



## **Estimating the Impact of Reference-Based Hospital Pricing in the Montana State Employee Plan**

***An analysis commissioned by the National Academy for State Health Policy with support from  
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### **Introduction**

In July 2016, the Montana state employee health plan, administered by Montana’s Health Care and Benefits Division (HCBD), implemented referenced-based pricing using Medicare’s rates for Montana hospital inpatient, outpatient services, and physician payments. The state faced rising health plan costs and dwindling reserves, but rather than increase the premiums paid by state employees to meet rising costs, the plan took steps to address the prices paid for services. Through an independent analysis of publicly available data released by HCBD, it is evident that the shift to reimbursing hospitals as a multiple of Medicare rates generated as much as \$47.8 million in inpatient and outpatient savings for the plan from state fiscal year (SFY) 2017 to SFY 2019.<sup>1</sup>

### **Background**

Prior to this effort, like other commercial health plans, HCBD’s third-party administrator (TPA) negotiated hospital reimbursement rates as a discount off of the hospitals’ chargemaster rates. However, since hospitals do not have to follow a standard formula or legal requirement for setting their chargemaster prices – nor do they have to disclose mark-ups on hospital-purchased services or medical supplies – these prices can be set much higher than the actual costs for providing services, even after the plan’s negotiated discount. By moving to reference-based pricing, HCBD established a payment rate for inpatient and outpatient services that is a percentage of Medicare’s payment rate.

According to the Medicare Payment Advisory Commission’s March 2020 report, Medicare payments cover 108 percent of hospitals’ allowed variable costs that can fluctuate based on volume during a one-year period of time.<sup>2</sup> This slight overpayment can be used to contribute towards a hospital’s fixed costs, such as building, equipment, and capital costs, including interest, depreciation, hazard insurance, equipment, plant maintenance, utilities, and operating costs.<sup>3</sup> In addition to covering hospitals’ variable costs and contributing towards their fixed costs, the Medicare rate methodology is updated annually, geographically adjusted, and publicly available, making it an attractive benchmark payment rate.

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<sup>1</sup> Report covers state fiscal years 2017–2019, which is July 1, 2016 through June 30, 2019.

<sup>2</sup> Medicare Payment Advisory Commission (MEDPAC), Report to Congress: Medicare Payment Policy, March 2020, Washington, DC, page 79. [mar20\\_entirereport\\_sec.pdf \(medpac.gov\)](#)

<sup>3</sup> Medicare Payment Advisory Commission (MEDPAC), Report to Congress: Medicare Payment Policy, March 2020, Washington, DC, page 100. [mar20\\_entirereport\\_sec.pdf \(medpac.gov\)](#)

Before implementing reference-based pricing, HCBD paid a range of 191 to 322 percent of Medicare for inpatient services, and a range of 239 to 611 percent of Medicare rates for outpatient services across eleven acute care hospitals.<sup>4</sup> In implementing the state's reference-based payment policy, the health plan established a range of 220 to 225 percent and 230 to 250 percent for inpatient and outpatient hospital services, respectively. Through its TPA, HCBD negotiated referenced-based payment contracts with all Montana hospitals, so plan members would not face balance billing. By referencing payments to Medicare rates, HCBD established a mechanism to follow the annual Medicare rate increases for these hospital services, instead of hospital controlled chargemaster increases.

According to multiple presentations provided on a quarterly basis by Allegiance, the state health plan's third party administrator, to the State Employee Group Benefit Advisory Council (SEGBAC) and as highlighted in HCBD's [annual report](#), the plan generated significant savings and restoration of its reserve fund. These savings increased the plan's overall financial sustainability, which was a primary goal of the initiative. Additionally, there was no evidence of hospital closure or induced utilization to offset lower rates.

### **Estimated Financial Impact of Reference-Based Pricing**

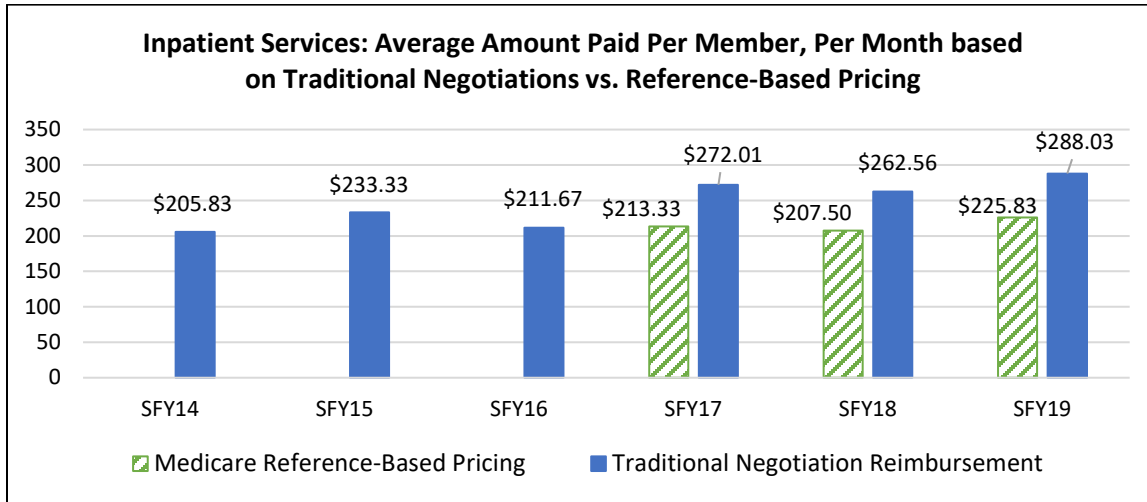
To conduct this independent evaluation of the impact of reference-based pricing and hospital contracting in the Montana state employee health plan, Optumas extracted monthly SEHP data for paid and billed amounts for three state fiscal years before and after the implementation of reference-based pricing (SFY14 through SFY19). Optumas estimated plan payments for inpatient and outpatient services under traditional negotiations using the historic cost to charge ratio to estimate what payments would have been without the reference-based pricing agreement in place. Optumas then compared the estimated payments to what the plan actually paid. With this approach, Optumas quantified a range of savings associated with reference pricing.

