



October 31, 2019

Members of the Legislatures' Joint Labor, Health and Social Services Committee
200 West 24th Street
Cheyenne, WY 82002

Dear Members of the Labor, Health and Social Services Committee,

Pursuant to the passage of Senate File 67 (Enrolled Act 58), you will find attached a final copy of the Wyoming Hospital Cost Study. This legislation required an analysis of numerous topics, which are addressed in the report. This study was made possible through a collaboration with the Department of Health, the Office of the Governor, the co-chairs of the Legislature's Joint Labor, Health and Social Services interim committee, as well as healthcare stakeholders from around the state.

My recommendations based on this report are to review it in concert with the Health Department's Hospital Viability Study (Section 338). While one report was completed by an outside consultant and the other by an executive branch agency there are many concepts and topics that overlap and together they provide a different perspective on similar health policy issues.

Additionally, my administration will continue to investigate why healthcare costs are so high in the state, knowing that costs must be balanced with appropriate access to critical services in a rural and frontier setting. Together the executive and legislative branches should partner to contemplate additional ways to finance healthcare services -- both public and private -- to ensure access while keeping costs as low as possible.

Representatives from Milliman, the report authors, will be appearing at the Joint Labor, Health and Social Services interim committee meeting in Cheyenne on November 7th at 8:05 am. They will present the study at that time and will be available to provide follow-up on the study's findings.

Sincerely,

Mark Gordon
Governor

MG:rm:kh

MILLIMAN REPORT

Wyoming Hospital Cost Study

Directed by Senate File 67, 2019 Legislative Session

October 24, 2019

Jill Van Den Bos, ASA, MAAA
Daniel Perلمان, FSA, MAAA
Ally Weaver, ASA, MAAA
Matt Caverly
Will Fox, FSA, MAAA
Aaron Gates, FSA MAAA
Doug Norris, FSA, MAAA, PhD





Table of contents

EXECUTIVE SUMMARY	3
INTRODUCTION.....	3
SUMMARY OF CONCLUSIONS.....	3
CROSS-SUBSIDIZATION BETWEEN PRIVATE AND PUBLIC PAYERS	5
BACKGROUND: WHAT IS PRICE DISCRIMINATION?	5
MAGNITUDE OF PRICE DISCRIMINATION IN WYOMING HOSPITAL COSTS	6
Analysis of hospital payment levels	6
Methodology	7
WHY COST SHIFTING OCCURS IN HEALTHCARE	8
SUMMARY	10
REVENUES AND UNCOMPENSATED CARE COSTS FOR WYOMING HOSPITALS	10
NET REVENUES RECEIVED THROUGH MEDICARE COST SHARING AND MEDICAID UPPER PAYMENT LIMIT PROGRAMS	12
MEDICARE COST SHARING	12
MEDICAID UPPER PAYMENT LIMIT PROGRAMS	12
STATE-BY-STATE COMPARISON OF PAYMENT LEVELS FOR COMMON PROCEDURES	13
COMMERCIAL	13
MEDICARE	14
ANALYSIS OF MEDICARE WAGE INDEX AND OTHER IPPS ADJUSTMENTS.....	16
WAGE INDEX	16
DISPROPORTIONATE SHARE / UNCOMPENSATED CARE	18
HEALTHCARE SPENDING FOR WYOMING RESIDENTS	19
COMMERCIAL	19
MEDICAID	20
MEDICARE	21
HEALTHCARE SPENDING FOR RESIDENTS OF SURROUNDING STATES.....	22
COMMERCIAL	22
MEDICARE	22
WYOMING CARE GOING OUT OF STATE.....	23
COMMERCIAL	23
MEDICAID	23
MEDICARE	23
VIABILITY OF TYPES OF CARE IN WYOMING.....	25
PROVIDER RECRUITMENT ISSUES IN WYOMING.....	27
HOSPITAL COST STRUCTURE IN WYOMING AND ELSEWHERE	32
FACTORS INFLUENCING WYOMING HOSPITAL COSTS	34

POTENTIALLY IMPORTANT FACTORS 34

FACTORS IMPORTANT ONLY TO THE EXTENT THAT COST SHIFTING EXISTS..... 35

UNLIKELY DRIVERS 35

AMBIGUOUS FACTORS 36

MEDICARE PAYMENT RATES FOR RURAL HEALTH CLINICS..... 36

BROADENING THE PAYER BASE 37

 REDUCING PRICES FOR HEALTHCARE SERVICES 37

 Patients as consumers..... 37

 Providers..... 38

 ALTERNATIVE FUNDING FOR HEALTHCARE 38

 Payers..... 38

 Providers..... 38

APPENDIX A: WYOMING HOSPITAL 2017 REVENUE AND COSTS..... 41

APPENDIX B: COST METRICS BY DRG FOR COMMERCIALLY INSURED PATIENTS..... 42

APPENDIX C: MEDICARE IPPS PAYMENT RATES BY DRG 44

APPENDIX D: WYOMING WAGES FOR HOSPITAL OCCUPATIONS BY MSA..... 53

APPENDIX E: TYPES OF SERVICES INCLUDED IN COMMERCIAL AND MEDICARE HEALTHCARE SPENDING ANALYSIS BY CATEGORY..... 54

APPENDIX F: COMMERCIAL HEALTHCARE SPENDING ESTIMATES BY AGE, SEX, AND STATE..... 55

APPENDIX G: MEDICARE HEALTHCARE SPENDING ESTIMATES BY AGE, SEX, AND STATE..... 62

APPENDIX H: ESTIMATED OUT-OF-STATE COMMERCIAL HEALTHCARE SPENDING 66

APPENDIX I: ESTIMATED OUT-OF-STATE MEDICARE HEALTHCARE SPENDING 68

Executive summary

INTRODUCTION

Senate File 67, passed by the Wyoming Legislature on February 28, 2019, (the legislation) directed the governor's office to study and report on a variety of topics related to high Wyoming hospital costs. Consistent with that direction, Milliman prepared this analysis of hospital costs in Wyoming at the request of the Wyoming Department of Administration and Information (WDA).

The purpose of this study is to analyze specific questions regarding hospital costs in Wyoming that were called for in the statement of work executed by Milliman and the Wyoming Department of Administration on August 21, 2019, which includes many of the items specified in the legislation. The sections and ordering of this report follow the tasks outlined in the statement of work.

The analysis herein is based on a variety of public and private data sources. In accordance with actuarial standards of practice, Milliman has not conducted a detailed audit of any of these data sources, although we believe based on our review that they are appropriate for the purposes used. Any errors or omissions in these data sources could affect our findings. Additionally, given Wyoming's small size, it is especially important to be mindful of the variance in our results that can arise from any data sources that survey or are sampled from this small population. The retrospective analyses contained in this report are summaries of historical data and should not be used to project future enrollment or claim experience without significant judgment and caution.

Milliman does not intend by this report to make or appear to endorse any specific public policy recommendations.

SUMMARY OF CONCLUSIONS

This report contains a number of historical metrics that are estimated from public and proprietary data sources. In many cases, we provide comparisons between Wyoming and a cohort of other states identified in the statement of work. The comparison states are neighbors of Wyoming, plus California and New York (included to provide some comparisons from large, coastal states that differ in many respects from Wyoming).

We reviewed economic theory and literature on the topic of "cost shifting," which is the proposed causal relationship between low fees paid by some payers and higher fees paid by others. This section includes a more general discussion of price discrimination, which is a broader concept in economics that includes the specific issue of hospital cost shifting. We also analyze data on hospitals in Wyoming and other states to quantify the extent to which fee levels differ by payer type. The analysis shows that in Wyoming and most other states studied, private payers pay higher fees for hospital services than Medicare. This relationship is not necessarily causative, however. There is a body of theoretical and empirical economic literature that calls into question whether it is possible for a hospital to simply shift its costs (and more generally, whether there are other more likely explanations for these observed fee differences).

We summarize revenues and costs for Wyoming hospitals by payer type. Medicare and Medicaid account for a minority of revenue across all Wyoming hospitals, both Critical Access hospitals and otherwise. This section includes the data related to uncompensated care, which we estimate to total \$98 million across all Wyoming hospitals in 2017.

The report estimates revenue generated by Wyoming hospitals from Medicare cost sharing and Medicaid Upper Payment Limit (UPL) programs. We estimate that Medicare cost-sharing revenue was \$69 million in 2017, and that Medicaid UPL revenue ranged from \$11.2 to \$12.5 million in fiscal years 2017-2018.

At a diagnosis-related group (DRG) level, we compare fees paid by commercial payers for a set of common DRGs. This provides a sample of fees that controls for service type for a variety of typical causes of inpatient admission. Data are not available at the hospital level, and so this analysis represents a sample across hospitals in these states. Our results indicate that for the DRGs included in the study, average payment rates in Wyoming are higher than in some states and lower than in others. Wyoming does not appear to be an outlier among this cohort of states. We performed a similar analysis for Medicare fees, in this case sampling from the three largest-volume hospitals in each state and a representative sample of five more hospitals in each state. Here too, Wyoming did not stand out as an outlier.

The report discusses the wage index component of Medicare hospital fees. A review of published wage data indicates that Wyoming hospitals could qualify to receive a wage index slightly below the national average. However, most Wyoming hospitals do qualify for a “frontier adjustment” that sets the wage index to the national average, which is an upward adjustment. In any event, the wage index is not a crucial factor for most hospitals in Wyoming. Nearly all hospitals are either Critical Access hospitals or sole community hospitals, whose fees are set via a hospital-specific method in cases where that method produces a more favorable result than the standard methodology.

We reviewed available data sources to estimate healthcare spending per-member-per-month for Wyoming residents. We decomposed this by major service category and by age/sex group. We also estimated the percentage of care for Wyoming residents that occurs out of state. This percentage is higher for Wyoming residents than for residents of the other states analyzed in this study.

The report discusses the viability of hospital care in Wyoming. We reviewed data on inpatient admissions to identify how frequently admissions result in transfer to another facility, which is one possible outcome of a person being admitted to a hospital that lacks the capability to fully care for that patient. We determined that such transfers are significantly more common for Wyoming residents than for residents of other states, although the difference among states is smaller when considering only individuals who reside outside of a metropolitan area. Wyoming residents who are admitted to an out-of-state hospital are less likely to be transferred to another facility than Wyoming residents admitted to an in-state hospital.

Physician access is a concern in Wyoming; our data analysis found that for many provider types, there are fewer physicians per capita in Wyoming than in the comparison states. Moreover, Wyoming’s geographically dispersed population would leave significant access problems for many residents even if the provider counts were on par with those in other states (depending on where in the state those providers happened to be located). Many factors contribute to physician counts in a state, as is the case with any profession. Our study examined published salary metrics as well as commercial and Medicare physician payment levels in Wyoming and comparison states. The data suggest that the financial compensation in Wyoming is not an outlier among these states. Non-financial issues could be a key driver of the low per capita physician counts in Wyoming.

Based on a review of published reports, we decomposed hospital costs for Wyoming hospitals (and hospitals in other states) into major category types. We also reviewed a list of proposed drivers of hospital cost and pricing from the statement of work and classified them into categories based on our opinion of their relative importance.

Finally, the report considers questions raised in the statement of work regarding rural health centers compared with Critical Access hospitals, and regarding other drivers of healthcare costs.

Cross-subsidization between private and public payers

Hospitals and other healthcare providers frequently collect different payment amounts from different payers in exchange for providing the same service. The term “cost shifting” has been used to describe this phenomenon. Sometimes cost shifting refers to that simple observation and nothing more; for the purpose of this report, we refer to this definition as “price discrimination.” Other times, cost shifting is meant to additionally imply a causal relationship—namely, that fees are higher for some payers *because* other payers pay lower fees. We will refer to the causal definition as cost shifting.

In this section, we discuss both issues. Price discrimination is much more straightforward; its existence and extent can be quantified using data. Cost shifting is a more theoretical issue, and there are differing viewpoints on the topic. By definition, all cost shifting is price discrimination, but not all price discrimination is cost shifting.

Frakt (2011) summarized recent empirical literature on cost shifting and found that almost all studies reviewed “found no cost shifting or an amount far below dollar-for-dollar.”¹ He found that though many of the price to cost time series analyses that informed earlier studies appeared to suggest cost shifting, that “the movements in [the commonly used] time series confound the effects of price and cost, which—along with obscuring market power effects—gives a false impression of large, pervasive cost shifting.”

BACKGROUND: WHAT IS PRICE DISCRIMINATION?

The field of economics uses a related, and more general, term for what is usually called cost shifting in a healthcare context: price discrimination. This term refers to a producer/seller of a good or service charging different prices to different consumers. In this academic sense, it is an ethically neutral term and does not connote any illegal or improper conduct; it merely means that prices are different for different buyers.² There are many familiar examples of price discrimination that people encounter in day-to-day life, often without noticing, such as:

- Grocery coupons in a newspaper cause consumers to pay different prices for the same products. Those who lack the time, desire, or ability to collect coupons will pay higher prices than those who do not.
- A hotel room or airplane ticket frequently costs more if booked six days in advance rather than six months in advance. There are a variety of reasons for this, but one is to attempt to charge different prices to business travelers and leisure travelers. Business travelers (who are often willing and able to pay higher prices than leisure travelers) are much less likely to be able to make travel arrangements six months in advance.
- Many businesses offer student discounts or senior discounts, resulting in those groups paying less than others for the same products/services. This is done for a variety of reasons. Students and/or seniors could be perceived as having less ability to afford the product or service in question. Or, students/seniors could be perceived as placing less value on the good or service.

Generally speaking, a producer of a good or service will be most profitable if it can charge a price as close as possible to each individual consumer’s maximum willingness and ability to pay (as opposed to charging a fixed price to everyone). For example, suppose an item costs \$5 to produce, and some people are willing to pay \$10 for it and others are willing to pay \$50. A seller could set a price of \$10 for everyone, or it could seek to charge \$10 to the people who are only willing to pay \$10, but \$50 to those

¹ Frakt, Austin B. “How much do hospitals cost shift? A review of the evidence.” *The Milbank quarterly* vol. 89, 1 (2011): 90-130. doi:10.1111/j.1468-0009.2011.00621.x

² Obviously some mechanisms of doing this would be illegal or improper, but this report is addressing more commonplace ways that sellers can attempt to segment their prospective customers.

who are willing to pay \$50. The latter strategy is more profitable (if, of course, it is practical and legal to set prices in that fashion). Several factors can make price discrimination more or less feasible in practice, such as competition in the marketplace and the ability to distinguish between customer types.

Similarly, in the healthcare market, public policy limits the amount that Medicare and Medicaid will pay for services, whereas market dynamics tend to lead to commercial payers paying more for the same services. Hospitals are aware of this dynamic and have generally been able to price services differently based on the payer.

MAGNITUDE OF PRICE DISCRIMINATION IN WYOMING HOSPITAL COSTS

There is ample evidence that private payers and public payers do not pay the same fees for equivalent medical services. It is common for commercial insurer payment rates to be negotiated as a percentage of the Medicare fee for a given service (with a percentage that is nearly always above 100%). Further, Medicaid payment rates are usually below Medicare and commercial payment rates. In fact, a given provider will frequently have negotiated different rates with different commercial payers. Where cost shifting is defined as simply the difference between these payment levels (price discrimination), it is possible to estimate its magnitude.

Analysis of hospital payment levels

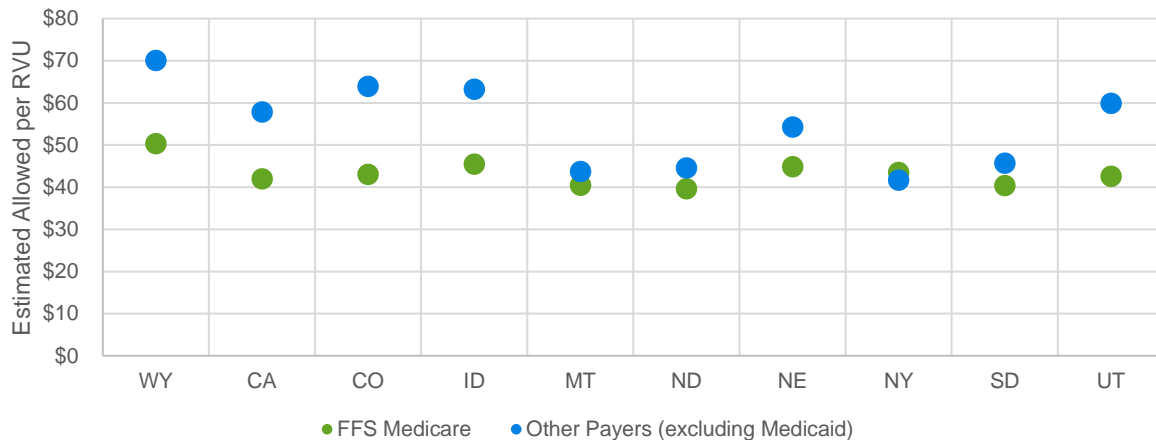
We have measured average unit prices by payer type by analyzing the 2017 Centers for Medicare and Medicaid Services (CMS) hospital cost reports³ and the calendar year 2017 Medicare 100% Limited Data Sets for inpatient and outpatient facility claims. In our analysis, we estimated allowed costs (total price including payer payment and patient cost sharing) per relative value unit (RVU) in Wyoming, surrounding states, and California and New York, as requested by the Wyoming Department of Administration. A relative value unit is a utilization metric that measures the value of a service.⁴ The RVU metrics in this analysis are based on the United States Medicare reimbursement formula for physician services and an RVU schedule for hospitals developed by Milliman to be consistent with the physician schedule. In an RVU-based schedule, a simple procedure would be scored with a lower number of RVUs than a very complex one. Using price per RVU enables a comparison of different hospitals or areas on an apples-to-apples basis and minimizes the issue of confounding price and cost that was observed in prior studies by controlling for the amount of care given. Further detail on our methodology can be found below.

Based on estimated 2017 unit prices for each payer type, Wyoming appears to have a price discrimination relationship similar to that observed in other states. In Figure 1, price discrimination is suggested when the Other Payers category has a higher estimated unit price (allowed cost per RVU) than Fee for Service (FFS) Medicare. Medicaid data are excluded from this analysis since programs differ widely by state and Medicaid hospital payment structures are not comparable across states.

³ Cost reports are filed by fiscal year, based on each hospital's fiscal year definition.

⁴ ScienceDirect.com. Learn more about Relative Value Unit. Retrieved from <https://www.sciencedirect.com/topics/medicine-and-dentistry/relative-value-unit>.

Figure 1: Unit price differences by payer type, 2017



There is a fairly consistent pattern of lower estimated unit price levels for FFS Medicare compared with Other Payers (mostly commercial insurance) in the states that we sampled.

New York is an example of a state in this sample that does not have observable price discrimination by this metric. States may have lower price discrimination due to regulation and market factors, or there may be other features of the data and methodology that cause a state to show minimal price discrimination in a given year.

Methodology

In order to illustrate the degree of unit price differential between payers, we created a unit price estimate that combines metrics from the CMS Medicare Cost Reports and the Medicare 100% Limited Data Sets for inpatient and outpatient facility claims. The data sample includes 22 hospitals in Wyoming and approximately 4,800 hospitals nationally; we excluded hospitals from the sample based on data quality requirements.⁵

- Revenue and cost: Our estimate isolates costs and revenue for FFS Medicare. We created an Other Payers category that is intended to primarily represent data from commercial payers by removing Medicaid, FFS Medicare, SCHIP, and State/Local Indigent Care from the total amounts⁶ reported by each hospital. The Other Payers category includes bad debt, and can also include Medicare Advantage, TRICARE, and any other revenue source in a hospital's financial statement that cannot be isolated in the cost reports.
- Hospital case mix: We assigned RVUs to each service to estimate the intensity of services being performed by each hospital using the Medicare 100% Limited Datasets.
- Cost per RVU: Dividing estimated costs by the RVUs for each service performed results in a cost per RVU for each hospital. This represents case mix adjusted operating costs.
- Allowed per RVU: Using the Medicare cost per RVU for each hospital, we then estimate the allowed per RVU for each payer type using the allowed over cost ratios.

Although our unit price estimates do have some noise in them, most states appear to show a consistent pattern of lower unit prices for FFS Medicare. There is enough evidence in our analysis to conclude that

⁵ Hospitals with less than \$1 million in revenue, revenue less than \$0 or greater than total charges, or charges less than \$0 were excluded from this analysis. Hospitals were reviewed over a multi-year sample and excluded if they did not meet the criteria in any year.

⁶ Total revenue considered is the net patient service revenue in the cost reports and total costs are total operating costs.

Wyoming does have material price discrimination between commercial payers and FFS Medicare, and our assessment is that the degree of the price discrimination is typical among the representative states that do show price discrimination. The data do not support or refute the possibility of a causal relationship between these payment levels, and the data do not indicate what would happen in a hypothetical case where payment levels for a given payer became something different than what they are currently. A longer-term study with precise data on price, cost, and RVUs may provide insight into the causal relationship between prices charged to different payers. Reliable Cost Report data is not available over a long enough period to perform this type of study at this time.

WHY COST SHIFTING OCCURS IN HEALTHCARE

Why differences in payment levels exist is a more complicated and controversial question. Are observed differences in payment rates due to hospitals that seek to maximize profits having successfully segmented their customers (similar to the price discrimination examples above), or is there a causal relationship between uncompensated care, low payment levels from public payers, and high payment levels from private payers? We summarize relevant academic literature on these topics below.

The issue of cost shifting has been studied for many years. A significant amount of research was published in the 1990s (and earlier) and continues to this day.⁷ Many studies have noted that in a theoretical framework where hospitals operate as profit-maximizing businesses, cost shifting (in the causal sense) is not a rational action. In order for cost shifting to occur when hospitals seek to maximize profits, a hospital must (a) have market power, and (b) must not yet have fully exploited that power.⁸ If a hospital does not have market power, raising prices is not possible because it would lose business to competitors (for the same reason that a grower of wheat, which is a commodity product, cannot simply decide to sell wheat above the market price). If a hospital has already fully exploited its market power, it cannot further raise prices to private payers in response to cuts in fees from public payers because it previously raised them already as much as it could. Conversely, if a public payer raised its fees, a profit-maximizing hospital would not reduce fees to private payers because this would result in lower profits.

In fact, *in a theoretical profit-maximizing model*, fee reductions from public payers would result in *lower* prices charged to private payers.⁹ The reason is that a rational response to public payer fee cuts is to devote less capacity to serving those patients;¹⁰ but the only way to attract more private patients to fill the remaining capacity would be lower private payer fees. Note that profit maximizing behavior probably does not fit this theoretical paradigm in small communities.

The literature describes a number of proposed mechanisms by which cost shifting could theoretically occur, such as:

- Hospital preferences for patient types. If a hospital has *non-financial* reasons to want to favor one type of patient (private-pay) over another (public-pay), it may choose to charge less than it could to such

⁷ Frakt (2011) provides a formal literature review in this area. Morrisey, cited elsewhere in this report, performed substantial research in this area in the 1990s (and beyond).

⁸ Morrisey, M.A. "Cost Shifting: New Myths, Old Confusion, and Enduring Reality," *Health Affairs* 22 (2003): w489 –w491 (published online 8 October 2003; 10.1377/hlthaff.w3.489).

⁹ Morrisey, MA, *Cost Shifting in Health Care: Separating Evidence from Rhetoric*, AEI Press 1994.

¹⁰ It is worth noting that reducing public payer patient load (or not accepting such patients at all) in response to low fees from public payers does occur. For example, see Cunningham P and O'Malley A, "Do Reimbursement Delays Discourage Medicaid Participation by Physicians?" *Health Affairs* 2008, <https://doi.org/10.1377/hlthaff.28.1.w17>.. This has become particularly pronounced in recent years in behavioral healthcare, where more and more psychiatrists do not accept Medicaid patients (Bishop T, Press M, Keyhani S, Pincus HA, "Acceptance of Insurance by Psychiatrists and the Implications for Access to Mental Health Care," *JAMA Psychiatry* 2014;71(2):176-181) and in fact have become less likely even to participate in networks of private health insurance plans (Melek S, Perlman D, Davenport S, "Addiction and Mental Health vs. Physical Health: Analyzing Disparities in Network use and Provider Reimbursement Rates," Milliman Research Report, December 2017, <https://www.milliman.com/uploadedFiles/insight/2017/NQTLDisparityAnalysis.pdf>). This phenomenon is somewhat difficult to reconcile with the idea that cost shifting occurs, because it would not be necessary to reduce capacity for public-pay patients if it were straightforward to simply shift costs to private-pay patients.

avored private-pay patients. It may then do so to a lesser extent in the face of fee reductions from public payers.¹¹

- Not-for-profit hospitals. A not-for-profit hospital has, by definition, other goals besides profit maximization. One such goal could be to provide care to privately insured patients at a cost below the profit-maximizing price, effectively “donating money to privately insured patients.”¹² As a general matter, the motivations of managers of not-for-profit hospitals can be complex, ill-defined, and variable across hospitals and over time for the same hospital.¹³
- Opposite causality. If cost shifting is thought of not as shifts in prices but as shifts in margin or profitability, then there is the possibility that cost (margin) shifting could occur with the opposite causal direction than typically discussed. Specifically, hospitals with a market power and a large volume of profitable private-pay patients may be less motivated to control costs. If these high fees for private-pay patients lead to escalating costs, it can push the margin on public-pay patients down to the point of being negative.¹⁴

In any of these or other mechanisms, a common thread is that the hospitals must not be seeking to maximize profits for cost shifting to be possible.

