

ACTUARIAL ANALYSES OF PREMIUM IMPACT AND POTENTIAL STATE COST OF MANDATING COVERAGE FOR FERTILITY SERVICES

VERMONT DEPARTMENT OF FINANCIAL
REGULATION

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Michelle Faust, ASA, MAAA
Peter Scharl, FSA, MAAA
Tammy Tomczyk, FSA, MAAA, FCA

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1. Executive Summary

Oliver Wyman Actuarial Consulting, Inc. (Oliver Wyman) was engaged by the Vermont Department of Financial Regulation (DFR) to conduct actuarial analyses to estimate the potential impact of mandating infertility coverage in the Individual and Small Group Merged market (Merged market) and the Large Group market in the State of Vermont. With regard to the diagnosis and treatment of infertility, three scenarios were analyzed:

1. Scenario 1: All policies issued or renewed in the State of Vermont would be required to cover diagnoses and medical treatment of infertility, including evaluations, laboratory services, medications, and treatment associated with the procurement of donor eggs, sperm, and embryos, with no limit on the number of attempts, dollar amounts, or age.
2. Scenario 2: The same parameters as Scenario 1 with the exception that a policy may impose a limit of three completed egg retrievals, with unlimited embryo transfers.
3. Scenario 3: The same parameters as Scenario 1 with the exception that a policy may impose a maximum lifetime limit on these services of \$100,000.

In addition, the impact of covering fertility preservation when a person is expected to undergo surgery, radiation chemotherapy, or other treatment that would cause risk of impairment of infertility was analyzed.

To conduct our analyses, we relied on numerous data sources. A data call was sent to carriers offering health insurance coverage in Vermont to collect detailed information pertaining to their enrollees. These data included membership, claims, and premium information for 2018, as well as limited information on the projected cost of infertility treatments and fertility preservation. Additionally, we conducted research to review information on mandated infertility benefits required or being explored in other states, as well as cost and utilization estimates for these mandates. We collected publicly available information on the frequency and severity of in vitro fertilization (IVF) treatment and fertility preservation services. Then, we developed our own independent estimates of the potential costs of infertility services in Vermont for each of the scenarios outlined above as well as fertility preservation services for the Merged and Large Group markets. The cost estimates included the cost for IVF itself as well as the cost associated with additional pregnancies and births resulting from IVF, which is separated into costs for the mother and infant(s). For each market, we developed a range of cost estimates by varying assumptions and performing sensitivity testing.

Tables 1 and 2 show our allowed cost estimates for the three IVF scenarios, while Table 3 includes our allowed cost estimates for fertility preservation services described above.

Table 1 – Merged Market Allowed PMPM Cost Estimates

	Scenario 1		Scenario 2		Scenario 3	
	Low Estimate	High Estimate	Low Estimate	High Estimate	Low Estimate	High Estimate
IVF	\$3.66	\$7.02	\$3.16	\$4.77	\$3.56	\$6.17
Maternity - Mother	\$1.68	\$3.26	\$1.48	\$2.33	\$1.64	\$2.94
Maternity - Infant	\$2.34	\$4.54	\$2.05	\$3.24	\$2.29	\$4.10
Total	\$7.69	\$14.81	\$6.69	\$10.33	\$7.49	\$13.21

Table 2 – Large Group Market Allowed PMPM Cost Estimates

	Scenario 1		Scenario 2		Scenario 3	
	Low Estimate	High Estimate	Low Estimate	High Estimate	Low Estimate	High Estimate
IVF	\$4.29	\$8.18	\$3.71	\$5.60	\$4.18	\$7.23
Maternity - Mother	\$2.00	\$3.86	\$1.76	\$2.77	\$1.96	\$3.49
Maternity - Infant	\$2.78	\$5.37	\$2.45	\$3.85	\$2.72	\$4.86
Total	\$9.08	\$17.40	\$7.92	\$12.22	\$8.86	\$15.58

Table 3 – Fertility Preservation Allowed PMPM Cost Estimates

	Low Estimate	High Estimate
Merged Market	\$0.09	\$0.41
Large Group Market	\$0.10	\$0.47

The Affordable Care Act requires that states defray the costs for any new state-required benefits effective after December 31, 2013 that are in addition to current Essential Health Benefits required in the Merged market. It is our understanding that the DFR believes the coverage of infertility services would qualify as new state-required benefits and not an expansion of current Essential Health Benefits. Tables 4 and 5 show our projected premium costs and impact to rates for each of the three IVF scenarios, and fertility preservation.

These calculations assume that health insurance carriers would be liable only for the additional maternity costs for mothers and infants in the Merged market but would be liable for all costs in the Large Group Market resulting from the implementation of the proposed mandates.

Table 4 – Merged Market Premium PMPM Cost and Rate Increase Estimates

	Scenario 1		Scenario 2		Scenario 3	
	Low Estimate	High Estimate	Low Estimate	High Estimate	Low Estimate	High Estimate
Maternity - Mother	\$1.75	\$3.38	\$1.53	\$2.41	\$1.71	\$3.06
Maternity - Infant	\$2.43	\$4.71	\$2.13	\$3.36	\$2.38	\$4.25
Total	\$4.18	\$8.09	\$3.67	\$5.78	\$4.09	\$7.31
Rate Increase	0.7%	1.3%	0.6%	0.9%	0.7%	1.2%

Table 5 – Large Group Market Premium PMPM Cost and Rate Increase Estimates

	Scenario 1		Scenario 2		Scenario 3	
	Low Estimate	High Estimate	Low Estimate	High Estimate	Low Estimate	High Estimate
IVF	\$4.18	\$7.96	\$3.62	\$5.46	\$4.07	\$7.04
Maternity - Mother	\$1.95	\$3.75	\$1.71	\$2.69	\$1.90	\$3.40
Maternity - Infant	\$2.71	\$5.23	\$2.38	\$3.75	\$2.65	\$4.73
Fertility Preservation	\$0.10	\$0.46	\$0.10	\$0.46	\$0.10	\$0.46
Total	\$8.94	\$17.40	\$7.81	\$12.36	\$8.72	\$15.63
Rate Increase	1.6%	3.0%	1.4%	2.2%	1.5%	2.7%

It is our understanding that under the proposed mandates, the State of Vermont would be liable for the cost of IVF treatments and fertility preservation services in the Merged market. Table 6 presents the aggregate projected allowed costs of IVF and fertility preservation services under each scenario that would be paid by the state. Table 6 represents allowed costs, and therefore does not account for any cost sharing that might be paid by the member. It also does not include any administrative expenses the State might incur related to these benefits.

