



Strategies to Control the Rising Cost of State Employee Health Care

Examining price variation in the State employee health plan

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Investigative Report 21-07

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Investigative Report: An investigative report is a tool used to inform citizens, policymakers, and State agencies about issues that merit attention. It is not an audit and is not conducted under generally accepted government auditing standards. Unlike an audit, which contains formal recommendations, investigative reports include information and possible risk-mitigation strategies relevant to the topic that is the object of the inquiry.

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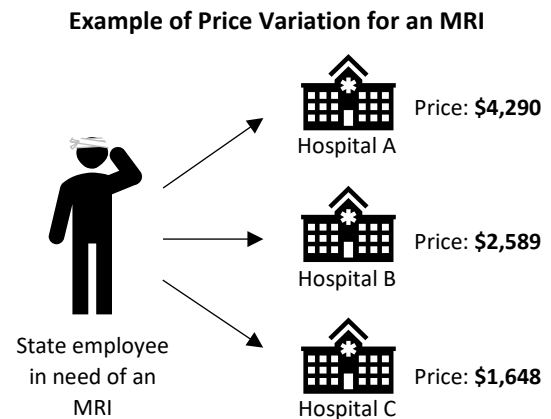
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Executive Summary

The Vermont State employee health plan covers more than 25,000 members and works like ordering from an a la carte menu. Each time someone receives a medical service, the State pays a site-specific price. **When a State employee uses (often without knowing it) a more expensive provider, it increases the overall cost of health care for the State, which is mostly paid for by taxpayers.**

This report examines the extent to which the State is paying different prices to different medical providers *for the exact same services*. The term used to describe this is “price variation.” Examining a sample of health care services commonly used by State employees, we found that **the highest priced provider for a given service was paid an average of 3.5 times more than the lowest priced provider for the exact same service.** The most extreme difference in prices is for echocardiographs – the highest priced provider is paid 9.3 times more than the lowest priced!



Utilization of higher priced providers – and the resulting increase in health care spending – matters because State employee health care is a significant and growing expense for Vermont. **From 2010 to 2019, annual medical payments for State employees, retirees, and their families increased by 51%, from \$94 million to \$142 million. That’s a combined \$245 million in increased payments.** Reducing the cost of health care would free up resources that could support other State efforts or ease the pressure on taxpayers. In response, we examined two strategies Vermont could pursue to reduce the cost of State employee health care by addressing price variation.

- 1) Reference-based pricing:** Reference-based pricing occurs when a health care purchaser, in this case a state, sets a maximum amount they are willing to pay for a service rather than merely paying the prices negotiated by insurance companies and hospitals. **We estimate that if reference-based pricing was implemented for just the 39 services we sampled, savings could reach \$2.3 million annually, with an average savings of 13% per service. If this level of savings was achieved across all services, total savings could reach \$16.3 million annually.**
- 2) Incentives to select cost-effective care:** Under this model, insurers provide employees with comparative price information and a cash incentive when an employee selects a lower priced provider. **We estimate that if the State implemented this program for seven types of shoppable services in our sample, savings could reach approximately \$202,000 annually, with an average of 3% savings per service; with each added service (there are hundreds), the State would enjoy additional savings.**

Successes in other states:

- Montana used reference-based pricing in their State employee health plan and **saved \$47.8 million from 2017 to 2019.**
- New Hampshire implemented an incentive program to encourage State employees to select cost-effective care. They **saved \$4.7 million in 2019.**

Introduction

Imagine that you are purchasing a new car. Two dealers in your town are selling the car that you want, but one of them is charging 50% more. You wouldn't choose the more expensive dealer, right? And yet, in health care, Vermonters frequently use (often without knowing it) the more expensive option, seeing providers that charge double, triple, or more for the exact same procedure. For a number of reasons, health care does not operate like other markets, and patients may not be able or incentivized to seek out a better deal. But when patients use more expensive providers, it increases the cost of health care for patients, employers, and taxpayers.

Earlier this year, the State Auditor's Office (SAO) published a [memo](#) highlighting the significant variability in prices paid to health care providers for the same services in Vermont. We now turn our attention toward the State employee health plan. The State employee health plan covers more than 25,000 members and works like ordering from an a la carte menu. Each time someone covered by the plan receives a medical service, the State pays a site-specific price for that service. If a more expensive provider of, say, an MRI is selected, then the taxpayers pay more than they would if a lower priced option was used. Conversely, each time a State employee, retiree, or their family member uses a lower priced option, taxpayers save money compared with higher priced options.

This report examines the extent to which the State is paying different prices to different medical providers for the exact same services used by State employees, retirees, and their family members. The term we will use to describe this is "price variation." We then identified two strategies – reference-based pricing and an incentive program – that Vermont could pursue to reduce the cost of State employee health care by limiting the impact of price variation. In our sample, reference-based pricing resulted in an average savings of 13% per service. **If Vermont achieved this level of savings across all medical services covered under the State plan, total savings could reach up to \$16.3 million annually.** Under the incentive program, savings averaged 3% per service; total savings under an incentive program are dependent on how many services are included in the program and employee participation.

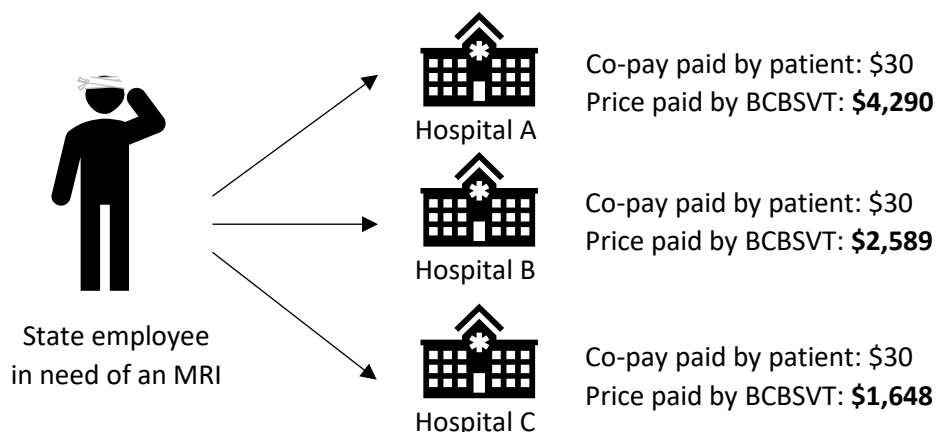
Background

Significant differences in prices for the same procedure contribute to rising health care costs

Price variation occurs when health care providers are paid different amounts for the same service. For example, imagine that a State employee needs an MRI. This employee participates in the State employee health plan which is administered by Blue Cross Blue Shield of Vermont (BCBSVT). The employee's co-pay will be the same at any hospital in Vermont. However, the price that BCBSVT negotiates with each hospital differs even though the payment covers the exact same service. In the example below, **Hospital A's price of \$4,290 for an MRI is 166% greater than Hospital B at \$2,589 and 260% greater than Hospital C at \$1,648.** (These are actual median prices that BCBSVT paid to three hospitals for State employees' care in 2019.) The employee pays the same \$30 co-pay regardless of which hospital performs the MRI. However, the extra cost to *the State health plan* of choosing Hospital A instead of Hospitals B or C is \$1,701 and \$2,642 respectively. While insurance shields patients from this price variation at the time of care delivery, when patients select or providers refer patients to higher

priced providers, it increases the overall cost of employee health care for the State, which is mostly funded by taxpayers.^{1,2}

Figure 1. Example of price variation for an MRI using median price data from BCBSVT



Source: BCBSVT, State of Vermont Employer Group: 2019 Median Price data.

For most goods and services, informed consumers consider price and quality when deciding what to purchase, presumably driving the market towards better value. However, lack of accessible data has historically been a barrier that prevents patients from being able to search for cost-effective care.^{3, 4} Even when comparative data is available, patients commonly seek care where their health care provider has referred them rather than shop around,⁵ and in some cases, such as emergency care, patients are not able to select their site of care in advance.⁶ In addition, patients with comprehensive health insurance (such as Vermont State employees) are insulated from price variation at the time of service which means that these patients have no direct financial motivation to seek cost-effective care.⁷

Higher prices are not associated with higher quality care

In many industries, higher prices are associated with higher quality goods and services. Does health care have the same price-to-quality relationship? In other words, when an individual uses higher priced care,

¹ University of Vermont College of Medicine, University of Massachusetts Medical School, & Wakely Consulting Group. (2014). *Price Variation Analysis*. Prepared for the Green Mountain Care Board.

² The State covers 80% of the medical plan; employees contribute the other 20%.

³ In 2014 and 2016, the SAO released two [reports](#) discussing the state of health care price and quality transparency for consumers in Vermont.