There exists both empirical and theoretical research on this topic. Academic research has shown a variety of conclusions as to how much cost shifting exists in practice, and more generally, how hospitals respond in practice to cuts from public programs. To generalize, the literature tends to describe a combination of price increases and cost cuts. The latter can take a number of forms, including hospital closures, capacity reductions, layoffs, and others.¹⁵

Cutler (1998) studied the impact of Medicare payment cuts in the 1980s and 1990s and argues that the earlier round of Medicare cuts were shifted to private payers, while the later round was met instead with hospital cost cutting. He attributes this difference to the rise of managed care in the 1990s.¹⁶

Frakt (2011) summarized recent empirical literature on cost shifting and found that aside from the portion of Cutler’s study covering the 1980s, all other studies reviewed “found no cost shifting or an amount far below dollar-for-dollar.”¹⁷

The State of Colorado recently published a draft report (2019) studying the impact on Colorado hospital fees of policies and laws that increased Medicaid fees to hospitals and reduced the number of uninsured between 2009 and 2017. The report concludes that although charity care and bad debt declined during

¹¹ Morrisey, MA, *Cost Shifting in Health Care: Separating Evidence from Rhetoric*, AEI Press 1994.

¹² Cutler, David M. “Cost Shifting or Cost Cutting?: The Incidence of Reductions in Medicare Payments,” *Tax Policy and the Economy* 12 (1998): 1-27. <https://doi.org/10.1086/tpe.12.20061853>

¹³ Ginsburg P. Can Hospitals and Physicians Shift the Effects of Cuts in Medicare Reimbursement to Private Payers. *Health Affairs*. 2003 October. doi: 10.1377/hlthaff.w3.472

¹⁴ Stensland J, Gaumer Z, Miller M. Private payer margins can induce negative Medicare margins. *Health Affairs*. 2010;29(5):11004455–11005511. doi: 10.1377/hlthaff.2009.0599.

¹⁵ This cost-cutting response makes theoretical sense and is readily observed in other industries. Firms expend money if they expect to make a return on that expense, and the greater the return, the greater willingness to make the expense. Conversely, if the return (revenue) is reduced, so is the willingness to make the expense. A familiar example is in oil exploration and production. A given oil producer cannot control its revenue per unit of production; it can only control how much it produces and how much it spends. There exist oil reserves that are profitable to extract if the price of oil is \$100 per barrel but that would not be profitable at a \$50 per barrel price. When the price of oil drops, it is normal to see less oil produced (and consequently less money spent on oil production and less employment in the industry). Similarly, to the extent a hospital faces Medicare or Medicaid fees that it cannot control, a rational response to cuts in those fees is to seek to lower its costs and/or to reduce the volume of services it provides.

¹⁶ Cutler 1998

¹⁷ Frakt, Austin B. “How much do hospitals cost shift? A review of the evidence.” *The Milbank quarterly* vol. 89, 1 (2011): 90-130. doi:10.1111/j.1468-0009.2011.00621.x

this time period, “these positive outcomes did not result in a reduction in hospital cost shift to other payers.”¹⁸

SUMMARY

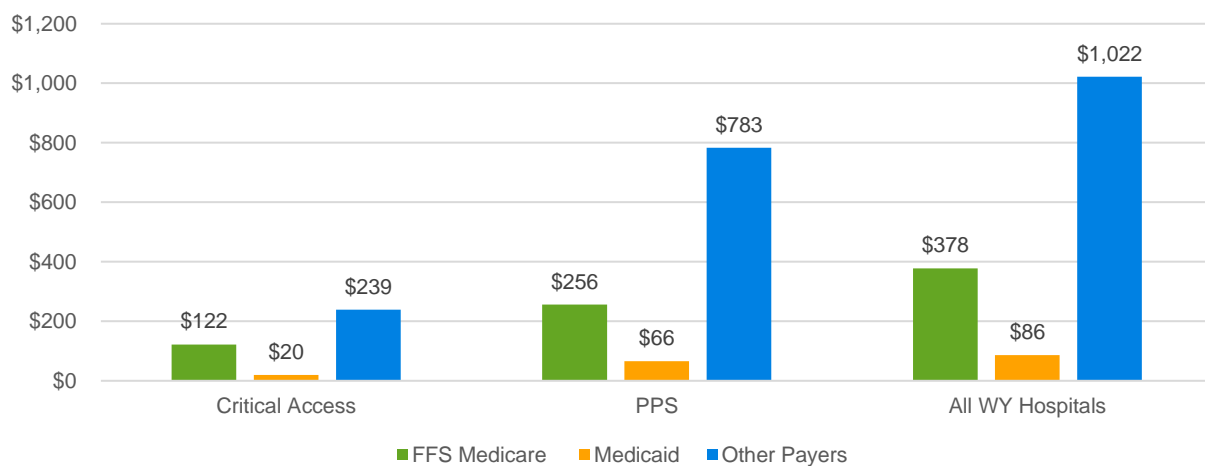
Hospitals do charge different prices to different payers and private payers would usually incur lower costs (likely translating to lower premium) if they were able to pay the same fees that Medicare or Medicaid do. Data analyses can demonstrate the magnitude of price discrimination for hospitals in Wyoming and other states. This observed difference, however, does not prove a causal relationship between high private and low public payer fees. In fact, a causal relationship of this type is not possible in an environment where hospitals solely seek to maximize profits. To the extent that hospitals are motivated by non-financial objectives, it is possible for such a causal relationship to exist, but there is limited empirical evidence that it occurs on a large scale. Accordingly, it is not certain that any future increases in fees paid by Medicare or Medicaid to hospitals would automatically result in hospitals reducing their prices to private payers. “Policymakers should view such claims with skepticism, particularly if they are based on descriptive, industrywide evidence, the weakest type from which to draw cost-shifting inferences.”¹⁹

Revenues and uncompensated care costs for Wyoming hospitals

Figure 2 shows 2017 revenues by payer type for Critical Access hospitals, Prospective Payment System (PPS) hospitals, and all hospitals in Wyoming according to the CMS Medicare Cost Reports.²⁰ The data sample includes 11 Critical Access hospitals and 9 PPS hospitals. Medicaid revenue is a very small portion of total hospital revenue in Wyoming; the majority of hospital revenue comes from other payers.

The data points for Other Payers are calculated by starting with net patient service revenue and subtracting revenue for FFS Medicare, Medicaid, SCHIP, and State/Local Indigent care. The revenue amount for Other Payers excludes bad debt. Though the remaining revenue in the Other Payer category is mostly from commercial payers, it also includes other payers and revenue sources (such as Medicare Advantage, TRICARE, and hospital-owned clinics).

Figure 2: Payer-specific revenue by hospital type (millions), 2017



¹⁸ Cost Shift Analysis Report. Colorado Department of Health Care Policy and Financing, 22 Jan. 2019. Retrieved from www.colorado.gov/pacific/sites/default/files/2019%20January%20HCPF%20Cost%20Shift%20Analysis%20Report%20Draft.pdf.

¹⁹ Frakt 2011.

²⁰ As in the previous section, hospitals were required to meet data quality standards to be included in this analysis. Hospitals with less than \$1 million in revenue or charges less than \$0 were excluded from this analysis.

Figure 3 shows similar information for 2017 costs by hospital and payer type. The data points for Other Payers are calculated by starting with total operating costs and subtracting costs for FFS Medicare, Medicaid, SCHIP, and State/Local Indigent care. The cost amount for Other Payers does not include uncompensated care (UC).

Costs are calculated in the Cost Reports by applying a hospital-specific cost to charge ratio to the billed charges reported for each payer type (including uncompensated care). The cost to charge ratio is calculated across all payers and is applied consistently when calculating costs for each payer type. The costs reported are estimates of actual costs to the hospital to provide care (in contrast to an “uncompensated care cost” metric that represents potential lost revenue to the hospital).

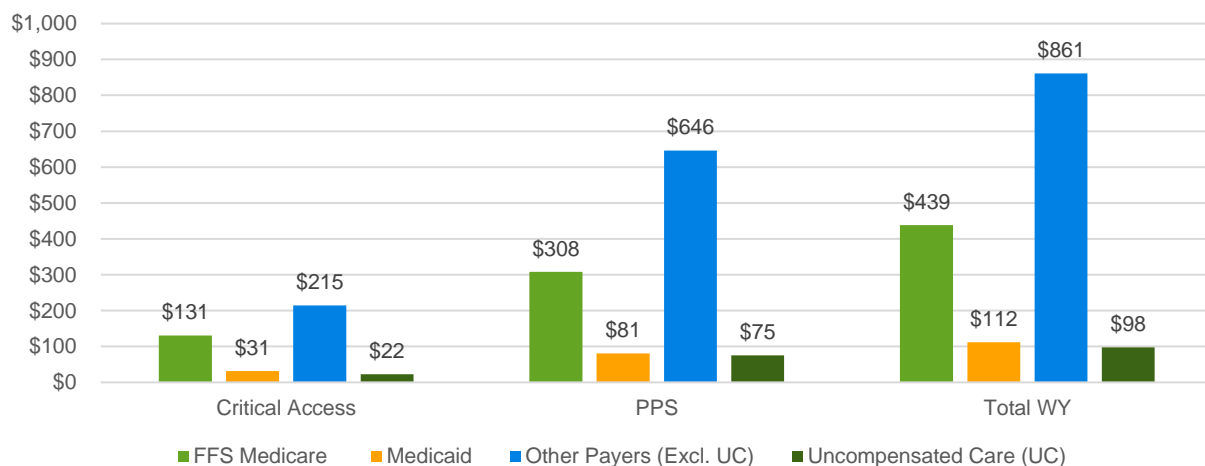
Though Other Payers represent the source of the majority of costs in Wyoming, both FFS Medicare and Medicaid have a notably higher share of costs than they do of revenue. Both FFS Medicare and Medicaid produce negative margins in Wyoming, which is consistent with this observation.

Figure 3: Wyoming margins by payer (% of revenue), 2017

HOSPITAL TYPE	FFS MEDICARE	MEDICAID	OTHER PAYERS (EXCL. UC)	UC (% OF TOTAL REVENUE)	ALL PAYER TOTAL
Critical Access	-7%	-56%	10%	-6%	1%
PPS	-20%	-22%	17%	-6%	6%
Total WY	-16%	-30%	16%	-6%	5%

Uncompensated care costs include charity care and non-Medicare bad debt. These costs were well above the national average in Wyoming when measured as a percentage of the hospitals’ total costs (national average estimate is 4%, Wyoming average estimate is 6%). These costs are about the same volume as costs for the Medicaid population. Figure 4 presents total costs by hospital type in Wyoming in 2017.

Figure 4: Payer-specific costs by hospital type (millions), 2017



A summary of 2017 costs and revenue for each hospital included in the analysis above, as well Wyoming’s one rehabilitation hospital and one psychiatric hospital, is provided in Appendix A.

Net revenues received through Medicare cost sharing and Medicaid Upper Payment Limit programs

MEDICARE COST SHARING

When a hospital cares for an insured patient, the hospital typically collects payment from the insurer (which could be Medicare or Medicaid) and also some amount of cost sharing owed directly by the patient. For this study, we were asked to estimate the amount of cost-sharing revenue received by Wyoming hospitals for Medicare-covered patients.

Our estimates of Medicare cost-sharing revenue rely primarily on two large healthcare claim data sets, with data from 2017:

- Milliman's Consolidated Health Cost Guidelines™ Sources Database (for individuals with Medicare Advantage)
- Centers for Medicare and Medicaid Services (CMS) 5% Sample Standard Analytical Files (for individuals covered by FFS Medicare)

In Wyoming, Medicare Advantage has only a small market penetration (approximately 3% of all Medicare beneficiaries).²¹ Therefore, the traditional FFS Medicare data are by far the more important source for our estimates. Further, a significant portion of hospital care for Wyoming residents occurs in other states, as discussed below. This section evaluates only the cost-sharing revenue of Wyoming hospitals, rather than of all hospitals caring for Wyoming residents.²²

We assumed that the CMS data (for FFS members) covers a representative sample of the population, and we directly relied on it for estimates of cost sharing for the FFS population. For the Medicare Advantage population, we calculated per member per year (PMPY) cost-sharing amounts by age/sex grouping and extrapolated to a statewide total using demographic assumptions from the Current Population Survey (CPS).²³

Figure 5 shows the total dollars Wyoming hospitals received through member cost sharing for inpatient and outpatient hospital services from Wyoming Medicare enrollees in 2017.

Figure 5: Estimated Wyoming hospital net revenues received through Medicare cost sharing, 2017

INPATIENT	OUTPATIENT	TOTAL FACILITY
\$24,400,000	\$44,500,000	\$68,900,000

MEDICAID UPPER PAYMENT LIMIT PROGRAMS

Wyoming hospitals may receive additional Medicaid payments through Qualified Rate Adjustment and Upper Payment Limit programs. The Qualified Rate Adjustment (QRA) program provides supplemental payments to non-state governmental hospitals for inpatient and outpatient services. The payment is equal to “a portion of the difference between a qualifying hospital’s Medicaid allowable costs for the payment period and its pre-QRA Medicaid payments for the same period, minus amounts payable by other third

²¹ Kaiser Family Foundation, “A Dozen Facts About Medicare Advantage, 13 November 2018. Retrieved from <https://www.kff.org/medicare/issue-brief/a-dozen-facts-about-medicare-advantage/> (visited September 23, 2019).

²² Our data analysis indicates that only a small portion of care (roughly 3%) provided by Wyoming hospitals is for residents of other states.

²³ U.S. Census Bureau. Current Population Survey (CPS). Retrieved from <https://www.census.gov/cps/data/cpstablecreator.html>.

parties and beneficiaries.”²⁴ In state fiscal years 2017 and 2018, federal QRA payments to Wyoming hospitals amounted to \$11.2 million and \$12.5 million, respectively.²⁵

Qualified nursing facilities may receive supplemental payments through the Upper Payment Limit (UPL) program. UPL payments are calculated by comparing actual payments to payments that would have been received under Medicare’s payment principles.²⁶ In state fiscal years 2017 and 2018, federal UPL payments to Wyoming nursing facilities amounted to \$15.3 million and \$16.4 million, respectively.²⁷

State-by-state comparison of payment levels for common procedures

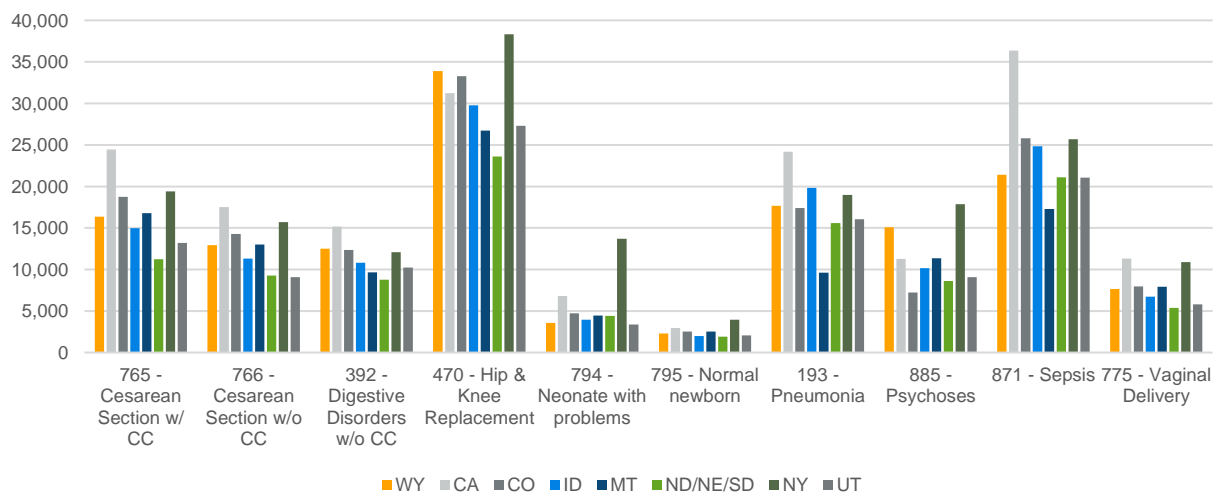
For this analysis, we compared average payments for several common procedures for commercially insured and Medicare patients, including knee and hip replacements, vaginal delivery, cesarean delivery, sepsis, and pneumonia.²⁸ This analysis relies on administrative claim data to estimate payment levels for individuals with commercial insurance coverage, as well as Medicare payment schedules by diagnosis-related group (DRG).

COMMERCIAL

Estimates of average payments for common procedures in the commercial population rely on claim data from 2015 through 2017 from Milliman’s Consolidated Health Cost Guidelines™ Sources Database. The payments presented in this section are average allowed payments, which include payments made by a commercial insurance plan plus patient cost-sharing amounts. All costs in this section are presented on a 2017 basis, trended to that year at an assumed 6% annual rate.

Figure 6 presents 2017 average allowed payments by DRG for commercially insured patients in Wyoming compared with its surrounding states, plus California and New York.²⁹ Due to data limitations, payments for North Dakota, Nebraska, and South Dakota have been combined in Figure 6.

Figure 6: Average commercial allowed payments by DRG and state, 2017



²⁴ Wyoming Medicaid Annual Report, 2018. Wyoming Department of Health.

²⁵ IBID. State fiscal year 2017 is July 1, 2016 through June 30, 2017. State fiscal year 2018 is July 1, 2017 through June 30, 2018.

²⁶ IBID

²⁷ IBID

²⁸ In this report, we include data on several DRGs related to childbirth and newborns as requested in our statement of work. While values can theoretically be calculated from data, Medicare generally does not pay for these services and so we recommend not attempting to draw conclusions about Medicare payment rates for these DRGs.

²⁹ “CC” in the DRG descriptions stands for complication or comorbidity.

Average commercial allowed payments are generally highest in California and New York for the common procedures shown above. Utah and the combined North Dakota, Nebraska, and South Dakota region showed some of the lowest commercial payment rates for the selected procedures. Wyoming commercial payment rates generally appear to be near or above the rates for neighboring states selected for this analysis, but generally lower than payment rates in California and New York.

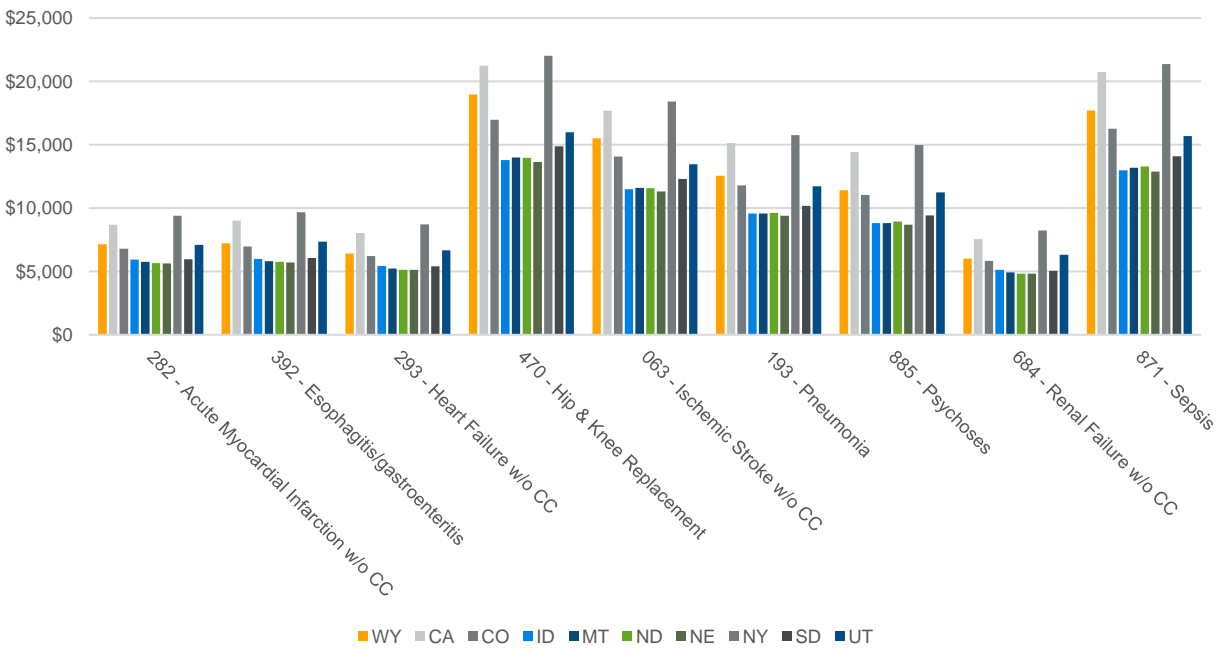
Additional detail about the average allowed payments presented in Figure 6, along with 25th, 50th, and 75th percentiles of payments for these procedures, can be found in Appendix B.

MEDICARE

Medicare pays for inpatient procedures based on the admission’s DRG code, adjusted for location and other hospital characteristics. Medicare 2019 payment rates based on the inpatient prospective payment system (IPPS) methodology are presented in this section for the same procedures as for the commercial population, plus a few additional common procedures.

We calculated Medicare payments for the three highest volume major medical centers in Wyoming along with surrounding states, California, and New York (based on total number of admits in fiscal year 2018), and also a sample of community hospitals throughout each state. Averaging across the selected hospitals for each state, Wyoming major medical centers show higher Medicare payment rates for many common services than surrounding states, near the level of California and New York hospitals.³⁰ Figure 7 displays a comparison of 2019 payment rates by DRG across the three highest volume major medical centers in each state. Delivery procedures were excluded from the summary below since they are uncommon for a Medicare population and the payment rates are not reliable; however, detail regarding the IPPS rates for these DRGs is available in Appendix C.

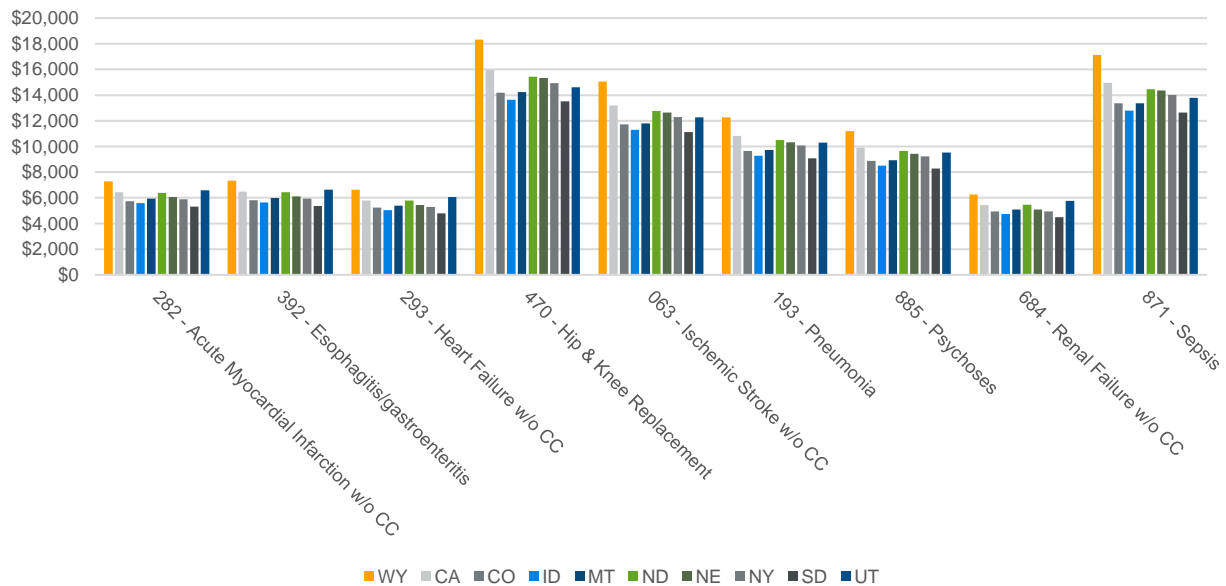
Figure 7: Medicare payment rates for the three highest volume medical centers by DRG and state, 2019



³⁰ The average payment rates in this section were calculated as straight averages across hospitals (where each hospital received equal weight), rather than weighted averages by number of admits or another volume metric.

Medicare payment rates for community hospitals in Wyoming are generally higher than in other states, including California and New York. Community hospitals were selected for this analysis to represent a variety of sizes (by number of admits) and areas within each state.³¹ Figure 8 displays a comparison of 2019 payment rates by DRG averaged across five community hospitals in each state.

Figure 8: Medicare payment rates for five sampled community hospitals by DRG and state, 2019



Medicare payment rates by DRG for each Wyoming major medical center and community hospital selected for this analysis are shown in the figures below. The payment rates for each hospital in the other states presented in this section are provided in Appendix C.