Compared to the estimated amount the plan would have paid for inpatient services under traditional negotiations (using a discount off chargemaster rates), the amount the plan actually paid with reference-based pricing showed savings ranging from \$55.06 to \$62.50 per employee, per month (PEPM) across the three years post-implementation, as shown in Chart 1.

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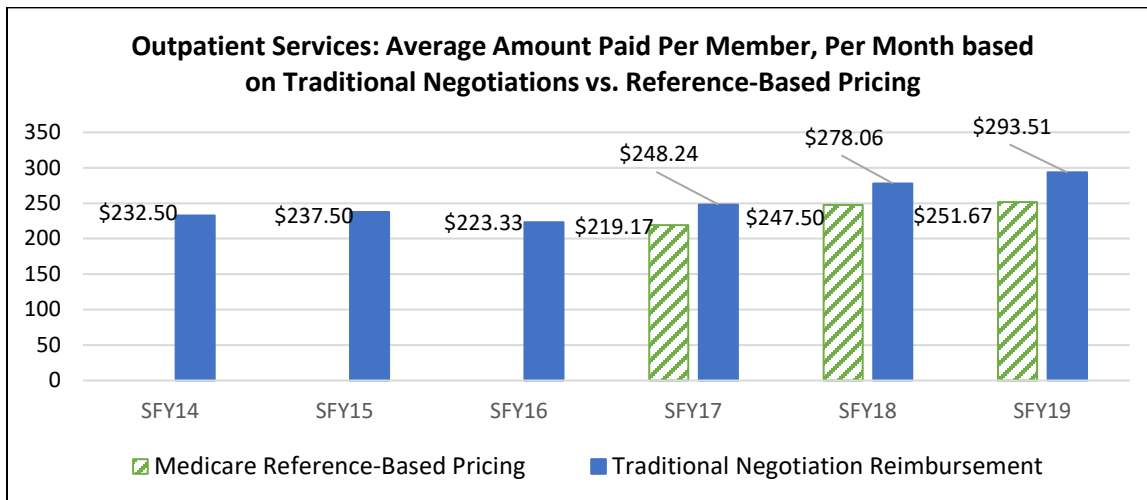
<sup>4</sup> HCBD implemented reference pricing to Medicare for the state's acute care hospitals and did not change the contracted payment rates for the state's approximately 50 critical access hospitals. Medicare payments to critical access hospitals are not based on the type of service, but are based on the hospital's costs.

**Chart 1**



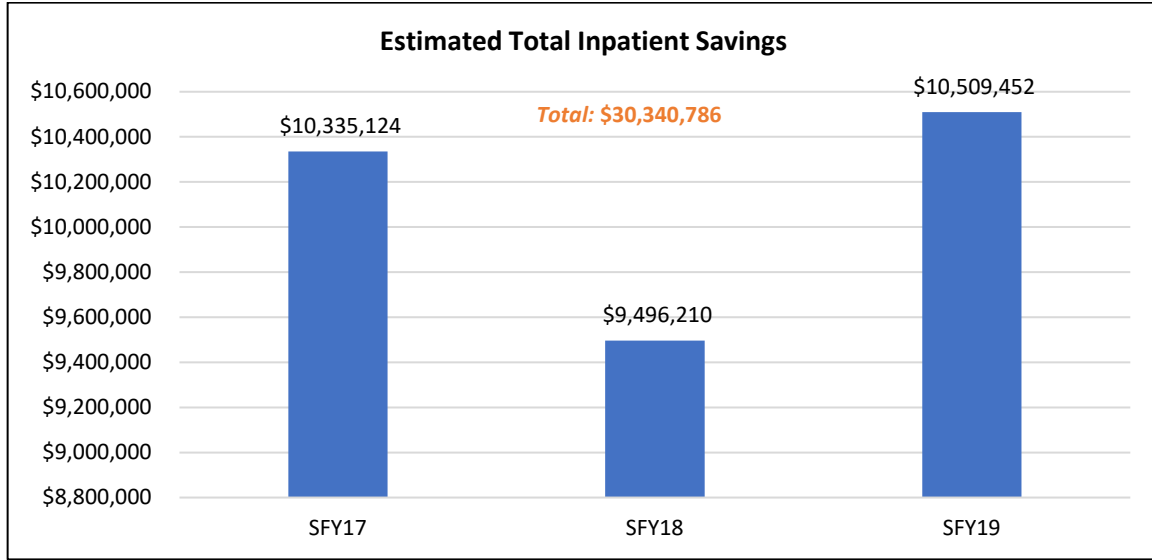
For outpatient services, the plan also experienced significant savings: \$29.07 in 2017, \$30.56 in 2018, and \$41.84 in 2019, as shown in Chart 2.