Table 6 – Merged Market Aggregate Cost Estimates

	Scenario 1		Scenario 2		Scenario 3	
	Low Estimate	High Estimate	Low Estimate	High Estimate	Low Estimate	High Estimate
IVF	\$3,479,637	\$6,672,702	\$2,999,947	\$4,531,791	\$3,382,231	\$5,868,359
Fertility Preservation	\$83,132	\$386,959	\$83,132	\$386,959	\$83,132	\$386,959
Total	\$3,562,769	\$7,059,661	\$3,083,079	\$4,918,750	\$3,465,363	\$6,255,319

In addition to the financial impact of implementing the proposed mandates, we reviewed the social impact it may have. Our research indicates that only a small portion of Vermont’s population would likely utilize infertility or fertility preservation services. Insurance coverage for these services is limited in Vermont, largely provided in the form of riders for Large Group insurance. While the lack of coverage for these services does not cause a direct medical consequence, in some cases patients facing cancer treatment options will choose less effective treatments to avoid the toxicity and possible infertility resulting from more aggressive treatments. Additionally, infertility due to the treatment of an unrelated diagnosis can cause depression and increased levels of anxiety.¹ The financial hardship for individuals affected by the proposed mandate is significant. Therefore, while the actual number of affected individuals would be small, there would likely be a great deal of demand in receiving IVF treatment or fertility preservation benefits by those affected by current or potential infertility.

¹ Livestrong. “Iatrogenic Infertility Due to Cancer Treatments: A Case for Fertility Preservation Coverage.” 2011. <https://www.livestrong.org/sites/default/files/what-we-do/reports/LIVESTRONG-Benefit-Case-Study-2011.pdf>. Accessed November 22, 2019.

2. Introduction

Infertility Definition and Prevalence

Infertility is defined by the Centers for Disease Control and Prevention (CDC) as the inability to conceive during a specified time period, in many cases one year. A related condition, impaired fecundity, identifies women who have difficulty getting pregnant or carrying a pregnancy to term. According to the CDC, approximately 6% of married women aged 15 to 44 years old in the United States are unable to get pregnant after one year and about 12% of women aged 15 to 44 years old in the United States experience impaired fecundity regardless of marital status.

Infertility ranges in severity and can be caused by several factors in both men and women. This includes the disruption of testicular or ejaculatory function, hormonal disorders, and genetic disorders in men, as well as the disruption of ovarian function, fallopian tube obstruction, and abnormal uterine contour in women. One specific type of infertility is caused by the treatment of another medical condition, such as cancer. This type of infertility is identified as iatrogenic infertility. When a future medical treatment might cause infertility, it is possible to preserve fertility by freezing the egg, embryo, or sperm of an individual for future use.

In some cases, infertility is treated with assisted reproductive technology (ART) in which both the eggs and embryos are controlled outside of the body to aid in conception. One of the most recognizable forms of ART is IVF.²

Purpose of Analyses

Oliver Wyman was engaged by the Vermont Department of Financial Regulation (DFR) to conduct actuarial analyses to estimate the potential impact of mandating infertility coverage in the Merged and Large Group markets, in the State of Vermont. With regard to the diagnosis and treatment of infertility, three scenarios were analyzed:

- 0-1. Scenario 1: All policies issued or renewed in the State of Vermont would be required to cover diagnoses and medical treatment of infertility, including evaluations, laboratory services, medications, and treatment associated with the procurement of donor eggs, sperm, and embryos, with no limit on the number of attempts, dollar amounts, or age.
- 0-2. Scenario 2: The same parameters as Scenario 1 with the exception that a policy may impose a limit of three completed egg retrievals, with unlimited embryo transfers.
- 0-3. Scenario 3: The same parameters as Scenario 1 with the exception that a policy may impose a maximum lifetime limit on these services of \$100,000.

In addition, the impact of covering fertility preservation when a person is expected to undergo surgery, radiation chemotherapy, or other treatment that would cause risk of impairment of infertility was analyzed.

² National Center for Chronic Disease Prevention and Health Promotion, Division of Reproductive Health. "Reproductive Health – Infertility FAQs." Last Revised January 16, 2019. <https://www.cdc.gov/reproductivehealth/infertility/index.htm>. Accessed November 21, 2019.

In the following sections, we provide a detailed summary of the data and methodology used to analyze the different levels of coverage described above, the results of our analysis, and the social impact of mandating infertility coverage.

It is important to note that Oliver Wyman is not engaged in the practice of law and this report, which may include commentary on legal issues and regulations, does not constitute, nor is it a substitute for, legal advice. Accordingly, Oliver Wyman recommends that the DFR secure the advice of competent legal counsel with respect to any legal matters related to this report or otherwise.

This report is intended to be read and used as a whole and not in parts. Separation or alteration of any section or page from the main body of this report is expressly forbidden and invalidates this report.

3. Data

We reviewed information from a variety of publicly available sources in the development of these analyses. Additionally, a data call was sent to carriers offering health insurance coverage in Vermont to collect detailed information pertaining to their enrollees. These data included membership, claims, and premium information for 2018, as well as limited information on the projected cost of infertility treatments and fertility preservation.

Though we have reviewed the data received from carriers for reasonableness and consistency, we have not independently audited or otherwise verified this data. Our review of the data may not reveal errors or imperfections, and we have assumed that the data provided is both accurate and complete. The results of our analyses are dependent on this assumption. If this data or information are inaccurate or incomplete, our findings and conclusions may need to be revised.

The following is a list of documents and data utilized for the purpose of these analyses and report. In addition to the documents below, Oliver Wyman may have relied on internal data sources, insurance industry data sources, or other information not specifically listed below.

Alliance for Fertility Preservation. "Paying for Treatments."

<https://www.allianceforfertilitypreservation.org/costs/paying-for-treatments>. Accessed November 21, 2019.

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<https://www.pewresearch.org/fact-tank/2018/07/17/a-third-of-u-s-adults-say-they-have-used-fertility-treatments-or-know-someone-who-has/>. Accessed November 21, 2019.

Massachusetts Department of Public Health Registry of Vital Records and Statistics.

“Massachusetts Births 2016.” May 2018.

<https://www.mass.gov/files/documents/2018/06/01/birth-report-2016.pdf>. Accessed November 21, 2019.

National Cancer Institute. “Surveillance, Epidemiology, and End Results Program.” Last Revised April 15, 2019.

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National Center for Chronic Disease Prevention and Health Promotion, Division of Reproductive Health. “2016 Assisted Reproductive Technology National Summary Report.” October 2018.