⁴ In recent years, there have been efforts at both the state and federal level to increase price transparency, making it easier for consumer to access health care price information. Starting in 2016, Vermont statute [18 V.S.A. § 9413](#) requires commercial health insurers to provide online cost and quality data to their members. BCBSVT offers such a [tool](#) on their website. At the [federal level](#), the Centers for Medicare and Medicaid Services (CMS) require hospitals to publish the negotiated prices that they receive from insurance companies. While the impact of these changes is still unfolding, there have been challenges with hospital [compliance](#) and, more generally, consumer [awareness](#) and [use](#) of price comparison data is limited.

⁵ Chernew, M., Cooper, Z., Hallock, E., & Morton, F. (2021). [Physician agency, consumerism, and the consumption of lower-limb MRI scans](#). *Science Direct*, 76 (102427).

⁶ CMS defines [shoppable services](#) as, “a service that can be scheduled by a health care consumer in advance,” such as imaging and lab services, medical and surgical procedures, and outpatient clinics.

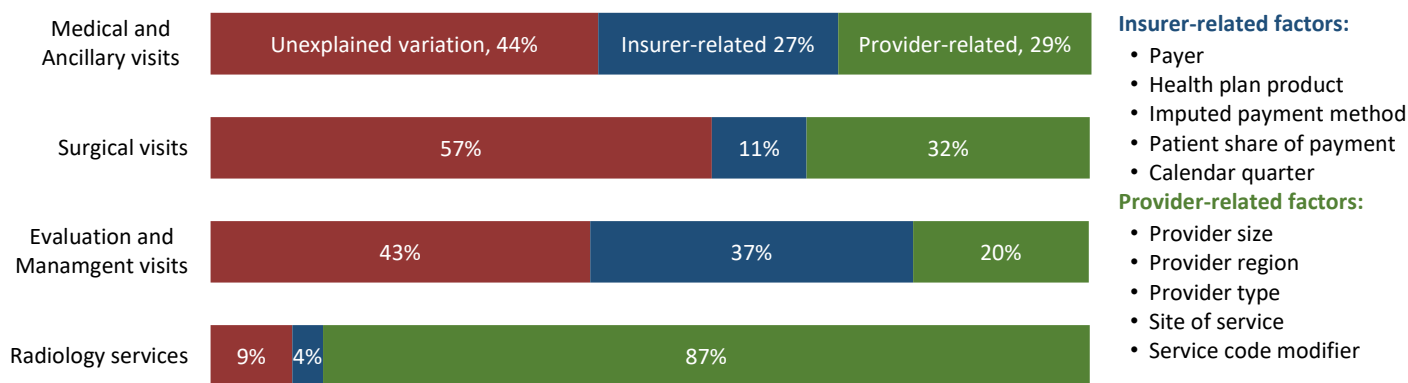
⁷ Patients without health insurance or with high deductible plans are less insulated from price variation.

are they receiving better medical care than their peers who receive care at lower priced providers? The short answer is that **there is not consistent evidence that higher prices are associated with higher quality care.**^{8, 9, 10}

To better understand what *is* driving this price variation, a [2014 analysis](#) prepared for the Green Mountain Care Board looked at a range of insurer and provider-related factors that impacted price variation for professional services in Vermont. The authors found that there, “is no consistency in the share of variation explained by each factor across services.” Furthermore, a significant portion of variation was “Unexplained” by their model, raising further questions about what drives this variation and whether it is justified. In fact, for most medical services, more than 40% of the difference in prices could not be explained.¹¹

Figure 2. Average variation in professional prices explained by each factor

Recreated using data from the 2014 analysis prepared for the Green Mountain Care Board



Source: University of Vermont College of Medicine, University of Massachusetts Medical School, & Wakely Consulting Group. [Price Variation Analysis](#). August 2014.

While some price variation may be warranted (e.g., variation due to the severity of a patient’s illness), *unwarranted* price variation increases overall health care costs without offering better value or societal benefits.¹² For example, the ability of some providers to negotiate higher prices creates unwarranted price variation that raises prices with no quality improvement and no relationship to the actual costs to provide the service.¹³

⁸ Massachusetts Health Policy Commission. (2015). [2015 Cost Trends Report: Provider Price Variation](#).

⁹ Beauvais, B., Gilson, G., Schwab, S., Jaccaud, B., Pearce, T., & Holmes, T. (2020). [Overpriced? Are Hospital Prices Associated with the Quality of Care?](#) *Healthcare (Basel, Switzerland)*, 8(2), 135.

¹⁰ Hussey, P. S., Wertheimer, S., & Mehrotra, A. (2013). [The association between health care quality and cost: a systematic review](#). *Annals of internal medicine*, 158(1), 27–34.

¹¹ University of Vermont College of Medicine, University of Massachusetts Medical School, & Wakely Consulting Group. (2014). [Price Variation Analysis](#). Prepared for the Green Mountain Care Board.

¹² [Special Commission on Provider Price Variation Report](#). (2017).

¹³ Figures 8 and 9 on pages 15 and 18 illustrate the weakness of associating higher price with higher quality in health care settings. Figure 8, for instance, displays the price for a CT scan of the chest at certain Vermont hospitals. Using publicly available data from each hospitals’ website, we can see that (continued on next page)

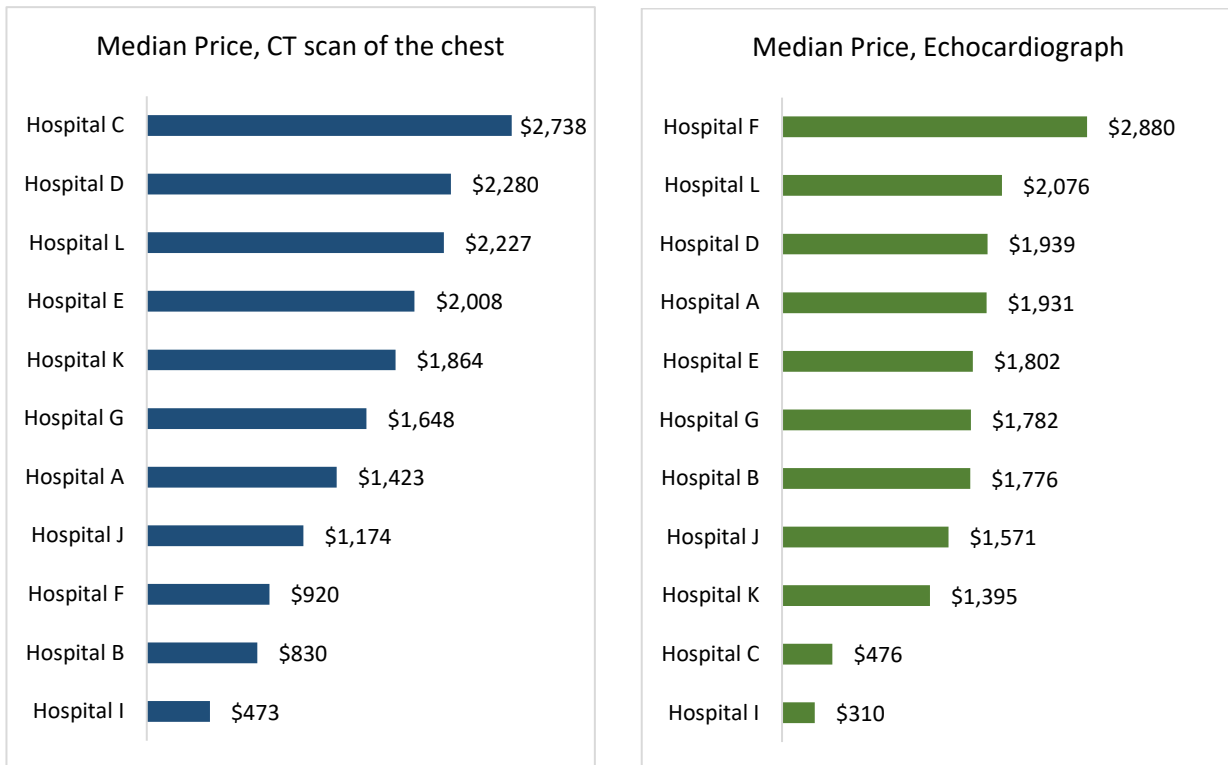
Price variation in the Vermont State employee health plan

The State pays significantly different prices for the same health care services used by State employees

Using data from BCBSVT, we examined variation among prices paid for health care services used by State employees, retirees, and their families. BCBSVT provided median price data for the top 75 services (by total cost) used by the State employer group across the top 12 utilized providers. Data was provided for claims incurred by State employees between January 1, 2019 to December 31, 2019. We then narrowed our focus to 39 services that were offered by three or more providers, primarily focusing on services with high volume, high cost, and/or high variation in prices.