**Chart 2**

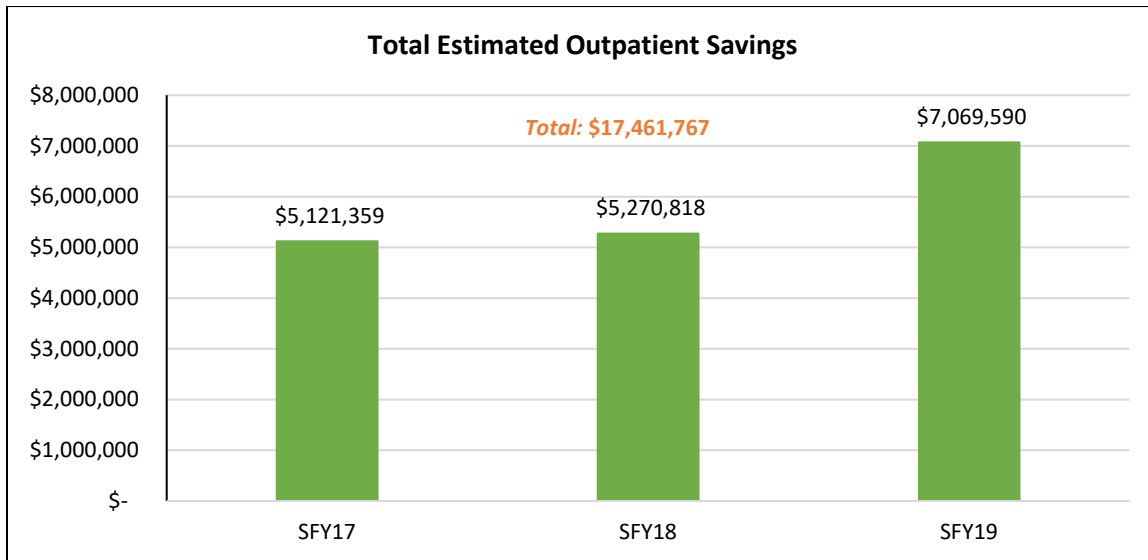


In total, the plan’s estimated savings for inpatient services was \$30.3 million, shown in Chart 3, and outpatient services savings was \$17.5 million, shown in Chart 4, for a combined savings of \$47.8 million.

**Chart 3**



**Chart 4**



## Methodology Overview

### *Data Used for the Analysis*

Optumas accessed the Allegiance publicly-available data that was presented on behalf of the HCBd to the SEGBAC quarterly meetings. The presentations include summary claims experience tables and graphs showing HCBd's historical expenditure trends for hospital inpatient and outpatient amounts (billed and paid) on a per employee, per month basis (PEPM) for March 2013 to June 2019 (see data in Appendix A).

Optumas examined the historical data summaries showing inpatient and outpatient costs across the time periods of SFY14 - SFY19. The August 2019 SEBAC Meeting presentation did not include the actual PEPM amounts for hospital inpatient and outpatient for the above time period. Without the actual PEPM amounts in the presentation, Optumas estimated the PEPM amounts based on the graphs built from the data. In addition, Optumas was provided demographic and health-based risk score information for the covered population within the SFY14-SFY19 experience periods.

### *Considerations*

Optumas reviewed changes over time in health-based risk scores, demographics, and contract types, available in Appendix D. The historical inpatient and outpatient expenditures could potentially be normalized for these changes to mitigate the potential of biasing the estimated impact of the reference-based pricing agreement.

Optumas considered the following externalities when developing the evaluation methodology:

- a) Changes in service mix – Changes in the types of inpatient and outpatient services over time can change the expenditures associated with inpatient and outpatient services. Optumas wanted to ensure that the evaluation methodology considers this before examining the reference-based-pricing arrangement.
- b) Changes in population risk – Changes in inpatient and outpatient expenditures over time can be influenced by changes in health-based risk scores. Optumas reviewed the historical health-based risk scores to understand the changes over time.
- c) Changes in population mix – Changes in the contract types (e.g., employee, employee plus one, etc.) that are enrolled within the group over time, as measured by the Member to Subscriber Ratio, can also influence population mix and inpatient and outpatient expenditures. Changes in member duration, as measured by the ratio of Members to Member Months, can also influence population mix and inpatient and outpatient expenditures. Similar to reviewing the health-based risk scores, Optumas also reviewed changes in the Member to Subscriber Ratio as well as the Members to Member Months Ratio.

Because Optumas chose to calculate the reference pricing impact using ratios, changes in service mix between months are implicitly controlled for as both the billed amount and paid amount will have the same service mix. After reviewing the changes in population risk and changes in contract types, Optumas determined that the observed changes were minimal and therefore were not anticipated to have a material impact on the evaluation of reference pricing. As such, Optumas did not normalize the PEPMs for changes in these metrics over time.