<https://www.cdc.gov/art/pdf/2016-report/ART-2016-National-Summary-Report.pdf>. Accessed November 21, 2019.

National Center for Chronic Disease Prevention and Health Promotion, Division of Reproductive Health. “Assisted Reproductive Technology (ART).” Last Revised November 15, 2019.

<https://www.cdc.gov/art/artdata/index.html>. Accessed November 22, 2019.

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<https://www.ncbi.nlm.nih.gov/pubmed/18976755>. Accessed November 22, 2019.

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4. Methodology

General Approach

In this section we describe the methodology that underlies the analyses performed.

In order to determine the level of infertility coverage currently present in Vermont's commercial marketplace, we began our analysis by collecting detailed information from Vermont's commercial carriers pertaining to their enrollees through a data call. These data included:

- 2018 member months by age, gender, and market type for each carrier
- 2018 medical claims, pharmacy claims, and premiums for each carrier in the large group market
- 2018 medical allowed claims and utilization by infertility procedure code for each carrier in the large group market, where available
- 2018 pharmacy allowed claims and scripts for fertility drugs for each carrier in the large group market, where available
- Estimates of the cost of infertility treatments and fertility preservation that are being considered by the State of Vermont

Next, we conducted research to review information on mandated infertility benefits required or being explored in other states, as well as cost and utilization estimates for these mandates. We collected publicly available information on the frequency and severity of IVF treatment and fertility preservation services.

Finally, we developed our own independent estimates of the potential costs of infertility services in Vermont for each of the scenarios outlined above, as well as fertility preservation services, for the Merged and Large Group markets. In developing these estimates we considered the unique demographic composition of the Vermont population. For each market, we developed a range of cost estimates by varying assumptions and performing sensitivity testing.

Infertility Services

We utilized a frequency-severity method to develop an estimate of the cost of infertility services for the State of Vermont. This is a commonly applied actuarial approach and requires an estimate of the frequency of claims and an estimate of the average cost per claim, or severity. Frequency is a measure of the number of claims expected during a specified period, per unit of exposure. The period under consideration in this report was one year, and the unit of exposure was each commercially insured member. The frequency per member multiplied by the average cost per claim yields the expected average cost per member over the year. For each of the three mandate scenarios requested by the DFR, we determined a low and high estimate of the cost of the mandate for each of the Merged and Large Group markets.

IVF

We calculated the cost of infertility services by first determining the cost of IVF treatment in 2018. We reviewed numerous sources to develop our cost estimate for one cycle of IVF

treatment.³ We then applied cost trend to develop an estimate of the cost of one cycle of IVF treatment in 2020. The median Group Medical cost trend summarized in Oliver Wyman's July 2019 Carrier Trend Report, assuming one half of the overall trend presented was attributable to cost, or 3.6%, was the annual trend utilized in this calculation. Oliver Wyman develops a semi-annual Carrier Trend Survey which reports the pricing trends utilized by numerous carriers within the industry. The most recent survey report available was for July 2019 effective dates and, for group policies, reflected the pricing trends being used for approximately 104.7 million members nationwide. We compared this trend assumption to the trend assumptions utilized in recent rate filings by carriers offering major medical coverage in Vermont and found them to be relatively consistent.⁴

The development of the frequency of infertility services required several assumptions and steps, which are documented as follows.

1. Estimated the 2018 female member months for members aged 15 to 44 for the Merged and Large group markets using the carrier data call
2. Determined the Vermont birth rate per 1,000 for women aged 15 to 44 in 2017 from the Kaiser Family Foundation State Health Facts⁵
3. Determined the projected percent of births which are expected to originate from IVF treatment as 7.4%; this assumption is based on Massachusetts data, which has the highest percentage of ART births due to mandated insurance coverage for some fertility treatments, and adjusts for the percentage of births through public coverage which are unlikely to occur through ART, as summarized in the Massachusetts Department of Public Health's report Massachusetts Births 2016^{6,7}
4. Developed the Vermont birth rate using IVF treatment based on the market's distribution by age group
 - a. Aggregated the number of cycles, live birth percent, and live birth count from fresh and frozen embryos by age group from the CDC's 2016 Assisted Reproductive Technology National Summary Report⁸

³ New York State Department of Financial Services. "Report on In-Vitro Fertilization and Fertilization Preservation Coverage." February 27, 2019. https://www.dfs.ny.gov/system/files/documents/2019/02/dfs_ivf_report_02272019.pdf. Accessed November 21, 2019.

⁴ 2020 merged market rate filings reflect unit cost medical trend assumptions of 4.3% for 2019 and 4.2% for 2020 for MVP, and 2.7% for 2019 and 2.6% for 2020 for BCBSVT; 2019Q3 large group rate filings reflect unit cost medical trend assumptions of 2.8% for BCBSVT Managed Care, 3.9% for BCBSVT Non-managed Care, and 3.0% for TVHP Managed Care products; CIGNA's 2019 large group rate filing reflects a unit cost medical trend assumption of 3.4%

⁵ Kaiser Family Foundation. "Birth Rate per 1,000 Women Ages 15-44." <https://www.kff.org/other/state-indicator/birth-rate-per-1000/?currentTimeframe=0&sortModel=%7B%22colId%22:%22Location%22,%22sort%22:%22asc%22%7D>. Accessed November 21, 2019.

⁶ Massachusetts Department of Public Health Registry of Vital Records and Statistics. "Massachusetts Births 2016." May 2018. <https://www.mass.gov/files/documents/2018/06/01/birth-report-2016.pdf>. Accessed November 21, 2019.

⁷ Livingston, Gretchen. "A third of U.S. adults say they have used fertility treatments or know someone who has." Pew Research Center. July 17, 2018. <https://www.pewresearch.org/fact-tank/2018/07/17/a-third-of-u-s-adults-say-they-have-used-fertility-treatments-or-know-someone-who-has/>. Accessed November 21, 2019.

⁸ National Center for Chronic Disease Prevention and Health Promotion, Division of Reproductive Health. "2016 Assisted Reproductive Technology National Summary Report." October 2018. <https://www.cdc.gov/art/pdf/2016-report/ART-2016-National-Summary-Report.pdf>. Accessed November 21, 2019.