Consistent with other studies in Vermont, we found significant price variation across providers. In our sample, **the highest priced provider for a given service was paid an average of 3.5 times more than the lowest priced provider for the exact same service** (an increase from 2.8 times in 2014, just five years earlier). For some services, the difference between the highest and lowest priced provider was even more extreme, such as a CT scan (5.8 times) and an echocardiograph (9.3 times). High levels of variation were most common among outpatient services (see **Appendix A** for price information for all 39 services).

Figure 3. Variation in median prices paid by BCBSVT for CT scans and echocardiographs for State employees and dependents

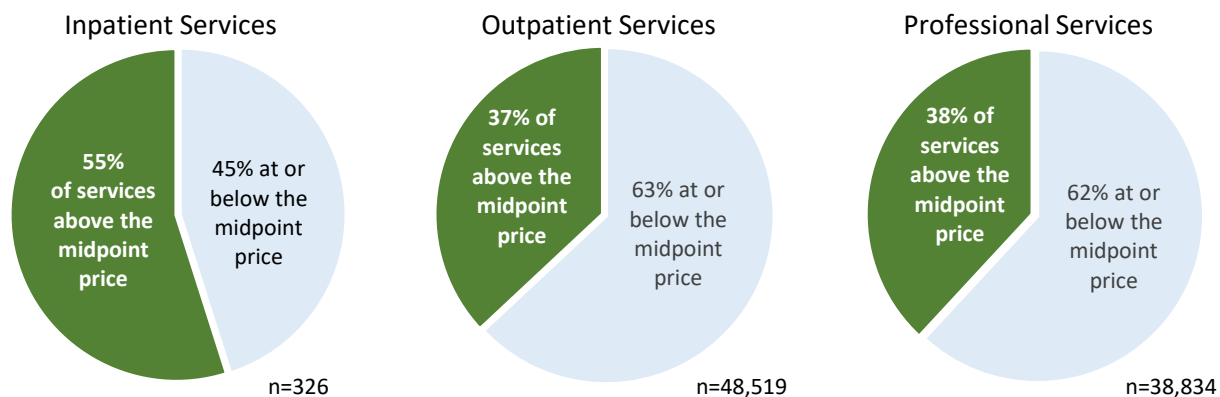


Source: BCBSVT, State of Vermont Employer Group: 2019 Median Price data.

the price for this procedure at Porter Medical Center is twice the price at Copley Hospital. There is absolutely no indication that the quality of this procedure is any higher at Porter than at Copley, let alone twice as much.

We also looked at the extent to which State employees use higher priced health care providers. Across the 87,679 services included in our sample, 32,912 services (38%) took place at providers with a median price that was higher than the midpoint price across the 12 providers.

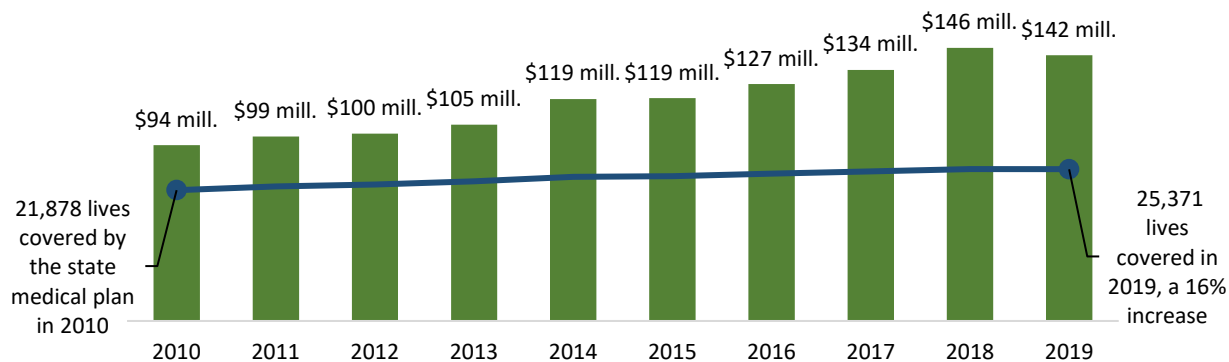
Figure 4. Percentage of services received at sites with median prices above the midpoint price



Source: BCBSVT, State of Vermont Employer Group: 2019 Median Price data.

Utilization of higher cost providers – and the resulting increase in health care spending – matters because State employee health care is a significant and growing expense for Vermont and State employees. The State offers employer sponsored health insurance to State employees, retirees, and dependents.¹⁴ Between 2010 and 2019, annual medical claims covered under the State plan grew 51%, from \$94 million to \$142 million, while the number of covered lives grew by just 16%. That’s a combined \$245 million in increased payments.

Figure 5. Medical claims for the State plan grew 51% between 2010 and 2019¹⁵



Source: Vermont Department of Human Resources, Annual Utilization Reports 2010-2019.

¹⁴ Permanent classified or exempt employees who work at least 1,040 hours per year are eligible to participate in the medical plan. Retirees are eligible to participate in a medical wrap plan if they have coverage on their last day of employment. Per State legislation, certain employers called “Special Groups” are also eligible. As of July 2021, this includes the Vermont Historical Society, the VSEA, and the Vermont Council on the Arts.

¹⁵ Prescription drug costs are not included but added \$29 million to the total in 2019. The reduction in the 2019 claims amount resulted from changes that occurred when the state rebid the contracts for the medical and pharmaceutical plans in 2019. Spending is anticipated to increase by 7% in both 2022 and 2023.

Strategies to reduce health care costs by addressing price variation

Reducing the cost of State employee health care would free up resources that could support other State efforts or reduce the overall cost of delivering State services. With those goals in mind, we examined strategies that the State could pursue to reduce the cost of employee health care by addressing price variation.

Many states are grappling with the rising costs of their employee health plans. Some have implemented innovative policies to reduce the cost of care for their employees by limiting price variation. Below, we highlight strategies adopted by Montana and New Hampshire. We then use data from BCBSVT to illustrate potential savings if these strategies were adopted by the Vermont State employees' health plan.

Reference-based pricing: Montana State Employee Health Plan

Reference-based pricing occurs when a health care purchaser, in this case a state, sets a maximum amount they are willing to pay for a service rather than merely paying the prices negotiated by insurance companies and hospitals. To address rising health care costs, Montana implemented reference-based pricing for their State employee health plan in State fiscal year 2017. Their State employee plan is comparable in size to Vermont and covers approximately 29,000 members. Montana used Medicare payment rates as the benchmark to establish reference payments across all of the state's acute care hospitals.¹⁶ For each procedure, Montana set the reference price between 220% to 225% of the Medicare rate for inpatient services and 230% to 250% of the Medicare rate for outpatient services.¹⁷

Table 1. Overview of Montana's strategy to reduce health care costs

Model	Reference-based pricing
Years in place	State fiscal year 2017 - present
Estimated savings	\$47.8 million in State fiscal years 2017-2019
Services covered	Inpatient and outpatient services at all acute care hospitals in the state
Action required by employees	None
Limitations to employee choices	None
Guaranteed savings	Yes

After implementing reference-based pricing, independent evaluators estimate that Montana saved \$47.8 million (17%) over three years for inpatient and outpatient care. In State fiscal year 2019, Montana's average per member per month spending decreased by 22% for inpatient services and 14% for outpatient services.¹⁸ It is important to note that this represents an actual reduction in expenditures, not merely slowing the rate of *growth* in expenditures which is a more typical goal of health care policy proposals.

