40	$0.00	0%
PT & Chiropractic	$37.74	$10.22	0%
Immunizations	$2.36	$1.35	75%
Cardiology/EKG/ECG/EEG	$1.06	$0.42	100%
Surgery (knee/hip/shoulder + other bones)	$2.59	$0.99	0%
Surgery – GI	$18.04	$9.18	40%
Surgery - Respiratory (non-Influenza/Pneumonia)	$9.93	$3.26	100%
Surgery - Renal/Pancreas/Integumentary	$15.63	$6.88	0%
Surgery - Reproductive System/Genital	$13.23	$3.91	100%
Surgery – Neuro	$31.93	$15.27	0%
Surgery – Eye	$13.83	$2.44	100%
Surgery – Other	$24.87	$9.20	0%
Surgery – Cardiac	$2.07	$0.21	0%
Oncology Treatment	$9.32	$0.59	0%
IP - Diseases and Disorders	$11.47	$1.48	5%
Other Inpatient	$10.98	$3.07	5%
Other Outpatient	$22.14	$8.39	30%
Other Professional	$5.12	$2.21	30%
Total			**51.7%**

Appendix B: Sample Deferred and Returning Care Factors

	Sample Deferred and Returning Care Factors														
	Example 1	Example 2	Example 3	Example 4	Example 5	Example 6	Example 7	Example 8	Example 9	Example 10	Example 11	Example 12	Example 13	Example 14	Example 15
202006	95.0%	98.0%	104.0%	102.0%	101.0%	98.0%	105.0%	99.0%	96.0%	105.0%	95.0%	99.0%	95.0%	96.0%	101.0%
202007	107.0%	109.0%	110.0%	107.0%	109.0%	111.0%	110.0%	110.0%	107.0%	109.0%	111.0%	109.0%	109.0%	106.0%	112.0%
202008	106.6%	105.5%	109.8%	105.1%	106.9%	110.1%	109.2%	108.0%	106.5%	106.8%	107.0%	107.0%	108.5%	105.1%	109.8%
202009	105.6%	103.6%	106.6%	104.4%	105.6%	106.5%	106.4%	108.2%	104.9%	104.8%	104.5%	105.0%	107.6%	103.3%	107.9%
202010	104.4%	93.0%	88.0%	87.0%	105.5%	105.2%	105.4%	107.1%	92.0%	104.1%	104.4%	104.0%	107.4%	103.2%	106.4%
202011	86.0%	89.0%	85.0%	85.0%	105.2%	95.0%	87.0%	92.0%	94.0%	91.0%	102.9%	103.2%	106.7%	102.8%	104.3%
202012	85.0%	109.0%	94.0%	80.0%	101.1%	75.0%	82.0%	76.0%	107.0%	76.0%	102.6%	86.0%	103.0%	102.0%	103.1%
202101	90.0%	109.0%	110.0%	85.0%	100.0%	87.0%	88.0%	90.0%	107.0%	86.0%	102.3%	93.0%	100.0%	95.0%	91.0%
202102	107.0%	106.2%	110.0%	102.0%	100.0%	102.0%	110.0%	110.0%	105.4%	109.0%	100.4%	109.0%	100.0%	86.0%	82.0%
202103	107.0%	104.7%	109.1%	107.0%	92.0%	111.0%	110.0%	110.0%	104.0%	109.0%	100.0%	109.0%	100.0%	106.0%	91.0%
202104	104.9%	103.9%	103.0%	106.3%	80.0%	110.1%	106.3%	108.5%	103.0%	108.4%	100.0%	109.0%	100.0%	106.0%	109.0%
202105	104.7%	102.7%	100.0%	105.1%	81.0%	105.3%	100.0%	100.0%	102.8%	106.3%	100.0%	108.4%	100.0%	105.7%	108.2%
202106	103.9%	101.7%	100.0%	104.0%	94.0%	100.0%	100.0%	100.0%	101.9%	103.2%	100.0%	101.0%	100.0%	103.9%	100.0%
202107	103.0%	101.8%	100.0%	102.6%	109.0%	100.0%	100.0%	100.0%	101.3%	100.0%	100.0%	100.0%	100.0%	101.9%	100.0%
202108	102.1%	101.3%	100.0%	102.3%	109.0%	100.0%	100.0%	100.0%	101.3%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
202109	101.6%	101.3%	100.0%	101.9%	103.6%	100.0%	100.0%	100.0%	101.1%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
202110	101.6%	101.3%	100.0%	101.7%	100.0%	100.0%	100.0%	100.0%	100.5%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
202111	101.4%	100.4%	100.0%	101.8%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
202112	101.1%	100.0%	100.0%	101.6%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix C: Stochastic Modeling Summary Statistics