Figure 9: Medicare payment rates for the three highest volume major medical centers in Wyoming, 2019

DRG	WYOMING MEDICAL CENTER	CHEYENNE REGIONAL MEDICAL CENTER	SHERIDAN MEMORIAL HOSPITAL
282 - Acute Myocardial Infarction w/o CC	\$6,174	\$7,165	\$8,137
787 - Cesarean Section w/ CC	\$8,826	\$10,350	\$11,745
788 - Cesarean Section w/o CC	\$7,353	\$8,624	\$9,785
392 - Esophagitis/gastroenteritis	\$6,215	\$7,233	\$8,206
293 - Heart Failure w/o CC	\$5,645	\$6,375	\$7,231
470 - Hip & Knee Replacement	\$16,245	\$19,012	\$21,616
063 - Ischemic Stroke w/o CC	\$13,291	\$15,560	\$17,686
794 - Neonate with problems	\$11,122	\$13,033	\$14,799
795 - Normal Newborn	\$2,593	\$2,121	\$2,273
193 - Pneumonia	\$10,749	\$12,605	\$14,304
885 - Psychoses	\$9,765	\$11,468	\$12,994
684 - Renal Failure w/o CC	\$5,355	\$5,936	\$6,733
871 - Sepsis	\$15,156	\$17,762	\$20,167
807 - Vaginal Delivery	\$5,318	\$5,879	\$6,670

³¹ The aim of this sampling is to provide a reasonable representation of each state at large. Certain areas in some states may be more comparable to Wyoming than others (for example, New York state includes many rural areas outside of metropolitan New York City).

Figure 10: Medicare payment rates for five community hospitals in Wyoming, 2019

DRG	SAGEWEST HEALTH CARE	CAMPBELL COUNTY MEMORIAL HOSPITAL	ST. JOHN'S MEDICAL CENTER	EVANSTON REGIONAL HOSPITAL	MOUNTAIN VIEW REGIONAL HOSPITAL
282 - Acute Myocardial Infarction w/o CC	\$6,605	\$8,594	\$8,716	\$7,981	\$4,508
787 - Cesarean Section w/ CC	\$9,310	\$11,819	\$12,581	\$10,556	\$6,507
788 - Cesarean Section w/o CC	\$7,757	\$9,847	\$10,482	\$9,157	\$5,421
392 - Esophagitis/gastroenteritis	\$6,649	\$8,639	\$8,791	\$8,031	\$4,546
293 - Heart Failure w/o CC	\$6,021	\$8,012	\$7,746	\$7,335	\$4,006
470 - Hip & Knee Replacement	\$17,136	\$21,754	\$23,156	\$17,601	\$11,976
063 - Ischemic Stroke w/o CC	\$14,020	\$17,799	\$18,946	\$14,796	\$9,798
794 - Neonate with problems	\$11,732	\$14,894	\$15,854	\$12,736	\$8,199
795 - Normal Newborn	\$2,651	\$4,654	\$2,523	\$3,604	\$1,110
193 - Pneumonia	\$11,339	\$14,395	\$15,323	\$12,382	\$7,925
885 - Psychoses	\$10,301	\$13,077	\$13,920	\$11,447	\$7,199
684 - Renal Failure w/o CC	\$5,700	\$7,692	\$7,213	\$6,980	\$3,730
871 - Sepsis	\$15,987	\$20,296	\$21,604	\$16,566	\$11,173
807 - Vaginal Delivery	\$5,659	\$7,652	\$7,145	\$6,935	\$3,695

Analysis of Medicare wage index and other IPPS adjustments

Medicare pays for inpatient stays based on the inpatient prospective payment system (IPPS), which assigns payment based on the admission's DRG. This base payment rate is adjusted in several ways, including by the wage index applicable to the area where the hospital is located, disproportionate share (DSH) adjustments if the hospital treats a high percentage of low-income patients, and indirect medical education (IME) adjustments for approved teaching hospitals.³²

Wyoming hospitals do not appear to be disadvantaged in their treatment by Medicare for geographic wage index adjustments and for DSH payments. In fact, they appear to be getting favorable adjustments relative to the rest of the country, as summarized below.

Nearly all hospitals in Wyoming, other than Critical Access hospitals, are classified as sole community hospitals (SCHs). For the operating portion of payments (which are the vast majority of the total), SCHs receive the higher of the standard IPPS payment or a hospital-specific rate that is calculated based on a hospital's costs. Therefore, most payments in Wyoming are based on the higher of normal Medicare IPPS payments and each hospital's costs.

WAGE INDEX

A hospital's Medicare wage index is calculated at the core-based statistical area (CBSA) level. A CBSA is a U.S. geographic area defined by the Office of Management and Budget (OMB) that comprises one or more counties (or equivalents) anchored by an urban center with at least 10,000 people, plus adjacent counties that are socioeconomically tied to the urban center by commuting.³³ In each CBSA, an average hourly wage is calculated (using hospital wages only). The average hourly wages are adjusted slightly depending on the occupational mix in each area so that hospitals with many lower-paid employees

³² Acute Inpatient PPS. Centers for Medicare and Medicaid Services. Retrieved from <https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/AcuteInpatientPPS/index.html>

³³ Wikipedia. Core-based statistical area. Retrieved from https://en.wikipedia.org/wiki/Core-based_statistical_area on September 15, 2019.

receive a higher adjustment than hospitals with many highly paid employees. The CBSA's wage index is then calculated as the average hourly wage over the national average hourly wage. Hospitals can receive a higher wage index than the calculated CBSA wage index in a variety of ways. Notably, all hospitals in Wyoming receive an adjustment for being a frontier hospital, which sets their wage index to 1.0. Without this adjustment, Wyoming hospitals would have wage indices in the range of 0.900 to 0.945 in fiscal year 2019, depending on the CBSA in which the hospital resides.

This is consistent with data from the Bureau of Labor Statistics as of May 2018, which shows that average hourly wages for healthcare practitioners, technical occupations, and healthcare support occupations in Wyoming are slightly below national averages. Figure 11 displays the number of employees and average hourly wages for hospital occupations reported by the Bureau of Labor Statistics in Wyoming alongside statewide and national totals.

Figure 11: Employees and hourly wages for healthcare occupations in WY and the U.S., May 2018

OCCUPATION	NUMBER OF EMPLOYEES		AVERAGE HOURLY WAGES	
	WYOMING	NATIONAL	WYOMING	NATIONAL
Anesthesiologists	60	31,060	\$103.80	\$128.38
Cardiovascular Technologists and Technicians	60	56,560	\$26.02	\$28.24
Clinical Laboratory Technologists and Technicians	510	321,220	\$25.76	\$25.91
Diagnostic Medical Sonographers	70	71,130	\$31.78	\$35.51
Dietitians and Nutritionists	80	64,670	\$30.35	\$29.43
Emergency Medical Technicians and Paramedics	770	257,210	\$16.41	\$18.15
Family and General Practitioners	270	114,130	\$107.09	\$101.82
Health Technologists and Technicians, All Other	50	125,270	\$24.58	\$22.81
Healthcare Practitioners and Technical Workers, All Other	40	32,680	\$29.69	\$30.45
Healthcare Support Workers, All Other	150	88,990	\$19.49	\$18.80
Internists, General	60	37,820	\$132.38	\$94.47
Licensed Practical and Licensed Vocational Nurses	590	701,690	\$22.49	\$22.62
Magnetic Resonance Imaging Technologists	30	38,540	\$30.98	\$34.73
Medical Assistants	660	673,660	\$16.26	\$16.61
Medical Records and Health Information Technicians	350	208,650	\$20.24	\$21.16
Medical Transcriptionists	60	53,730	\$18.98	\$17.48
Nuclear Medicine Technologists	60	18,810	\$35.39	\$37.92
Nurse Practitioners	290	179,650	\$55.78	\$52.90
Nursing Assistants	3,310	1,450,960	\$14.86	\$14.22
Obstetricians and Gynecologists	60	18,590	\$127.49	\$114.58
Occupational Therapists	320	126,900	\$39.43	\$41.04
Occupational Therapy Assistants	150	42,660	\$25.10	\$29.04
Orderlies	50	50,100	\$17.26	\$14.35
Pediatricians, General	50	28,490	\$101.96	\$88.10
Pharmacists	590	309,550	\$56.59	\$59.45
Pharmacy Technicians	590	417,860	\$18.01	\$16.35
Phlebotomists	230	125,280	\$15.46	\$17.10
Physical Therapist Aides	100	47,260	\$12.54	\$13.70
Physical Therapist Assistants	140	94,250	\$27.17	\$27.77
Physical Therapists	460	228,600	\$42.07	\$42.73
Physician Assistants	220	114,710	\$56.20	\$52.13
Physicians and Surgeons, All Other	440	389,180	\$112.79	\$98.02
Radiologic Technologists	400	205,590	\$27.75	\$29.59

OCCUPATION	NUMBER OF EMPLOYEES		AVERAGE HOURLY WAGES	
	WYOMING	NATIONAL	WYOMING	NATIONAL
Registered Nurses	5,010	2,951,960	\$32.38	\$36.30
Respiratory Therapists	200	129,600	\$27.87	\$30.05
Speech-Language Pathologists	290	146,900	\$38.69	\$38.80
Surgical Technologists	200	110,160	\$20.88	\$23.58
Total	16,970	10,064,070	\$31.78	\$32.80

Employee and wage information by MSA is also reported by the Bureau of Labor Statistics, but data for several of the occupations shown above is not available at this level in Wyoming. MSA level detail for a subset of these occupations where data are available can be found in Appendix D. On average, the wages for each MSA in Wyoming are also slightly below national averages.

In addition to the wage index not impacting Wyoming hospitals directly due to the frontier adjustment, the standard wage index calculation does not affect most discharges in Wyoming because the SCH hospital-specific rate is based on costs.

DISPROPORTIONATE SHARE / UNCOMPENSATED CARE

Medicare disproportionate share hospital (DSH) payments are designed to compensate providers that treat a large share of low-income patients, since these patients tend to be more costly than other patients. In order to determine a hospital's DSH payment, each hospital's DSH patient percentage is calculated as:

$$DSH \text{ Patient Percent} = \frac{\text{Medicare SSI Days}}{\text{Total Medicare Days}} + \frac{\text{Medicaid, Non Medicare Days}}{\text{Total Patient Days}}$$

All urban hospitals with a DSH patient percentage greater than zero and with 100 or more beds receive a capital DSH payment. If a hospital's DSH patient percentage is greater than 15%, then the hospital receives an operating DSH payment. The formulas to calculate the DSH payments are fairly complicated, but the formulas take into account the hospital's DSH patient percent, whether the hospital is in an urban or rural area, the number of beds in the hospital, and whether the hospital is a rural referral center or sole community hospital.

Beginning in 2014, operating DSH payments were reduced to 25% of what they would have been under the prior calculations, with the other 75% contributing to the uncompensated care pool. Uncompensated care payments are distributed to hospitals based on the actual uncompensated care at a hospital compared with other hospitals (there is a fixed amount of uncompensated care funds available at the nationwide level).

SCH payments are unaffected by operating DSH or uncompensated care payments when the hospital-specific rate is higher. Capital DSH payments are paid on top of the SCH operating rate.

As an example, Wyoming Medical Center (Medicare ID 530012) is an urban hospital with more than 100 beds and, as of October 1, 2018, has a DSH patient percentage of 15.8%. For a DRG 100 discharge on October 1, 2018, if the provider were not an SCH, it would receive a total payment of \$12,918.53 for a non-outlier claim. Of this, \$77.51 would be paid as an operating DSH payment, \$27.14 as a capital DSH payment, and \$1,423.81 as uncompensated care. As an SCH, the actual payment to this provider is \$14,796.30, nearly 15% higher. CMS's pricing may still show operating DSH and uncompensated care payments (UCP) for this case, but they effectively do not matter for payment because any reduction to DSH or UCP would be offset by changes to the SCH payment. The capital DSH payment would still be \$27.14.

Healthcare spending for Wyoming residents

Our definition of healthcare spending is for services covered by a resident's insurance plan or public healthcare program (including Medicare and Medicaid), including patient cost-sharing amounts. The focus of this analysis is on hospital care, physician and other professional providers, and prescription drugs. It does not include other health-related expenditures such as long-term care, dental care, or over-the-counter drugs. Please see Appendix E for a more detailed list of services included in the scope of our commercial and Medicare estimates.

Estimates for commercial and Medicare healthcare costs rely on three large healthcare claim data sets from 2017:

- IBM Watson Health's MarketScan Commercial Claims and Encounters Databases® (for individuals with commercial insurance)
- Milliman's Consolidated Health Cost Guidelines™ Sources Database (for individuals with commercial insurance and Medicare Advantage)
- CMS 5% Sample Standard Analytical Files (for individuals covered by FFS Medicare)

We calculated costs on a per-member-per-month (PMPM) basis by age and sex, then averaged to statewide PMPM totals using age and sex distributions from census data.³⁴

Medicaid estimates rely on summarized claim data received from the Wyoming Department of Health. These data were categorized by type of service by the Wyoming Department of Health, and thus may not be directly comparable to the service categories shown for the commercial and Medicare populations.

All dollars shown here are allowed dollars (including patient cost sharing).

COMMERCIAL

The commercial market includes employer-sponsored plans (both fully insured and self-funded) and the individual market. Statewide average payments were calculated by weighting spending estimates for individual age and sex bands by age and sex distributions from census data. Figure 12 shows estimated commercial healthcare spending PMPM for Wyoming residents by age, sex, and service category.

Figure 12: Commercial healthcare spending for Wyoming residents (PMPM), 2017

AGE & SEX	INPATIENT	OUTPATIENT	PROFESSIONAL	PHARMACY	TOTAL
F	\$137	\$202	\$209	\$96	\$643
0-18	\$107	\$63	\$113	\$21	\$305
19-24	\$78	\$126	\$135	\$33	\$372
25-29	\$136	\$163	\$188	\$40	\$527
30-34	\$137	\$182	\$214	\$69	\$602
35-39	\$93	\$218	\$211	\$147	\$668
40-44	\$124	\$243	\$214	\$118	\$699
45-49	\$122	\$276	\$239	\$146	\$782
50-54	\$153	\$326	\$269	\$135	\$883
55-59	\$177	\$301	\$300	\$171	\$950
60-64	\$211	\$346	\$327	\$184	\$1,067
65+	\$299	\$366	\$363	\$219	\$1,246

³⁴ U.S. Census Bureau. Current Population Survey (CPS). Retrieved from <https://www.census.gov/cps/data/cpstablecreator.html>.

AGE & SEX	INPATIENT	OUTPATIENT	PROFESSIONAL	PHARMACY	TOTAL
M	\$99	\$147	\$141	\$73	\$459
0-18	\$59	\$67	\$105	\$22	\$252
19-24	\$45	\$90	\$71	\$23	\$229
25-29	\$27	\$75	\$73	\$21	\$195
30-34	\$44	\$105	\$93	\$62	\$303
35-39	\$50	\$118	\$106	\$68	\$342
40-44	\$79	\$145	\$128	\$94	\$445
45-49	\$123	\$193	\$161	\$66	\$544
50-54	\$143	\$237	\$197	\$110	\$686
55-59	\$181	\$281	\$240	\$157	\$860
60-64	\$304	\$344	\$305	\$230	\$1,182
65+	\$383	\$434	\$369	\$216	\$1,403
Total	\$118	\$175	\$175	\$84	\$551

MEDICAID

We received Wyoming Medicaid data from the Wyoming Department of Health. These data included the fiscal year 2018 Wyoming Medicaid Annual Report as well as calendar year 2017 summarized claim data by age, sex, recipient eligibility, and service category. As noted above, Medicaid claims were summarized differently than commercial and Medicare claim data; thus, the claim categorization may not be directly comparable to other populations. Inpatient and outpatient services presented here include providers billing under those claim types (such as PRTF – non-hospital facility, and ASC – ambulatory surgical center), in addition to hospital providers.

Figure 13 shows Medicaid spending PMPM for Wyoming residents by age, sex, and service category. The inpatient and outpatient spending amounts below include the federal share of qualified rate adjustments for hospital providers, averaged from 2017 and 2018 fiscal year data from Wyoming's Medicaid Annual Report and evenly distributed across age and sex categories.

Figure 13: Medicaid healthcare spending for Wyoming residents (PMPM), calendar year 2017

AGE & SEX	INPATIENT	OUTPATIENT	PROFESSIONAL	PHARMACY	TOTAL
F	\$112	\$143	\$95	\$68	\$419
0-18	\$97	\$123	\$58	\$36	\$314
19-25	\$208	\$207	\$139	\$54	\$608
26-30	\$172	\$196	\$149	\$86	\$603
31-35	\$140	\$192	\$157	\$123	\$611
36-40	\$136	\$186	\$164	\$162	\$647
41-45	\$133	\$194	\$208	\$177	\$712
46-50	\$133	\$223	\$235	\$192	\$784
51-55	\$180	\$189	\$217	\$232	\$819
56-60	\$138	\$172	\$188	\$228	\$727
61-65	\$121	\$168	\$145	\$126	\$561
Over 65*	\$14	\$64	\$26	\$4	\$108
M	\$117	\$131	\$77	\$72	\$397
0-18	\$108	\$130	\$56	\$59	\$353
19-25	\$280	\$138	\$80	\$160	\$659
26-30	\$125	\$116	\$100	\$98	\$439
31-35	\$103	\$151	\$146	\$138	\$537

AGE & SEX	INPATIENT	OUTPATIENT	PROFESSIONAL	PHARMACY	TOTAL
36-40	\$147	\$117	\$197	\$95	\$556
41-45	\$175	\$144	\$184	\$127	\$631
46-50	\$151	\$156	\$180	\$119	\$607
51-55	\$187	\$150	\$190	\$133	\$661
56-60	\$196	\$204	\$171	\$169	\$740
61-65	\$207	\$152	\$197	\$116	\$673
Over 65*	\$8	\$66	\$31	\$5	\$109
Total	\$114	\$138	\$87	\$70	\$409

*Note that Medicaid spending for the Over 65 group is small since most healthcare costs for that age group are covered by Medicare

MEDICARE

Medicare spending was built up using a combination of Medicare FFS data and Medicare Advantage data. The two were blended such that the proportion of FFS data used in a given state is the same as FFS enrollment as a percentage of total Medicare enrollment in the state.³⁵

Pharmacy spending was developed using only Medicare Advantage data, since there is no readily available source for FFS Part D spending at the level of granularity needed for this analysis. This assumes that per-member-per-month Part D spending is similar between Medicare Advantage enrollees and FFS enrollees. Medicare Advantage data credibility is low for certain reported cells by age and sex. Pharmacy PMPM estimates should be considered with caution when relied upon at this level of detail. Not all Medicare-eligible members have Part D coverage.

We averaged spending at the age and sex level using distributions from census data to estimate statewide totals.

Figure 14 shows Medicare spending PMPM for Wyoming residents by age, sex, and service category.

Figure 14: Medicare healthcare spending for Wyoming residents (PMPM), 2017

AGE & SEX	INPATIENT	OUTPATIENT	PROFESSIONAL	PHARMACY	TOTAL
F	\$390	\$239	\$275	\$263	\$1,167
Under 65	\$318	\$377	\$318	\$478	\$1,490
65-69	\$235	\$155	\$208	\$329	\$927
70-74	\$338	\$207	\$246	\$230	\$1,021
75-79	\$430	\$308	\$279	\$122	\$1,139
Over 80	\$581	\$235	\$339	\$168	\$1,324
M	\$325	\$204	\$222	\$149	\$901
Under 65	\$286	\$192	\$192	\$192	\$862
65-69	\$269	\$148	\$152	\$45	\$614
70-74	\$232	\$195	\$213	\$234	\$873
75-79	\$328	\$235	\$241	\$188	\$992
Over 80	\$535	\$264	\$324	\$171	\$1,293
Total	\$358	\$222	\$249	\$207	\$1,037

³⁵ Kaiser Family Foundation. A Dozen Facts about Medicare Advantage. Retrieved from <https://www.kff.org/medicare/issue-brief/a-dozen-facts-about-medicare-advantage/>

Healthcare spending for residents of surrounding states

The following section contains breakdowns of healthcare spending by payer and service category for Wyoming alongside its bordering states: Colorado, Idaho, Montana, Nebraska, North Dakota, South Dakota, and Utah.

COMMERCIAL

Figure 15 contains results for commercial healthcare spending PMPM by service category for Wyoming alongside each of its bordering states. Hospital spending as a percentage of total healthcare expenditures is also displayed by state.³⁶ See Appendix F for detailed commercial tables by age and sex for each state.

Figure 15: Commercial healthcare spending for residents of Wyoming and surrounding states (PMPM), 2017

STATE	INPATIENT	OUTPATIENT	PROFESSIONAL	PHARMACY	TOTAL	PERCENTAGE HOSPITAL SPENDING
Wyoming	\$118	\$175	\$175	\$84	\$551	53%
Colorado	\$107	\$144	\$148	\$89	\$488	51%
Idaho	\$93	\$129	\$124	\$78	\$424	52%
Montana	\$98	\$138	\$136	\$67	\$439	54%
Nebraska	\$97	\$148	\$167	\$91	\$503	49%
North Dakota	\$86	\$98	\$176	\$83	\$444	42%
South Dakota	\$94	\$131	\$147	\$79	\$452	50%
Utah	\$95	\$107	\$125	\$74	\$402	50%

MEDICARE

Figure 16 contains results for Medicare spending PMPM by service category for Wyoming alongside each of its bordering states. Medicare Advantage data was blended for Montana, North Dakota, and South Dakota due to low credibility in these states. Credibility of Medicare Advantage data remains low for certain age and sex cells by state, and pharmacy PMPM estimates (which rely solely on Medicare Advantage data) should be considered with caution when relied upon at this level of detail. See Appendix G for detailed Medicare tables by age and sex for each state.

Figure 16: Medicare healthcare spending for residents of Wyoming and surrounding states (PMPM), 2017

STATE	INPATIENT	OUTPATIENT	PROFESSIONAL	PHARMACY	TOTAL	PERCENTAGE HOSPITAL SPENDING
Wyoming	\$358	\$222	\$249	\$207	\$1,037	56%
Colorado	\$230	\$137	\$249	\$232	\$848	43%
Idaho	\$217	\$191	\$201	\$156	\$764	53%
Montana	\$242	\$217	\$180	\$175	\$814	56%
Nebraska	\$341	\$208	\$256	\$198	\$1,005	55%
North Dakota	\$328	\$295	\$190	\$179	\$992	63%
South Dakota	\$318	\$270	\$185	\$178	\$951	62%
Utah	\$215	\$133	\$235	\$207	\$790	44%

³⁶ Hospital spending represents the sum of inpatient and outpatient expenditures.

Wyoming care going out of state

From our detailed claim data, we are able to determine a member's state of residence as well as the state where a claim occurred. The following figures show the percentage of dollars spent on healthcare for Wyoming residents provided outside of Wyoming by service category.

For the commercial and Medicare populations, ambulance services have been carved out of the professional category; they show a particularly large portion of out-of-state care. Additionally, durable medical equipment and prosthetics have been excluded from the professional service category, since these devices may be delivered from providers throughout the country and are not associated with in-person physician care. Detailed Medicaid data were not available, and thus ambulance services and medical devices have not been specifically excluded from the professional cost category for that population.

COMMERCIAL

Figure 17: *Percentage of commercial spending for Wyoming residents that occurs out of state*

YEAR	INPATIENT	OUTPATIENT	PROFESSIONAL
2015	53%	45%	41%
2016	57%	40%	39%
2017	53%	38%	40%

MEDICAID

Figure 18: *Percentage of Medicaid spending for Wyoming residents that occurs out of state*

YEAR	INPATIENT	OUTPATIENT	PROFESSIONAL
2015	43%	8%	14%
2016	39%	8%	16%
2017	43%	7%	15%

MEDICARE

Figure 19: *Percentage of Medicare spending for Wyoming residents that occurs out of state*

YEAR	INPATIENT	OUTPATIENT	PROFESSIONAL
2015	38%	33%	40%
2016	34%	29%	39%
2017	32%	27%	38%

The proportion of inpatient spending that occurs out of state is consistently high for all three payer types shown here. Outpatient and professional spending, however, have a much lower share of out-of-state spending for Medicaid enrollees than commercial and Medicare. Appendices H and I provide values for other states parallel to those in Figures 17 and 19.

Out-of-state healthcare spending is driven by a number of factors that are specific to the state in question. For example, a large-population state where much of the population is located near the state border, and

with populated areas across the state line, may have a large portion of care that happens to occur in another state. New York is such an example (much of the population is in New York City, which is geographically close to New Jersey and Connecticut). A geographically large state where much of the population lives nearer to the physical center of the state, and where hospital care is readily available locally, may have less out-of-state care. Colorado is an example of such a state, where much of the population lives in the Boulder-Denver-Colorado Springs corridor.

Wyoming has features that make it not entirely surprising to see a large amount of out-of-state care for its residents, especially when measured by dollars of spending:

- Limited availability of certain services in some areas. This is discussed elsewhere in this report; if there are few physicians of a certain specialty available in Wyoming, residents may have to leave the state when a medical condition requires hospital care that cannot be provided in Wyoming. Further, there is more than one way a patient may select a particular hospital. Sometimes, the patient directly selects a hospital out of necessity or convenience, such as in the case of an emergency injury or illness where a person may go to the closest emergency room, without regard for what physicians may practice there. In other cases, a hospital stay is planned and results from an ongoing medical condition, and the patient may have first selected a physician with the hospital choice being guided by that physician. As discussed elsewhere in this report, there are a small number of physicians in Wyoming for some specialties. Patients may have existing relationships with physicians outside of Wyoming, and this sometimes will naturally result in hospital care occurring outside of Wyoming as well.
- High hospital prices. Data presented in this report provides support for the hypothesis that hospital costs are high in Wyoming.³⁷ Higher costs to patients and payers will tend to create incentives to seek lower-cost alternatives elsewhere.
- Geographic proximity. Many Wyoming residents live somewhat close to population centers in neighboring states. For example, the largest population center in Wyoming is in Cheyenne and the surrounding area. Cheyenne is located near the Colorado state line; the city of Fort Collins, Colorado, is less than an hour's drive from Cheyenne. Residents of Evanston can reach Salt Lake City or Ogden (in Utah) in under 90 minutes.