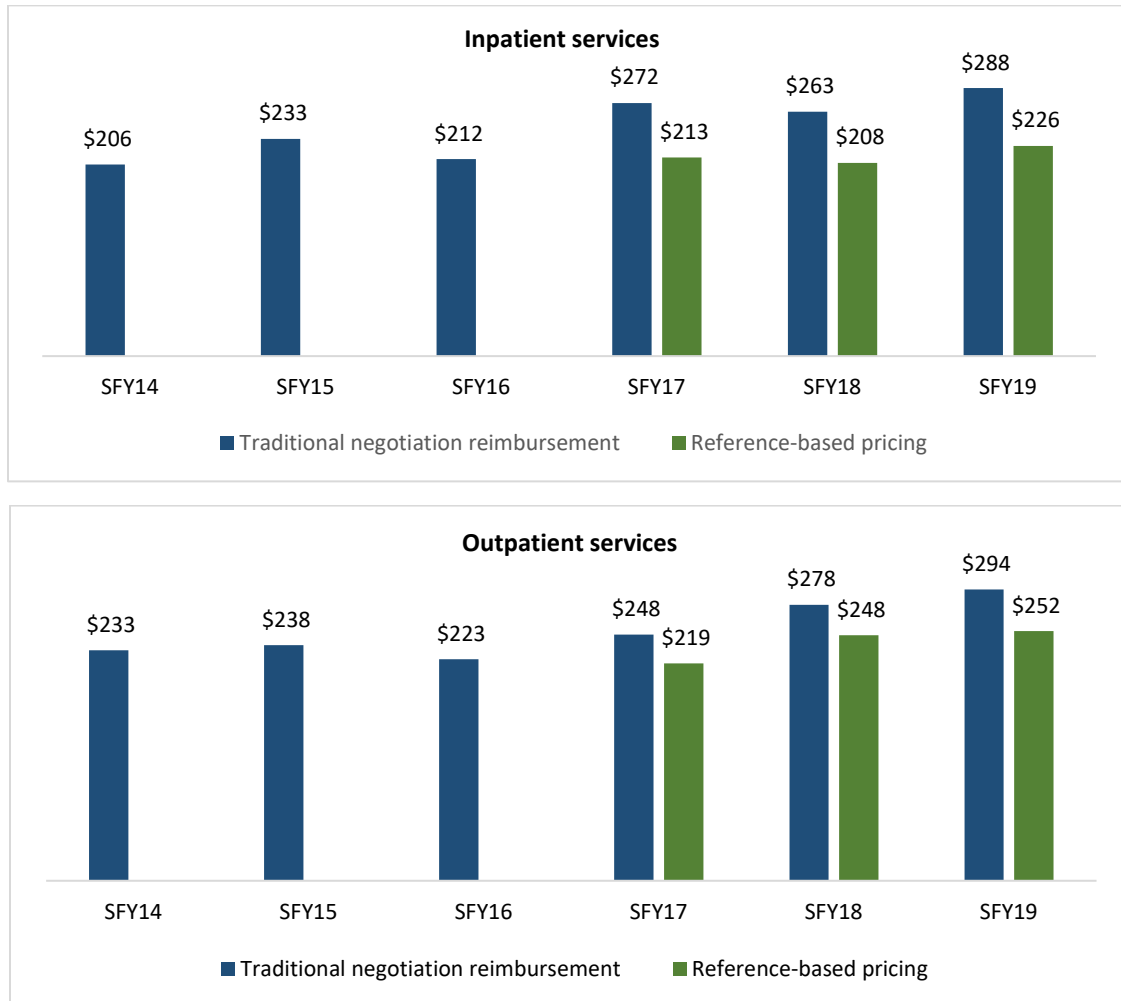
¹⁶ In Montana, the contracted payment rate did not change for critical access hospitals, which are small, rural hospitals with limited services. Critical access hospitals account for a small percentage of Montana State employees' health care costs.

¹⁷ Schramm and Aters, (2021). [Estimating the Impact of Reference-Based Hospital Pricing in the Montana State Employee Plan](#).

¹⁸ Ibid.

Figure 6. Average cost per member per month in Montana, traditional negotiations vs. reference-based pricing

Recreated using data from the 2021 evaluation of the Montana reference-based pricing program



Source: Schramm and Aters, (2021). Estimating the Impact of Reference-Based Hospital Pricing in the Montana State Employee Plan.

Because Montana was able to negotiate prices with all acute care hospitals in the state, nothing changed from the perspective of the employee. Employees did not have to shop for lower prices; any acute care hospital that offered these services was paid the reference price. **Despite being paid lower prices, there was no evidence that any health care provider in Montana reduced the range of services they offered to State employees as a result of reference-based pricing.**¹⁹

¹⁹ Schramm and Aters, (2021). [Estimating the Impact of Reference-Based Hospital Pricing in the Montana State Employee Plan](#); Correspondence with the former Administrator of the State of Montana Health Care and Benefits Division.

Incentives to select cost-effective care: New Hampshire’s State Employee Health Plan

Several states have promoted incentive-based programs to reward employees when they select lower priced providers.²⁰ In these programs, insurers provide employees with comparative price information and a cash incentive when an employee opts for a lower priced provider. In effect, the State and the employees share in the savings associated with utilizing lower priced providers. These voluntary programs don’t limit options or penalize employees if they decide to go to higher priced providers.

As of 2020, eight states have adopted incentive programs for public employees, including New Hampshire.^{21, 22} New Hampshire’s SmartShopper program offers State employees, retirees, and their dependents incentives to select cost-effective providers for more than [50 services](#). For example, if an employee chooses to get a colonoscopy at the most cost-effective provider, she will get a \$250 incentive payment.

Table 2. Overview of New Hampshire’s strategy to reduce health care costs

Model	Incentive program
Years in place	2010-present
Estimated savings	\$4.7 million in 2019
Services covered	50 + shoppable services
Action required by employees	Utilize shopping tool and select less expensive providers
Limitations to employee choices	None
Guaranteed savings	No, hinges on employee participation

In 2019, New Hampshire’s SmartShopper program saved \$4.7 million after paying out \$674,000 across 9,697 employee incentive payments.²³ The success of incentive-based programs hinges on employee participation, and as such, promoting the shopping tool and educating employees about the benefits of the program is critical. New Hampshire reports the highest rate of State employee participation, with 53% of eligible enrollees utilizing the SmartShopper tool at least once in 2019.²⁴

Applying cost saving strategies to Vermont’s State employee plan

Drawing on the examples in Montana and New Hampshire, we used data from BCBSVT to estimate potential savings if Vermont implemented similar programs in the Vermont State employee health plan.

Scenario 1: Reference-based pricing

For each of the 39 services in our sample, we modeled potential savings if the State implemented reference-based pricing. We used the midpoint price across the 12 providers in our sample as the reference price. For example, in our sample, the State plan covered 366 CT scans of the abdomen or

²⁰ National Conference of State Legislatures. (2021). [Transparency of Health Costs: State Actions](#).

²¹ The eight states that have adopted incentive programs are Florida, Kansas, Kentucky, Missouri, New Hampshire, Texas, Utah, and Virginia. In addition to state efforts, companies have also implemented incentive-based programs with [evidence of modest savings](#).

²² Tennessee Advisory Commission on Intergovernmental Relations. (2020). [Cost Savings of Right to Shop Programs](#).

²³ Ibid.

²⁴ Ibid.

pelvis in 2019, at a total cost of \$1,041,076. The median price at each hospital ranged from \$1,075 to \$3,505, with the midpoint price of \$2,615. Of the 366 visits, 240 (66%) took place at hospitals that were above the midpoint price. If Vermont used the midpoint price as the reference price for CT scans, we estimate that the State would save approximately \$191,000 annually, or 18% of the total cost for just this one service.

Table 3. Estimated savings for CT scans of the abdomen or pelvis using the midpoint price as the reference price

Service description	CT of abdomen or pelvis	
Total visits	366	
Hospital	Median Price	Visits
Hospital A	\$2,615 -\$3,505	94
Hospital B	\$2,615 -\$3,449	94
Hospital F	\$2,615 -\$3,418	15
Hospital L	\$2,615 -\$3,270	12
Hospital E	\$2,615 -\$2,969	25
Midpoint → Hospital D	\$2,615	23
Hospital K	\$2,362	6
Hospital J	\$2,305	24
Hospital C	\$1,867	43
Hospital G	\$1,632	8
Hospital I	\$1,075	22

Estimated savings using the midpoint price: \$190,853

Note: 2019 median price data was provided by BCBSVT for the State of Vermont Employer Group.