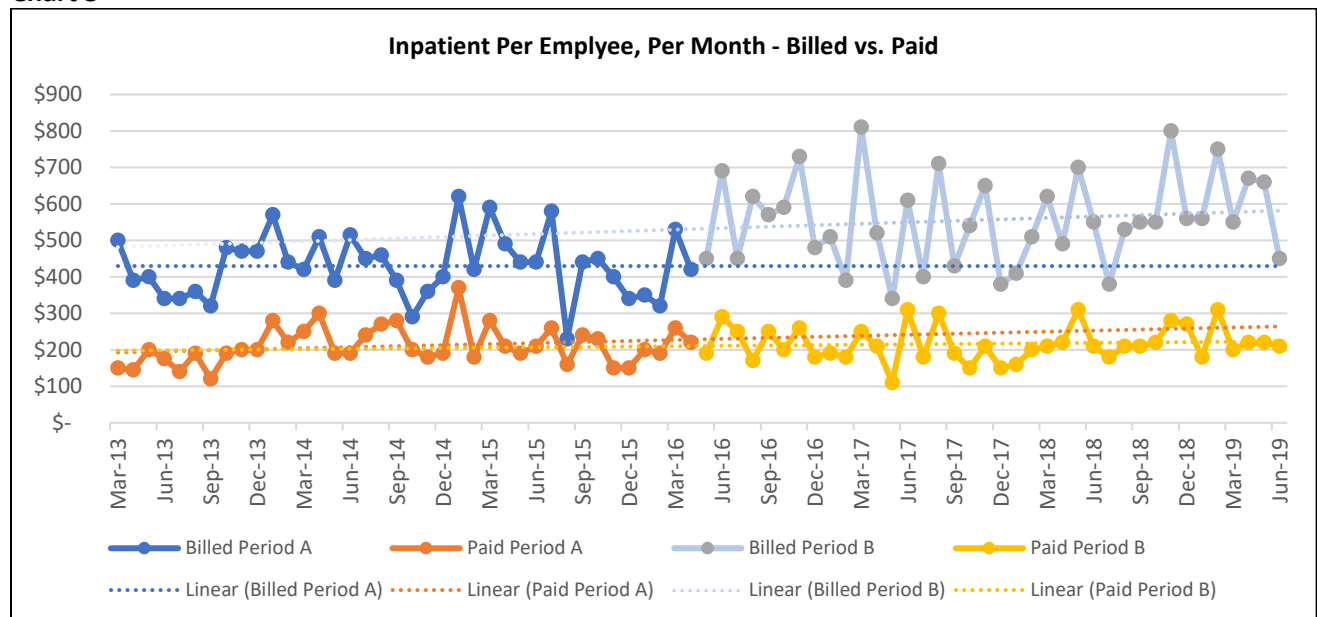
**Methodology**

To account for the service mix impact, Optumas decided to review the billed and paid amounts, on a PEPM basis, longitudinally. This allowed Optumas to observe the following:

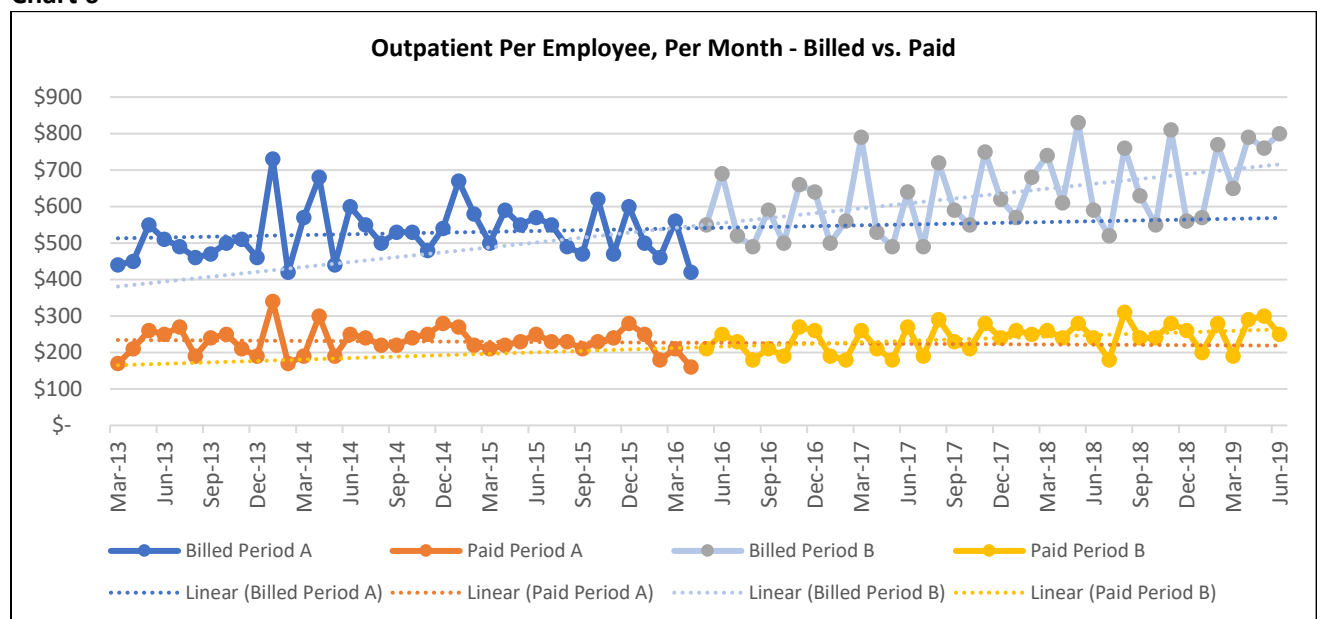
- Historical relationship of paid to billed charges
- Changes in trend associated with paid amounts
- Significant changes in billed charges over time