In summary, hospitals, like many other organizations, serve people who reside outside the states where they are located. Wyoming residents seek care at out-of-state hospitals more frequently than residents of our comparator states do (see Appendices H and I). However, the factors that drive this are varied and exist to some degree in many other states.

³⁷ The preamble to SF-67 mentions "a study of high Wyoming hospital costs" as a key purpose of the legislation that led to this report.

Viability of types of care in Wyoming

To be economically viable in a region, medical care needs to be provided at a level of cost that achieves a balance between supply of services (availability of medical care) and demand for services. Economic principles suggest that if the demand for services is not high enough at a price that is needed by suppliers to support their businesses, consumers will have to look elsewhere to meet their demand. One reason this can occur is if the cost of necessary equipment and infrastructure cannot be spread across a sufficiently sized patient base. Even outside of healthcare, there are a great many goods and services that theoretically could exist in the economy, but that do not exist (at least not widely) because the cost to provide them is greater than the value consumers place on them relative to other available alternatives.³⁸

In addition to economic viability, specific types of services may not be medically viable in an area if any of the following are true:

- Providers do not perform the service often enough to maintain basic levels of skill or training required to do it well.
- Not enough providers of the necessary type exist in a region to keep up with demand for the service in the region. This provider shortfall could be caused by a number of reasons, discussed elsewhere in this report.
- Outcomes when performing the service in the region are poor.
- Access to appropriate care is not available in the timeframe necessary to ensure the highest probability of successful medical treatment.

Competition, both in-state and out-of-state, might affect the economic and medical viability of services, particularly for more rural areas, where availability of providers and inability to incorporate the benefits of economies of scale can lead to insufficient access to care or higher prices. Some potential indicators of economic viability in Wyoming visible in historical data could include unit costs in Wyoming compared with nearby alternatives, coupled with trends in out-of-state utilization by Wyoming residents. As noted earlier in this report, average commercial allowed costs for common inpatient procedures are generally lower in Wyoming than in surrounding states, and average Medicare payment rates are higher. In this aspect, Wyoming does not appear to be economically disadvantaged for certain types of care compared with neighboring areas; however, Wyoming does exhibit a high percentage of out-of-state care.

One key indicator of medical viability is the number of providers available to perform the medical services in question. Wyoming has many specialties where fewer providers per capita are available than in other states. This consideration is addressed in detail later in this report.

One indicator that appropriate medical care cannot be provided at a particular facility could be when patients are admitted to one hospital and then transferred to another hospital to continue treatment. This is visible in hospital claim data by looking at discharge status. We used historical commercial and Medicare FFS claim data to compare the frequency with which inpatient stays in Wyoming and other states end with a transfer to another hospital to continue service.

Figures 20 and 21 show the percentage of discharges to other hospitals³⁹ in 2016 and 2017 for commercially insured and traditional Medicare enrollees initially receiving care in the state in which they

³⁸ As an example, there is generally no legal obstacle to the existence of full-service gas stations, and they were once common. However, they are costly to operate. Although consumers may find them more convenient, as a whole they are not willing to pay enough of a premium to make full-service gas stations economical in most cases – that is, as long as self-service gas stations exist as an alternative. Full-service gas stations would be widespread if self-service gas stations for some reason could not exist, as is the case in New Jersey. See <https://www.nytimes.com/2018/01/05/nyregion/new-jersey-gas-pump.html>

³⁹ Identified using hospital discharge status of “02” and “05,” indicating a discharge to a short-term hospital or cancer/children’s hospital, respectively. We counted discharges to any other hospital, which includes other hospitals within Wyoming as well as hospitals out of state.

live. Results are shown for all residents, and residents in non-metropolitan statistical areas (non-MSAs), separately.

Figure 20: Commercial discharges to other hospitals as a percent of all discharges by state, 2016-2017

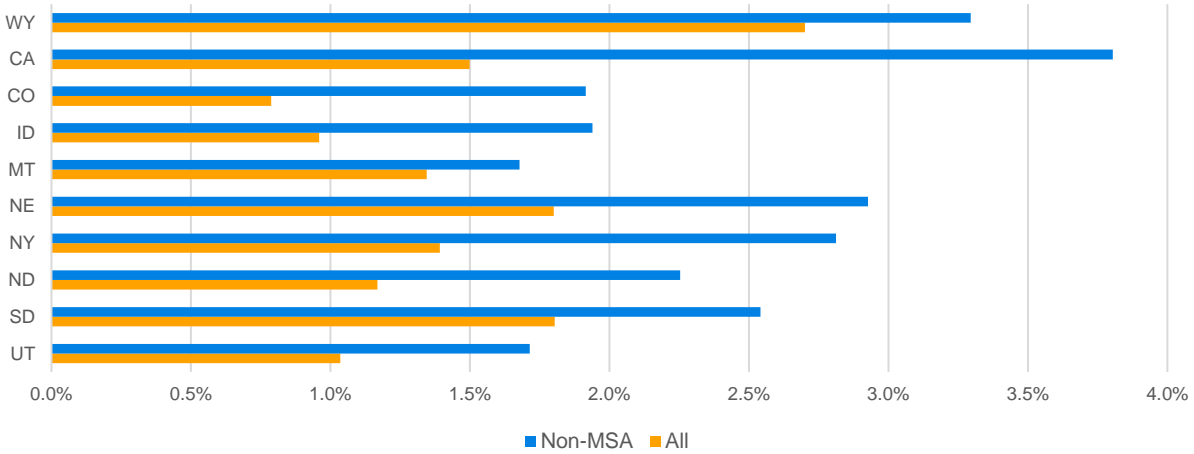
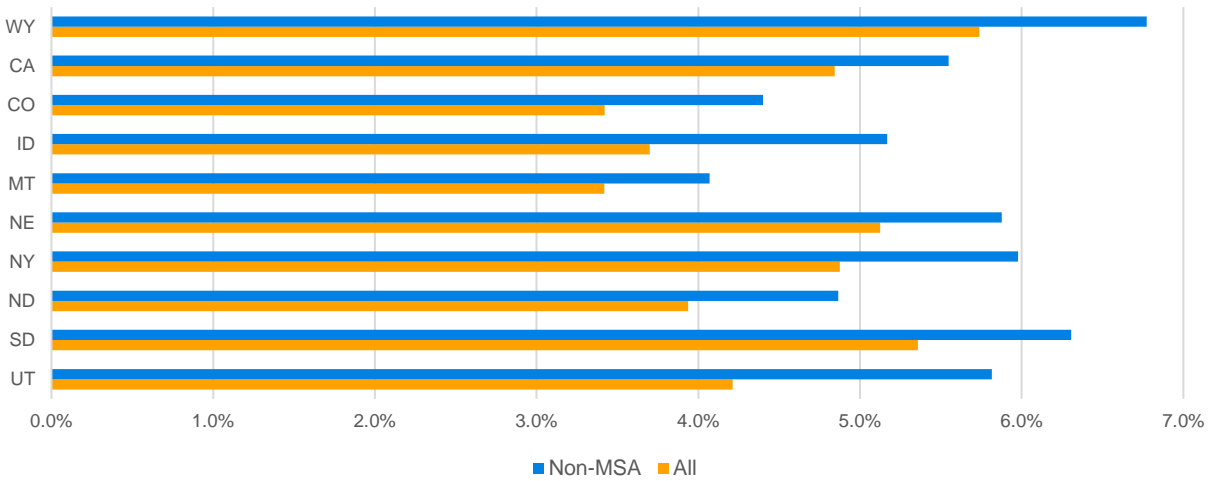


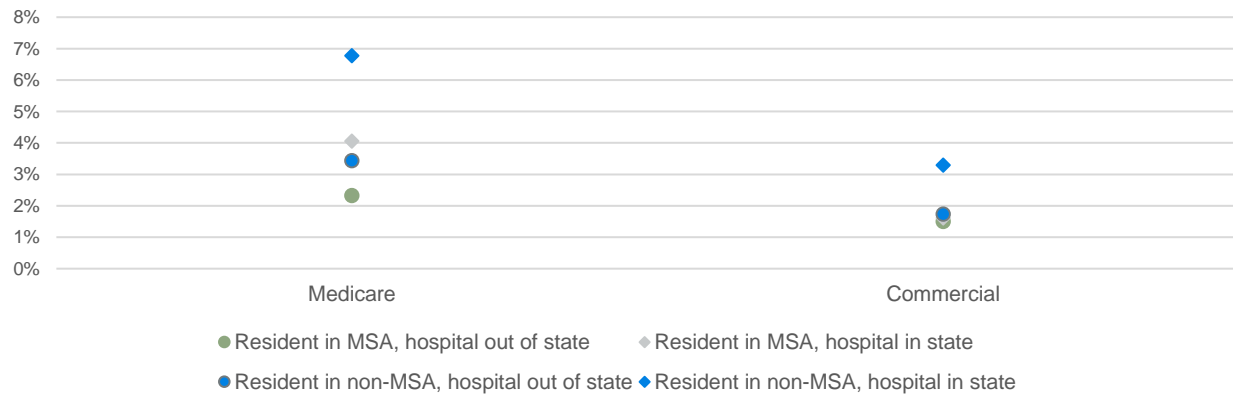
Figure 21: Medicare fee-for-service discharges to other hospitals as a percent of all discharges by state, 2016-2017



For all states shown above, discharges to other hospitals are more frequent in the Medicare FFS population than the commercially insured population, and in all states, residents of non-MSAs experience higher frequencies of discharges to other hospitals than the average state resident. Discharges to other hospitals generally appear highest in Wyoming compared with other states, although the difference is smaller for the non-MSA residents. In fact, California non-MSA residents show the highest rate of discharge to other hospitals of any of the studied commercial populations.

Figure 22 shows hospital admissions for Wyoming residents based on whether they live in an MSA and whether their admission was at a Wyoming hospital.

Figure 22: Percentage of hospital admissions for Wyoming residents ending in transfer to another hospital, 2016-2017



For both Medicare FFS and commercial populations in 2016 and 2017, the probability of an admission ending in a transfer to another hospital was higher if the initial hospital was in Wyoming. For residents of non-MSAs in Wyoming, the probability that a hospital admission ended in transfer to another hospital was approximately two times higher if the hospital to which they were initially admitted was also in Wyoming. This suggests that Wyoming hospitals were more often unable to provide all necessary treatment to patients than those located outside Wyoming.

Both the higher rate of transfers to another hospital and the low number of specific types of physicians in Wyoming relative to other states indicate an increased chance that demand for medical services remains unmet. To the extent that there is a shortage of the necessary type of providers available to perform the demanded level of services, or the complexity of necessary treatment is greater than can be provided at the local level, the medical risk to Wyoming residents increases. Untreated illness and unmet medical needs can lead to worsening prognosis and additional complications related to the illness/injury. Delayed treatment can lead to an increase in these same outcomes. There also may be added risk for treating severe and relatively rare conditions, where insufficient volume may prevent center of excellence level of performance from developing locally.

Provider recruitment issues in Wyoming

A variety of factors influence provider recruitment and retention, such as compensation, personal preference, culture, and level of autonomy. Physician staffing can be particularly challenging in rural areas where patient volume is lower and there may be limited job opportunities for other professionals.⁴⁰ A study published by the *Journal of the American Medical Association* (JAMA) found that the number of physicians with highly educated spouses has increased significantly over the last several decades, and that these physicians were nearly 40% less likely to work in rural areas between 2005 and 2011. Physicians who are single, young, female, black, or Hispanic were also less likely to work in rural areas.⁴¹

According to physician counts from National Provider Identifier (NPI) files produced by CMS, Wyoming has fewer physicians per 100,000 population in several specialties than many surrounding states, and compared with national averages.⁴² Figure 23 shows physician ratios per 100,000 by state and nationally,

⁴⁰ Rural Physician Recruiting Challenges and Solutions. Merritt Hawkins, 2016. Retrieved from https://www.merrithawkins.com/uploadedFiles/MerrittHawkins/Pdf/mha_whitepaper_rural_PDF.pdf

⁴¹ Staiger DO, Marshall SM, Goodman DC, Auerbach DI, Buerhaus PI. Association Between Having a Highly Educated Spouse and Physician Practice in Rural Underserved Areas. *JAMA*. 2016;315(9):939–941. doi:10.1001/jama.2015.16972

⁴² National Plan and Provider Enumeration System (NPPES) Downloadable File. Centers for Medicare and Medicaid Services. December 2017. Retrieved from <https://www.cms.gov/Regulations-and-Guidance/Administrative-Simplification/NationalProviderStand/DataDissemination.html>

according to CMS's NPI file as of December 2017 and population counts from U.S. Census Bureau data.⁴³

Figure 23: Physicians per 100,000 by state, 2017

PHYSICIAN TYPE	NATIONAL	WY	CO	ID	MT	ND	NE	SD	UT
Allergy	1.6	0.2	2.1	0.9	1.5	1.9	1.3	0.5	1.0
Anesthesiology	17.7	12.1	20.2	7.6	18.0	14.4	18.7	10.9	16.5
Cardiology	7.9	4.1	6.8	4.0	5.8	4.7	6.4	5.9	5.1
Dermatology	4.4	2.5	4.7	2.9	3.8	3.9	2.7	5.7	4.2
Emergency Medicine	18.7	18.2	23.7	13.6	17.5	13.5	13.1	11.5	15.7
Endocrinology	2.3	0.9	2.2	0.8	1.2	2.6	1.9	2.0	1.3
Family practice	45.6	60.3	61.3	56.5	65.6	72.8	62.5	59.8	36.3
Gastroenterology	4.6	2.1	4.7	3.1	3.3	2.4	3.1	3.9	3.1
General surgery	11.5	11.9	10.9	8.3	12.6	17.4	13.4	16.4	7.2
Hematology/oncology	6.6	3.4	6.0	3.5	5.0	7.1	6.1	5.4	3.8
Infectious disease	2.3	1.1	2.4	0.7	1.3	2.2	2.0	1.6	1.3
Internal medicine	49.6	21.0	44.8	21.1	35.0	40.3	47.0	35.9	23.9
Nephrology	2.9	1.2	2.4	1.4	1.4	2.2	2.0	2.2	1.3
Neurology	5.5	2.3	5.4	2.7	4.0	4.6	4.8	4.2	4.4
Neurosurgery	2.2	1.6	2.4	1.8	3.1	3.0	2.7	3.2	1.7
Obstetrics/gynecology	14.7	14.1	15.6	10.3	13.5	12.0	14.3	11.7	11.5
Ophthalmology	6.7	2.5	6.5	4.1	6.3	5.4	5.4	5.7	5.4
Orthopedic surgery	9.5	15.5	11.7	10.0	13.5	9.8	10.8	13.5	9.5
Otorhinolaryngology	3.7	3.6	3.8	2.3	3.6	4.8	5.5	4.4	3.5
Pathology	6.6	8.0	5.5	2.9	7.9	7.8	8.5	8.1	4.9
Pediatrics	22.1	10.7	21.0	9.8	12.0	15.9	18.1	16.6	18.2
Psychiatry	16.7	9.8	16.2	6.7	12.0	14.5	12.9	11.4	9.8
Pulmonary medicine	2.4	1.2	2.5	1.6	2.5	2.6	2.6	2.0	1.9
Radiology	13.7	11.4	14.0	12.6	13.6	15.5	12.6	15.0	9.8
Rheumatology	1.6	0.2	1.6	0.9	1.8	1.6	1.7	1.3	1.1
Urology	3.7	2.8	3.2	2.9	4.3	3.6	3.4	4.8	2.4

In 2017, Wyoming had the lowest physician ratios for 11 of the 26 provider types shown above in comparison with its seven surrounding states. Wyoming had among the highest ratios for emergency medicine and orthopedic surgery physicians compared with surrounding states, as well as more physicians per 100,000 working in family practice, general surgery, orthopedic surgery, and pathology compared with national averages. For most (22 of 26) specialties shown above, Wyoming and its surrounding states had fewer physicians per 100,000 than national averages.

It is important to note that physician staffing ratios are not the only consideration when assessing access issues in large geographical states with low population density, such as Wyoming. Wyoming may have more family practice physicians per 100,000 than the national average, but access may still be an issue for a significant number of people if all of these physicians are concentrated in a few of the state's largest cities. On the other hand, ensuring that there is a sufficient number of physicians within a given distance of each resident is not economically feasible in a state that is geographically large and sparsely populated. For this reason, physician access may always be a challenge in Wyoming.

⁴³ Population counts by state were developed from the 2018 Current Population Survey (reporting 2017 data) using the CPS Table Creator. Retrieved from <https://www.census.gov/cps/data/cpstablecreator.html>

Still, there are factors that may influence physician recruitment that are worth noting. Compensation is one such factor that can be used to attract physicians to particular areas. According to data from the Bureau of Labor Statistics as of May 2018, salaries for physicians in Wyoming appear competitive compared with surrounding states.⁴⁴ Figure 24 displays average salaries by physician type for Wyoming alongside surrounding states.

Figure 24: Average salaries by physician type and state, as of May 2018

PHYSICIAN TYPE	WY	CO	ID	MT	ND	NE	SD	UT
Anesthesiologist	\$215,910	\$270,180	\$256,450	1*	2*	\$290,470	\$293,110	\$214,730
Family and General Practitioner	\$222,750	\$220,960	\$234,810	\$214,710	2*	\$237,320	\$214,030	\$195,610
Internist	\$275,350	\$220,070	\$195,330	\$205,220	\$191,700	\$259,500	\$287,890	\$229,850
Obstetrician and Gynecologist	\$265,190	\$286,560	2*	\$265,440	2*	\$241,350	\$274,250	\$256,950
Pediatrician	\$212,070	\$185,770	\$172,080	\$248,370	2*	\$156,520	\$211,230	\$240,060
Psychiatrist	2*	\$234,860	2*	\$167,370	\$196,410	\$240,180	2*	\$145,700
Surgeon	3*	\$244,940	\$241,030	\$266,470	\$219,390	\$287,890	4*	5*
Physicians and Surgeons, All Other	\$234,610	\$219,310	\$241,670	\$247,260	\$266,510	\$161,880	\$227,710	\$218,210

1* Salary masked – fourth highest in the U.S.

2* Estimate not released

3* Salary masked – highest in the U.S.

4* Salary masked – fourth highest in the U.S.

5* Salary masked – third highest in the U.S.

As shown above, surgeons receive the highest annual salaries in Wyoming compared with any other state. Salaries for most other physician types in Wyoming are generally in the middle of the range compared with surrounding states, with internists being higher paid and anesthesiologists lower paid in Wyoming compared with other states.

Another factor of physician compensation involves payment rates for the services they provide. According to 2017 administrative claim data from Milliman's Consolidated Health Cost™ Guidelines Sources Database, Wyoming physicians in many practice areas receive among the highest payment rates from commercial payers compared with physicians in surrounding states. Figure 25 displays allowed costs as a percentage of Medicare by physician type and state. Average payment rates less than that of Wyoming are shown in red, and average payment rates greater than that of Wyoming are highlighted in blue. Note that these percentages are not adjusted for differences in service mix by state. In other words, payment rates may differ across states due to differences in fee schedules, as well as differences in the type of services physicians perform.

Figure 25: Commercial payment rates as a percent of Medicare by physician type and state, 2017

PHYSICIAN TYPE	WY	CO	ID	MT	NE	ND	SD	UT
Allergy	122%	129%	148%	172%	203%	165%	166%	130%
Anesthesiology	333%	476%	295%	304%	270%	329%	349%	285%
Cardiology	200%	156%	149%	186%	195%	188%	178%	190%
Dermatology	147%	110%	140%	134%	185%	169%	174%	125%
Emergency Medicine	188%	191%	161%	172%	202%	185%	175%	200%
Endocrinology	135%	148%	141%	136%	179%	187%	144%	127%
Family practice	156%	128%	144%	152%	175%	169%	147%	123%
Gastroenterology	275%	151%	234%	195%	189%	171%	173%	175%

⁴⁴ Occupational Employment Statistics. Bureau of Labor Statistics, May 2018. Retrieved from <https://www.bls.gov/oes/tables.htm>

PHYSICIAN TYPE	WY	CO	ID	MT	NE	ND	SD	UT
General surgery	213%	149%	181%	169%	197%	202%	190%	163%
Hematology/oncology	297%	149%	167%	158%	145%	149%	153%	128%
Infectious disease	194%	159%	174%	129%	168%	176%	131%	140%
Internal medicine	166%	136%	148%	157%	171%	168%	136%	125%
Nephrology	156%	135%	909%	139%	150%	173%	129%	138%
Neurology	159%	156%	141%	154%	151%	163%	136%	127%
Neurosurgery	215%	156%	190%	154%	208%	189%	196%	205%
Obstetrics/gynecology	165%	150%	159%	175%	195%	187%	166%	148%
Ophthalmology	132%	114%	146%	114%	160%	155%	145%	122%
Orthopedic surgery	216%	147%	174%	156%	203%	180%	176%	149%
Otorhinolaryngology	192%	140%	183%	165%	200%	188%	185%	156%
Pathology	193%	120%	154%	176%	210%	167%	181%	128%
Pediatrics	134%	144%	133%	151%	170%	174%	144%	124%
Psychiatry	152%	101%	166%	249%	124%	157%	129%	124%
Pulmonary medicine	163%	145%	155%	171%	176%	182%	150%	145%
Radiology	240%	174%	196%	228%	211%	197%	186%	162%
Rheumatology	151%	119%	129%	114%	107%	130%	132%	120%
Urology	213%	147%	168%	180%	203%	195%	181%	158%

Wyoming physicians had among the top three commercial payment rates in 2017 compared with surrounding states for 17 of the 26 specialties shown above, 10 of which were the highest in Wyoming. Most other specialties in Wyoming showed payment rates within the middle of the range of other states. Allergists, endocrinologists, and pediatricians had among the lowest payment rates in Wyoming and also had lower staffing ratios compared with surrounding states.

Medicare payment rates in Wyoming also appear in line with surrounding states. Medicare releases information about utilization and payment amounts by NPI and procedure code for all Part B services provided to the Medicare FFS population.⁴⁵ Figure 26 shows average Medicare payments per service for the top two HCPCS codes (determined by total revenue) for each physician type by state in 2017.⁴⁶ Average payment rates less than that of Wyoming are shown in red, and average payment rates greater than that of Wyoming are highlighted in blue.

Figure 26: Medicare payment rates by procedure code and state, 2017

PHYSICIAN TYPE & HCPCS CODE	WY	CO	ID	MT	NE	ND	SD	UT
Allergy								
95004 – Percutaneous allergy tests	\$4.62	\$5.13	\$4.54	\$5.19	\$4.59	\$5.02	\$4.78	\$5.17
99214 – Office/outpatient visit estab. patient (moderate)	\$73.91	\$72.80	\$70.15	\$71.77	\$68.94	\$64.26	\$62.36	\$71.39
Anesthesiology								
00142 – Anesth, lens surgery	\$98.84	\$92.56	\$102.8	\$103.52	\$80.29	\$64.96	\$63.43	\$105.24
00810 – Anesth, low intestine scope	\$124.0	\$122.29	\$124.5	\$129.76	\$96.02	\$73.04	\$62.81	\$117.22
Cardiology								
99214 – Office/outpatient visit estab. patient (moderate)	\$73.69	\$74.06	\$60.53	\$68.65	\$64.91	\$58.05	\$64.78	\$72.25
93306 – Echocardiography	\$85.18	\$61.59	\$60.73	\$70.94	\$63.84	\$47.46	\$50.70	\$64.54

⁴⁵ Medicare Provider Utilization and Payment Data: Physician and Other Supplier. Centers for Medicare and Medicaid Services. 2017. Retrieved from <https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Medicare-Provider-Charge-Data/Physician-and-Other-Supplier.html>

⁴⁶ HCPCS is an acronym for Healthcare Common Procedure Coding System (HCPCS). For more information, see <https://www.aapc.com/resources/medical-coding/hcpcs.aspx>. HCPCS codes related to drug administration (those beginning with "J") were excluded from this list. Many codes on this list are HCPCS Level I codes, also known as CPT® (Current Procedural Terminology) codes; this code set is developed and owned by the American Medical Association.