Stochastic Modeling Summary Statistics[22]				
Component	Year	Mean	Min	Max
Diagnostic Testing	2020	$2,210,722	$1,203,390	$3,539,322
	2021	$2,225,102	$23,432	$5,143,965
	Total	$4,435,823	$1,226,822	$8,334,478
Vaccine	2020	$92,267	$0	$4,639,124
	2021	$2,304,527	$0	$6,958,686
	2022+	$671,641	$0	$6,958,686
	Total	$3,068,434	$1,268,658	$6,958,686
Morbidity Impact Deferred Care	2020	$493,601	$0	$1,615,343
	2021	$1,631,359	$0	$3,799,819
	Total	$2,124,961	$0	$5,247,470
Treatment	2020	$4,551,760	$1,972,442	$30,075,251
	2021	$5,097,947	$32,312	$33,170,961
	Total	$9,649,707	$2,007,289	$35,774,539
Delayed Care	2020	-$23,977,801	-$38,452,235	-$19,428,655
	2021	-$2,605,150	-$17,503,073	$0
	Total	-$26,582,951	-$38,452,235	-$19,428,655
Returning Care	2020	$7,128,997	$2,184,120	$13,136,887
	2021	$5,950,840	$0	$15,535,563
	2022+	$685,258	$0	$12,391,332
	Total	$13,765,095	$6,774,586	$23,756,886

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[22] We do not provide summary statistics for 'Changes in Demand' since its value is assumed to be constant across all scenarios. As noted in the *Deferred Care* section, we updated our breakout of total claims by service category with runout through June. This update lowers our cumulative 'Changes in Demand' estimate from -$1,870,900 to -$2,037,214.

Appendix D: Breakout of Claims by Year

Projected Paid Claims			
2020	2021	Subtotal	2022
$339,991,579	$370,168,089	$710,159,668	$403,022,964[23]

Claims by Year – No Second Wave				
	2020	2021	2022	Total
Direct Costs	$4,269,616	$4,372,415		$8,642,031
Vaccination Costs	$103,604	$2,282,907	$664,760	$3,051,272
Delayed Claims	($19,731,895)	$0		($19,731,895)
Returning Claims	$7,997,255	$1,709,784	$503,430	$10,210,469
Changes in Demand and Deferred Care Morbidity Impact	($207,953)	($422,728)		($630,681)
Net Impact by Year	($7,569,373)	$7,942,378	$1,168,191	$1,541,196

Claims by Year - Vermont				
	2020	2021	2022	Total
Direct Costs	$4,788,855	$4,679,039		$9,467,895
Vaccination Costs	$76,892	$2,373,262	$650,117	$3,100,271
Delayed Claims	($24,612,528)	($2,938,157)		($27,550,685)
Returning Claims	$7,026,648	$6,617,198	$616,912	$14,260,759
Changes in Demand and Deferred Care Morbidity Impact	($175,564)	$451,170		$275,606
Net Impact by Year	($12,895,696)	$11,182,512	$1,267,029	($446,155)

Claims by Year - Suburban Southeastern New York				
	2020	2021	2022	Total
Direct Costs	$13,472,349	$16,288,387		$29,760,735
Vaccination Costs	$78,921	$2,342,451	$681,404	$3,102,777
Delayed Claims	($25,808,375)	($4,103,453)		($29,911,828)
Returning Claims	$6,652,319	$7,882,324	$907,392	$15,442,035
Changes in Demand and Deferred Care Morbidity Impact	($201,054)	$421,824		$220,770
Net Impact by Year	($5,805,840)	$22,831,534	$1,588,796	$18,614,489

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[23] Straightforwardly estimated by applying the 2021-over-2020 increase to 2021 claims; useful simply for comparison to the magnitude of the 2022 tail of returning services and vaccinations.