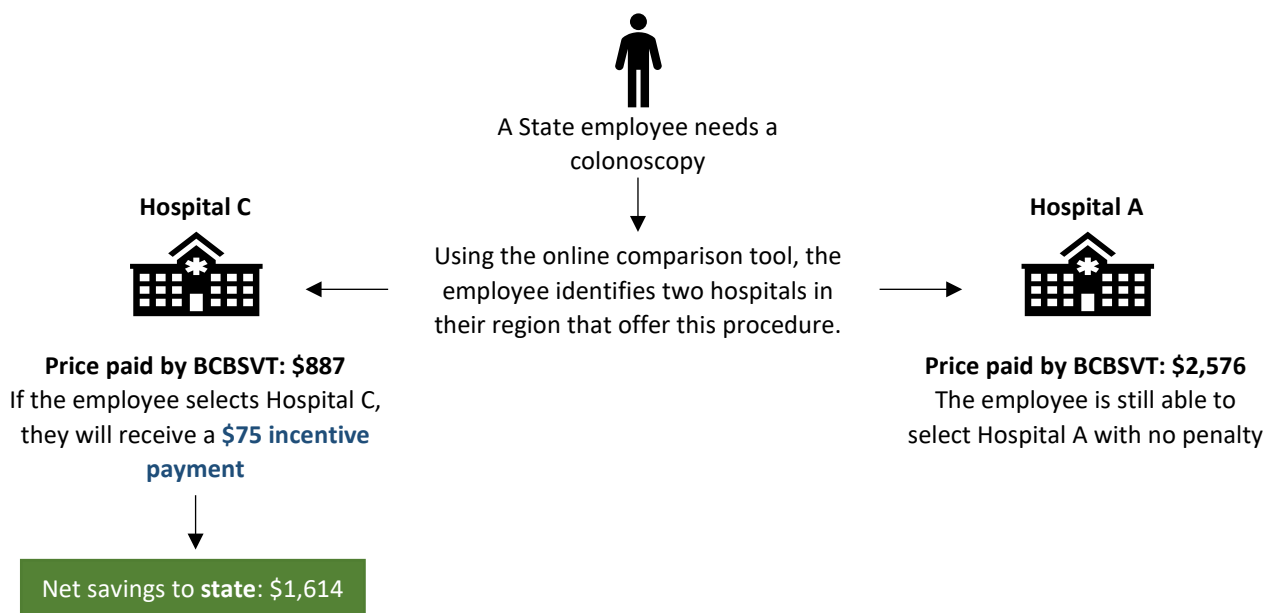
Across the 39 services in our sample, 32,912 visits (38%) took place at facilities with median prices above the midpoint. **We estimate that if reference-based pricing using the midpoint price was implemented for just the 39 services we sampled, the State could save \$2.3 million annually, with an average of 13% savings per service. If this level of savings was achieved across all medical services, total savings could reach \$16.3 million annually.**

As noted above, Montana negotiated reference-based pricing with *all* acute care hospitals in the state so that regardless of where an employee went, the State paid the reference price. Alternatively, when California implemented reference-based pricing, they did not set the price that each hospital could charge, but instead *limited how much the State plan would pay*. If a provider charges more than what the plan sets as its payment and the employee still chooses to receive care from that provider, the employee has to cover the difference between the hospital’s price and the reference price (see **Appendix A** for more detail on California’s model). In a “California” scenario, reference-based pricing would only be appropriate for shoppable services since patients can’t always select their site of care in advance (e.g., emergency care).

Scenario 2: Incentives to select cost-effective care

We also modeled potential savings if Vermont offered an incentive for employees to select lower priced care (at the midpoint price or below). Because not all services are appropriate for shopping, we narrowed our sample to shoppable services (drawing on [CMS' list of Shoppable Services](#)) in which the midpoint price was at or above \$1,000.²⁵ For example, in our sample there were 827 outpatient claims for colonoscopies in 2019. Over half (433) of these colonoscopies took place at hospitals with a price above the midpoint price. Under an incentive program, employees would be encouraged to shop for their care and rewarded if they select a lower priced provider.

Figure 7. Example of incentive payment program for a colonoscopy



Note: 2019 median price data was provided by BCBSVT for the State of Vermont Employer Group. The incentive payment amount is provided as an example. The actual amount depends on program design.

We estimated savings for seven types of shoppable services in our sample. Recognizing that not all employees will be motivated to participate, we assumed that approximately one third of employees would use the shopping tool and select lower priced care.²⁶ **Under these conditions, we estimate annual savings of approximately \$202,000 across just these seven services, with an average of 3% savings per service.**

²⁵ We selected higher cost procedures because the potential for savings and corresponding incentive payment needs to be great enough to motivate change in an employee's behavior. If, for example, the potential savings was only \$25, the incentive payment would need to be even smaller. Such a small incentive payment is unlikely to prompt behavior change. This is a significant drawback of this model; while the per visit savings may be modest, we found that some of the largest opportunities for savings came from high volume, low-cost services (e.g., office visits).

²⁶ The rate of uptake for the comparison tool was based on New Hampshire's participation rate in their State employee SmartShopper program. We drew from New Hampshire's public employee SmartShopper program to estimate the percentage of employees that use the tool *and* receive incentives.

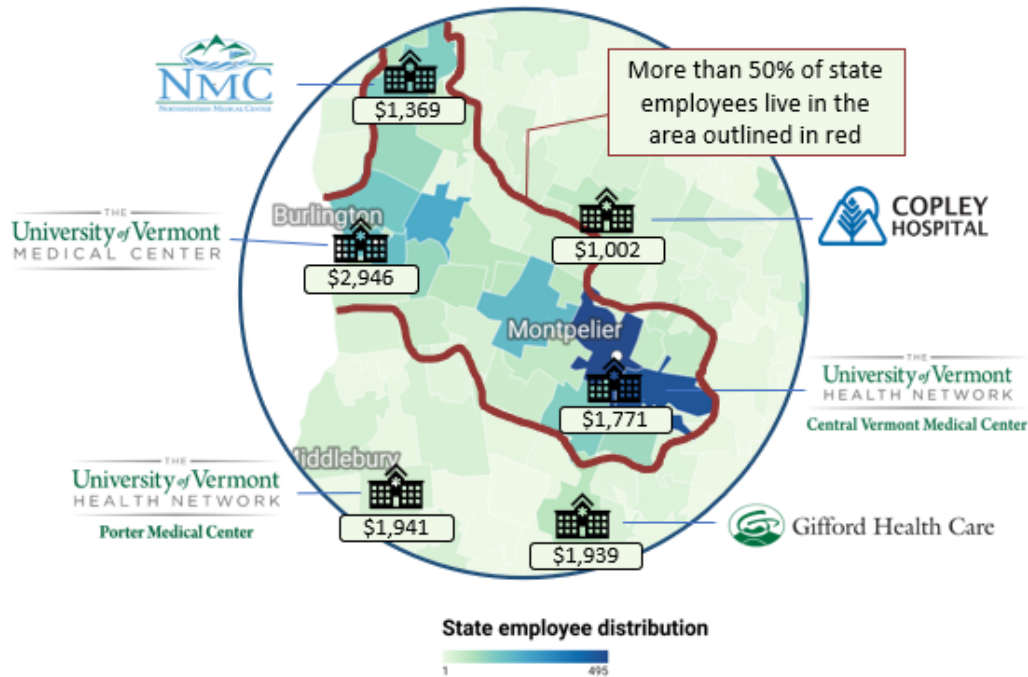
Table 4. Estimated annual savings from an incentives program

	Number of visits in sample	Net annual savings at 33% uptake	Savings as a percentage of current spend
CT scan	551	\$68,655	5%
MRI	550	\$42,312	3%
Colonoscopy	827	\$39,914	2%
Joint replacement	49	\$29,459	2%
Routine OB care	64	\$9,006	5%
Cataracts	80	\$7,361	5%
Echocardiogram	322	\$5,394	1%
Total	2,443	\$202,101	

Note: 2019 median price data was provided by BCBSVT for the State of Vermont Employer Group.

A potential challenge for an incentive program is that some areas of the state may have limited providers for employees to choose from. To better understand this issue, we compared employee’s zip codes and the locations of hospitals across Vermont. In many of the areas where employees are concentrated, there are several hospitals within a reasonable driving distance. For example, half of State employees live between Burlington and Montpelier and there are multiple hospitals in this region. Using publicly available hospital price data for 2021, the map below shows the hospitals that employees in this region could potentially choose between for a CT scan (**Figure 8**).

Figure 8. Distribution of employees and hospital locations with BCBSVT 2021 negotiated prices for a CT scan of the chest



Sources: 1) Employee zip code data provided by VTHR. 2) 2021 price data accessed from hospitals’ price transparency websites as of 10/20/21.

For example, an employee living in Waterbury has access to four hospitals within a 40-minute drive, but prices range from \$1,002 at Copley Hospital to \$2,946 at the University of Vermont Medical Center (see **Appendix A**). Receiving care from a less expensive provider could result in savings as great as \$1,944 (or 66%) for just this one procedure. For many services, this map underrepresents possible sites of care because non-hospital providers also offer these services. While there may be regions in the state where choices are more limited (see **Appendix A** for map of the entire state), a feature of both the incentive and reference-based pricing initiatives explored in this report is that neither penalizes employees in any way for continuing to receive care at any location they choose.

Conclusion

Based on our analyses, we found significant differences in prices that the State pays for medical services commonly used by State employees. Utilization of higher priced providers contributes to the high cost of employee health care for the State and for taxpayers. Facing similar challenges, Montana and New Hampshire took proactive steps to control costs by addressing price variation. Although their models varied, both States achieved savings without penalizing or limiting employees' choices in any way. Drawing on their successes, our analyses demonstrate the potential for significant savings if Vermont adopted either of these strategies, but especially reference-based pricing.