Dermatology									
17311 – Mohs' Micrographic Surgery 1 stage	\$461.5	\$432.12	\$370.5	\$451.99	\$412.2	\$300.73	\$308.65	\$414.76	
99213 – Office/outpatient visit estab. patient (low)	\$47.41	\$47.88	\$42.28	\$44.60	\$45.10	\$40.90	\$42.33	\$45.95	
Emergency medicine									
99285 – Emergency dept visit (high)	\$131.4	\$133.00	\$126.3	\$135.59	\$124.9	\$129.43	\$128.35	\$131.76	
99284 – Emergency dept visit (moderate)	\$86.49	\$86.90	\$80.77	\$89.46	\$80.91	\$85.38	\$83.26	\$86.75	
Endocrinology									
99214 – Office/outpatient visit estab. patient (moderate)	\$73.72	\$72.57	\$61.51	\$63.44	\$66.22	\$66.54	\$53.18	\$64.50	
99204 – Office/outpatient visit new patient (moderate)	\$112.7	\$114.04	\$102.2	\$103.04	\$102.8	\$107.31	\$91.53	\$103.27	
Family practice									
99214 – Office/outpatient visit estab. patient (moderate)	\$68.43	\$68.03	\$58.18	\$61.90	\$64.26	\$57.58	\$58.60	\$65.72	
99213 – Office/outpatient visit estab. patient (low)	\$44.43	\$44.82	\$37.71	\$39.51	\$42.45	\$39.18	\$38.14	\$44.45	
Gastroenterology									
45385 – Colonoscopy w/lesion removal	\$191.9	\$202.06	\$191.2	\$212.77	\$187.7	\$186.89	\$190.29	\$201.13	
45380 – Colonoscopy and biopsy	\$106.9	\$105.70	\$108.3	\$116.57	\$100.3	\$101.69	\$97.97	\$120.26	
General surgery									
99213 – Office/outpatient visit estab. patient (low)	\$49.56	\$48.79	\$40.39	\$43.94	\$42.60	\$48.90	\$42.11	\$46.93	
99232 – Subsequent hospital care (moderate)	\$53.88	\$56.08	\$53.17	\$57.54	\$53.10	\$55.21	\$55.10	\$55.91	
Hematology/oncology									
99214 – Office/outpatient visit estab. patient (moderate)	\$66.71	\$73.18	\$58.56	\$62.65	\$70.92	\$61.66	\$59.55	\$73.88	
96413 – Chemo IV infusion 1 hr	\$109.1	\$109.54	\$96.80	\$106.56	\$98.03	\$103.43	\$105.82	\$100.05	
Infectious disease									
99232 – Subsequent hospital care (moderate)	\$55.94	\$56.31	\$52.62	\$57.77	\$59.80	\$55.85	\$55.32	\$56.03	
99233 – Subsequent hospital care (high)	\$79.63	\$82.53	\$76.81	\$82.22	\$78.26	\$79.90	\$80.27	\$80.57	
Internal medicine									
99214 – Office/outpatient visit estab. patient (moderate)	\$69.88	\$69.90	\$55.58	\$59.71	\$66.16	\$60.24	\$56.56	\$66.24	
99232 – Subsequent hospital care (moderate)	\$55.35	\$58.72	\$52.81	\$57.48	\$53.42	\$55.26	\$55.33	\$54.93	
Nephrology									
90960 – ESRD services monthly, ages 20+	\$220.5	\$230.75	\$206.7	\$224.69	\$207.8	\$216.96	\$210.46	\$212.31	
99214 – Office/outpatient visit estab. patient (moderate)	\$74.17	\$79.53	\$65.04	\$65.95	\$66.92	\$60.49	\$61.75	\$69.76	
Neurology									
99214 – Office/outpatient visit estab. patient (moderate)	\$73.06	\$72.38	\$55.26	\$68.55	\$65.67	\$57.81	\$57.83	\$66.99	
99205 – Office/outpatient visit new patient (high)	\$147.6	\$143.51	\$116.1	\$146.19	\$132.6	\$119.44	\$123.62	\$138.20	
Neurosurgery									
22633 – Lumbar spine fusion combined	\$1,441	\$1,421.86	\$1,265	\$1,616.51	\$1,295	\$1,396.15	\$1,277.	\$1,289.72	
63047 – Remove spine lamina, single segment	\$746.4	\$634.47	\$573.4	\$710.76	\$691.7	\$688.38	\$675.58	\$633.03	
Obstetrics/gynecology									
99213 – Office/outpatient visit estab. patient (low)	\$46.25	\$48.18	\$41.23	\$46.48	\$43.94	\$41.38	\$40.65	\$44.92	
99214 – Office/outpatient visit estab. patient (moderate)	\$68.05	\$70.68	\$63.50	\$70.40	\$64.38	\$63.92	\$59.55	\$65.12	
Ophthalmology									
66984 – Cataract surgery w/ intraocular lens prosthesis	\$406.0	\$463.14	\$409.4	\$444.27	\$381.1	\$383.72	\$359.78	\$437.07	
92014 – Eye exam estab. patient	\$77.88	\$78.31	\$72.44	\$75.17	\$73.04	\$75.48	\$81.41	\$74.50	
Orthopedic surgery									
27447 – Total knee arthroplasty	\$1,030	\$1,080.27	\$975.3	\$1,088.96	\$986.7	\$1,043.53	\$1,019.	\$1,037.71	
99213 – Office/outpatient visit estab. patient (low)	\$50.75	\$50.77	\$43.67	\$49.21	\$47.46	\$44.08	\$44.83	\$48.59	
Otorhinolaryngology									
99213 – Office/outpatient visit estab. patient (low)	\$49.07	\$50.73	\$44.04	\$45.26	\$45.82	\$40.54	\$46.57	\$47.69	
99203 – Office/outpatient visit new patient (low)	\$68.96	\$73.00	\$62.34	\$67.75	\$67.05	\$61.92	\$68.22	\$68.00	
Pathology									
88305 – Tissue exam by pathologist (level IV)	\$38.93	\$31.61	\$35.83	\$32.01	\$29.15	\$31.47	\$28.78	\$29.86	
88307 – Tissue exam by pathologist (level V)	\$67.50	\$69.53	\$65.87	\$68.80	\$64.58	\$67.22	\$66.75	\$67.62	
Pediatrics									
99213 – Office/outpatient visit estab. patient (low)	\$36.66	\$44.74	\$39.34	\$48.20	N/A	N/A	\$37.02	\$34.76	
99202 – Office/outpatient visit new patient (straightforward)	\$48.78	\$55.80	\$37.96	\$44.25	N/A	N/A	\$42.48	\$36.98	
Psychiatry									
99214 – Office/outpatient visit estab. patient (moderate)	\$68.05	\$67.59	\$60.41	\$68.68	\$63.77	\$63.56	\$58.61	\$67.63	
99232 – Subsequent hospital care (moderate)	\$55.22	\$55.06	\$51.52	\$56.86	\$52.71	\$53.82	\$54.67	\$54.62	
Pulmonary medicine									
99291 – Critical care first hour	\$175.7	\$174.83	\$165.2	\$179.86	\$162.7	\$171.51	\$167.24	\$170.37	
99214 – Office/outpatient visit estab. patient (moderate)	\$76.32	\$72.82	\$65.26	\$68.75	\$68.11	\$56.97	\$63.48	\$70.45	
Radiology									
G0202 – Screening mammography, bilateral w/ CAD	\$76.93	\$64.70	\$41.16	\$51.47	\$41.03	\$49.74	\$70.08	\$43.89	
74177 – Computed tomography, abdomen & pelvis	\$79.47	\$74.27	\$69.90	\$76.52	\$69.06	\$74.25	\$69.69	\$74.28	

Rheumatology									
99214 – Office/outpatient visit estab. patient (moderate)	\$79.58	\$73.71	\$60.15	\$69.10	\$66.80	\$57.21	\$55.38	\$65.82	
99213 – Office/outpatient visit estab. patient (low)	\$49.74	\$50.60	\$40.97	\$41.07	\$44.76	\$36.86	\$36.55	\$46.17	
Urology									
99213 – Office/outpatient visit estab. patient (low)	\$47.74	\$50.38	\$39.66	\$45.87	\$44.67	\$34.81	\$45.11	\$46.82	
99214 – Office/outpatient visit estab. patient (moderate)	\$70.35	\$75.08	\$63.25	\$70.69	\$69.50	\$56.12	\$67.33	\$69.23	

Several specialties have particularly high payment rates in Wyoming compared with other states, including cardiology, dermatology, endocrinology, neurology, neurosurgery, psychiatry, pulmonary medicine, radiology, and rheumatology. Other specialties noted above are within the range of payment rates in surrounding states.

It is worth noting that physicians are not the only type of professional that is in short supply in Wyoming; Wyoming is the state with the second fewest number of accountants/auditors and lawyers, and the third fewest number of civil engineers in the nation.⁴⁷ It seems that low frequency of professionals generally may simply be a feature of living in Wyoming.

Wyoming has fewer physicians per 100,000 population compared with national averages, yet Medicare's physician compensation in Wyoming compares favorably to surrounding states. It is important to note that while compensation is a factor in physician recruitment, some surveys suggest that its importance is overemphasized by rural hospitals, and that other aspects such as community and workplace culture play a larger role in a physician's decision to practice in a rural area.⁴⁸ Moreover, cost of living varies throughout the country, so a given compensation level has different implications in different areas. Many factors influence a physician's decision to practice in a given area, and to some extent, sufficient physician access may always be a challenge in Wyoming due at least in part to its small population and large geographical area.

Hospital cost structure in Wyoming and elsewhere

A few of the largest cost sources for U.S. hospitals include labor, operations, capital, and employee benefits. In Wyoming, these categories make up 94% of total facility costs. Other hospital costs may include research costs, staff costs such as intern and resident programs, and other general costs such as social services. Most Medicare providers are required to submit annual cost reports to CMS, including facility characteristics, costs and charges, and financial statement data.⁴⁹ The exhibits provided in this section use these data to compare Wyoming hospital cost structures to those of surrounding states and nationwide averages in 2017.

The cost categories presented in this section are defined as follows:

- Capital costs: Buildings, fixtures, and movable equipment
- Employee benefits: Assumed to be non-salary (health insurance, etc.)
- Labor costs:⁵⁰ Employee salaries and wages

⁴⁷ U.S. Bureau of Labor Statistics. Occupational Employment Statistics. Retrieved from <https://www.bls.gov/oes>

⁴⁸ Rappleye, Emily. "Rural Hospitals Overemphasize Compensation in Physician Recruitment: While Compensation Is Important in Recruiting Physicians to Rural Areas, It Is Not as Important as Hospital Administrators May Think, According to a Survey Conducted by Clinician Search Firm Jackson Physician Search." *Becker's Hospital Review*, 2019. Retrieved from www.beckershospitalreview.com/compensation-issues/rural-hospitals-overemphasize-compensation-in-physician-recruitment.html.

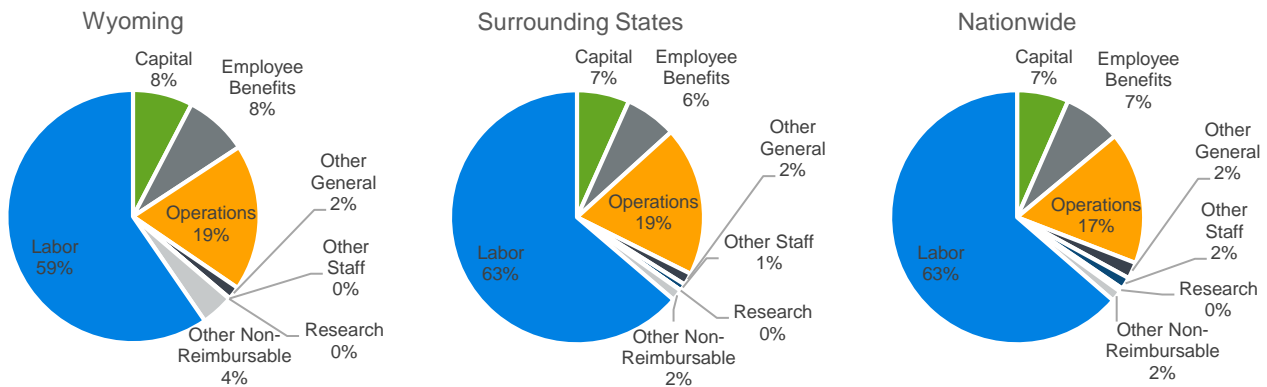
⁴⁹ Medicare Provider Cost Report Public Use Files. Centers for Medicare and Medicaid Services. Retrieved from <https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Medicare-Provider-Cost-Report/index.html>

⁵⁰ This value is derived rather than directly provided in the Cost Reports. Most residual expenses not elsewhere classified are likely due to labor.

- Operations costs: Administrative, maintenance/repairs, operation of plant, laundry and linens, housekeeping, dietary, cafeteria, maintenance of personnel, nursing administration, central services and supply, medical records and library
- Other general services: Pharmacy, social services, other general services
- Other staff costs: Non-physician anesthetists, nursing school, interns and residents (salary, benefits, other program costs), paramedic education program
- Research: Non-reimbursable costs
- Other non-reimbursable costs: Gift shop, private offices, nonpaid workers, etc. (this category encompasses all non-reimbursable costs other than research)

Figure 27 presents a summary of hospital cost structures in Wyoming, all surrounding states combined, and nationwide totals in 2017 according to CMS’s Medicare cost reports.

Figure 27: Hospital cost distribution in Wyoming, surrounding states, and nationwide, 2017



Wyoming has slightly higher capital costs on average compared with its surrounding states and national totals. Wyoming also shows lower labor costs and higher non-reimbursable costs on average. Figure 28 displays a more detailed breakdown of hospital cost structures in Wyoming compared with each of its surrounding states.

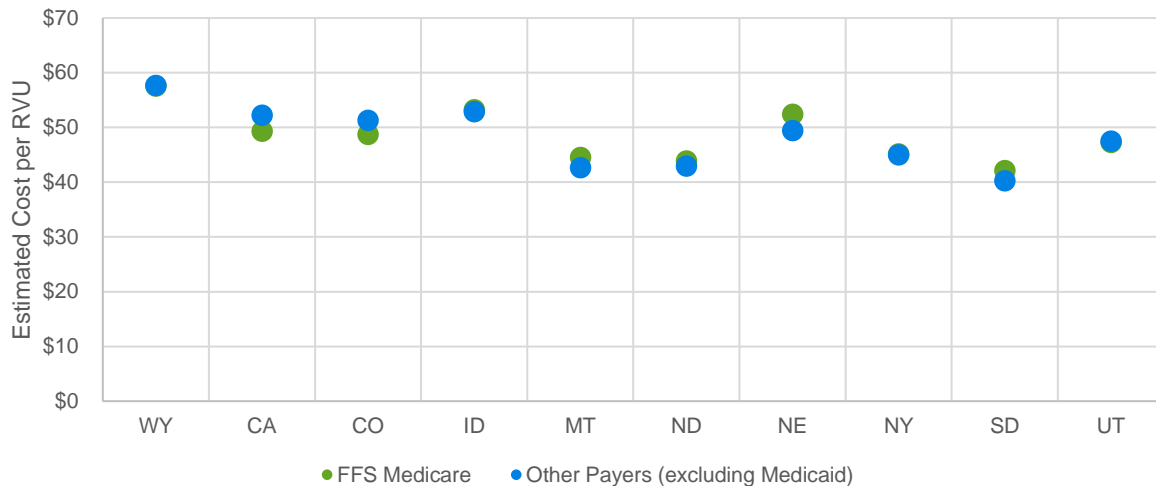
Figure 28: Hospital cost distribution by state (%), 2017

STATE	CAPITAL	EMPLOYEE BENEFITS	LABOR	OPERATIONS	OTHER GENERAL	OTHER STAFF	RESEARCH	OTHER NON-REIMBURSABLE
Wyoming	7.6%	8.3%	59.2%	19.0%	1.6%	0.1%	0.0%	4.2%
Colorado	7.4%	7.1%	57.4%	21.6%	1.5%	1.2%	0.3%	3.5%
Idaho	7.7%	10.5%	58.3%	20.4%	1.2%	0.5%	0.1%	1.4%
Montana	6.8%	4.8%	69.7%	15.4%	1.6%	0.4%	0.0%	1.3%
Nebraska	6.0%	4.1%	67.7%	18.1%	1.2%	1.2%	0.3%	1.5%
North Dakota	6.3%	4.0%	71.0%	13.1%	1.5%	0.5%	0.1%	3.4%
South Dakota	5.0%	5.8%	74.7%	9.4%	3.9%	1.0%	0.0%	0.2%
Utah	5.4%	6.2%	62.4%	23.0%	1.0%	0.8%	0.2%	1.0%

Wyoming hospitals exhibit capital and employee benefit costs toward the high end of the range compared with surrounding states, with other non-reimbursable costs being a particularly high outlier. Labor costs are the largest cost category for every state, and are on the low end in Wyoming compared with other states.

Figure 29 shows unit cost differences by payer type across states. This figure parallels Figure 1, which shows unit *price* difference by payer type. Figure 1 showed that Wyoming hospital prices are higher on average than its surrounding states, and Figure 29 shows that this relationship is also true for costs.

Figure 29: Unit cost differences by payer type



Factors influencing Wyoming hospital costs

We were asked to evaluate several proposed factors and the degree to which they influence hospital costs in Wyoming. It is important to distinguish between hospital cost from the perspective of a hospital and hospital cost from the perspective of a payer. The latter could also be referred to as hospital pricing. Some of the elements we were asked to evaluate make sense only from one perspective or the other, and we have noted those cases below. In other cases, they could conceivably impact both costs and prices.

The following subsections categorize the proposed drivers of hospital prices.

POTENTIALLY IMPORTANT FACTORS

- Low patient volume over which to spread fixed costs
- Administrative inefficiencies
- High number of Critical Access hospitals

These are all plausible drivers of high hospital prices in Wyoming. Like many other services in the economy, hospital services have significant fixed costs. Furthermore, as with any organization, it is possible for hospitals to have costs that are higher than they potentially could be. Finally, our data studies indicated that approximately one in six hospital days in Wyoming is at a Critical Access hospital, the costs of which are higher than costs for other hospitals. Our analysis of price differentials across payer types suggests that unit prices for both FFS Medicare and the Other Payers category are noticeably higher at Critical Access Hospitals than at PPS hospitals in Wyoming. The analysis also suggests that both of these payer types have noticeably higher unit prices in Wyoming than their respective national averages.

Evidence of the impact of low patient volume can be found in occupancy rates at hospitals in Wyoming compared to other states. According to CMS cost reports, occupied bed-days were 43-46% of available bed-days in Wyoming hospitals during the period from 2015-17. This is much lower than most of the comparison states used for this report. Nebraska and South Dakota both had occupancy rates of 50-51%

during this time period, and all other states were higher than that (sometimes much higher – for example, rates were in the 59-75% range for Colorado, Utah, California, and New York). If hospital costs are broken down into the categories described in Figure 27 and are put on a per-occupied-day basis,⁵¹ the categories where Wyoming costs significantly exceed the average of the comparison states are capital,⁵² operations, and other non-reimbursable. All of these have major fixed components to them. Variable costs, such as salaries and benefits, were similar on a per-occupied-day basis to the average of the other states.

Note that low patient volume and high number of Critical Access hospitals are correlated with each other. CMS hospital cost report data indicate that unit costs are generally higher at Critical Access hospitals in Wyoming. Also, Wyoming's Critical Access hospitals have lower occupancy rates than other hospitals.

FACTORS IMPORTANT ONLY TO THE EXTENT THAT COST SHIFTING EXISTS

- Less state or local support
- Uncompensated care

Above, this report outlines the economic literature and theory related to hospital cost shifting. It is not a given that hospitals can simply elect to shift costs from one payer type to another. However, to the extent that it is possible and occurring, then shortfalls of this type are a plausible driver of uncompensated hospital costs. In particular, Medicaid payments to hospitals are typically lower than for other payer types. Wyoming has not expanded Medicaid under the Patient Protection and Affordable Care Act, which is a form of reduced state/local support to hospitals because it tends to increase the amount of uncompensated care.

State and local support levels are potential drivers of hospital *prices* (to the extent cost shifting exists), but not a likely driver of hospital *costs*.

UNLIKELY DRIVERS

- Excessive margins
- Data anomalies specific to Wyoming hospital cost reports
- Prolonged care of patients with behavioral health needs, who may lack access to outpatient treatment options
- High labor costs and general recruiting difficulties due to rural location

There is not an obvious mechanism by which any of these items could influence hospital pricing or costs as they relate to either reported financial results or utilization levels. Excessive margins (profitability) are a plausible result of high hospital prices, but profits do not cause prices to be high. Data-reporting anomalies, if they exist, can affect measurement or perception of hospital prices or costs, but hospital cost reports do not cause pricing to be what it is.

To the extent that behavioral health patients have more admissions or longer length of stays for the reasons outlined above, this is a driver of utilization, not a direct driver of per-unit pricing or costs. (Moreover, to the extent it is true, it would serve to mitigate the issue discussed earlier of patient volumes being too low.) In 2017, behavioral health care accounted for 3.9% of inpatient allowed costs at Wyoming hospitals in our analysis of commercial payers. That percentage was higher in all neighboring states other than Montana (2.0%) and Nebraska (3.2%). The percentage in California was 7.2%, and the percentage

⁵¹ This is an admittedly imperfect proxy, as it does not adjust for service mix or intensity (like an RVU scale would). As well, hospital services are not all related to inpatient care. However, it can provide a high-level indication of the relationship between costs and patient volume.

⁵² If capital costs were instead normalized to *available* bed-days (rather than occupied bed-days), Wyoming's average capital costs are in line with costs in other states.

in New York was 3.6%. In the Medicare FFS population, we observe similar results. In 2017, behavioral health care accounted for 1.8% of inpatient hospital spending in Wyoming, which is nearly the same as in Montana and lower than all of the other comparison states in this report.

For a discussion of labor costs, see the section above entitled “Analysis of Medicare wage index and other IPPS adjustments,” especially Figure 11. Overall, healthcare wages in Wyoming are slightly below national averages. We also discuss (see Figures 11 and 24) that in many cases, *physician* wages are higher in Wyoming than nationally or in the specific comparison states shown in this report. To the extent that hospitals directly employ physicians and invoice for those services, this is a plausible driver of high hospital costs; however, physician services are normally not included on hospital invoices.⁵³

We do not offer an opinion on whether any of these issues could be problems worthy of attention; however, we would not characterize these as causes of high hospital unit prices or costs.

AMBIGUOUS FACTORS

- Network requirements among private payers (insurers and TPAs) that incentivize care out of state

To the extent that payers have incentives for patients to receive care out of state, this exacerbates the problem outlined above of low patient volumes. At the same time, it is a source of competition for Wyoming hospitals, and competition tends to push prices down rather than up.

- State statutes, rules or regulations

The authors are not attorneys and not able to thoroughly analyze statutes, rules, and regulations. However, one clear statutory feature about the payer market in Wyoming is that Medicaid expansion was never accepted. There has been research to suggest that hospitals in states with Medicaid expansion have experienced a reduction in uncompensated care that has not happened in states without Medicaid expansion.⁵⁴ To the extent that hospitals in Wyoming have a larger portion of uncompensated care than they otherwise would have with expanded Medicaid, it is possible that this contributes to higher hospital prices. (However, this is predicated on hospitals’ ability to shift costs. See the discussion above regarding Colorado’s recent experience on this topic.)

Medicare payment rates for rural health clinics

A rural health clinic is fundamentally different from a Critical Access hospital. Rural health clinics are not hospitals at all, whereas Critical Access hospitals do provide inpatient care.

The only way for a rural health clinic to be paid by Medicare at Critical Access hospital rates is for the rural health center to become a Critical Access hospital. There would be costs associated with doing so, since these are fundamentally different types of facilities. Because receiving Critical Access hospital payment levels would require a transformation of this type, it is impossible to make a generalization as to whether such a conversion would be beneficial to rural health centers. A facility-specific feasibility study would be necessary to evaluate that question.

⁵³ Many physician practices are now under common ownership with hospital systems; there has been a significant amount of acquisition activity in recent years. Typically, physicians who are part of hospital-owned practices still invoice separately from the hospital itself and would not normally be thought of as contributing to “hospital costs.” The trend of hospital/physician consolidation does potentially raise concerns about the impact on healthcare costs, although this is an area of ongoing and emerging study in the academic literature. See, for example, Capps C, Dranove D, Ody C, “The effect of hospital acquisitions of physician practices on prices and spending,” *Journal of Health Economics* 59 (2018) 139-152.

⁵⁴ Dranove, D., Garthwaite, G., and Ody, C. Health Affairs. (August 2016). Uncompensated Care Decreased at Hospitals in Medicaid Expansion States but Not at Hospitals in Nonexpansion States. Retrieved at <https://www.healthaffairs.org/doi/full/10.1377/hlthaff.2015.1344>

Broadening the payer base

There is relatively little competition in Wyoming's insurance market. According to a review of statutory annual statement data from 2018, a single carrier, Blue Cross Blue Shield of Wyoming (BCBS-WY), accounted for virtually all covered lives in the individual market in Wyoming. In the small employer market, BCBS-WY had 87% of all reported covered lives, with the remaining 13% being covered by UnitedHealthcare. BCBS-WY accounted for 92% of the large employer market; two carriers (Aetna and UnitedHealthcare) accounted for nearly all of the remaining 8% (7% in total).⁵⁵

Healthcare costs are high in Wyoming, as they are elsewhere in the United States. This issue has been addressed in multiple ways in other states, focusing both on reducing prices for healthcare services and exploring alternative funding mechanisms for healthcare coverages. The following sections present some ideas.

REDUCING PRICES FOR HEALTHCARE SERVICES

Healthcare goods and services are provided by private entities in the United States, and economic forces that apply to other goods and services also apply when providers set their prices. For example, airlines will increase the prices of their seats when demand is high because that makes economic sense for them as the supplier of the service. If a vacationer wants to travel but the ticket prices are high, the vacationer will simply decide whether or not to buy a ticket. Travelers accept that pricing works this way for air travel.