The charts below show the inpatient and outpatient summaries:

**Chart 5**



**Chart 6**



Optumas observed the following from these charts:

- The average monthly billed amounts for both inpatient and outpatient appear to have the same inflection point, June 2016. There appears to have been a significant increase in billed charges that started at the beginning of SFY18, July 2017.
- The paid amount is relatively flat for both inpatient and outpatient services over time, even with the increase in billed charges that started in July 2017.
- Because the billed amount is increasing over time and the paid amount is staying flat, the paid/billed ratio (cost/charge ratio) is decreasing. The formula used for this is Paid PEPM/Billed PEPM.

Using monthly paid and billed PEPM amounts Optumas developed an estimated amount the plan would have paid for inpatient services under traditional negotiations (using a historic cost to charge ratio to estimate the discount off chargemaster rates), which is meant to estimate what the inpatient and outpatient spend would have been absent the reference-based pricing agreement. With the creation of the counter-factual, Optumas quantified potential savings associated with the reference-based pricing agreement, shown in Appendix B.

This range of savings is largely predicated on the increase in billed charges that occurred in SFY17 (July 2016 to June 2017). Optumas has two scenarios that may explain the increase in billed charges, each described in Appendix C. The savings estimate included in this analysis represents a scenario where Optumas assumes the increase in billed charges is a result of a regularly scheduled increase in the chargemaster, following a schedule that the hospital habitually follows. This type of periodic change in billed charges is one of the primary reasons that reference pricing can be favorable to the employer. Absent the reference-based pricing arrangement, the employer would be paying the agreed upon “discount” off billed charges, thus as billed charges increase so does the contracted amount.

Because the reference-based price is predicated on Medicare reimbursement, and Medicare reimbursement is less dependent on changes in facility chargemasters, the employer achieves savings to the extent that changes in chargemasters, on a percentage basis, outpace the changes in Medicare reimbursement. This is the case, as charges have tended to increase at annual rates of 3 to 5 percent greater than Medicare costs for the same services.<sup>5</sup> Increase in inpatient charges do not necessarily lead to increased payments from payors, but with Medicare reimbursement increases at a more nominal level, approximately 2 to 3 percent annually,<sup>6</sup> the opportunity for savings by linking to a more consistent reference price are significant.

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<sup>5</sup> See for example [Beauvais, B., Gilson, G., Schwab, S., Jaccaud, B., Pearce, T. and Holmes, T., 2020, June. Overpriced? Are Hospital Prices Associated with the Quality of Care?. In *Healthcare* (Vol. 8, No. 2, p. 135). Multidisciplinary Digital Publishing Institute], which estimates hospital inpatient charge-to-cost rates show a 4.57 percent compound annual growth rate or [MedPAC, A Data Book: Health care spending and the Medicare program, June 2018. Section 6, Acute inpatient services, p 85. CMS, Oct. 2018], which demonstrates that inpatient charges have grown at an annual rate of 3.5 percent above Medicare costs

<sup>6</sup> See for example, the CMS Summary Market Basket data for Inpatient Prospective Payment System (IPPS) Hospital Market Basket data found at <https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/MedicareProgramRatesStats/MarketBasketData>, accessed online November 2, 2020.

While the exact rationale for the change in billed charges in SFY17 cannot be determined from the available information, it is important to note that under both scenarios, HCBD is experiencing savings due to the reference-based pricing agreements.

## **Conclusion**

By moving to the reference-based pricing arrangement, Montana's state employee health plan was able to establish a payment rate for inpatient and outpatient services that is a percentage of Medicare's payment rate rather than relying on its TPA to negotiate a discount off of hospital chargemaster rates. Through a review of publicly available data released by the state, this independent analysis shows the state saved an estimated \$47.8 million across SFY 2017 to SFY 2019 by negotiating reference-based pricing using a percentage above Medicare for hospital services. This savings enabled the plan to become more financially sustainable, achieving Montana's goal without pushing costs onto employees.



## Appendix A: Data Sources for Savings Estimate

Source: 2019 Montana State Employee Health Care & Benefits Division 2nd Quarter 2019 Population Health Management Reports, pages 6 and 7. (values interpolated from graph) (SEGBAC Meeting 8/27/2019)