When interpreting the estimated savings in our analyses above, it is important to keep in mind that we looked at a small sample of the total services covered by the State employee health plan. The total cost for the 39 services in our sample was \$20 million which is only 14% of the total claims (\$142 million) that BCBSVT paid on behalf of State employees for medical services in 2019. Our ability to extrapolate findings across all services is limited since we do not know whether our sample is representative. But if, for example, the levels of savings under our reference-based pricing scenario were achieved across all services, total savings could reach up to \$16.3 million annually. Total savings for an incentive-based program depends on the number of services that are included in the program and employee participation. The Vermont Department of Human Resources should conduct a more complete analysis of State employees' health care utilization and provider prices to model savings under reference-based pricing or an incentive program.

We recognize that there are implementation challenges that accompany each of these models. Hammering out the programmatic details and pricing structures as well as negotiations with relevant parties would require significant effort. However, the status quo is not sustainable. The ever-rising cost of State employee health care strains the State's budgets. As the second largest employer in Vermont, State action could also help drive needed change across Vermont's health care system. For example, either a reference-pricing system or an incentive-based program should encourage higher priced facilities to become more efficient and reduce prices where nearly all other health care policies have failed.

Lastly, it's worth noting that there are ongoing health reform efforts in Vermont designed to slow the rate of spending growth and reorient how health care is delivered (such as Vermont's trial of the All-Payer ACO model). However, regardless of the payment and delivery arrangements, controlling prices is critical to controlling health care costs. Furthermore, establishing consistent and fair prices would be beneficial when setting benchmarks for future payment and care delivery arrangements.

Appendix A

Table 5. Distribution of variation in median prices across the 39 services in our sample

Difference between lowest and highest median price	Inpatient	Outpatient	Professional
1 to 2 times	–	–	9 services
2 to 3 times	3 services	3 services	4 services
3+ times	2 services	18 services	-

Reference-based pricing: California Public Employees Retirement System (CalPERS)

In 2011 and 2012, the CalPERS adopted a reference-based pricing system for a number of high-cost shoppable surgical procedures, including joint replacement, colonoscopies, arthroscopy of the knee and shoulder, and cataract removal. Under this model, CalPERS worked with their third-party administrator, Anthem, to set the maximum amount that they were willing to pay for a procedure. If employees selected care at a designated site that was at or below the reference price, they would receive standard coverage. However, if the employee selected a more expensive provider, then they were responsible for paying the difference.^{27, 28} Following implementation of reference-based pricing, employees were more likely to utilize lower-priced facilities, resulting in savings across all procedures:

- Prices for arthroscopy of the knee and shoulder decreased by 18% and 17% respectively, resulting in \$2.3 million in savings over two years²⁹
- Prices for cataract removal were 20% for lower, resulting in \$1.3 million in savings over two years³⁰
- Prices for colonoscopies decreased by 21%, resulting in \$7 million in savings over two years³¹
- Prices for joint replacement surgeries decreased between 5-18% (depending on facility type), resulting in \$2.8 million in savings to the State over one year³²

²⁷ Lechner, A., Gourevitch, R., and Ginsburg, P. (2013). [The Potential of Reference Pricing to Generate Health Care Savings: Lessons from a California Pioneer](#). Health System Change Research Brief No. 30.

²⁸ If patients had a medical reason that they needed to go to a non-designated site or if patients were too far from a designated site, they were not required to pay the difference.

²⁹ Robinson, J. C., Brown, T. T., Whaley, C., & Bozic, K. J. (2015). [Consumer Choice Between Hospital-Based and Freestanding Facilities for Arthroscopy: Impact on Prices, Spending, and Surgical Complications](#). *The Journal of bone and joint surgery. American volume*, 97(18), 1473–1481.

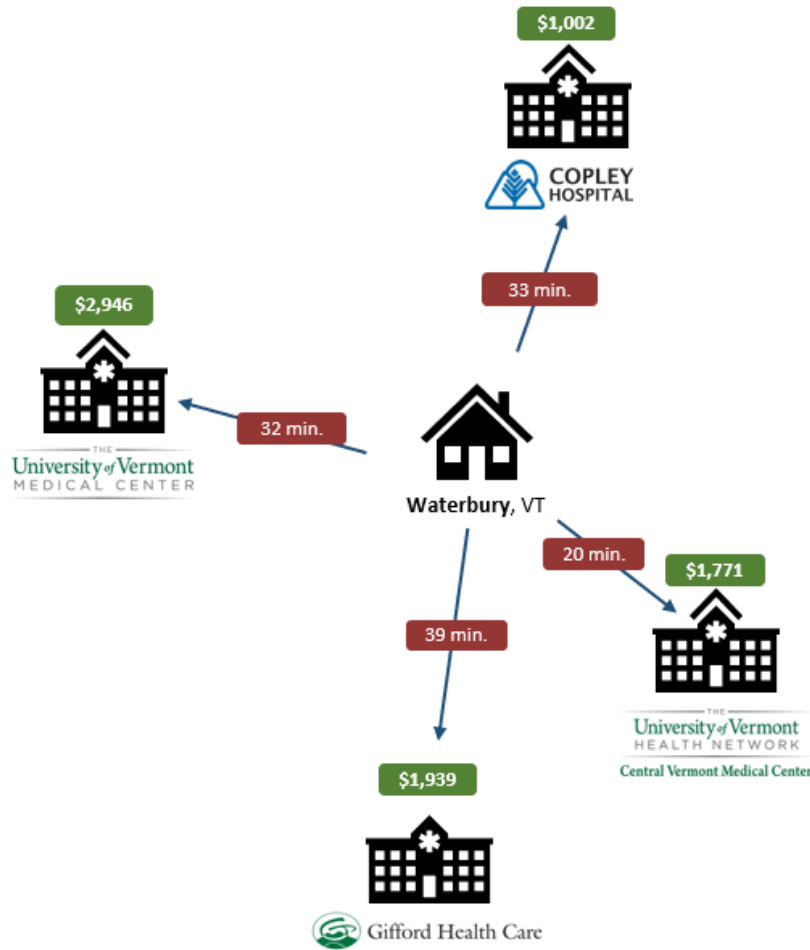
³⁰ Robinson, J.C., Brown, T. and Whaley, C. [Reference-Based Benefit Design Changes Consumers' Choices and Employers' Payments for Ambulatory Surgery](#). *Health Affairs*, 34(3).

³¹ Robinson, J.C., Brown, T.T., Whaley, C., and Finlayson, E. [Association of Reference Payment for Colonoscopy With Consumer Choices, Insurer Spending, and Procedural Complications](#). *JAMA Intern Med.* 2015;175(11):1783–1789.

³² Robinson, J.C. and Brown, T.T. (2013). [Increases in Consumer Cost Sharing Redirect Patient Volumes and Reduce Hospital Prices for Orthopedic Surgery](#). *Health Affairs*, 32(8).

Studies found no negative impacts on patient outcomes. In addition, other hospitals renegotiated their contracts and/or reduced prices so that they could become designated sites of care, suggesting that CalPERS was able to drive changes across the California health care system.³³