- b. Estimated the probability of continuation of treatment after a live birth and after no resulting birth from treatment due to cost constraints and/or personal considerations
 - c. Calculated the estimated average number of cycles per age group based on items a and b
 - d. Calculated the Vermont specific IVF birth rate and average number of cycles using the membership distributions by age and gender for each of the Merged and Large group markets based on information from the carrier data call
5. Estimated the total number of IVF cycles per year using the targeted female member months, birth rate per 1,000, percent of births from IVF, and birth rate using IVF as described above
 6. Assumed a percentage increase in utilization due to the addition of an IVF mandate, which varies by scenario
 7. Calculated the total number of expected individuals using IVF services from the total available number of IVF cycles, historical cycles per individual, and estimated increase in utilization due to the addition of an IVF mandate
 8. Determined the distribution of individuals utilizing IVF by age group and cycle using the assumptions developed above, pursuant to a cycle limitation that varied based on the scenario

Once both our severity and frequency estimates were developed, we were able to calculate the expected annual cost by age group and cycle, incorporating the percent of members expected to continue from cycle to cycle, and aggregated this into an overall annual allowed cost figure for all IVF treatment in each market. We then divided the total annual cost by the 2018 members months for all genders and ages underlying the commercial population provided by the carriers, segregated by market type, to determine a per member per month (PMPM) estimate of the allowed cost of IVF services in each market.

COST OF ADDITIONAL BIRTHS

In order to fully consider the cost of a mandate for infertility services, we also developed estimates of the cost associated with expected additional births resulting from IVF, utilizing the frequency-severity method. The percent of new births expected through IVF due to the mandate was calculated to be 5.9%. This is the additive difference between the projected IVF birth percent, 7.4% as discussed previously, and the current IVF birth percent for Vermont, which is about 1.5% (i.e., $5.9\% = 7.4\% - 1.5\%$).⁹

We calculated the maternity cost for mothers and babies based on only these additional expected IVF births, as the maternity costs for mothers and babies associated with current IVF births are already covered and assumed to be reflected in current experience, even though the IVF costs are not. The maternity costs for mothers were identified as those from 27 weeks pre-birth to 30 days post-birth and the costs for babies were identified as the costs from birth

⁹ Livingston, Gretchen. "A third of U.S. adults say they have used fertility treatments or know someone who has." Pew Research Center. July 17, 2018. <https://www.pewresearch.org/fact-tank/2018/07/17/a-third-of-u-s-adults-say-they-have-used-fertility-treatments-or-know-someone-who-has/>. Accessed November 21, 2019.

through the first year of life.¹⁰ We trended forward the cost data segregated by source (mother or infant) and type of birth (singleton, twins, or triplets+) to 2020 using the same trend utilized in the IVF calculations, and developed a weighted average of the cost by source using the national percentage distribution of type of birth through IVF.¹¹ We then applied a cost adjustment to the weighted average costs by source to account for higher expected unit costs in Vermont when compared to national averages. The adjusted costs by source was used to determine the additional cost of maternity services due to IVF.

The frequency and severity were then utilized to develop an allowed PMPM cost estimate for the additional maternity cost for mothers and infants due to the increase in the IVF birth percentage from the implementation of an IVF mandate.

SCENARIO VARIATION

We developed allowed PMPM cost estimates for three scenarios as described in the Introduction section of this report. For each scenario, a cycle maximum was input into the model to cap utilization and cost at the cycle limit for each individual IVF recipient. For Scenario 1, we assumed no limit on the number of cycles or dollar amount. For Scenario 2, we assumed a maximum of 3 cycles per individual. For Scenario 3, we first determined the number of cycles that would be required to reach a \$100,000 limit. This dollar limit fell between 5 and 6 cycles of treatment. Therefore, we calculated the resulting PMPM costs under limits of both 5 and 6 cycles. We then performed linear interpolation on the results from cycle limits of 5 and 6 to calculate the resulting PMPM that would reflect a \$100,000 maximum.

ESTIMATE RANGE

For each of the three scenarios analyzed for the Merged and Large Groups market, we developed a low and high estimate of infertility costs that would be expected if a law reflecting the specifics of the scenario were enacted. Two assumptions were altered between these varying estimates, while all other assumptions were held constant.

The first assumption was the percent of individuals that continue IVF treatment after an unsuccessful attempt. The low estimate assumes that this percentage will remain consistent with current levels at 75%. The high estimate assumes this percentage will increase to 100% indicating that each individual will utilize the maximum amount of cycles available in the case of an unsuccessful attempt.

The second assumption was the additional increase in IVF births due to the implementation of an IVF mandate. This assumption represents an increase beyond the projected IVF birth percentage, as outlined previously. The low estimate assumes that this percentage will be 0%, indicating that no increase in the projected IVF birth rate will be observed, while the high estimate assumes that the additional increase to the projected IVF birth rate due to the implementation of an IVF mandate will be a multiplicative 25% (i.e., multiplying the projected IVF birth rate by 1.25).

¹⁰ Lemos, Elkin V, et al. "Healthcare Expenses Associated with Multiple vs Singleton Pregnancies in the United States." *The American Journal of Obstetrics and Gynecology*. October 2, 2013. [https://www.ajog.org/article/S0002-9378\(13\)01043-0/pdf](https://www.ajog.org/article/S0002-9378(13)01043-0/pdf). Accessed November 21, 2019.

¹¹ National Center for Chronic Disease Prevention and Health Promotion, Division of Reproductive Health. "2016 Assisted Reproductive Technology National Summary Report." October 2018. <https://www.cdc.gov/art/pdf/2016-report/ART-2016-National-Summary-Report.pdf>. Accessed November 21, 2019.

Fertility Preservation

Consistent with the estimate of the cost of infertility services described above, we also utilized a frequency-severity method to develop a fertility preservation cost estimate for the State of Vermont. The period under consideration was one year, and the unit of exposure was each commercially insured member.

We first determined the average cost per claim by gender given that fertility preservation services vary by gender. We based our cost estimates on the service and storage cost for egg and embryo freezing as well as sperm banking as obtained from the Alliance for Fertility Preservation. The Alliance for Fertility Preservation cited that the costs associated with harvesting eggs, embryos, or sperm for purposes of egg freezing, embryo freezing, and sperm banking range from \$10,000 to \$15,000, \$11,000 to \$15,000, and \$500 to \$1,000, respectively. The organization also indicated that the annual storage costs associated with egg freezing, embryo freezing, and sperm banking range from \$300 to \$500, \$400 to \$600, and \$150 to \$400, respectively.¹² We utilized the low and high end of these ranges to determine the cost of egg freezing, embryo freezing, and sperm banking for each of separate scenarios.