What is different about healthcare goods and services, however, is that the typical economic incentives for purchasers are not present. For example, a patient with insurance may not be the primary decision-maker regarding the need for surgery; that role is often played by a physician. Meanwhile, the physician is not paying for the surgery in question, and therefore may not focus on the cost of the service. The insured patient may not be paying much (or anything) for the surgery either, so a decision to have a surgery may not depend on the cost of that surgery. This situation can result in none of the key players in the medical decision process putting price pressure on the provider of the surgery. While payers negotiate prices, patients and physicians may not lend their voices to this pressure for lower prices. Moreover, demand for some medical services can be inelastic (not especially sensitive to price levels) due to the important, sometimes life-altering, implications of the services.

Patients as consumers

There are some real-world obstacles that can influence the success of consumerism initiatives in healthcare. For one, cost sharing paid for services is often far less than the actual price of the service, dampening a patient's interest in typical consumer behavior. Even a high-deductible health plan (HDHP) has a limited member out-of-pocket liability. While the large majority of patients will have healthcare costs that fall below these high deductible levels, a significant portion of a population's total cost is attributable to high-cost patients whose total costs exceed any plan's out-of-pocket limit. This makes the highest-cost patients unlikely to act like consumers in the traditional sense,⁵⁶ and it is these patients who are responsible for a large portion of a population's healthcare costs.⁵⁷ In addition, price transparency is often lacking in healthcare, making it quite difficult in practice for a consumer to shop around. Facilitating price transparency could be a way to make consumerism in healthcare more likely.

⁵⁵ These figures are derived from a review of 2018 Supplemental Health Care Exhibit filings to the Wyoming Department of Insurance. Data were obtained via S&P Global Market Intelligence. These figures describe fully insured covered lives. Many employers also self-fund their health benefits and use a variety of plan administrators.

⁵⁶ Center for Value-Based Insurance Design. <http://vbidcenter.org/>

⁵⁷ Sawyer, B., & Claxton, G. How do health expenditures vary across the population? Peterson-Kaiser Health System Tracker. Retrieved from <https://www.healthsystemtracker.org/chart-collection/health-expenditures-vary-across-population/>

Providers

Physicians can also benefit from better information and resources that help reduce wasteful healthcare spending. Some potential actions that Wyoming could facilitate include the following.

- Develop a health information exchange (HIE) in Wyoming. According to the Office of the National Coordinator for Health Information Technology (ONC), an “HIE helps facilitate coordinated patient care, reduce duplicative treatments and avoid costly mistakes. This practice is growing among health providers because the need for HIE is clear and the HIE benefits are significant.”⁵⁸
- Develop a system of care coordination for complex cases in the Wyoming safety net population (e.g., Medicaid and uninsured citizens). This, too, could reduce duplicative treatment and mistakes in this expensive population.
- Incentivize Wyoming hospitals to update billing systems to be fully electronic. This could potentially lead to savings in other areas (e.g., duplicated care).
- Continue to enable and incentivize the use of telehealth services in lieu of in-person services for remote patients, where possible.

It should be noted that in many of these cases, the mechanism by which population healthcare costs are reduced is by less care being used, rather than actual changes in the price of care. This report is generally focused on prices, but service utilization is another important component (not within this report’s scope) that is important to consider.

ALTERNATIVE FUNDING FOR HEALTHCARE

Alternative funding mechanisms can be explored for both payers and providers.

Payers

There are a number of payer and marketplace initiatives that Wyoming could explore. Possible actions include the following.

- Wyoming could seek a 1332 waiver; several states have gotten federal funding to help support a state reinsurance program for the ACA market,⁵⁹ which should reduce ACA individual market premiums. Note that federal funding would not be expected to fully cover the cost of such a reinsurance program.
- Wyoming could implement requirements for carriers who provide coverage for state/local government employees to also issue coverage options on the exchange. The state of Washington will have this requirement starting in 2020.⁶⁰ Of course, if the only carrier on the Wyoming exchange is the same carrier that already provides all of these benefits, then this would not be effective.
- Explore starting a managed Medicaid program. Managed care could save costs for the Wyoming Medicaid population and is also appealing to some states due to the predictability of the costs.⁶¹

Providers

There are many models for paying providers other than fee-for-service. While Wyoming is not party to many arrangements between providers and payers (other than Medicaid), the state is also a large

⁵⁸ “HIE Benefits.” HealthIT.gov, 12 Oct. 2017. Retrieved from www.healthit.gov/topic/health-it-basics/hie-benefits.

⁵⁹ Kaiser Family Foundation (August 29, 2019). Tracking Section 1332 State Innovation Waivers. Retrieved from <https://www.kff.org/health-reform/fact-sheet/tracking-section-1332-state-innovation-waivers/>

⁶⁰ Cusano, D. & Lucia, K. The Commonwealth Fund (February 4, 2016). Implementing the Affordable Care Act: Promoting Competition in the Individual Marketplaces. Retrieved from <https://www.commonwealthfund.org/publications/issue-briefs/2016/feb/implementing-affordable-care-act-promoting-competition>

⁶¹ Goldsmith, J., Mosley, D., and Jacobs, A. Health Affairs (May 4, 2018). Medicaid Managed Care: Lots of Unanswered Questions (Part 2). Retrieved from <https://www.healthaffairs.org/doi/10.1377/hblog20180430.510086/full/>

employer and could consider alternative payment options in that context. Possible options include the following.

- Capitation (global, or for some types of services such as primary care), where providers are paid a flat fee per month to provide all care specified within a contract.
- Bundled payments, which are pre-determined amounts paid for an episode of care based on expected costs for the clinically defined episodes of care.
- Maryland-style all-payer hospital rate setting⁶².
- Critical Access hospitals require a minimum amount of revenue to retain staff, infrastructure, and supplies. Fee-for-service funding for facility care can lead to unpredictable and sporadic revenue. This could be supplemented by capitated funding, mill levy revenue, or the addition of chronic care service capabilities that are needed regularly.⁶³
- Fund or collaborate with programs to incentivize newly graduated physicians to practice in critical access locations.⁶⁴

Caveats and limitations

In developing these estimates, we relied upon a number of public and non-public data sources. Data sources include:

- 2017 Wyoming Medicaid claim and enrollment data summaries
- FY 2018 Wyoming Medicaid Annual Report
- 2017 Medicare 100% Limited Data Sets
- 2017 Centers for Medicare and Medicaid Services (CMS) 5% Sample Standard Analytical Files
- 2017 Centers for Medicare and Medicaid Services (CMS) Medicare Provider Cost Report Public Use Files
- 2017 Medicare Provider Utilization and Payment Data: Physician and Other Supplier Public Use File
- 2015-2017 Milliman Consolidated Health Cost Guidelines™ Sources Database (CHSD)
- U.S. Census Bureau, 2018 Current Population Survey (CPS), using CPS Table Creator
- Occupational Employment Statistics, Bureau of Labor Statistics, May 2018
- Centers for Medicare and Medicaid Services (CMS) NPI Downloadable File, December 2017
- 2017 IBM Watson Health's MarketScan Commercial Claims and Encounters Databases®

The Wyoming Department of Health (WDH) provided us with summarized Medicaid claim and enrollment data covering calendar years 2013 to 2018. We also relied upon discussions with personnel at Wyoming Department of Administration and Information (WDA) and WDH to better understand the nuances of the request that comprised the legislation and the data provided. We have not audited any of these data sources, although we did review them all for reasonability and consistency. To the extent that these data sources contain inaccuracies, so may our analysis.

The retrospective analyses contained in this report are summaries of historical data and should not be used to project future enrollment or claim experience without significant judgment and caution. We have used methods we believe to be reasonable to produce these retrospective analyses (such as methods to

⁶² "Hospital Rate Setting." Maryland Health Services Cost Review Commission. Retrieved from hsrc.state.md.us/Pages/rates.aspx.

⁶³ Kacik, Alex. "Rural Hospitals Look for Help to Survive." Modern Healthcare. Retrieved from www.modernhealthcare.com/indepth/rural-hospitals-look-for-help-to-survive/.

⁶⁴ American Academy of Family Physicians. Loan Forgiveness for Medical School Debt. Retrieved from <https://www.aafp.org/medical-school-residency/medical-school/debt/funding/forgiveness.html>

define service categories and enrollment categories), but other methods could also be valid and could produce different results.

We prepared this report for WDA pursuant to RFP 0395-D Hospital Cost Study, and we understand that this report was authorized under Senate File 67 passed by the Wyoming Legislature during the 2019 legislative session (the legislation), which directs the governor's office to study and report on a variety of topics related to high Wyoming hospital costs and potential discrimination by the federal Medicare program against Wyoming residents and healthcare providers. This work is completed under Contract #195950 entered into between Milliman and the Wyoming Governor's Office on August 20, 2019. This report is intended to provide information to the Wyoming legislature and governor's office. Milliman does not advocate for or against any action (including the passage or defeat of any legislation) based on our analysis.

We anticipate that WDA will wish to make this report publicly available. Milliman does not intend to create a legal duty to any other party.

Guidelines issued by the American Academy of Actuaries require actuaries to include their professional qualifications in all actuarial communications. The following authors of this report are members of the American Academy of Actuaries, and meet the qualification standards for performing this analysis:

- Jill Van Den Bos, ASA, MAAA
- Ally Weaver, ASA, MAAA
- Aaron Gates, FSA, MAAA
- Daniel Perlman, FSA, MAAA
- Will Fox, FSA, FAAA
- Doug Norris, FSA, MAAA, PhD

Appendix A: Wyoming hospital 2017 revenue and costs

Figure 30: Revenue and costs by Wyoming hospital (millions), 2017

HOSPITAL	HOSPITAL TYPE	FFS MEDICARE		MEDICAID		OTHER PAYERS		UNCOMPEN- SATED CARE
		REVENUE	COSTS	REVENUE	COSTS	REVENUE	COSTS	COSTS
Campbell County Memorial Hospital	PPS	\$21.6	\$27.1	\$15.4	\$19.6	\$118.9	\$120.7	\$11.6
Cheyenne Regional Medical Center	PPS	\$89.8	\$105.0	\$19.4	\$20.4	\$186.2	\$143.0	\$19.8
Cody Regional Health	Critical Access	\$27.8	\$28.5	\$5.0	\$6.5	\$66.2	\$59.3	\$3.9
Community Hospital	Critical Access	\$9.9	\$10.8	\$1.4	\$2.2	\$14.7	\$11.8	\$1.3
Elkhorn Valley Rehabilitation Hospital LLC	Rehabilitation	\$12.8	\$9.7	-	-	\$3.7	\$5.7	-
Evanston Regional Hospital	PPS	\$3.1	\$4.1	\$1.7	\$2.3	\$24.6	\$14.3	\$0.8
Hot Springs County Memorial Hospital	Critical Access	\$7.8	\$8.5	\$0.6	\$1.5	\$7.4	\$6.0	\$0.9
Iverson Memorial Hospital	PPS	\$16.3	\$23.1	\$4.6	\$5.4	\$66.3	\$44.6	\$2.6
Johnson County Healthcare Center	Critical Access	\$6.6	\$7.5	\$0.5	\$1.2	\$12.8	\$12.1	\$1.7
Memorial Hospital of Carbon County	Critical Access	\$6.6	\$6.8	\$1.3	\$3.1	\$19.3	\$13.7	\$2.2
Memorial Hospital of Converse County	Critical Access	\$15.7	\$16.2	\$2.7	\$4.7	\$29.8	\$27.9	\$3.7
Memorial Hospital Sweetwater County	PPS	\$14.1	\$20.1	\$3.7	\$4.8	\$65.8	\$64.9	\$5.4
North Big Horn Hospital District	Critical Access	\$6.0	\$7.0	\$2.5	\$2.0	\$7.9	\$7.2	\$2.6
Platte County Memorial Hospital	Critical Access	\$8.2	\$8.8	\$0.9	\$1.7	\$10.8	\$10.1	\$1.7
Powell Valley Hospital	Critical Access	\$9.9	\$10.4	\$2.4	\$3.8	\$29.9	\$29.6	\$1.4
Sagewest Health Care	PPS	\$12.9	\$13.9	\$6.0	\$7.8	\$48.4	\$38.4	\$3.5
Sheridan Memorial Hospital	PPS	\$23.3	\$27.4	\$2.5	\$4.4	\$61.4	\$60.6	\$4.6
St Johns Medical Center	PPS	\$16.3	\$23.6	\$2.9	\$3.8	\$85.6	\$76.9	\$4.0
Star Valley Medical Center	Critical Access	\$12.8	\$14.1	\$1.8	\$2.7	\$29.1	\$27.9	\$1.3
Washakie Medical Center	Critical Access	\$10.7	\$11.7	\$0.9	\$2.0	\$10.8	\$9.1	\$1.6
Wyoming Behavioral institute	Psychiatric	\$3.0	\$2.0	-	-	\$23.0	\$19.4	-
Wyoming Medical Center	PPS	\$58.3	\$63.7	\$10.2	\$12.3	\$125.5	\$82.8	\$23.2

Appendix B: Cost metrics by DRG for commercially insured patients

Figure 31: Average allowed costs for commercially insured patients by DRG and state, 2017

DRG	WY	CA	CO	ID	MT	ND/NE/SD	NY	UT
765 - Cesarean Section w/ CC	\$16,355	\$24,441	\$18,763	\$14,968	\$16,771	\$11,219	\$19,407	\$13,202
766 - Cesarean Section w/o CC	\$12,948	\$17,523	\$14,292	\$11,324	\$13,003	\$9,265	\$15,697	\$9,092
392 - Digestive Disorders w/o CC	\$12,517	\$15,148	\$12,346	\$10,809	\$9,663	\$8,778	\$12,088	\$10,240
470 - Hip & Knee Replacement	\$33,893	\$31,248	\$33,266	\$29,788	\$26,727	\$23,604	\$38,316	\$27,320
794 - Neonate with problems	\$3,562	\$6,800	\$4,741	\$3,959	\$4,468	\$4,398	\$13,686	\$3,389
795 - Normal newborn	\$2,300	\$2,955	\$2,536	\$1,976	\$2,527	\$1,898	\$3,937	\$2,048
193 - Pneumonia	\$17,666	\$24,196	\$17,389	\$19,816	\$9,613	\$15,575	\$18,979	\$16,071
885 - Psychoses	\$15,083	\$11,278	\$7,246	\$10,150	\$11,364	\$8,626	\$17,866	\$9,061
871 - Sepsis	\$21,407	\$36,377	\$25,801	\$24,849	\$17,273	\$21,095	\$25,680	\$21,044
775 - Vaginal Delivery	\$7,654	\$11,296	\$7,949	\$6,711	\$7,932	\$5,396	\$10,887	\$5,806

Figure 32: 25th percentile allowed costs for commercially insured patients by DRG and state, 2017

DRG	WY	CA	CO	ID	MT	ND/NE/SD	NY	UT
765 - Cesarean Section w/ CC	\$11,985	\$12,783	\$12,596	\$11,488	\$12,287	\$8,083	\$14,135	\$9,208
766 - Cesarean Section w/o CC	\$9,928	\$10,814	\$10,662	\$8,814	\$9,850	\$6,125	\$12,442	\$7,534
392 - Digestive Disorders w/o CC	\$5,031	\$6,661	\$6,890	\$8,393	\$5,073	\$5,503	\$7,776	\$6,470
470 - Hip & Knee Replacement	\$22,547	\$17,907	\$26,210	\$23,614	\$13,560	\$13,731	\$21,488	\$24,733
794 - Neonate with problems	\$2,235	\$2,607	\$2,082	\$2,087	\$2,043	\$2,100	\$6,089	\$2,207
795 - Normal newborn	\$1,554	\$1,686	\$1,790	\$1,379	\$1,681	\$1,237	\$2,813	\$1,727
193 - Pneumonia	\$9,484	\$10,650	\$8,293	\$10,262	\$4,449	\$9,159	\$10,336	\$9,035
885 - Psychoses	\$5,200	\$4,059	\$3,776	\$4,268	\$5,606	\$3,753	\$7,795	\$4,785
871 - Sepsis	\$11,401	\$13,837	\$11,348	\$12,802	\$9,907	\$10,848	\$13,200	\$11,985
775 - Vaginal Delivery	\$6,132	\$7,457	\$5,760	\$5,115	\$5,741	\$4,019	\$8,699	\$4,681

Figure 33: 50th percentile allowed costs for commercially insured patients by DRG and state, 2017

DRG	WY	CA	CO	ID	MT	ND/NE/SD	NY	UT
765 - Cesarean Section w/ CC	\$17,178	\$19,536	\$15,696	\$13,524	\$15,142	\$10,534	\$16,289	\$9,803
766 - Cesarean Section w/o CC	\$13,498	\$15,253	\$13,218	\$10,077	\$12,435	\$8,544	\$14,965	\$7,896
392 - Digestive Disorders w/o CC	\$8,914	\$11,427	\$10,992	\$9,854	\$8,026	\$7,740	\$11,431	\$9,224
470 - Hip & Knee Replacement	\$31,439	\$25,042	\$33,542	\$28,416	\$28,383	\$22,729	\$40,607	\$28,052
794 - Neonate with problems	\$2,797	\$3,975	\$3,162	\$3,070	\$2,813	\$3,061	\$10,220	\$2,361
795 - Normal newborn	\$2,038	\$2,490	\$2,247	\$1,920	\$2,348	\$1,766	\$3,481	\$1,778
193 - Pneumonia	\$16,024	\$15,225	\$11,629	\$17,533	\$8,097	\$11,347	\$15,639	\$13,579
885 - Psychoses	\$10,476	\$6,682	\$5,751	\$7,427	\$8,429	\$6,794	\$12,866	\$7,455
871 - Sepsis	\$16,366	\$22,181	\$22,105	\$21,028	\$11,792	\$14,679	\$20,725	\$14,464
775 - Vaginal Delivery	\$7,576	\$10,326	\$7,619	\$6,384	\$7,494	\$5,047	\$10,063	\$4,996

Figure 34: 75th percentile allowed costs for commercially insured patients by DRG and state, 2017

DRG	WY	CA	CO	ID	MT	ND/NE/SD	NY	UT
765 - Cesarean Section w/ CC	\$19,963	\$30,590	\$20,928	\$17,825	\$19,439	\$12,914	\$24,437	\$13,059
766 - Cesarean Section w/o CC	\$15,269	\$21,768	\$16,663	\$13,953	\$14,610	\$11,221	\$17,522	\$10,000
392 - Digestive Disorders w/o CC	\$15,364	\$18,444	\$13,199	\$13,630	\$13,344	\$10,835	\$15,822	\$10,692
470 - Hip & Knee Replacement	\$44,038	\$39,441	\$37,748	\$37,062	\$35,010	\$30,217	\$52,764	\$29,339
794 - Neonate with problems	\$3,429	\$7,052	\$5,088	\$4,125	\$4,116	\$4,654	\$22,457	\$3,236
795 - Normal newborn	\$2,728	\$3,375	\$2,817	\$2,103	\$3,010	\$2,268	\$4,281	\$2,233
193 - Pneumonia	\$23,302	\$29,020	\$22,358	\$24,971	\$12,064	\$17,730	\$25,779	\$17,300
885 - Psychoses	\$15,087	\$12,222	\$8,496	\$12,060	\$12,666	\$8,819	\$21,079	\$10,872
871 - Sepsis	\$23,882	\$41,256	\$32,344	\$30,867	\$17,439	\$25,148	\$34,863	\$23,046
775 - Vaginal Delivery	\$9,279	\$13,548	\$9,069	\$7,783	\$9,360	\$6,272	\$13,000	\$6,407

Appendix C: Medicare IPPS payment rates by DRG

Figure 35: Medicare payment rates for the three highest volume major medical centers in California, 2019

DRG	CEDARS-SINAI MEDICAL CENTER	STANFORD HEALTH CARE	EISENHOWER MEDICAL CENTER
282 - Acute Myocardial Infarction w/o CC	\$8,087	\$11,829	\$6,148
787 - Cesarean Section w/ CC	\$11,717	\$17,094	\$8,848
788 - Cesarean Section w/o CC	\$9,872	\$14,489	\$7,402
392 - Esophagitis/gastroenteritis	\$8,386	\$12,392	\$6,238
293 - Heart Failure w/o CC	\$7,482	\$11,124	\$5,521
470 - Hip & Knee Replacement	\$19,871	\$27,926	\$15,939
063 - Ischemic Stroke w/o CC	\$16,530	\$23,422	\$13,100
794 - Neonate with problems	\$14,331	\$20,628	\$11,057
795 - Normal Newborn	\$3,167	\$5,395	\$1,767
193 - Pneumonia	\$14,141	\$20,525	\$10,738
885 - Psychoses	\$13,486	\$19,945	\$9,867
684 - Renal Failure w/o CC	\$7,022	\$10,479	\$5,156
871 - Sepsis	\$19,395	\$27,783	\$15,018
807 - Vaginal Delivery	\$6,907	\$10,284	\$5,100

Figure 36: Medicare payment rates for five community hospitals in California, 2019

DRG	ENLOE MEDICAL CENTER	GROSSMONT HOSPITAL	LOS ROBLES HOSPITAL & MEDICAL CENTER	TORRANCE MEMORIAL MEDICAL CENTER	SCRIPPS MERCY HOSPITAL
282 - Acute Myocardial Infarction w/o CC	\$5,856	\$6,597	\$6,117	\$5,830	\$7,725
787 - Cesarean Section w/ CC	\$8,321	\$9,123	\$8,703	\$8,278	\$10,561
788 - Cesarean Section w/o CC	\$6,982	\$7,751	\$7,298	\$6,948	\$9,048
392 - Esophagitis/gastroenteritis	\$5,904	\$6,646	\$6,167	\$5,877	\$7,829
293 - Heart Failure w/o CC	\$5,237	\$5,963	\$5,467	\$5,215	\$7,078
470 - Hip & Knee Replacement	\$15,065	\$16,034	\$15,780	\$14,977	\$17,944
063 - Ischemic Stroke w/o CC	\$12,380	\$13,283	\$12,962	\$12,310	\$14,984
794 - Neonate with problems	\$10,408	\$11,262	\$10,893	\$10,351	\$12,865
795 - Normal Newborn	\$1,666	\$2,303	\$1,720	\$1,668	\$3,170
193 - Pneumonia	\$10,069	\$10,916	\$10,538	\$10,015	\$12,541
885 - Psychoses	\$9,174	\$9,999	\$9,599	\$9,126	\$11,652
684 - Renal Failure w/o CC	\$4,897	\$5,614	\$5,111	\$4,877	\$6,696
871 - Sepsis	\$14,075	\$15,021	\$14,741	\$13,994	\$17,012
807 - Vaginal Delivery	\$4,854	\$5,570	\$5,065	\$4,835	\$6,635

Figure 37: Medicare payment rates for the three highest volume major medical centers in Colorado, 2019

DRG	UNIVERSITY OF COLORADO HOSPITAL AUTHORITY	UNIVERSITY OF COLORADO HEALTH MEMORIAL HOSPITAL	PENROSE ST FRANCIS HEALTH SERVICES
282 - Acute Myocardial Infarction w/o CC	\$9,505	\$5,657	\$5,258
787 - Cesarean Section w/ CC	\$14,100	\$7,799	\$7,388
788 - Cesarean Section w/o CC	\$11,783	\$6,639	\$6,234
392 - Esophagitis/gastroenteritis	\$9,918	\$5,704	\$5,305
293 - Heart Failure w/o CC	\$8,785	\$5,127	\$4,731
470 - Hip & Knee Replacement	\$24,160	\$13,612	\$13,171
063 - Ischemic Stroke w/o CC	\$20,020	\$11,295	\$10,866
794 - Neonate with problems	\$17,341	\$9,601	\$9,180
795 - Normal Newborn	\$3,908	\$2,049	\$1,668
193 - Pneumonia	\$17,147	\$9,315	\$8,895
885 - Psychoses	\$16,415	\$8,556	\$8,139
684 - Renal Failure w/o CC	\$8,208	\$4,833	\$4,438
871 - Sepsis	\$23,701	\$12,779	\$12,341
807 - Vaginal Delivery	\$8,056	\$4,794	\$4,400

Figure 38: Medicare payment rates for five community hospitals in Colorado, 2019

DRG	MEDICAL CENTER OF THE ROCKIES	ST ANTHONY HOSPITAL	FOOTHILLS HOSPITAL	ST MARY CORWIN MEDICAL CENTER	VALLEY VIEW HOSPITAL ASSOCIATION
282 - Acute Myocardial Infarction w/o CC	\$5,119	\$5,488	\$5,448	\$5,812	\$6,825
787 - Cesarean Section w/ CC	\$7,164	\$7,663	\$7,498	\$8,250	\$9,495
788 - Cesarean Section w/o CC	\$6,053	\$6,503	\$6,384	\$6,972	\$7,911
392 - Esophagitis/gastroenteritis	\$5,158	\$5,570	\$5,487	\$5,943	\$6,864
293 - Heart Failure w/o CC	\$4,605	\$4,995	\$4,933	\$5,313	\$6,310
470 - Hip & Knee Replacement	\$12,760	\$13,303	\$13,108	\$14,263	\$17,476
063 - Ischemic Stroke w/o CC	\$10,532	\$11,041	\$10,874	\$11,834	\$14,299
794 - Neonate with problems	\$8,896	\$9,424	\$9,234	\$10,144	\$11,965
795 - Normal Newborn	\$1,642	\$2,009	\$1,963	\$2,130	\$3,341
193 - Pneumonia	\$8,615	\$9,180	\$8,952	\$9,924	\$11,564
885 - Psychoses	\$7,872	\$8,506	\$8,208	\$9,284	\$10,505
684 - Renal Failure w/o CC	\$4,323	\$4,702	\$4,650	\$4,992	\$6,028
871 - Sepsis	\$11,939	\$12,601	\$12,284	\$13,647	\$16,305
807 - Vaginal Delivery	\$4,288	\$4,655	\$4,615	\$4,930	\$5,992