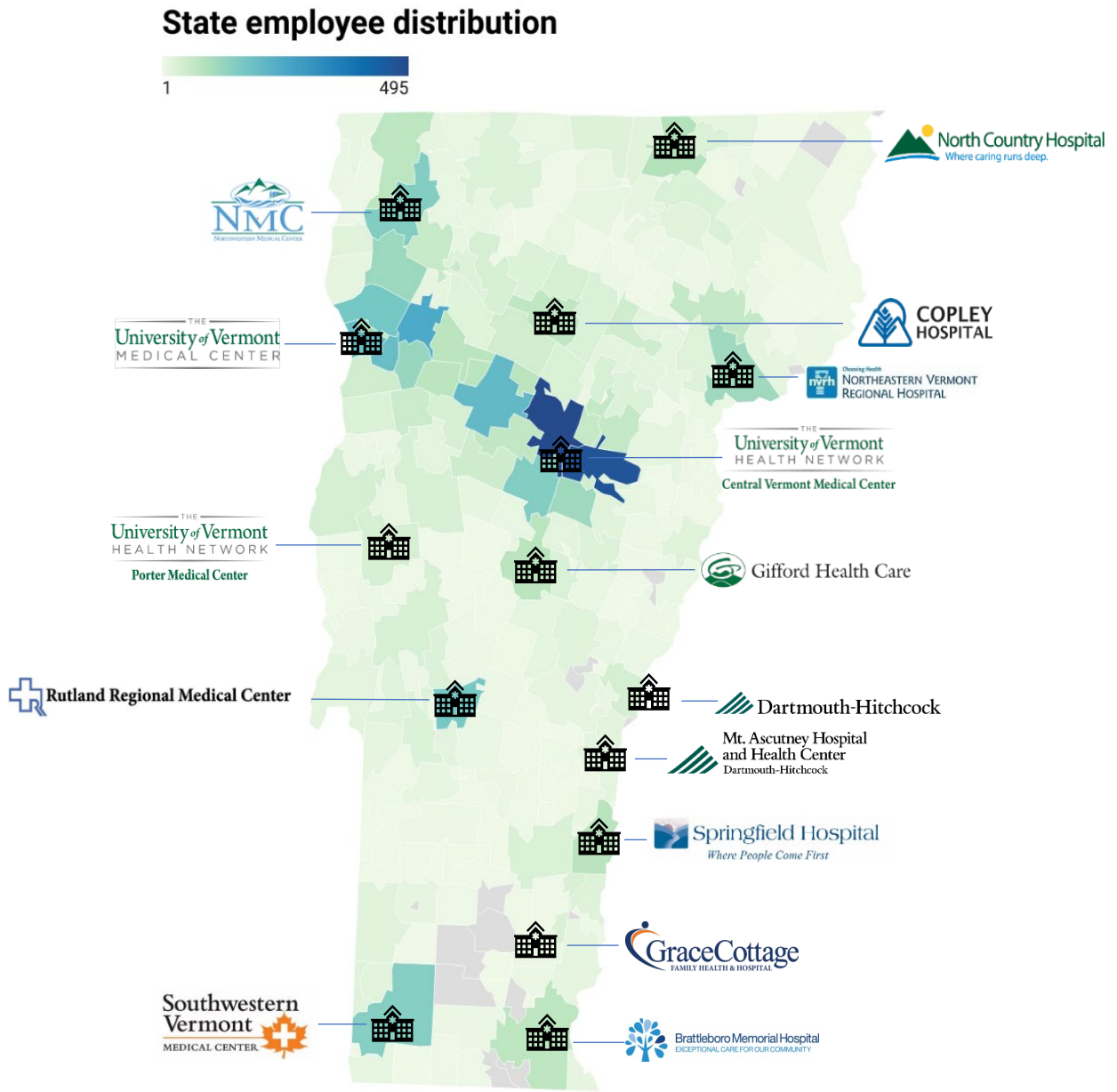
Figure 9. Examples of options for a CT scan of the chest for an employee living in Waterbury



Sources: BCBSVT negotiated prices at each hospital accessed via hospitals' [price transparency websites](#) as of 10/20/21. Driving times were calculated using Google Maps.

³³ Lechner, A., Gourevitch, R., and Ginsburg, P. (2013). [The Potential of Reference Pricing to Generate Health Care Savings: Lessons from a California Pioneer](#). Health System Change Research Brief No. 30.

Figure 10. Distribution of State employees by zip code with hospitals across Vermont



Map data: © Esri, TomTom North America, Inc., United States Postal Service • Created with Datawrapper

Sources: Employee zip code data provided by VTNR.

Table 6. Estimated savings using reference-based pricing at the midpoint across the 39 services in our sample

Service type	Service code and description	Number of visits	Lowest priced site (median price)	Highest priced site (median price)	Midpoint price	Estimated annual savings using reference pricing at the midpoint	Savings as % of current spend
Inpatient	794 - neonate w other significant problems	61	\$2,168	\$18,031	\$4,488	\$217,536	46%
	807 - vaginal delivery without sterilization/d&c without complications/medical complications	102	\$3,552	\$11,279	\$7,910	\$132,709	15%
	470 - major joint replacement or reattachment of lower extremity without medical complications	49	\$20,583	\$41,491	\$32,778	\$100,990	6%
	795 - normal newborn	102	\$1,480	\$4,082	\$2,426	\$49,624	17%
	871 - septicemia without medical ventilation 96+ hours with medical complications	12	\$16,410	\$34,100	\$24,308	\$40,350	14%
Outpatient	74177 - computed tomography (CT) of the abdomen and pelvis are performed concurrently; with contrast	366	\$1,075	\$3,505	\$2,615	\$190,853	18%
	97140 - manual therapy techniques (eg, mobilization/manipulation, manual lymphatic drainage, manual tract)	3,242	\$64	\$228	\$127	\$168,853	28%
	77067 - screening mammography bi 2-view breast inc cad	2,430	\$249	\$766	\$399	\$120,616	11%
	70553 - magnetic resonance (eg, proton) imaging, brain (including brain stem); without contrast material	207	\$1,648	\$4,290	\$3,287	\$102,640	14%

Service type	Service code and description	Number of visits	Lowest priced site (median price)	Highest priced site (median price)	Midpoint price	Estimated annual savings using reference pricing at the midpoint	Savings as % of current spend
Outpatient	97110 - therapeutic procedure, one or more areas, each 15minutes; therapeutic exercises to develop strength	4,794	\$83	\$319	\$190	\$90,039	10%
	45385 - colonoscopy flexible; with removal of tumor(s) polyp(s) or other lesion(s) by snare technique	278	\$1,050	\$3,816	\$2,222	\$65,075	11%
	45380 - colonoscopy flexible; with biopsy single or multiple	256	\$1,050	\$3,696	\$2,176	\$64,493	12%
	71260 - computerized axial tomography, thorax; with contrast material(s)	185	\$473	\$2,738	\$1,648	\$57,285	16%
	45378 - colonoscopy flexible; diagnostic including collection of specimen(s) by brushing or washing when performed (separate procedure)	293	\$770	\$3,390	\$2,004	\$52,691	10%
	J1745 - injection infliximab, 10 mg	139	\$2,484	\$19,402	\$11,074	\$52,676	4%
	84443 - thyroid stimulating hormone (tsh)	3,900	\$33	\$204	\$122	\$50,634	13%
	85025 - blood count complete auto & auto difrntl wbc	6,496	\$24	\$101	\$60	\$41,509	13%
	80053 - comprehensive metabolic panel	6,339	\$29	\$146	\$97	\$37,200	7%
	73721 - magnetic resonance (eg, proton) imaging, any joint of lower extremity; without contrast material	198	\$1,253	\$3,199	\$2,439	\$36,550	8%

Service type	Service code and description	Number of visits	Lowest priced site (median price)	Highest priced site (median price)	Midpoint price	Estimated annual savings using reference pricing at the midpoint	Savings as % of current spend
Outpatient	88305 - level iv - surgical pathology, gross and microscopic examination	1,544	\$74	\$481	\$203	\$35,289	8%
	72148 - magnetic resonance (eg, proton) imaging, spinal canal and contents, lumbar; without contrast material	145	\$1,389	\$3,001	\$2,429	\$29,517	8%
	80061 - lipid panel this panel must include the following: cholesterol, serum, total (82465) lipoprotein, ect.	4,015	\$33	\$138	\$83	\$26,391	9%
	93306 - echocardiography, transthoracic, real-time with image documentation (2-d), includes m-mode recording, when performed, complete, with spectral doppler echocardiography, and with color flow	322	\$310	\$2,880	\$1,782	\$24,297	5%
	36415 - collection venous blood venipuncture	11,052	\$12	\$38	\$25	\$12,435	5%
	80048 - basic metabolic panel calcium total	2,279	\$27	\$95	\$63	\$12,048	8%
	J2505 - injection, pegfilgrastim, 6 mg	39	\$4,288	\$15,545	\$9,248	\$7,065	2%
Professional	99214 - office or other outpatient visit for the evaluation and management of an established patient	13,228	\$120	\$188	\$131	\$174,085	9%

Service type	Service code and description	Number of visits	Lowest priced site (median price)	Highest priced site (median price)	Midpoint price	Estimated annual savings using reference pricing at the midpoint	Savings as % of current spend
Professional	99213 - office or other outpatient visit for the evaluation and management of an established patient	15,184	\$80	\$125	\$89	\$84,223	6%
	99215 - office or other outpatient visit for the evaluation and management of an established patient	1,050	\$169	\$267	\$170	\$43,857	20%
	59400 - routine obstetric care including antepartum care, vaginal delivery (with or without episiotomy)	64	\$2,192	\$5,385	\$2,192	\$31,930	19%
	45380 - colonoscopy flexible; with biopsy single or multiple	227	\$325	\$1,135	\$650	\$40,135	24%
	99203 - office or other outpatient visit for the evaluation and management of a new patient	1,985	\$135	\$212	\$135	\$24,113	8%
	99204 - office or other outpatient visit for the evaluation and management of a new patient	737	\$193	\$303	\$193	\$19,292	12%
	45385 - colonoscopy flexible; with removal of tumor(s) polyp(s) or other lesion(s) by snare technique	205	\$685	\$1,281	\$733	\$36,196	19%
	99202 - office or other outpatient visit for the evaluation and management of a new patient	689	\$91	\$143	\$91	\$7,459	11%

Service type	Service code and description	Number of visits	Lowest priced site (median price)	Highest priced site (median price)	Midpoint price	Estimated annual savings using reference pricing at the midpoint	Savings as % of current spend
Professional	99212 - office or other outpatient visit for the evaluation and management of an established patient	1,385	\$54	\$85	\$55	\$6,692	8%
	90471 - immunization administration (includes percutaneous, intradermal, subcutaneous, or intramuscular injections)	3,866	\$21	\$50	\$29	\$6,375	6%
	45378 - colonoscopy flexible; diagnostic including collection of specimen(s) by brushing or washing when performed	134	\$482	\$977	\$545	\$15,779	18%
	66984 - extracapsular cataract removal with insertion of intraocular lens prosthesis (one stage procedure)	80	\$1,138	\$2,366	\$1,338	\$28,175	21%

Methods

Our objectives for this report were 1) to describe and quantify variation among prices paid to health care providers for services commonly used by State employees and 2) to model potential savings if the State adopted reference-based pricing or an incentive-based program. The sections below describe how we approached these analyses, including a number of assumptions that we made when modeling potential savings. Recognizing that adjustments may need to be made using more complete data, our goal was to provide a reasonable representation of how these concepts could be deployed and to inform ongoing conversations about opportunities for cost savings within the State health plan.