We then calculated estimates of utilization per 1,000 covered individuals of the services for each scenario in each market. In order to do so, we took the following steps:

1. Collected the National Cancer Institute's Surveillance, Epidemiology, and End Results Program delay adjusted incidence rates of all cancer sites by age at diagnosis from 2012-2016¹³
2. Collected 2018 US Census data for Vermont by age and gender¹⁴
3. Summarized the Merged and Large Group market membership by age and gender from the carrier data call
4. Developed an assumption for the percent of patients with cancer in their reproductive years who will undergo fertility preservation
 - a. Utilized 33% for the low estimate scenario and 100% for the high estimate scenario
 - b. The 33% estimate was based on an article from the National Center for Biotechnology Information that indicated 33% of the participants in the underlying study who were of reproductive age chose to preserve their fertility when faced with cancer treatment¹⁵
5. Calculated the number of new Vermont cancer cases in a year for the age group from 15 to 44 years, by gender and market, based on the incidence and membership data collected from Steps 1-3

¹² Alliance for Fertility Preservation. "Paying for Treatments." <https://www.allianceforfertilitypreservation.org/costs/paying-for-treatments>. Accessed November 21, 2019.

¹³ National Cancer Institute. "Surveillance, Epidemiology, and End Results Program." Last Revised April 15, 2019. https://seer.cancer.gov/explorer/application.php?site=1&data_type=1&graph_type=3&compareBy=sex&chk_sex_3=3&chk_sex_2=2&chk_race_1=1&chk_data_type_1=1&chk_data_type_13=13&advopt_precision=1&showDataFor=ace_1_and_data_type_13. Accessed November 21, 2019.

¹⁴ United States Census Bureau. "Annual Estimates of the Civilian Population by Single Year of Age and Sex for the United States and States: April 1, 2010 to July 1, 2018." <https://www2.census.gov/programs-surveys/popest/tables/2010-2018/state/asrh/sc-est2018-agesex-civ.csv>. Accessed November 21, 2019.

¹⁵ Bann, CM, et al. "Cancer Survivors' Use of Fertility Preservation." National Center for Biotechnology Information. September 16, 2015. <https://www.ncbi.nlm.nih.gov/pubmed/26375046>. Accessed November 21, 2019.

6. Applied the assumption for the percent of patients with cancer in their reproductive years who will undergo fertility preservation to determine the estimated number of Vermont cancer cases for the 15 to 44 age group by gender and market who would undergo fertility preservation
7. Calculated the utilization per 1,000 estimates based on the number of Vermont cancer cases for the 15 to 44 age group by gender and market who would be expected to undergo fertility preservation and the 2018 member months underlying each market from the carrier data call

Finally, we developed allowed PMPM allowed cost estimates for each scenario in each market utilizing the cost and utilization per 1000 estimates for egg and embryo freezing, egg and embryo storage, sperm banking, and sperm storage. For each scenario in each market, we then summed the cost for each of these services to determine the final PMPM cost estimates.

5. Results

Infertility Services

In this section, we present the results of our analyses of the estimated cost of mandating infertility services in Vermont. Three scenarios were analyzed as follows:

1. Scenario 1: All policies issued or renewed in the State of Vermont would be required to cover diagnoses and medical treatment of infertility, including evaluations, laboratory services, medications, and treatment associated with the procurement of donor eggs, sperm, and embryos, with no limit on the number of attempts, dollar amounts, or age.
2. Scenario 2: The same parameters as Scenario 1 with the exception that a policy may impose a limit of three completed egg retrievals, with unlimited embryo transfers.
3. Scenario 3: The same parameters as Scenario 1 with the exception that a policy may impose a maximum lifetime limit on these services of \$100,000.

Table 1 presents the total allowed cost estimates for the Merged market and Table 2 presents the total allowed cost estimates for the Large Group market. The estimates are total allowed cost impacts and do not include an offset for any infertility riders that may currently be in place in either market.

Table 1 – Merged Market Allowed PMPM Cost Estimates

	Scenario 1		Scenario 2		Scenario 3	
	Low Estimate	High Estimate	Low Estimate	High Estimate	Low Estimate	High Estimate
IVF	\$3.66	\$7.02	\$3.16	\$4.77	\$3.56	\$6.17
Maternity - Mother	\$1.68	\$3.26	\$1.48	\$2.33	\$1.64	\$2.94
Maternity - Infant	\$2.34	\$4.54	\$2.05	\$3.24	\$2.29	\$4.10
Total	\$7.69	\$14.81	\$6.69	\$10.33	\$7.49	\$13.21

Table 2 – Large Group Market Allowed PMPM Cost Estimates

	Scenario 1		Scenario 2		Scenario 3	
	Low Estimate	High Estimate	Low Estimate	High Estimate	Low Estimate	High Estimate
IVF	\$4.29	\$8.18	\$3.71	\$5.60	\$4.18	\$7.23
Maternity - Mother	\$2.00	\$3.86	\$1.76	\$2.77	\$1.96	\$3.49
Maternity - Infant	\$2.78	\$5.37	\$2.45	\$3.85	\$2.72	\$4.86
Total	\$9.08	\$17.40	\$7.92	\$12.22	\$8.86	\$15.58

The tables above show that Scenario 2 produces the lowest cost, which is not surprising given that this scenario represents the lowest egg retrieval cycle limit. Scenario 1 represents the richest benefits, which result in only a slightly higher cost than Scenario 3 on the low range of estimates with an increasing differential at the high estimate. The development of the high estimate begins with a moderately higher starting number of individuals utilizing IVF than the

development of the low estimate. However, the development of the high estimate also assumes every individual continues to pursue IVF cycles after unsuccessful attempts while the low estimate assumes an individual will continue treatment after an unsuccessful attempt at a rate of only 75%. This causes a larger gap between Scenario 1 which contains unlimited cycles and Scenario 3 which effectively limits the number of cycles by enforcing a maximum dollar limit.

The difference in the corresponding low and high estimates range from the high estimate being 50% greater than the low estimate for the least rich scenario (Scenario 2) to the high estimate being almost 95% greater than the low estimate for the richest scenario (Scenario 1). This observation is consistent across both markets. This disparity between scenarios is due to the varying cap of cycles under each scenario. As more cycles are allowed, the assumption of higher continuation of services after unsuccessful attempts has a greater effect on the resulting cost.

For each estimate, the total allowed cost projected in the Large Group market is 16% to 19% higher than the cost projected in the Merged market. This is due to the differences in demographics underlying the two market populations. In the Merged market, 21% of member months are attributable to females aged 15 to 44, while in the Large Group market, 25% of member months are attributable to the same female age group. While this difference might not seem large, it results in significantly more member months that could be eligible for IVF benefits in the Large Group market than would be eligible if the demographic distribution were consistent with the Merged market. The increase in eligible members in the Large Group market results in the difference in the resulting cost estimates between the two markets.