Figure 39: Medicare payment rates for the three highest volume major medical centers in Idaho, 2019

DRG	ST LUKE'S REGIONAL MEDICAL CENTER	KOOTENAI HEALTH	SAINT ALPHONSUS REGIONAL MEDICAL CENTER
282 - Acute Myocardial Infarction w/o CC	\$6,607	\$5,421	\$5,810
787 - Cesarean Section w/ CC	\$8,710	\$7,561	\$7,926
788 - Cesarean Section w/o CC	\$7,572	\$6,405	\$6,784
392 - Esophagitis/gastroenteritis	\$6,655	\$5,474	\$5,864
293 - Heart Failure w/o CC	\$6,089	\$4,899	\$5,297
470 - Hip & Knee Replacement	\$14,405	\$13,326	\$13,611
063 - Ischemic Stroke w/o CC	\$12,135	\$11,026	\$11,342
794 - Neonate with problems	\$10,476	\$9,349	\$9,691
795 - Normal Newborn	\$3,073	\$1,846	\$2,287
193 - Pneumonia	\$10,197	\$9,071	\$9,419
885 - Psychoses	\$9,455	\$8,327	\$8,690
684 - Renal Failure w/o CC	\$5,801	\$4,606	\$5,007
871 - Sepsis	\$13,593	\$12,515	\$12,819
807 - Vaginal Delivery	\$5,762	\$4,566	\$4,967

Figure 40: Medicare payment rates for five community hospitals in Idaho, 2019

DRG	EASTERN IDAHO REGIONAL MEDICAL CENTER	PORTNEUF MEDICAL CENTER	WEST VALLEY MEDICAL CENTER	MADISON MEMORIAL HOSPITAL	TREASURE VALLEY HOSPITAL
282 - Acute Myocardial Infarction w/o CC	\$5,277	\$6,445	\$6,000	\$5,807	\$4,386
787 - Cesarean Section w/ CC	\$7,214	\$9,330	\$8,112	\$7,762	\$6,331
788 - Cesarean Section w/o CC	\$6,162	\$7,775	\$6,965	\$6,700	\$5,274
392 - Esophagitis/gastroenteritis	\$5,314	\$6,523	\$6,041	\$5,845	\$4,424
293 - Heart Failure w/o CC	\$4,791	\$5,751	\$5,470	\$5,316	\$3,898
470 - Hip & Knee Replacement	\$12,513	\$17,046	\$13,892	\$13,111	\$11,652
063 - Ischemic Stroke w/o CC	\$10,403	\$13,964	\$11,590	\$10,981	\$9,534
794 - Neonate with problems	\$8,853	\$11,726	\$9,901	\$9,417	\$7,978
795 - Normal Newborn	\$1,985	\$2,291	\$2,409	\$2,484	\$1,080
193 - Pneumonia	\$8,588	\$11,361	\$9,611	\$9,149	\$7,711
885 - Psychoses	\$7,884	\$10,379	\$8,844	\$8,439	\$7,004
684 - Renal Failure w/o CC	\$4,524	\$5,357	\$5,178	\$5,046	\$3,630
871 - Sepsis	\$11,735	\$15,984	\$13,043	\$12,325	\$10,871
807 - Vaginal Delivery	\$4,490	\$5,302	\$5,141	\$5,012	\$3,596

Figure 41: Medicare payment rates for the three highest-volume major medical centers in Montana, 2019

DRG	BILLINGS CLINIC HOSPITAL	ST VINCENT HEALTHCARE	ST PATRICK HOSPITAL
282 - Acute Myocardial Infarction w/o CC	\$5,857	\$5,566	\$5,851
787 - Cesarean Section w/ CC	\$8,122	\$7,746	\$8,141
788 - Cesarean Section w/o CC	\$6,904	\$6,569	\$6,909
392 - Esophagitis/gastroenteritis	\$5,924	\$5,621	\$5,917
293 - Heart Failure w/o CC	\$5,319	\$5,036	\$5,306
470 - Hip & Knee Replacement	\$14,138	\$13,609	\$14,237
063 - Ischemic Stroke w/o CC	\$11,733	\$11,269	\$11,801
794 - Neonate with problems	\$9,993	\$9,565	\$10,036
795 - Normal Newborn	\$2,134	\$1,931	\$2,078
193 - Pneumonia	\$9,713	\$9,283	\$9,751
885 - Psychoses	\$8,958	\$8,529	\$8,983
684 - Renal Failure w/o CC	\$5,011	\$4,738	\$4,994
871 - Sepsis	\$13,328	\$12,789	\$13,411
807 - Vaginal Delivery	\$4,966	\$4,697	\$4,949

Figure 42: Medicare payment rates for five community hospitals in Montana, 2019

DRG	BENEFITS HOSPITAL INC	ST PETERS HOSPITAL	COMMUNITY MEDICAL CENTER	NORTHERN MONTANA HOSPITAL	BIG SKY MEDICAL CENTER
282 - Acute Myocardial Infarction w/o CC	\$5,663	\$6,001	\$6,298	\$7,188	\$4,543
787 - Cesarean Section w/ CC	\$7,799	\$8,089	\$8,545	\$9,685	\$6,557
788 - Cesarean Section w/o CC	\$6,643	\$6,960	\$7,332	\$8,328	\$5,463
392 - Esophagitis/gastroenteritis	\$5,723	\$6,050	\$6,354	\$7,236	\$4,582
293 - Heart Failure w/o CC	\$5,156	\$5,489	\$5,751	\$6,560	\$4,037
470 - Hip & Knee Replacement	\$14,248	\$13,731	\$14,595	\$16,520	\$12,068
063 - Ischemic Stroke w/o CC	\$11,673	\$11,481	\$12,181	\$13,799	\$9,874
794 - Neonate with problems	\$9,802	\$9,839	\$10,423	\$11,800	\$8,262
795 - Normal Newborn	\$2,162	\$2,501	\$2,547	\$2,941	\$1,118
193 - Pneumonia	\$9,497	\$9,564	\$10,132	\$11,457	\$7,986
885 - Psychoses	\$8,677	\$8,833	\$9,353	\$10,550	\$7,254
684 - Renal Failure w/o CC	\$4,867	\$5,202	\$5,443	\$6,216	\$3,759
871 - Sepsis	\$13,362	\$12,932	\$13,748	\$15,517	\$11,259
807 - Vaginal Delivery	\$4,826	\$5,164	\$5,401	\$6,172	\$3,724

Figure 43: Medicare payment rates for the three highest-volume major medical centers in Nebraska, 2019

DRG	THE NEBRASKA MEDICAL		
	BRYAN MEDICAL CENTER	CENTER	METHODIST HOSPITAL
282 - Acute Myocardial Infarction w/o CC	\$5,228	\$6,609	\$5,060
787 - Cesarean Section w/ CC	\$7,278	\$9,208	\$7,055
788 - Cesarean Section w/o CC	\$6,168	\$7,852	\$5,972
392 - Esophagitis/gastroenteritis	\$5,274	\$6,759	\$5,099
293 - Heart Failure w/o CC	\$4,722	\$6,091	\$4,559
470 - Hip & Knee Replacement	\$12,837	\$15,540	\$12,515
063 - Ischemic Stroke w/o CC	\$10,621	\$12,977	\$10,341
794 - Neonate with problems	\$9,001	\$11,207	\$8,745
795 - Normal Newborn	\$1,779	\$2,739	\$1,668
193 - Pneumonia	\$8,729	\$10,986	\$8,471
885 - Psychoses	\$8,003	\$10,333	\$7,746
684 - Renal Failure w/o CC	\$4,441	\$5,750	\$4,284
871 - Sepsis	\$12,042	\$14,927	\$11,713
807 - Vaginal Delivery	\$4,403	\$5,682	\$4,249

Figure 44: Medicare payment rates for five community hospitals in Nebraska, 2019

DRG	FAITH REGIONAL				
	CHI HEALTH ST ELIZABETH	CHI HEALTH IMMANUEL	HEALTH SERVICES	METHODIST FREMONT HEALTH	COLUMBUS COMMUNITY HOSPITAL
282 - Acute Myocardial Infarction w/o CC	\$5,384	\$6,171	\$5,792	\$6,459	\$6,467
787 - Cesarean Section w/ CC	\$7,466	\$8,251	\$8,360	\$9,325	\$9,335
788 - Cesarean Section w/o CC	\$6,345	\$7,121	\$6,965	\$7,769	\$7,777
392 - Esophagitis/gastroenteritis	\$5,442	\$6,211	\$5,841	\$6,516	\$6,523
293 - Heart Failure w/o CC	\$4,885	\$5,648	\$5,147	\$5,741	\$5,747
470 - Hip & Knee Replacement	\$13,025	\$13,944	\$15,387	\$17,156	\$17,181
063 - Ischemic Stroke w/o CC	\$10,804	\$11,677	\$12,589	\$14,037	\$14,057
794 - Neonate with problems	\$9,193	\$10,013	\$10,535	\$11,749	\$11,763
795 - Normal Newborn	\$1,942	\$2,634	\$1,556	\$2,068	\$1,767
193 - Pneumonia	\$8,931	\$9,727	\$10,182	\$11,357	\$11,369
885 - Psychoses	\$8,227	\$8,972	\$9,249	\$10,320	\$10,328
684 - Renal Failure w/o CC	\$4,601	\$5,361	\$4,793	\$5,346	\$5,352
871 - Sepsis	\$12,265	\$13,108	\$14,355	\$16,010	\$16,029
807 - Vaginal Delivery	\$4,561	\$5,325	\$4,748	\$5,296	\$5,302

Figure 45: Medicare payment rates for the three highest-volume major medical centers in New York, 2019

DRG	NEW YORK-PRESBYTERIAN HOSPITAL	NYU LANGONE HOSPITALS	LONG ISLAND JEWISH MEDICAL CENTER
282 - Acute Myocardial Infarction w/o CC	\$9,223	\$10,145	\$8,835
787 - Cesarean Section w/ CC	\$13,016	\$14,393	\$12,205
788 - Cesarean Section w/o CC	\$11,076	\$12,245	\$10,436
392 - Esophagitis/gastroenteritis	\$9,514	\$10,516	\$9,012
293 - Heart Failure w/o CC	\$8,562	\$9,465	\$8,139
470 - Hip & Knee Replacement	\$21,708	\$23,775	\$20,557
063 - Ischemic Stroke w/o CC	\$18,157	\$19,920	\$17,186
794 - Neonate with problems	\$15,791	\$17,411	\$14,834
795 - Normal Newborn	\$3,962	\$4,502	\$3,717
193 - Pneumonia	\$15,563	\$17,217	\$14,522
885 - Psychoses	\$14,814	\$16,509	\$13,622
684 - Renal Failure w/o CC	\$8,077	\$8,930	\$7,694
871 - Sepsis	\$21,114	\$23,306	\$19,683
807 - Vaginal Delivery	\$7,962	\$8,792	\$7,610

Figure 46: Medicare payment rates for five community hospitals in New York, 2019

DRG	ORANGE REGIONAL MEDICAL CENTER	HUNTINGTON HOSPITAL	VASSAR BROTHERS MEDICAL CENTER	ST PETERS HOAPITAL	WHITE PLAINS HOSPITAL CENTER
282 - Acute Myocardial Infarction w/o CC	\$6,702	\$6,021	\$5,837	\$4,869	\$5,978
787 - Cesarean Section w/ CC	\$9,517	\$8,610	\$8,233	\$6,859	\$8,465
788 - Cesarean Section w/o CC	\$8,018	\$7,212	\$6,931	\$5,786	\$7,114
392 - Esophagitis/gastroenteritis	\$6,811	\$6,086	\$5,883	\$4,921	\$6,026
293 - Heart Failure w/o CC	\$6,068	\$5,391	\$5,235	\$4,388	\$5,354
470 - Hip & Knee Replacement	\$16,798	\$15,575	\$14,792	\$12,196	\$15,270
063 - Ischemic Stroke w/o CC	\$13,877	\$12,795	\$12,180	\$10,066	\$12,561
794 - Neonate with problems	\$11,791	\$10,771	\$10,263	\$8,516	\$10,571
795 - Normal Newborn	\$2,213	\$1,703	\$1,762	\$1,562	\$1,751
193 - Pneumonia	\$11,478	\$10,436	\$9,934	\$8,261	\$10,230
885 - Psychoses	\$10,612	\$9,541	\$9,063	\$7,578	\$9,326
684 - Renal Failure w/o CC	\$5,689	\$5,037	\$4,904	\$4,116	\$5,011
871 - Sepsis	\$15,899	\$14,601	\$13,829	\$11,456	\$14,271
807 - Vaginal Delivery	\$5,628	\$4,988	\$4,862	\$4,078	\$4,968

Figure 47: Medicare payment rates for the three highest-volume major medical centers in North Dakota, 2019

DRG	SANFORD	ALTRU HOSPITAL	SANFORD MEDICAL CENTER BISMARCK
282 - Acute Myocardial Infarction w/o CC	\$5,760	\$5,401	\$5,796
787 - Cesarean Section w/ CC	\$8,060	\$7,818	\$8,120
788 - Cesarean Section w/o CC	\$6,842	\$6,515	\$6,913
392 - Esophagitis/gastroenteritis	\$5,860	\$5,466	\$5,941
293 - Heart Failure w/o CC	\$5,257	\$4,819	\$5,346
470 - Hip & Knee Replacement	\$13,919	\$14,288	\$13,707
063 - Ischemic Stroke w/o CC	\$11,563	\$11,704	\$11,441
794 - Neonate with problems	\$9,895	\$9,827	\$9,888
795 - Normal Newborn	\$2,156	\$1,646	\$2,389
193 - Pneumonia	\$9,655	\$9,520	\$9,704
885 - Psychoses	\$8,982	\$8,696	\$9,148
684 - Renal Failure w/o CC	\$4,950	\$4,489	\$5,043
871 - Sepsis	\$13,235	\$13,396	\$13,200
807 - Vaginal Delivery	\$4,897	\$4,443	\$4,980

Figure 48: Medicare payment rates for four* community hospitals in North Dakota, 2019

DRG	ESSENTIA HEALTH FARGO	CHI ST ALEXIUS HEALTH	TRINITY HOSPITALS	PHS INDIAN HOSPITAL AT BELCOURT- QUENTIN N BURDICK
282 - Acute Myocardial Infarction w/o CC	\$5,241	\$5,144	\$5,427	\$9,732
787 - Cesarean Section w/ CC	\$7,308	\$7,280	\$7,500	\$13,096
788 - Cesarean Section w/o CC	\$6,185	\$6,131	\$6,377	\$11,269
392 - Esophagitis/gastroenteritis	\$5,280	\$5,206	\$5,472	\$9,797
293 - Heart Failure w/o CC	\$4,721	\$4,636	\$4,914	\$8,887
470 - Hip & Knee Replacement	\$12,963	\$12,963	\$13,509	\$22,299
063 - Ischemic Stroke w/o CC	\$10,712	\$10,692	\$11,057	\$18,635
794 - Neonate with problems	\$9,058	\$9,047	\$9,263	\$15,944
795 - Normal Newborn	\$1,726	\$1,627	\$1,933	\$4,014
193 - Pneumonia	\$8,774	\$8,782	\$8,967	\$15,482
885 - Psychoses	\$8,023	\$8,066	\$8,230	\$14,260
684 - Renal Failure w/o CC	\$4,436	\$4,345	\$4,629	\$8,424
871 - Sepsis	\$12,133	\$12,194	\$12,623	\$20,948
807 - Vaginal Delivery	\$4,400	\$4,303	\$4,591	\$8,365

*Only four community hospitals located in North Dakota

Figure 49: Medicare payment rates for the three highest-volume major medical centers in South Dakota, 2019

DRG	AVERA MCKENNAN		
	SANFORD USD MEDICAL CENTER	HOSPITAL & UNIVERSITY HEALTH CENTER	REGIONAL HEALTH RAPID CITY HOSPITAL
282 - Acute Myocardial Infarction w/o CC	\$6,061	\$5,513	\$6,281
787 - Cesarean Section w/ CC	\$8,413	\$7,846	\$9,083
788 - Cesarean Section w/o CC	\$7,173	\$6,620	\$7,569
392 - Esophagitis/gastroenteritis	\$6,174	\$5,633	\$6,349
293 - Heart Failure w/o CC	\$5,561	\$5,027	\$5,597
470 - Hip & Knee Replacement	\$14,323	\$13,647	\$16,637
063 - Ischemic Stroke w/o CC	\$11,942	\$11,306	\$13,623
794 - Neonate with problems	\$10,269	\$9,671	\$11,426
795 - Normal Newborn	\$2,433	\$1,957	\$2,156
193 - Pneumonia	\$10,037	\$9,451	\$11,061
885 - Psychoses	\$9,379	\$8,821	\$10,086
684 - Renal Failure w/o CC	\$5,249	\$4,719	\$5,213
871 - Sepsis	\$13,669	\$13,031	\$15,574
807 - Vaginal Delivery	\$5,193	\$4,661	\$5,161

Figure 50: Medicare payment rates for five community hospitals in South Dakota, 2019

DRG	REGIONAL HEALTH SPEARFISH HOSPITAL				
	AVERA ST LUKES	PRAIRIE LAKES HOSPITAL	AVERA QUEEN OF PEACE	BROOKINGS HEALTH SYSTEM	
282 - Acute Myocardial Infarction w/o CC	\$4,778	\$5,430	\$5,308	\$6,477	\$4,611
787 - Cesarean Section w/ CC	\$6,904	\$7,559	\$7,494	\$8,902	\$6,656
788 - Cesarean Section w/o CC	\$5,753	\$6,403	\$6,248	\$7,585	\$5,545
392 - Esophagitis/gastroenteritis	\$4,826	\$5,471	\$5,348	\$6,524	\$4,651
293 - Heart Failure w/o CC	\$4,253	\$4,895	\$4,791	\$5,868	\$4,098
470 - Hip & Knee Replacement	\$12,672	\$13,385	\$13,793	\$15,538	\$12,250
063 - Ischemic Stroke w/o CC	\$10,373	\$11,066	\$11,285	\$12,896	\$10,023
794 - Neonate with problems	\$8,692	\$9,362	\$9,444	\$10,956	\$8,387
795 - Normal Newborn	\$1,199	\$1,810	\$1,809	\$2,355	\$1,135
193 - Pneumonia	\$8,408	\$9,070	\$9,127	\$10,623	\$8,106
885 - Psychoses	\$7,655	\$8,297	\$8,291	\$9,742	\$7,364
684 - Renal Failure w/o CC	\$3,961	\$4,602	\$4,507	\$5,534	\$3,816
871 - Sepsis	\$11,845	\$12,530	\$12,869	\$14,564	\$11,429
807 - Vaginal Delivery	\$3,922	\$4,565	\$4,472	\$5,492	\$3,780

Figure 51: Medicare payment rates for the three highest-volume major medical centers in Utah, 2019

DRG	UNIVERSITY OF UTAH HOSPITALS AND CLINICS	DIXIE REGIONAL MEDICAL CENTER	INTERMOUNTAIN MEDICAL CENTER
282 - Acute Myocardial Infarction w/o CC	\$8,899	\$5,310	\$7,097
787 - Cesarean Section w/ CC	\$12,056	\$7,664	\$9,890
788 - Cesarean Section w/o CC	\$10,487	\$6,385	\$8,538
392 - Esophagitis/gastroenteritis	\$9,225	\$5,355	\$7,451
293 - Heart Failure w/o CC	\$8,461	\$4,718	\$6,797
470 - Hip & Knee Replacement	\$18,639	\$14,106	\$15,204
063 - Ischemic Stroke w/o CC	\$15,909	\$11,541	\$12,964
794 - Neonate with problems	\$14,197	\$9,657	\$11,652
795 - Normal Newborn	\$4,979	\$1,656	\$3,987
193 - Pneumonia	\$14,121	\$9,334	\$11,673
885 - Psychoses	\$13,739	\$8,479	\$11,526
684 - Renal Failure w/o CC	\$8,072	\$4,394	\$6,465
871 - Sepsis	\$18,504	\$13,160	\$15,366
807 - Vaginal Delivery	\$7,958	\$4,353	\$6,349

Figure 52: Medicare payment rates for five community hospitals in Utah, 2019

DRG	MCKAY DEE HOSPITAL	LAKEVIEW HOSPITAL	SALT LAKE REGIONAL MEDICAL CENTER	PARK CITY HOSPITAL	UINTAH BASIN MEDICAL CENTER
282 - Acute Myocardial Infarction w/o CC	\$6,328	\$4,460	\$5,941	\$5,127	\$11,107
787 - Cesarean Section w/ CC	\$8,452	\$6,438	\$8,142	\$7,400	\$13,361
788 - Cesarean Section w/o CC	\$7,309	\$5,363	\$6,960	\$6,165	\$12,137
392 - Esophagitis/gastroenteritis	\$6,388	\$4,498	\$6,009	\$5,170	\$11,151
293 - Heart Failure w/o CC	\$5,820	\$3,963	\$5,422	\$4,556	\$10,541
470 - Hip & Knee Replacement	\$14,116	\$11,849	\$13,970	\$13,619	\$19,527
063 - Ischemic Stroke w/o CC	\$11,853	\$9,694	\$11,639	\$11,143	\$17,072
794 - Neonate with problems	\$10,212	\$8,112	\$9,955	\$9,324	\$15,269
795 - Normal Newborn	\$2,821	\$1,098	\$2,337	\$1,262	\$7,276
193 - Pneumonia	\$9,946	\$7,841	\$9,687	\$9,012	\$14,959
885 - Psychoses	\$9,230	\$7,122	\$8,959	\$8,187	\$14,141
684 - Renal Failure w/o CC	\$5,531	\$3,691	\$5,123	\$4,242	\$10,231
871 - Sepsis	\$13,344	\$11,054	\$13,192	\$12,706	\$18,621
807 - Vaginal Delivery	\$5,489	\$3,656	\$5,079	\$4,203	\$10,191

Appendix D: Wyoming wages for hospital occupations by MSA

Figure 53: Number of employees and hourly wages for healthcare occupations in WY by MSA, May 2018

OCCUPATION	NUMBER OF EMPLOYEES				AVERAGE HOURLY WAGES			
	CASPER	CHEYENNE	WESTERN NONMETRO AREA	EASTERN NONMETRO AREA	CASPER	CHEYENNE	WESTERN NONMETRO AREA	EASTERN NONMETRO AREA
Clinical Laboratory Technologists and Technicians	80	130	180	120	\$20.22	\$24.79	\$27.32	\$28.39
Emergency Medical Technicians and Paramedics	N/A	100	400	N/A	N/A	\$14.25	\$16.54	\$16.32
Family and General Practitioners	N/A	50	150	70	N/A	\$104.51	\$109.20	\$107.13
Healthcare Support Workers, All Other	N/A	60	50	N/A	N/A	N/A	\$19.93	N/A
Licensed Practical and Licensed Vocational Nurses	80	140	140	230	\$23.29	\$21.89	\$23.14	\$22.18
Medical Assistants	120	200	200	140	\$15.41	\$15.91	\$16.81	\$16.67
Medical Records and Health Information Technicians	60	70	110	100	\$20.42	\$20.61	\$19.75	\$20.43
Nuclear Medicine Technologists	N/A	40	N/A	N/A	N/A	\$35.19	N/A	N/A
Nurse Practitioners	50	90	70	80	\$52.69	\$59.13	\$59.97	\$50.52
Nursing Assistants	550	600	1260	890	\$14.45	\$15.20	\$14.97	\$14.70
Occupational Therapists	50	N/A	80	160	\$36.30	N/A	\$40.32	\$40.16
Occupational Therapy Assistants	N/A	N/A	30	30	\$24.93	N/A	\$22.80	\$26.19
Pharmacists	120	160	130	190	\$59.67	\$55.30	\$59.24	\$53.97
Pharmacy Technicians	100	170	160	160	\$17.32	\$18.50	\$18.45	\$17.49
Phlebotomists	N/A	30	40	70	\$14.58	N/A	N/A	\$16.98
Physical Therapist Aides	N/A	N/A	N/A	40	N/A	N/A	N/A	\$12.40
Physical Therapist Assistants	N/A	40	40	50	N/A	\$26.96	\$26.18	\$26.62
Physical Therapists	60	60	190	150	\$43.91	\$40.77	\$41.96	\$42.06
Physician Assistants	40	50	70	60	\$55.66	\$58.90	\$51.95	\$59.71
Physicians and Surgeons, All Other	100	120	90	120	\$103.77	N/A	N/A	\$128.36
Radiologic Technologists	80	90	120	110	\$28.13	\$24.44	\$29.38	\$28.25
Registered Nurses	960	950	1720	1370	\$30.25	\$37.12	\$31.67	\$31.48
Respiratory Therapists	N/A	40	N/A	60	N/A	N/A	\$28.32	\$30.65
Speech-Language Pathologists	60	50	100	90	\$43.67	\$36.50	\$39.61	\$35.56
Surgical Technologists	40	N/A	100	40	\$20.39	N/A	\$20.78	\$21.17
Total	2,550	3,240	5,430	4,330	\$30.51	\$28.14	\$27.99	\$31.92