Median price data from hospitals and providers commonly utilized by State employees

The primary data for this report were provided by the Vermont Department of Human Resources (VTHR) and the State’s third-party administrator, BCBSVT. The SAO first requested data regarding the State employee health plan in 2015. At that time, BCBSVT provided deidentified median price data for the State plan for the top 25 (by total cost) inpatient, outpatient, and professional services at the top 12 hospitals and providers utilized by State employees, retirees, and dependents.³⁴ BCBSVT also included the number visits for each service at each site. The initial request covered claims incurred during calendar year 2014 (paid through 3/31/15). Prices were provided for billed codes and did not necessarily reflect all costs included in a visit (e.g., a code for an outpatient service, such as an MRI, does not include the physician fee or other ancillary costs).

Earlier this year, we asked VTHR and BCBSVT to update this data for claims incurred during calendar year 2019 (paid through 6/16/21). In instances where the service codes used in 2014 were retired or utilization did not meet the disclosure threshold, the next top utilized code (by volume of services performed) was included. In addition, we asked BCBSVT to provide the minimum price, maximum price, and total cost for each service at each site. We then narrowed our focus to services that were high volume, high cost, and/or had high variability between the lowest median price and the highest median price. We used the following criteria:

Volume	Cost	Variability
High volume: 250+ visits	High cost: median is \$1,000+	High variability: more than 2x between min. and max.

We also included a number of other services, such as cataract removal, that were part of reference-based pricing and incentive programs in other states. We excluded services that were offered at three or fewer sites as well as emergency-based care. After applying these criteria, our final sample included 39 services.

For each of the 39 services, we compared the total number of visits covered under the State plan across *all* providers to the number of visits captured in our sample of twelve providers to see what percentage of total visits were captured in our sample. For the inpatient and outpatient services, our sample

³⁴ Participants with Medicare as their primary insurer were excluded.

captured the majority of visits covered under the State plan. For the five inpatient services, our sample included 75% to 93% of all State employees’ visits in 2019; for the 21 outpatient services, our sample included 76% to 92% of all visits. However, a smaller percentage of visits were captured by the top twelve providers of professional services, ranging from 6% to 55%. This is because these services are more likely to be performed by smaller practices or independent doctors that were not well represented in the top twelve providers in our sample (these providers generally represent the state’s largest professional groups). For four professional codes (three codes related to colonoscopies and one code for cataract removal), we requested updated data for the top twelve providers *for each service* (as opposed to the top providers across all services) to capture a greater percentage of visits covered under the State plan.

For services in which the highest median price was more than five times greater than the lowest median price, we asked BCBSVT to explain what factors contributed to the high levels of variation. For most services, the variation was due to “differences in provider charges.” In other words, BCBSVT pays a provider more because the provider bills more for the exact same medical code. For neonatal care, BCBSVT attributed the variation to a difference in reimbursement methodologies at different hospitals, the duration of the newborn stay, and the diagnosis. The difference in price for an injection of infliximab (a medication for autoimmune diseases) was attributed to the dosage and reimbursement method.

Modeling savings using reference-based pricing

For each service, we identified the midpoint (median) price across the providers or hospitals in our sample. For example, of the eleven hospitals in our sample that offered a CT scan of the abdomen or pelvis, the hospital with the highest median price was Hospital A at \$3,505. The hospital with the lowest median price was Hospital I at \$1,075. And the midpoint (median) price across these eleven hospitals was \$2,615.

Service description		CT of abdomen or pelvis	
Total visits		366	
Hospital	Median Price	Visits	
Hospital A	\$3,505	94	
Hospital B	\$3,449	94	
Hospital F	\$3,418	15	
Hospital L	\$3,270	12	
Hospital E	\$2,969	25	
Midpoint → Hospital D	\$2,615	23	
Hospital K	\$2,362	6	
Hospital J	\$2,305	24	
Hospital C	\$1,867	43	
Hospital G	\$1,632	8	
Hospital I	\$1,075	22	

For each service, we looked at potential savings if the visits that occurred at sites with median prices above the midpoint price were instead paid at the midpoint price (the reference price). Using the example above, the difference between Hospital A's median price (\$3,505) and the midpoint (\$2,615) is \$890. We then multiplied the savings per service by the number of visits at each site to calculate the total estimated savings per site. For Hospital A, this totaled \$83,702. We then totaled the potential savings for each site to generate the estimated savings for each service.

Service description		CT of abdomen or pelvis	
Total visits		366	
Hospital	Median Price	Visits	
Hospital A	\$2,615 \$3,505	94	
Hospital B	\$2,615 \$3,449	94	
Hospital F	\$2,615 \$3,418	15	
Hospital L	\$2,615 \$3,270	12	
Hospital E	\$2,615 \$2,969	25	
Midpoint → Hospital D	\$2,615	23	
Hospital K	\$2,362	6	
Hospital J	\$2,305	24	
Hospital C	\$1,867	43	
Hospital G	\$1,632	8	
Hospital I	\$1,075	22	

Estimated savings at the midpoint: \$190,853

One limitation of using median price data is that it is an imperfect representation of all the prices paid to each site. In the example above, while the median price at Hospital A was \$3,505, a portion of the services at Hospital A were *less* expensive than the median price, some even below the midpoint price. In these instances, there would be lower (or no) savings when moving to the reference price. However, a portion of services at Hospital A were also *more* expensive than the median price, which would result in higher savings if paid at the reference price. An analysis of all prices paid at each site would allow for a more accurate estimate of potential savings.

We opted to use the midpoint price as the reference price because the midpoint price represents a straightforward and realistic benchmark that half of hospitals in Vermont are already able to meet. Using Medicare rates to establish reference prices – similar to Montana’s approach – is another strategy that could be considered when exploring opportunities for reference-based pricing in Vermont.

Modeling savings using an incentive program

Similar to the reference-based pricing scenario, we focused on reducing the cost for visits that took place at providers with prices above the midpoint. Because incentive programs require employees to select care in advance, we narrowed our focus to seven types of services that are included in [CMS’ list of Shoppable Services](#). Table 4 combines similar types of codes. For example, we combined 1) colonoscopy with biopsy, 2) colonoscopy with removal of a tumor, and 3) diagnostic colonoscopy into one category. Drawing on New Hampshire’s experience, we estimated that 53% of State employees would utilize a cost comparison tool. Recognizing that not all employees who shop will select lower priced care, we

drew from New Hampshire’s public employee incentive program to estimate how many people who use the tool actually select lower priced care. In 2019, 62% of New Hampshire public employees who shopped received incentives. This data was not available for New Hampshire’s State employee program.

When calculating net savings, we subtracted the incentive payments that would go directly to employees. We used New Hampshire’s [incentive payment structure](#) to estimate incentive payment amounts, with the assumption that employees select the second most cost-effective provider or hospital. This analysis does not include the costs of administering an incentive-based program, if any.

Zip code map analysis

VTHR provided a list of zip codes for all State employees who participate in the employee health plan as of October 2021. Using [Datwrapper](#), we mapped the zip code data to visualize the distribution of employees across the state. Because we could not include employees with out-of-state zip codes or P.O. Box zip codes, the map in Appendix A reflects 93% of state employees’ zip codes.

We also included the locations of Vermont’s hospitals as well as 2021 pricing for a CT scan. This price data was collected from each hospital’s [publicly available price data](#) on their website and reflects the payer-negotiated rate for BCBSVT (accessed October 2021).

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