Further, the cost of additional maternity benefits due to the increased number of births from IVF treatment totals 10% to 20% more than the cost of the IVF treatment itself under the various estimate underlying the three scenarios. The Affordable Care Act requires that states defray the costs for any new state-required benefits effective after December 31, 2013 that are in addition to current Essential Health Benefits required in the Merged market. It is our understanding that DFR believes the coverage of infertility services would qualify as new state-required benefits and not an expansion of current Essential Health Benefits. However, if the maternity services for both mothers and infants resulting from IVF treatments were considered to already qualify as current Essential Health Benefits, the State of Vermont would be required to only pay for the IVF cost in the Merged market.

Fertility Preservation

In this section, we present the results of our analysis of the cost of mandating fertility preservation services when a person is expected to undergo treatment that would cause risk of impairment of infertility. Table 3 presents the low and high cost estimates for the cost of fertility preservation services in the Merged and Large Group markets.

Table 3 – Fertility Preservation Allowed PMPM Cost Estimates

	Low Estimate	High Estimate
Merged Market	\$0.09	\$0.41
Large Group Market	\$0.10	\$0.47

Table 3 shows that the difference between the low and high estimates varies by \$0.32 PMPM for the Merged market and \$0.37 PMPM for the Large Group market. This is due to the increased cost of services and percentage of eligible members who would be expected to pursue fertility preservation as the estimates move from the low to high scenarios. Table 3 also demonstrates that the PMPM estimates are fairly consistent between the two distinct markets under each estimate scenario.

In all scenarios, the estimated cost impact of mandating fertility preservation services is small. This is consistent with estimates that have been developed for similar services in other states. For example, the Annual Mandate Report: Coverage for Fertility Preservation for Iatrogenic Infertility prepared for the Maryland Health Care Commission reported that the estimated cost of mandating fertility preservation services in Maryland ranged from \$0.10 to \$0.24 PMPM.¹⁶

Premium Estimates

All cost estimates presented in the prior two sections of this report represent the expected increase to allowed costs. This section reviews the projected impact to health insurance premiums by considering projected premium costs.

It is our understanding that in the Merged market, health insurance carriers would be liable only for the additional maternity costs for mothers and infants created by the implementation of the proposed mandates. In order to calculate the premium PMPM cost estimates, we reviewed the 2020 Unified Rate Review Template (URRT) for both carriers that will be offering coverage in the Merged market in Vermont in 2020. We aggregated the data from these templates and determined the overall expected 2018 paid to allowed ratio for the market and the overall 2020 projected loss ratio for carriers in Vermont. We then multiplied the allowed PMPM estimates for additional maternity costs by the calculated paid to allowed ratio, assuming the 2018 ratio would be consistent with what will be experienced in 2020, and divided by the projected 2020 loss ratio, which account for the impact of administrative costs, taxes, fees, and profit/contribution to surplus, assuming all non-claims costs vary as a percent of premium for simplicity, to determine the premium PMPM estimates for each scenario. We then determined the estimated rate increase percentage using the member-weighted average of the projected 2020 premium PMPMs included in the 2020 URRTs (\$610.89). Table 4 presents these estimates for a low and high estimate under each proposed scenario in the Merged market.

Table 4 –Merged Market Premium PMPM Cost and Rate Increase Estimates

	Scenario 1		Scenario 2		Scenario 3	
	Low Estimate	High Estimate	Low Estimate	High Estimate	Low Estimate	High Estimate
Maternity - Mother	\$1.75	\$3.38	\$1.53	\$2.41	\$1.71	\$3.06
Maternity - Infant	\$2.43	\$4.71	\$2.13	\$3.36	\$2.38	\$4.25
Total	\$4.18	\$8.09	\$3.67	\$5.78	\$4.09	\$7.31
Rate Increase	0.7%	1.3%	0.6%	0.9%	0.7%	1.2%

¹⁶ Novak, Donna, and Bender, Karen. "Annual Mandate Report: Coverage for Fertility Preservation for Iatrogenic Infertility." Maryland Health Care Commission, November 16, 2017. https://mhcc.maryland.gov/mhcc/pages/plr/plr/documents/NovaRest_Evaluation_of_%20Proposed_Mandated_Services_Iatrogenic_Infertility_FINAL_11-20-17.pdf. Accessed November 21, 2019.

It is also our understanding that in the Large Group market, health insurance carriers would be liable for all costs created by the implementation of the proposed mandates, both the IVF costs and the additional maternity costs. In order to calculate the premium PMPM estimates for this market, we needed to develop assumptions for the projected 2020 paid to allowed ratio and administrative expenses in the Large Group market. We utilized the combined large group Vermont paid to allowed ratio from the 2016 Lewis & Ellis study prepared for the Green Mountain Care Board¹⁷ as a proxy for the 2020 paid to allowed ratio for the Large Group market in Vermont. We then aggregated the administrative expenses from the 2018 Medical Loss Ratio (MLR) files for the Large Group carriers in Vermont. However, these expenses do not include profit or contribution to surplus. Therefore, we reviewed the 2019 rate filings for each Large Group carrier to determine the amounts used in the filings and developed a weighted average of the amounts using 2018 member months in the Large Group market for these carriers. We added the administrative expenses from the MLR files and the calculated profit/contribution to surplus margin to determine a proxy non-benefit expense assumption for the Large Group market in 2020. We then multiplied the allowed PMPM estimates for IVF, additional maternity costs, and fertility preservation by the projected 2020 paid to allowed ratio and divided by the projected 2020 loss ratio (1 – non-benefit expenses) to determine the premium PMPM estimates for each scenario. We then determined the estimated rate increase percentage for each scenario. In order to do so, we needed to develop an estimate of the 2020 Large Group premium PMPM in Vermont. We utilized the 2018 MLR files to calculate the overall 2018 Large Group premium PMPM and applied two years of trend based on the median Group Medical cost trend summarized in Oliver Wyman’s July 2019 Carrier Trend Report to develop an estimate of the 2020 Large Group premium PMPM (\$572.49). Table 5 presents these estimates for a low and high estimate under each proposed scenario in the Large Group market.