Month	Inpatient			Outpatient		
	Billed PEPM	Paid PEPM	P/B Ratio	Billed PEPM	Paid PEPM	P/B Ratio
Mar-13	\$ 500	\$ 150	0.30	\$ 440	\$ 170	0.39
Apr-13	\$ 390	\$ 145	0.37	\$ 450	\$ 210	0.47
May-13	\$ 400	\$ 200	0.50	\$ 550	\$ 260	0.47
Jun-13	\$ 340	\$ 175	0.51	\$ 510	\$ 250	0.49
Jul-13	\$ 340	\$ 140	0.41	\$ 490	\$ 270	0.55
Aug-13	\$ 360	\$ 190	0.53	\$ 460	\$ 190	0.41
Sep-13	\$ 320	\$ 120	0.38	\$ 470	\$ 240	0.51
Oct-13	\$ 480	\$ 190	0.40	\$ 500	\$ 250	0.50
Nov-13	\$ 470	\$ 200	0.43	\$ 510	\$ 210	0.41
Dec-13	\$ 470	\$ 200	0.43	\$ 460	\$ 190	0.41
Jan-14	\$ 570	\$ 280	0.49	\$ 730	\$ 340	0.47
Feb-14	\$ 440	\$ 220	0.50	\$ 420	\$ 170	0.40
Mar-14	\$ 420	\$ 250	0.60	\$ 570	\$ 190	0.33
Apr-14	\$ 510	\$ 300	0.59	\$ 680	\$ 300	0.44
May-14	\$ 390	\$ 190	0.49	\$ 440	\$ 190	0.43
Jun-14	\$ 515	\$ 190	0.37	\$ 600	\$ 250	0.42
Jul-14	\$ 450	\$ 240	0.53	\$ 550	\$ 240	0.44
Aug-14	\$ 460	\$ 270	0.59	\$ 500	\$ 220	0.44
Sep-14	\$ 390	\$ 280	0.72	\$ 530	\$ 220	0.42
Oct-14	\$ 290	\$ 200	0.69	\$ 530	\$ 240	0.45

Nov-14	\$ 360	\$ 180	0.50	\$ 480	\$ 250	0.52
Dec-14	\$ 400	\$ 190	0.48	\$ 540	\$ 280	0.52
Jan-15	\$ 620	\$ 370	0.60	\$ 670	\$ 270	0.40
Feb-15	\$ 420	\$ 180	0.43	\$ 580	\$ 220	0.38
Mar-15	\$ 590	\$ 280	0.47	\$ 500	\$ 210	0.42
Apr-15	\$ 490	\$ 210	0.43	\$ 590	\$ 220	0.37
May-15	\$ 440	\$ 190	0.43	\$ 550	\$ 230	0.42
Jun-15	\$ 440	\$ 210	0.48	\$ 570	\$ 250	0.44
Jul-15	\$ 580	\$ 260	0.45	\$ 550	\$ 230	0.42
Aug-15	\$ 230	\$ 160	0.70	\$ 490	\$ 230	0.47
Sep-15	\$ 440	\$ 240	0.55	\$ 470	\$ 210	0.45
Oct-15	\$ 450	\$ 230	0.51	\$ 620	\$ 230	0.37
Nov-15	\$ 400	\$ 150	0.38	\$ 470	\$ 240	0.51
Dec-15	\$ 340	\$ 150	0.44	\$ 600	\$ 280	0.47
Jan-16	\$ 350	\$ 200	0.57	\$ 500	\$ 250	0.50
Feb-16	\$ 320	\$ 190	0.59	\$ 460	\$ 180	0.39
Mar-16	\$ 530	\$ 260	0.49	\$ 560	\$ 210	0.38
Apr-16	\$ 420	\$ 220	0.52	\$ 420	\$ 160	0.38
May-16	\$ 450	\$ 190	0.42	\$ 550	\$ 210	0.38
Jun-16	\$ 690	\$ 290	0.42	\$ 690	\$ 250	0.36
Jul-16	\$ 450	\$ 250	0.56	\$ 520	\$ 230	0.44
Aug-16	\$ 620	\$ 170	0.27	\$ 490	\$ 180	0.37
Sep-16	\$ 570	\$ 250	0.44	\$ 590	\$ 210	0.36
Oct-16	\$ 590	\$ 200	0.34	\$ 500	\$ 190	0.38
Nov-16	\$ 730	\$ 260	0.36	\$ 660	\$ 270	0.41

Dec-16	\$ 480	\$ 180	0.38	\$ 640	\$ 260	0.41
Jan-17	\$ 510	\$ 190	0.37	\$ 500	\$ 190	0.38
Feb-17	\$ 390	\$ 180	0.46	\$ 560	\$ 180	0.32
Mar-17	\$ 810	\$ 250	0.31	\$ 790	\$ 260	0.33
Apr-17	\$ 520	\$ 210	0.40	\$ 530	\$ 210	0.40
May-17	\$ 340	\$ 110	0.32	\$ 490	\$ 180	0.37
Jun-17	\$ 610	\$ 310	0.51	\$ 640	\$ 270	0.42
Jul-17	\$ 400	\$ 180	0.45	\$ 490	\$ 190	0.39
Aug-17	\$ 710	\$ 300	0.42	\$ 720	\$ 290	0.40
Sep-17	\$ 430	\$ 190	0.44	\$ 590	\$ 230	0.39
Oct-17	\$ 540	\$ 150	0.28	\$ 550	\$ 210	0.38
Nov-17	\$ 650	\$ 210	0.32	\$ 750	\$ 280	0.37
Dec-17	\$ 380	\$ 150	0.39	\$ 620	\$ 240	0.39
Jan-18	\$ 410	\$ 160	0.39	\$ 570	\$ 260	0.46
Feb-18	\$ 510	\$ 200	0.39	\$ 680	\$ 250	0.37
Mar-18	\$ 620	\$ 210	0.34	\$ 740	\$ 260	0.35
Apr-18	\$ 490	\$ 220	0.45	\$ 610	\$ 240	0.39
May-18	\$ 700	\$ 310	0.44	\$ 830	\$ 280	0.34
Jun-18	\$ 550	\$ 210	0.38	\$ 590	\$ 240	0.41
Jul-18	\$ 380	\$ 180	0.47	\$ 520	\$ 180	0.35
Aug-18	\$ 530	\$ 210	0.40	\$ 760	\$ 310	0.41
Sep-18	\$ 550	\$ 210	0.38	\$ 630	\$ 240	0.38
Oct-18	\$ 550	\$ 220	0.40	\$ 550	\$ 240	0.44
Nov-18	\$ 800	\$ 280	0.35	\$ 810	\$ 280	0.35
Dec-18	\$ 560	\$ 270	0.48	\$ 560	\$ 260	0.46