Appendix E: Types of services included in commercial and Medicare healthcare spending analysis by category

Figure 54: Types of services by category, commercial and Medicare

SERVICE CATEGORY	TYPES OF SERVICES INCLUDED
INPATIENT	Alcohol & Drug Abuse - Hospital
	Alcohol & Drug Abuse - Residential
	Deliveries
	General Medical Admissions
	Psychiatric - Hospital
	Psychiatric - Residential
	Rehabilitation
	Skilled Nursing Facility
	Surgery
	OUTPATIENT
Cardiovascular	
Emergency Room	
Other Outpatient Facility	
Pathology/Lab	
Pharmacy	
Preventive	
Psychiatric	
Physical Therapy / Occupational Therapy / Speech Therapy	
Radiology	
Surgery	
PROFESSIONAL	Allergy Immunotherapy
	Allergy Testing
	Ambulance
	Anesthesia
	Cardiovascular
	Chiropractor
	DME and Supplies
	ER Visits and Observation Care
	Glasses/Contacts
	Hearing and Speech Exams
	Home Health Care
	Immunizations
	Inpatient Visits
	Maternity
	Office Administered Drugs
	Office/Home Visits - PCP
	Office/Home Visits - Specialist
	Pathology/Lab
	Physical Exams
	Physical Therapy
	Prescription Drugs
	Prosthetics
	Radiology
	Surgeon
	Urgent Care Visits
	Vision Exams
	Well Baby Exams

Appendix F: Commercial healthcare spending estimates by age, sex, and state

Figure 55: Commercial healthcare spending for Colorado residents (PMPM), 2017

AGE & SEX	INPATIENT	OUTPATIENT	PROFESSIONAL	PHARMACY	TOTAL
F	\$105	\$157	\$170	\$92	\$524
0-18	\$106	\$71	\$110	\$29	\$317
19-24	\$51	\$117	\$108	\$48	\$324
25-29	\$83	\$106	\$132	\$55	\$375
30-34	\$132	\$128	\$176	\$68	\$504
35-39	\$96	\$156	\$175	\$100	\$527
40-44	\$65	\$177	\$190	\$101	\$534
45-49	\$75	\$199	\$187	\$125	\$586
50-54	\$96	\$234	\$213	\$153	\$695
55-59	\$126	\$237	\$223	\$157	\$742
60-64	\$175	\$279	\$269	\$192	\$914
65+	\$328	\$347	\$348	\$211	\$1,234
M	\$109	\$131	\$127	\$86	\$452
0-18	\$141	\$81	\$124	\$39	\$385
19-24	\$40	\$90	\$62	\$41	\$233
25-29	\$38	\$70	\$56	\$39	\$203
30-34	\$33	\$74	\$63	\$39	\$209
35-39	\$38	\$92	\$83	\$75	\$289
40-44	\$56	\$120	\$101	\$80	\$357
45-49	\$79	\$130	\$119	\$105	\$433
50-54	\$123	\$181	\$154	\$129	\$588
55-59	\$167	\$221	\$191	\$164	\$742
60-64	\$181	\$267	\$224	\$181	\$852
65+	\$376	\$377	\$346	\$235	\$1,335
Total	\$107	\$144	\$148	\$89	\$488

Figure 56: Commercial healthcare spending for Idaho residents (PMPM), 2017

AGE & SEX	INPATIENT	OUTPATIENT	PROFESSIONAL	PHARMACY	TOTAL
F	\$89	\$145	\$144	\$86	\$465
0-18	\$34	\$42	\$68	\$26	\$170
19-24	\$60	\$87	\$112	\$44	\$304
25-29	\$108	\$107	\$155	\$52	\$422
30-34	\$115	\$129	\$167	\$67	\$478
35-39	\$90	\$157	\$159	\$77	\$482
40-44	\$60	\$183	\$157	\$106	\$506
45-49	\$85	\$205	\$166	\$123	\$578
50-54	\$94	\$219	\$187	\$143	\$642
55-59	\$133	\$249	\$193	\$170	\$746
60-64	\$171	\$269	\$209	\$164	\$812
65+	\$246	\$324	\$249	\$211	\$1,030
M	\$96	\$112	\$105	\$70	\$382
0-18	\$110	\$47	\$92	\$23	\$272
19-24	\$34	\$60	\$58	\$34	\$186
25-29	\$31	\$67	\$56	\$44	\$198
30-34	\$27	\$80	\$71	\$52	\$230
35-39	\$44	\$87	\$84	\$65	\$279
40-44	\$51	\$107	\$92	\$80	\$329
45-49	\$80	\$130	\$113	\$101	\$425
50-54	\$117	\$179	\$138	\$122	\$556
55-59	\$177	\$225	\$167	\$140	\$710
60-64	\$235	\$278	\$201	\$157	\$871
65+	\$301	\$399	\$256	\$210	\$1,166
Total	\$93	\$129	\$124	\$78	\$424

Figure 57: Commercial healthcare spending for Montana residents (PMPM), 2017

AGE & SEX	INPATIENT	OUTPATIENT	PROFESSIONAL	PHARMACY	TOTAL
F	\$103	\$154	\$162	\$71	\$490
0-18	\$115	\$45	\$112	\$19	\$291
19-24	\$53	\$91	\$114	\$47	\$306
25-29	\$92	\$104	\$152	\$47	\$395
30-34	\$110	\$134	\$180	\$49	\$473
35-39	\$86	\$142	\$177	\$67	\$472
40-44	\$63	\$195	\$174	\$93	\$525
45-49	\$54	\$195	\$173	\$87	\$509
50-54	\$88	\$218	\$178	\$123	\$607
55-59	\$130	\$256	\$196	\$113	\$695
60-64	\$151	\$297	\$216	\$115	\$779
65+	\$219	\$325	\$248	\$192	\$984
M	\$94	\$122	\$111	\$64	\$391
0-18	\$91	\$51	\$110	\$21	\$273
19-24	\$40	\$69	\$61	\$26	\$196
25-29	\$29	\$57	\$56	\$41	\$182
30-34	\$30	\$75	\$65	\$30	\$200
35-39	\$30	\$95	\$81	\$51	\$256
40-44	\$58	\$102	\$92	\$64	\$316
45-49	\$76	\$128	\$111	\$86	\$401
50-54	\$118	\$166	\$128	\$101	\$512
55-59	\$160	\$217	\$157	\$130	\$664
60-64	\$220	\$300	\$197	\$125	\$843
65+	\$263	\$340	\$237	\$178	\$1,018
Total	\$98	\$138	\$136	\$67	\$439

Figure 58: Commercial healthcare spending for Nebraska residents (PMPM), 2017

AGE & SEX	INPATIENT	OUTPATIENT	PROFESSIONAL	PHARMACY	TOTAL
F	\$104	\$163	\$192	\$96	\$554
0-18	\$85	\$74	\$123	\$31	\$313
19-24	\$61	\$95	\$130	\$59	\$345
25-29	\$104	\$109	\$182	\$55	\$450
30-34	\$124	\$144	\$215	\$72	\$555
35-39	\$85	\$175	\$206	\$99	\$564
40-44	\$70	\$205	\$205	\$113	\$592
45-49	\$82	\$233	\$220	\$148	\$682
50-54	\$103	\$267	\$251	\$166	\$787
55-59	\$155	\$275	\$276	\$182	\$888
60-64	\$190	\$313	\$301	\$199	\$1,003
65+	\$311	\$303	\$347	\$235	\$1,196
M	\$90	\$133	\$142	\$87	\$452
0-18	\$64	\$75	\$121	\$42	\$302
19-24	\$44	\$69	\$90	\$41	\$243
25-29	\$28	\$63	\$71	\$47	\$209
30-34	\$32	\$76	\$83	\$60	\$252
35-39	\$38	\$93	\$100	\$70	\$300
40-44	\$53	\$122	\$120	\$85	\$380
45-49	\$81	\$150	\$140	\$106	\$476
50-54	\$116	\$199	\$181	\$135	\$631
55-59	\$180	\$246	\$220	\$161	\$808
60-64	\$274	\$332	\$291	\$206	\$1,103
65+	\$325	\$384	\$352	\$241	\$1,303
Total	\$97	\$148	\$167	\$91	\$503

Figure 59: Commercial healthcare spending for North Dakota residents (PMPM), 2017

AGE & SEX	INPATIENT	OUTPATIENT	PROFESSIONAL	PHARMACY	TOTAL
F	\$86	\$113	\$209	\$91	\$498
0-18	\$54	\$42	\$127	\$23	\$246
19-24	\$56	\$77	\$156	\$51	\$341
25-29	\$88	\$83	\$191	\$39	\$401
30-34	\$99	\$97	\$225	\$90	\$511
35-39	\$67	\$122	\$209	\$80	\$479
40-44	\$69	\$150	\$231	\$110	\$560
45-49	\$69	\$148	\$251	\$149	\$616
50-54	\$89	\$163	\$272	\$151	\$674
55-59	\$127	\$174	\$265	\$146	\$712
60-64	\$158	\$208	\$320	\$205	\$890
65+	\$217	\$258	\$333	\$222	\$1,030
M	\$87	\$84	\$146	\$76	\$393
0-18	\$104	\$47	\$160	\$31	\$342
19-24	\$29	\$53	\$71	\$31	\$184
25-29	\$25	\$47	\$76	\$51	\$199
30-34	\$27	\$51	\$82	\$47	\$207
35-39	\$40	\$57	\$92	\$65	\$254
40-44	\$59	\$77	\$128	\$85	\$349
45-49	\$89	\$82	\$147	\$107	\$426
50-54	\$97	\$131	\$174	\$125	\$526
55-59	\$133	\$152	\$215	\$157	\$656
60-64	\$209	\$191	\$271	\$178	\$848
65+	\$284	\$308	\$349	\$166	\$1,107
Total	\$86	\$98	\$176	\$83	\$444

Figure 60: Commercial healthcare spending for South Dakota residents (PMPM), 2017

AGE & SEX	INPATIENT	OUTPATIENT	PROFESSIONAL	PHARMACY	TOTAL
F	\$98	\$142	\$174	\$83	\$496
0-18	\$58	\$46	\$108	\$25	\$237
19-24	\$54	\$82	\$129	\$44	\$308
25-29	\$111	\$88	\$173	\$63	\$435
30-34	\$121	\$122	\$200	\$74	\$516
35-39	\$89	\$135	\$181	\$89	\$494
40-44	\$100	\$170	\$193	\$112	\$576
45-49	\$81	\$187	\$196	\$123	\$587
50-54	\$113	\$239	\$228	\$148	\$728
55-59	\$132	\$259	\$234	\$151	\$777
60-64	\$178	\$282	\$262	\$163	\$884
65+	\$270	\$358	\$253	\$95	\$976
M	\$91	\$120	\$123	\$76	\$411
0-18	\$64	\$50	\$110	\$28	\$252
19-24	\$29	\$59	\$59	\$30	\$177
25-29	\$29	\$51	\$60	\$41	\$180
30-34	\$40	\$66	\$74	\$52	\$231
35-39	\$49	\$91	\$89	\$67	\$295
40-44	\$53	\$107	\$100	\$88	\$349
45-49	\$83	\$108	\$114	\$100	\$403
50-54	\$110	\$179	\$155	\$122	\$566
55-59	\$158	\$235	\$184	\$147	\$723
60-64	\$210	\$275	\$234	\$186	\$905
65+	\$361	\$395	\$281	\$110	\$1,147
Total	\$94	\$131	\$147	\$79	\$452

Figure 61: Commercial healthcare spending for Utah residents (PMPM), 2017

AGE & SEX	INPATIENT	OUTPATIENT	PROFESSIONAL	PHARMACY	TOTAL
F	\$101	\$120	\$144	\$78	\$443
0-18	\$87	\$43	\$89	\$23	\$242
19-24	\$70	\$94	\$114	\$50	\$328
25-29	\$111	\$106	\$150	\$52	\$419
30-34	\$117	\$124	\$165	\$70	\$477
35-39	\$83	\$140	\$156	\$87	\$467
40-44	\$62	\$164	\$155	\$107	\$488
45-49	\$79	\$179	\$171	\$134	\$563
50-54	\$104	\$202	\$196	\$149	\$651
55-59	\$139	\$217	\$218	\$184	\$758
60-64	\$186	\$246	\$236	\$180	\$848
65+	\$263	\$293	\$295	\$215	\$1,066
M	\$88	\$95	\$107	\$70	\$361
0-18	\$100	\$44	\$97	\$27	\$269
19-24	\$31	\$61	\$59	\$38	\$188
25-29	\$36	\$66	\$61	\$48	\$211
30-34	\$38	\$73	\$79	\$61	\$250
35-39	\$41	\$85	\$83	\$76	\$284
40-44	\$56	\$101	\$100	\$86	\$343
45-49	\$76	\$125	\$123	\$103	\$427
50-54	\$110	\$169	\$140	\$124	\$543
55-59	\$168	\$201	\$178	\$160	\$707
60-64	\$219	\$256	\$218	\$183	\$875
65+	\$320	\$360	\$321	\$251	\$1,251
Total	\$95	\$107	\$125	\$74	\$402

Appendix G: Medicare healthcare spending estimates by age, sex, and state

Figure 62: Medicare healthcare spending for Colorado residents (PMPM), 2017

AGE & SEX	INPATIENT	OUTPATIENT	PROFESSIONAL	PHARMACY	TOTAL
F	\$217	\$137	\$259	\$209	\$822
Under 65	\$281	\$246	\$294	\$500	\$1,320
65-69	\$135	\$110	\$173	\$146	\$564
70-74	\$169	\$121	\$224	\$163	\$678
75-79	\$244	\$142	\$262	\$214	\$862
Over 80	\$298	\$131	\$359	\$196	\$985
M	\$245	\$136	\$236	\$261	\$879
Under 65	\$323	\$204	\$272	\$611	\$1,411
65-69	\$177	\$109	\$168	\$329	\$783
70-74	\$204	\$112	\$201	\$198	\$715
75-79	\$208	\$148	\$256	\$166	\$778
Over 80	\$408	\$168	\$369	\$198	\$1,143
Total	\$230	\$137	\$249	\$232	\$848

Figure 63: Medicare healthcare spending for Idaho residents (PMPM), 2017

AGE & SEX	INPATIENT	OUTPATIENT	PROFESSIONAL	PHARMACY	TOTAL
F	\$210	\$194	\$213	\$162	\$779
Under 65	\$297	\$301	\$224	\$401	\$1,223
65-69	\$130	\$166	\$141	\$131	\$568
70-74	\$145	\$170	\$148	\$134	\$597
75-79	\$204	\$195	\$218	\$114	\$731
Over 80	\$323	\$186	\$348	\$113	\$970
M	\$223	\$187	\$188	\$149	\$748
Under 65	\$213	\$247	\$220	\$378	\$1,058
65-69	\$143	\$148	\$115	\$133	\$539
70-74	\$180	\$161	\$138	\$121	\$600
75-79	\$235	\$200	\$197	\$130	\$762
Over 80	\$380	\$222	\$320	\$110	\$1,032
Total	\$217	\$191	\$201	\$156	\$764

Figure 64: Medicare healthcare spending for Montana residents (PMPM), 2017

AGE & SEX	INPATIENT	OUTPATIENT	PROFESSIONAL	PHARMACY	TOTAL
F	\$236	\$229	\$197	\$174	\$836
Under 65	\$276	\$350	\$221	\$405	\$1,253
65-69	\$136	\$201	\$142	\$167	\$646
70-74	\$191	\$197	\$166	\$164	\$718
75-79	\$266	\$256	\$196	\$119	\$837
Over 80	\$337	\$217	\$266	\$113	\$934
M	\$248	\$203	\$163	\$177	\$792
Under 65	\$238	\$222	\$166	\$371	\$997
65-69	\$169	\$163	\$112	\$76	\$521
70-74	\$229	\$202	\$145	\$151	\$726
75-79	\$237	\$236	\$175	\$167	\$814
Over 80	\$379	\$213	\$236	\$216	\$1,045
Total	\$242	\$217	\$180	\$175	\$814

Figure 65: Medicare healthcare spending for Nebraska residents (PMPM), 2017

AGE & SEX	INPATIENT	OUTPATIENT	PROFESSIONAL	PHARMACY	TOTAL
F	\$320	\$214	\$262	\$202	\$997
Under 65	\$357	\$320	\$264	\$559	\$1,500
65-69	\$187	\$153	\$177	\$173	\$690
70-74	\$226	\$199	\$239	\$196	\$860
75-79	\$315	\$203	\$261	\$144	\$923
Over 80	\$472	\$237	\$338	\$165	\$1,211
M	\$368	\$202	\$250	\$194	\$1,013
Under 65	\$371	\$226	\$234	\$437	\$1,269
65-69	\$262	\$156	\$171	\$143	\$732
70-74	\$296	\$159	\$185	\$143	\$783
75-79	\$417	\$225	\$297	\$178	\$1,117
Over 80	\$523	\$265	\$382	\$205	\$1,375
Total	\$341	\$208	\$256	\$198	\$1,005

Figure 66: Medicare healthcare spending for North Dakota residents (PMPM), 2017

AGE & SEX	INPATIENT	OUTPATIENT	PROFESSIONAL	PHARMACY	TOTAL
F	\$320	\$293	\$195	\$178	\$985
Under 65	\$291	\$456	\$244	\$405	\$1,396
65-69	\$150	\$222	\$138	\$167	\$677
70-74	\$253	\$290	\$165	\$164	\$872
75-79	\$313	\$272	\$196	\$119	\$900
Over 80	\$484	\$299	\$235	\$113	\$1,130
M	\$338	\$298	\$184	\$181	\$1,000
Under 65	\$343	\$262	\$186	\$371	\$1,161
65-69	\$221	\$216	\$134	\$76	\$647
70-74	\$288	\$298	\$157	\$151	\$893
75-79	\$361	\$353	\$198	\$167	\$1,078
Over 80	\$478	\$352	\$247	\$216	\$1,292
Total	\$328	\$295	\$190	\$179	\$992

Figure 67: Medicare healthcare spending for South Dakota residents (PMPM), 2017

AGE & SEX	INPATIENT	OUTPATIENT	PROFESSIONAL	PHARMACY	TOTAL
F	\$315	\$261	\$192	\$180	\$948
Under 65	\$523	\$391	\$253	\$405	\$1,572
65-69	\$205	\$220	\$141	\$167	\$733
70-74	\$228	\$237	\$174	\$164	\$804
75-79	\$267	\$249	\$194	\$119	\$829
Over 80	\$420	\$268	\$221	\$113	\$1,022
M	\$322	\$280	\$177	\$175	\$953
Under 65	\$323	\$316	\$193	\$371	\$1,203
65-69	\$223	\$186	\$130	\$76	\$615
70-74	\$217	\$266	\$152	\$151	\$786
75-79	\$428	\$355	\$225	\$167	\$1,175
Over 80	\$458	\$313	\$207	\$216	\$1,193
Total	\$318	\$270	\$185	\$178	\$951

Figure 68 Medicare healthcare spending for Utah Residents (PMPM), 2017

AGE & SEX	INPATIENT	OUTPATIENT	PROFESSIONAL	PHARMACY	TOTAL
F	\$213	\$126	\$251	\$213	\$802
Under 65	\$245	\$202	\$281	\$624	\$1,353
65-69	\$169	\$107	\$187	\$200	\$663
70-74	\$162	\$117	\$195	\$201	\$676
75-79	\$198	\$140	\$240	\$172	\$750
Over 80	\$305	\$115	\$366	\$150	\$935
M	\$218	\$140	\$218	\$201	\$777
Under 65	\$273	\$165	\$233	\$540	\$1,210
65-69	\$172	\$114	\$149	\$176	\$611
70-74	\$174	\$137	\$169	\$167	\$647
75-79	\$216	\$147	\$243	\$157	\$763
Over 80	\$297	\$155	\$331	\$149	\$931
Total	\$215	\$133	\$235	\$207	\$790

Appendix H: Estimated out-of-state commercial healthcare spending

Figure 69: *Percentage of commercial spending for California residents that occurs out of state*

YEAR	INPATIENT	OUTPATIENT	PROFESSIONAL
2015	5%	7%	13%
2016	4%	6%	13%
2017	5%	5%	12%

Figure 70: *Percentage of commercial spending for Colorado residents that occurs out of state*

YEAR	INPATIENT	OUTPATIENT	PROFESSIONAL
2015	13%	13%	21%
2016	13%	11%	20%
2017	14%	11%	19%

Figure 71: *Percentage of commercial spending for Idaho residents that occurs out of state*

YEAR	INPATIENT	OUTPATIENT	PROFESSIONAL
2015	24%	14%	18%
2016	19%	11%	16%
2017	17%	9%	16%

Figure 72: *Percentage of commercial spending for Montana residents that occurs out of state*

YEAR	INPATIENT	OUTPATIENT	PROFESSIONAL
2015	47%	34%	28%
2016	27%	19%	23%
2017	32%	19%	25%

Figure 73: *Percentage of commercial spending for Nebraska residents that occurs out of state*

YEAR	INPATIENT	OUTPATIENT	PROFESSIONAL
2015	18%	16%	16%
2016	12%	11%	16%
2017	12%	10%	17%

Figure 74: *Percentage of commercial spending for New York residents that occurs out of state*

YEAR	INPATIENT	OUTPATIENT	PROFESSIONAL
2015	23%	24%	28%
2016	22%	22%	28%
2017	20%	20%	27%

Figure 75: Percentage of commercial spending for North Dakota residents that occurs out of state

YEAR	INPATIENT	OUTPATIENT	PROFESSIONAL
2015	43%	39%	31%
2016	38%	25%	25%
2017	35%	21%	23%

Figure 76: Percentage of commercial spending for South Dakota residents that occurs out of state

YEAR	INPATIENT	OUTPATIENT	PROFESSIONAL
2015	19%	10%	14%
2016	16%	8%	13%
2017	17%	8%	14%

Figure 77: Percentage of commercial spending for Utah residents that occurs out of state

YEAR	INPATIENT	OUTPATIENT	PROFESSIONAL
2015	12%	13%	9%
2016	3%	3%	6%
2017	3%	2%	6%

Appendix I: Estimated out-of-state Medicare healthcare spending

Figure 78: *Percentage of Medicare spending for California residents that occurs out of state*

YEAR	INPATIENT	OUTPATIENT	PROFESSIONAL
2015	3%	3%	5%
2016	4%	4%	6%
2017	3%	3%	6%

Figure 79: *Percentage of Medicare spending for Colorado residents that occurs out of state*

YEAR	INPATIENT	OUTPATIENT	PROFESSIONAL
2015	8%	6%	13%
2016	10%	7%	14%
2017	8%	6%	14%

Figure 80: *Percentage of Medicare spending for Idaho residents that occurs out of state*

YEAR	INPATIENT	OUTPATIENT	PROFESSIONAL
2015	16%	10%	21%
2016	15%	10%	21%
2017	19%	10%	17%

Figure 81: *Percentage of Medicare spending for Montana residents that occurs out of state*

YEAR	INPATIENT	OUTPATIENT	PROFESSIONAL
2015	16%	10%	21%
2016	17%	8%	22%
2017	14%	9%	21%

Figure 82: *Percentage of Medicare spending for Nebraska residents that occurs out of state*

YEAR	INPATIENT	OUTPATIENT	PROFESSIONAL
2015	19%	17%	18%
2016	13%	10%	12%
2017	12%	10%	13%

Figure 83: *Percentage of Medicare spending for New York residents that occurs out of state*

YEAR	INPATIENT	OUTPATIENT	PROFESSIONAL
2015	12%	11%	16%
2016	13%	14%	18%
2017	12%	13%	18%

Figure 84: Percentage of Medicare spending for North Dakota residents that occurs out of state

YEAR	INPATIENT	OUTPATIENT	PROFESSIONAL
2015	11%	8%	18%
2016	12%	7%	20%
2017	14%	8%	19%

Figure 85: Percentage of Medicare spending for South Dakota residents that occurs out of state

YEAR	INPATIENT	OUTPATIENT	PROFESSIONAL
2015	19%	15%	23%
2016	16%	10%	25%
2017	15%	9%	23%

Figure 86: Percentage of Medicare spending for Utah residents that occurs out of state

YEAR	INPATIENT	OUTPATIENT	PROFESSIONAL
2015	9%	9%	7%
2016	3%	2%	6%
2017	3%	2%	8%



Milliman is among the world's largest providers of actuarial and related products and services. The firm has consulting practices in life insurance and financial services, property & casualty insurance, healthcare, and employee benefits. Founded in 1947, Milliman is an independent firm with offices in major cities around the globe.

milliman.com

CONTACT

Jill Van Den Bos
jill.van.den.bos@milliman.com

Daniel Perlman
daniel.perlman@milliman.com

Ally Weaver
ally.weaver@milliman.com

Matt Caverly
matt.caverly@milliman.com

© 2019 Milliman, Inc. All Rights Reserved. The materials in this document represent the opinion of the authors and are not representative of the views of Milliman, Inc. Milliman does not certify the information, nor does it guarantee the accuracy and completeness of such information. Use of such information is voluntary and should not be relied upon unless an independent review of its accuracy and completeness has been performed. Materials may not be reproduced without the express consent of Milliman.