Table 5 – Large Group Market Premium PMPM Cost and Rate Increase Estimates

	Scenario 1		Scenario 2		Scenario 3	
	Low Estimate	High Estimate	Low Estimate	High Estimate	Low Estimate	High Estimate
IVF	\$4.18	\$7.96	\$3.62	\$5.46	\$4.07	\$7.04
Maternity - Mother	\$1.95	\$3.75	\$1.71	\$2.69	\$1.90	\$3.40
Maternity - Infant	\$2.71	\$5.23	\$2.38	\$3.75	\$2.65	\$4.73
Fertility Preservation	\$0.10	\$0.46	\$0.10	\$0.46	\$0.10	\$0.46
Total	\$8.94	\$17.40	\$7.81	\$12.36	\$8.72	\$15.63
Rate Increase	1.6%	3.0%	1.4%	2.2%	1.5%	2.7%

State Cost Estimates

As described above, the Affordable Care Act requires that states defray the costs for any new state-required benefits that are in addition to current Essential Health Benefits required in the Merged market. It is our understanding that under the proposed mandates, the cost of IVF treatments and fertility preservation services would be categorized as new state-required benefits and not an expansion of current Essential Health Benefits. It is also our understanding

¹⁷ Dillon, David, et al. “Impact of Expanding Vermont Health Connect to Include Large Group Employers.” Lewis & Ellis, Inc. February 11, 2016. <https://legislature.vermont.gov/assets/Legislative-Reports/VT-LG-Study-LE-Final.pdf>. Accessed November 27, 2019.

that the maternity services of both mothers and infants resulting from IVF treatments qualify as current Essential Health Benefits and therefore the State of Vermont would not be liable for these costs. Table 6 presents the aggregate projected allowed costs of IVF and fertility preservation services under each scenario, assuming the 2020 membership in the Merged market will be consistent with 2018 member months in this market as obtained from the carrier data call.

Table 6 – Merged Market Aggregate Cost Estimates

	Scenario 1		Scenario 2		Scenario 3	
	Low Estimate	High Estimate	Low Estimate	High Estimate	Low Estimate	High Estimate
IVF	\$3,479,637	\$6,672,702	\$2,999,947	\$4,531,791	\$3,382,231	\$5,868,359
Fertility Preservation	\$83,132	\$386,959	\$83,132	\$386,959	\$83,132	\$386,959
Total	\$3,562,769	\$7,059,661	\$3,083,079	\$4,918,750	\$3,465,363	\$6,255,319

It should be noted that the costs included in Table 6 represent allowed costs, and therefore do not account for any cost sharing that might be paid by the member. Members receiving IVF treatments would likely be expected to reach their out of pocket maximums and have higher paid to allowed ratios than the average member in the market. However, given the variety of plan options and various times during the year at which a member might reach their out of pocket maximum, it would be difficult to estimate an accurate overall paid to allowed ratio for this cohort of members. Therefore, Table 6 reflects some conservatism and we would expect the projected cost that would be passed on to the State for IVF and fertility preservation services be less than the amounts shown as there is no member cost sharing being assumed. In addition, the estimates above do not include any costs related to administrative expenses the State may incur for these benefits. For example, it is likely that the carriers will need to process claims for IVF and fertility preservation and, to the extent the State pays the carriers an administrative expense for these services, such costs would be in addition to those shown above.

6. Social Impact

In this section, we address the following:

- To what extent might the proposed change generally be utilized by a significant portion of the population?
- To what extent is insurance coverage for these services already generally available?
- To what extent does lack of coverage result in individuals avoiding necessary health care treatments?
- To what extent does lack of coverage result in unreasonable financial hardship?
- What is the level of public demand for the services?

IVF

The CDC is required to oversee all ART. The most recent results show that there were 284,385 cycles of ART performed at 448 reporting clinics across the United States in 2017.¹⁸ The carrier data call showed that in 2018, females in their reproductive years accounted for only 21% of the population of commercially insured Merged market and 25% of the population of commercially insured Large Group market. Combining this with only 12% of women in their reproductive years (aged 15 to 44) having impaired fecundity, the number and percentage of infertile women who choose some form of ART is relatively small.¹⁹ Likewise, utilization for the entire population is even smaller.

Therefore, infertility service benefits would be expected to be used by only a small portion of the Vermont population. The relatively low incidence of IVF treatment does limit the number of settings in which it is performed, and availability is less widespread in geographic areas with limited populations. As of 2017 CDC data indicated that IVF was performed at only two sites in Vermont that year.²⁰

Insurance coverage for infertility services is currently limited to the Large Group market in Vermont. These services are provided in the form of infertility riders offering either some medical or some drug coverage to some groups in the Large Group market. There is currently no mandate for infertility services in the State of Vermont.

In general, carriers do not recognize infertility treatment as medically necessary. Although there may be health effects associated with infertility, and the lack of access to infertility treatment may contribute to mental health issues involving stress or depression, most carriers would consider infertility treatment a choice, rather than a necessity, as

¹⁸ National Center for Chronic Disease Prevention and Health Promotion, Division of Reproductive Health. "Assisted Reproductive Technology (ART)." Last Revised November 15, 2019. <https://www.cdc.gov/art/artdata/index.html>. Accessed November 22, 2019.

¹⁹ National Center for Chronic Disease Prevention and Health Promotion, Division of Reproductive Health. "Reproductive Health – Infertility FAQs." Last Revised January 16, 2019. <https://www.cdc.gov/reproductivehealth/infertility/index.htm>. Accessed November 21, 2019.

²⁰ National Center for Chronic Disease Prevention and Health Promotion, Division of Reproductive Health. "Assisted Reproductive Technology (ART)." Last Revised November 15, 2019. <https://www.cdc.gov/art/artdata/index.html>. Accessed November 22, 2019.

there are no direct medical consequences for people who do not seek IVF treatment.²¹

The financial impact for the individuals affected by the potential mandate is significant. Based on research, our modeling assumed a 2020 cost per IVF cycle of almost \$18,000. The implementation of the proposed mandate would provide infertility services to some women and their families who would otherwise undoubtedly be unable to afford treatment. The financial hardship for women and their families who would pay for IVF treatments out-of-pocket could be significant.

Additionally, patients paying out of pocket for infertility services are more likely to request that multiple embryos be transferred in a cycle than those covered under an infertility mandate in order to maximize their chance of success in a single cycle.²² However, this can lead to increased costs for both the carrier and patient if multiple babies are conceived given that pregnancies with multiple babies carry significantly more risk than singleton pregnancies, including the risk of premature birth, low birth weight, respiratory complications, jaundice, pre-eclampsia, and Caesarean section.²³

While the actual number of affected individuals would be small, there would likely be a great deal of demand in receiving these infertility benefits among those affected by infertility.