Jan-19	\$ 560	\$ 180	0.32	\$ 570	\$ 200	0.35
Feb-19	\$ 750	\$ 310	0.41	\$ 770	\$ 280	0.36
Mar-19	\$ 550	\$ 200	0.36	\$ 650	\$ 190	0.29
Apr-19	\$ 670	\$ 220	0.33	\$ 790	\$ 290	0.37
May-19	\$ 660	\$ 220	0.33	\$ 760	\$ 300	0.39
Jun-19	\$ 450	\$ 210	0.47	\$ 800	\$ 250	0.31

## Appendix B: Methodology

### Methodology: Calculate Paid to Billed Ratios Pre-Reference-Based Pricing and Post-Reference-Based Pricing for Inpatient and Outpatient Services

#### Assumptions:

1. Changes in plan design do not have impact on the Charged amount, only allowed and paid would be impacted by plan design.
2. Evaluating changes in member risk is not necessary to evaluate the financial impact of Reference-Based Pricing (RBP) since the member risk is reflected in reported charge amount.
3. Interpolating the data points from the graph, we can approximate the Paid to Billed ratio pre-RBP and apply that to the Billed amount post-RBP to calculate a counter-factual

#### MT HCBD – ST EE Population Health Management Reports: Inpatient

Period	Inpatient Avg Billed PEPM	Inpatient Avg Paid PEPM	Paid to Billed (P/B) Ratio	Counter-factual	Estimated Inpatient Savings percent	Estimated Savings PEPM	Employee Months	Total Inpatient Paid	Total Inpatient Savings
SFY14	\$440.42	\$205.83	0.467						
SFY15	\$445.83	\$233.33	0.523						
SFY16	\$433.33	\$211.67	0.488						
SFY17	\$551.67	\$213.33	0.387	\$272.01	<b>-21.6 percent</b>	\$58.67	176,149	\$37,578,453	\$10,335,124
SFY18	\$532.50	\$207.50	0.390	\$262.56	<b>-21.0 percent</b>	\$55.06	172,484	\$35,790,430	\$9,496,210
SFY19	\$584.17	\$225.83	0.387	\$288.03	<b>-21.6 percent</b>	\$62.20	168,970	\$38,159,058	<u>\$10,509,452</u>
									<b><u>\$30,340,786</u></b>

#### MT HCBD – ST EE Population Health Management Reports: Outpatient

Period	Outpatient Avg Billed PEPM	Outpatient Avg Paid PEPM	Paid to Billed (P/B) Ratio	Counter-factual	Estimated Outpatient Savings percent	Estimated Savings PEPM	Employee Months	Total Outpatient Paid	Total Outpatient Savings
SFY14	\$527.50	\$232.50	0.441						
SFY15	\$549.17	\$237.50	0.432						
SFY16	\$531.67	\$223.33	0.420						
SFY17	\$575.83	\$219.17	0.381	\$248.24	<b>-11.7 percent</b>	\$29.07	176,149	\$38,605,989	\$5,121,359
SFY18	\$645.00	\$247.50	0.384	\$278.06	<b>-11.0 percent</b>	\$30.56	172,484	\$42,689,790	\$5,270,818
SFY19	\$680.83	\$251.67	0.370	\$293.51	<b>-14.3 percent</b>	\$41.84	168,970	\$42,524,117	<u>\$7,069,590</u>
									<b><u>\$17,461,767</u></b>

## Appendix C: Scenarios Used to Build Savings Estimate

With the creation of the counter-factual, Optumas was able to quantify a range of savings associated with reference-based pricing. This range of savings is largely predicated on the increase in billed charges that occurred in SFY17 (July 2016 to June 2017). Optumas developed two possible scenarios that may explain the increase in billed charges, each described below. As discussed in the methodology section, while the exact rationale for the change in billed charges cannot be determined from the information provided, it is important to note that under both scenarios, HCBD experienced savings due to reference pricing.

### Scenario 1

In scenario 1, Optumas assumes the increase in billed charges is a result of a regularly scheduled increase in the chargemaster, following a schedule that the hospital habitually follows. For example, hospitals update their chargemaster codes annually, with pricing changing somewhat less frequently due to the typical budget processes and competitive pressures.<sup>7</sup> The data supports this theory, as there is a very large change in charges that occurs during SFY 17, then the annual charges fluctuate at a magnitude that is consistent with normal mix/risk changes on a monthly basis.

This type of periodic change in billed charges is one of the primary reasons that reference pricing can be favorable to the employer. Absent the reference-based pricing arrangement, the employer would be paying the agreed upon “discount” off billed charges, thus as billed charges increase so does the contracted amount.