Claims by Year - NY Capital Region				
	2020	2021	2022	Total
Direct Costs	$5,850,500	$6,010,079		$11,860,580
Vaccination Costs	$76,954	$2,322,672	$699,782	$3,099,409
Delayed Claims	($24,779,775)	($3,159,177)		($27,938,952)
Returning Claims	$6,971,351	$6,860,459	$627,744	$14,459,554
Changes in Demand and Deferred Care Morbidity Impact	($185,926)	$429,144		$243,218
Net Impact by Year	($12,066,896)	$12,463,177	$1,327,526	$1,723,808

Claims by Year – Boston				
	2020	2021	2022	Total
Direct Costs	$8,216,107	$8,872,776		$17,088,883
Vaccination Costs	$80,479	$2,331,544	$663,132	$3,075,154
Delayed Claims	($25,435,746)	($3,574,383)		($29,010,129)
Returning Claims	$6,742,569	$7,474,823	$775,943	$14,993,335
Changes in Demand and Deferred Care Morbidity Impact	($198,014)	$418,611		$220,597
Net Impact by Year	($10,594,604)	$15,523,371	$1,439,074	$6,367,840

Claims by Year – All				
	2020	2021	2022	Total
Direct Costs	$6,776,712	$7,323,049		$14,099,761
Vaccination Costs	$92,267	$2,304,527	$671,641	$3,068,434
Delayed Claims	($23,977,801)	($2,605,150)		($26,582,951)
Returning Claims	$7,128,997	$5,950,840	$685,258	$13,765,095
Changes in Demand and Deferred Care Morbidity Impact	($185,470)	$273,217		$87,746
Net Impact by Year	($10,165,295)	$13,246,481	$1,356,898	$4,438,085

Appendix E: Disclosures and Limitations

Information Date: The analysis provided in the report is based on information as known on July 10, 2020.

Scope: This result is intended to communicate the effect of possible scenarios related to the COVID-19 pandemic in 2020 and 2021 on BCBSVT's risk-based capital position. This modeling is not intended to predict the likelihood of any specific scenario or set of scenarios.

Uncertainty or Risk: Future events will affect the results presented in the addendum. The level of testing, treatment, infection, vaccine availability, vaccine efficacy, presence and severity of subsequent waves, future federal and state legislation, and additional factors related to the COVID-19 pandemic are unknown. Actual results may vary from the results presented herein, potentially to a significant degree.

Reliance on Other Sources for Data and Other Information: This addendum relies upon data from the BCBSVT data warehouse. I have reviewed the data for reasonableness, but no audit was performed. We also rely on expertise provided by BCBSVT medical directors to develop assumptions related to the deferred care anticipated to return and longer-lasting changes to the care delivery system that will result from the pandemic. Lastly, this addendum and its accompanying report rely upon several sources of information that are cited as footnotes at their respective references. If any of the sources we have relied upon are incorrect or inaccurate, it may affect the accuracy of the results presented in the report.

Subsequent Events: New information related to the COVID-19 pandemic continues to emerge on a regular basis. Subsequent events may affect the results presented herein. The degree to which future events may materially change the results is unknown.

Intended Users: This material has been prepared for consideration by DFR and the GMCB, and their respective actuaries, relative to the BCBSVT 2021 Vermont Individual and Small Group rate filing (SERFF #BCVT-132371410). BCBSVT understands that the addendum will be made public. Distribution of this addendum to any third party should be made in its entirety; specifically, any such distribution must also include the original July 4 report ("*BCBSVT Actuarial Report_COVID-19 Modeling.pdf*"). The addendum and report should be evaluated only by qualified users. The parties receiving this addendum should retain actuarial expertise in interpreting results.