Fertility Preservation

Fertility preservation services covered under this mandate would be provided to individuals expected to undergo surgery, radiation chemotherapy, or other treatment that would cause risk of impairment of infertility. The most common cause of iatrogenic infertility is the treatment of cancer. Using the National Cancer Institute's Surveillance, Epidemiology, and End Results Program (SEER) delay adjusted incidence rates of all cancer sites by age at diagnosis from 2012-2016 and the US Census data, we calculated the total number of expected new cancer cases in Vermont in 2018 to be 3,952. Of this total, only 138 cases would be attributable to women in their reproductive years and 79 would be attributable to men in their reproductive years.^{24,25} The cost of these cancer cases attributable to the commercial market is even smaller. Insurance coverage for this service is currently not mandated in the State of Vermont and would likely only affect a small portion of the population.

²¹ Pennsylvania Health Care Cost Containment Council. "Mandated Benefits Review by the Pennsylvania Health Care Cost Containment Council." March 2006.

<http://www.phc4.org/reports/mandates/HR400/docs/mandateHR400report.pdf>. Accessed November 22, 2019.

²² Stillman, RJ, et al. "Elective single embryo transfer: a 6-year progressive implementation of 784 single blastocyst transfers and the influence of payment method on patient choice." National Center for Biotechnology Information. October 31, 2008. <https://www.ncbi.nlm.nih.gov/pubmed/18976755>. Accessed November 22, 2019.

²³ Klitzman, Robert. "Deciding how many embryos to transfer: ongoing challenges and dilemmas." National Center for Biotechnology Information. December 2016. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5846681/>. Accessed November 22, 2019.

²⁴ United States Census Bureau. "Annual Estimates of the Civilian Population by Single Year of Age and Sex for the United States and States: April 1, 2010 to July 1, 2018." <https://www2.census.gov/programs-surveys/popest/tables/2010-2018/state/asrh/sc-est2018-agesex-civ.csv>. Accessed November 21, 2019.

²⁵ National Cancer Institute. "Surveillance, Epidemiology, and End Results Program." Last Revised April 15, 2019. https://seer.cancer.gov/explorer/application.php?site=1&data_type=1&graph_type=3&compareBy=sex&chk_sex_3=3&chk_sex_2=2&chk_race_1=1&chk_data_type_1=1&chk_data_type_13=13&advopt_precision=1&showDataFor=ace_1_and_data_type_13. Accessed November 21, 2019.

Like infertility services, there is no direct medical consequence for an individual who does not seek fertility preservation due to iatrogenic treatment. However, in some cases patients facing cancer treatment options will choose less effective treatments to avoid the toxicity and possible infertility resulting from more aggressive treatments. Additionally, infertility due to the treatment of an unrelated diagnosis can cause depression and increased levels of anxiety.²⁶

The financial impact for individuals affected by the potential mandate is significant, with a greater burden of cost for women. The Alliance for Fertility Preservation cited that the service costs associated with harvesting eggs, embryos, or sperm for purposes of egg freezing, embryo freezing, and sperm banking range from \$10,000 to \$15,000, \$11,000 to \$15,000, and \$500 to \$1,000, respectively. The organization also indicated that the annual storage costs of egg freezing, embryo freezing, and sperm banking range from \$300 to \$500, \$400 to \$600, and \$150 to \$400, respectively.²⁷ The implementation of the proposed mandate would provide fertility preservation services to women and men who would otherwise be unable to afford treatment. Therefore, consistent with infertility services, while the actual number of affected individuals would be small, there would likely be a great deal of demand in receiving these fertility preservation benefits by those affected by treatments that could cause infertility.

²⁶ Livestrong. "Iatrogenic Infertility Due to Cancer Treatments: A Case for Fertility Preservation Coverage." 2011. <https://www.livestrong.org/sites/default/files/what-we-do/reports/LIVESTRONG-Benefit-Case-Study-2011.pdf>. Accessed November 22, 2019.

²⁷ Alliance for Fertility Preservation. "Paying for Treatments." <https://www.allianceforfertilitypreservation.org/costs/paying-for-treatments>. Accessed November 21, 2019.

7. Distribution and Use

This report was prepared for the sole use of the Vermont Department of Financial Regulation. All decisions in connection with the implementation or use of advice or recommendations contained in this report are the sole responsibility of the Vermont Department of Financial Regulation pursuant to which we issued this report. Oliver Wyman's consent to any distribution of this report (whether herein or in the written agreement pursuant to which we issued this report) to parties other than the Vermont Department of Financial Regulation does not constitute advice by Oliver Wyman to any such third parties. Any distribution to third parties shall be solely for informational purposes and, in the case of regulators and officers of the State, for purposes of fulfilling related regulatory, administrative, and official functions. Oliver Wyman assumes no liability related to third party use of this report or any actions taken or decisions made as a consequence of the results, advice, or recommendations set forth herein. This report should not replace the due diligence on behalf of any such third party.

8. Considerations and Limitations

Data Verification – For our analysis, we relied on data and information provided by carriers offering commercial health insurance in the State of Vermont without independent audit. Though we have reviewed the data for reasonableness and consistency, we have not audited or otherwise verified this data. Our review of data may not always reveal imperfections. We have assumed that the data provided is both accurate and complete. The results of our analysis are dependent on this assumption. If this data or information is inaccurate or incomplete, our findings and conclusions might therefore be unreliable.

Unanticipated Changes – We based our conclusions on the estimation of the outcome of many contingent events. We developed our estimates from historical experience, with adjustments for anticipated changes. Unless otherwise stated, our estimates make no provision for the emergence of new types of risks not sufficiently represented in the historical data on which we relied or which are not yet quantifiable.

Internal / External Changes – The sources of uncertainty affecting our estimates are numerous and include factors internal and external to the DFR. Internal factors include items such as changes in provider reimbursement and claims adjudication practices. The most significant external influences include, but are not limited to, changes in the legal, social, or regulatory environment, and the potential for emerging diseases. Uncontrollable factors such as general economic conditions also contribute to the variability.

Uncertainty Inherent in Projections – While this analysis complies with applicable Actuarial Standards of Practice, users of this analysis should recognize that our projections involve estimates and are subject to economic and statistical variations from expected values. We have not anticipated any extraordinary changes to the regulatory, legal, social, or economic environment or the emergence of new diseases or catastrophes that might affect our results beyond those stated in this report. For these reasons, we provide no assurance that the emergence of actual experience will correspond to the projections in this analysis.



Oliver Wyman
411 East Wisconsin Avenue, Suite 1300
Milwaukee, WI 53202-4419