Since the reference-based price is predicated on Medicare reimbursement, and Medicare reimbursement is less dependent on changes in facility chargemasters, the employer achieves savings to the extent that changes in chargemasters, on a percentage basis, outpace the changes in Medicare reimbursement. This is the case, as charges have tended to increase at annual rates of 3 to 5 percent greater than Medicare costs for the same services.<sup>8</sup> Increase in inpatient charges do not necessarily lead to increased payments from payers, but with Medicare reimbursement increases at a more nominal level, approximately 2 to 3 percent annually,<sup>9</sup> the opportunity for savings by linking to a more consistent reference price are significant.

As mentioned above, Optumas constructed counter-factuals to estimate the inpatient and outpatient savings associated with the reference-based pricing. In this scenario, the counter-factual was derived by applying the historic cost/charge ratio (prior to reference-based pricing implementation) to the increased billed amounts. This results in the counter-factual paid amount being considerably higher than

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<sup>7</sup> Tompkins, C.P., Altman, S.H. and Eilat, E., 2006. The precarious pricing system for hospital services. *Health Affairs*, 25(1), pp.45-56.

<sup>8</sup> See for example [Beauvais, B., Gilson, G., Schwab, S., Jaccaud, B., Pearce, T. and Holmes, T., 2020, June. Overpriced? Are Hospital Prices Associated with the Quality of Care?. In *Healthcare* (Vol. 8, No. 2, p. 135). Multidisciplinary Digital Publishing Institute], which estimates hospital inpatient charge-to-cost rates show a 4.57 percent compound annual growth rate or [MedPAC, A Data Book: Health care spending and the Medicare program, June 2018. Section 6, Acute inpatient services, p 85. CMS, Oct. 2018], which demonstrates that inpatient charges have grown at an annual rate of 3.5 percent above Medicare costs

<sup>9</sup> See for example, the CMS Summary Market Basket data for Inpatient Prospective Payment System (IPPS) Hospital Market Basket data found at <https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/MedicareProgramRatesStats/MarketBasketData>, accessed online November 2, 2020.

the actual paid amounts, with the marginal difference being interpreted as savings due to reference pricing.

### Scenario 2

In scenario 2, we assume the increase in billed charges is not a result of a regularly scheduled increase, but the result of the hospital intentionally increasing their billed charges to account for the new reference-based pricing agreement. For example, this would explain why the paid amount is flat while the billed amount increases significantly. One of the primary reasons for migrating to a reference-based pricing agreement is to avoid the potential for gamesmanship when facilities are establishing their chagemasters.

### Summary

The savings estimates presented in this analysis are based on scenario 1, which shows slightly greater savings than if the assumptions in scenario 2 are correct. However, if scenario 2 is correct, the future savings of reference pricing would still materialize and therefore the difference between the annual increase in billed charges vs Medicare can still be interpreted as savings for the group.

## Appendix D: Montana Plan Background Data

Demographics <sup>(1)</sup>	Jul 2015 to Jun 2016	Jul 2016 to Jun 2017	Net Change
Current Employees	14,931	14,609	-2.2 percent
Current Members	30,707	29,940	-2.5 percent
Employee Months	179,800	176,149	-2.0 percent
Member Months	370,368	361,411	-2.4 percent
Average Age	41.1	39.9	-2.9 percent
Percent Male (Current)	47.9	48.1	0.4 percent
Member to Subscriber Ratio	N/A	N/A	N/A
Average Relative Risk Score	N/A	N/A	N/A

Demographics <sup>(2)</sup>	Jul 2016 to Jun 2017	Jul 2017 to Jun 2018	Net Change
Current Employees	14,641	14,197	-3.0 percent
Current Members	30,064	28,970	-3.6 percent
Employee Months	177,213	172,484	-2.7 percent
Member Months	364,898	353,182	-3.2 percent
Average Age	40.7	39.7	-2.5 percent
Percent Male (Current)	47.9	48.1	0.4 percent
Member to Subscriber Ratio	2.05	2.04	-0.5 percent
Average Relative Risk Score	1.300	1.280	-1.5 percent

Demographics <sup>(3)</sup>	Jul 2017 to Jun 2018	Jul 2018 to Jun 2019	Net Change
Current Employees	14,219	14,077	-1.0 percent
Current Members	29,006	28,521	-1.7 percent
Employee Months	172,613	168,970	-2.1 percent
Member Months	353,319	343,913	-2.7 percent
Average Age	40.7	39.7	-2.5 percent
Percent Male (Current)	48.1	48.2	0.2 percent
Member to Subscriber Ratio	2.04	2.03	-0.5 percent
Average Relative Risk Score	1.270	1.290	1.6 percent

1. Source: 2017 Montana State Employee Health Care & Benefits Division 2nd Quarter 2017 Population Health Management Reports, p. 30 (SEGBAC Meeting 8/8/2017)
2. Source: 2018 Montana State Employee Health Care & Benefits Division 2nd Quarter 2018 Population Health Management Reports, p. 2 (SEGBAC Meeting 8/14/2018)
3. Source: 2019 Montana State Employee Health Care & Benefits Division 2nd Quarter 2019 Population Health Management Reports, p. 2 (SEGBAC Meeting 8/27/2019)