wakely.com

Wakely
An HMA Company

State of Colorado Division of Insurance

Colorado Option Hospital Reimbursement Rate Floors
Quality and Acuity Considerations

December 1, 2022

Prepared by:
Wakely Consulting Group

Julie Steiner
Consultant

Emily Janke, FSA, MAA
Senior Consulting Actuary

Table of Contents

Introduction

The Division of Insurance (the "Division"), part of the Department of Regulatory Agencies in the State of Colorado, retained Wakely Consulting Group, LLC ("Wakely"), in accordance with §10-16-1310(3) C.R.S., to provide recommendations on how to phase in, to the extent practicable, adjustments to the hospital-specific reimbursement floors that may be established per §10-16-1306(4). Specifically, the law requests an evaluation of potential acuity adjustments as measured by a hospital's case mix index, and quality metric adjustments that could be applied to the Division's hospital reimbursement floor methodology.[1] The statute reads as follows:

> *Section 10-16-1310(3), C.R.S.*
>
> *(3) (a) THE COMMISSIONER SHALL CONTRACT WITH AN INDEPENDENT THIRD-PARTY ORGANIZATION TO EVALUATE HOW TO PHASE IN, TO THE EXTENT PRACTICABLE, TO A HOSPITAL'S REIMBURSEMENT RATE METHODOLOGY DESCRIBED IN SECTION 10-16-1306: (I) A QUALITY METRIC ADJUSTMENT; AND (II) AN ACUITY ADJUSTMENT AS MEASURED BY A HOSPITAL'S CASE-MIX INDEX.*
>
> *(b) THE EVALUATION MUST BE COMPLETED BY DECEMBER 31, 2022.*

This report summarizes Wakely's recommendations and related considerations. This document has been prepared for the sole use of the Colorado Division of Insurance, although we understand that it will be distributed to the Colorado General Assembly and made available on the Division's public website. This document contains the results, data, assumptions, and methods used in our analyses and satisfies the Actuarial Standard of Practice (ASOP) 41 reporting requirements. Using the information in this report for other purposes may not be appropriate.

Recommendations

Wakely recommends no additional adjustment to the hospital reimbursement floor methodology for acuity since the floor formula is based on Medicare reimbursement which already reflects acuity. The "Acuity Considerations" section of this report provides more context around this recommendation, including the mechanics of acuity weighting in Medicare reimbursement.

[1] At the time of this report, the Division has issued Proposed New Regulation 4-2-91 that outlines the methodology the Commissioner will use to set reimbursement rates for Colorado Option Standardized Plans, as applicable. Any changes to the methodology would require the Division to amend Proposed New Regulation 4-2-91. At the time of this report, the Division has issued Proposed New Regulation 4-2-91 that outlines the methodology the Commissioner will use to set reimbursement rates for Colorado Option Standardized Plans, as applicable. Any changes to the methodology would require the Division to amend Proposed New Regulation 4-2-91.

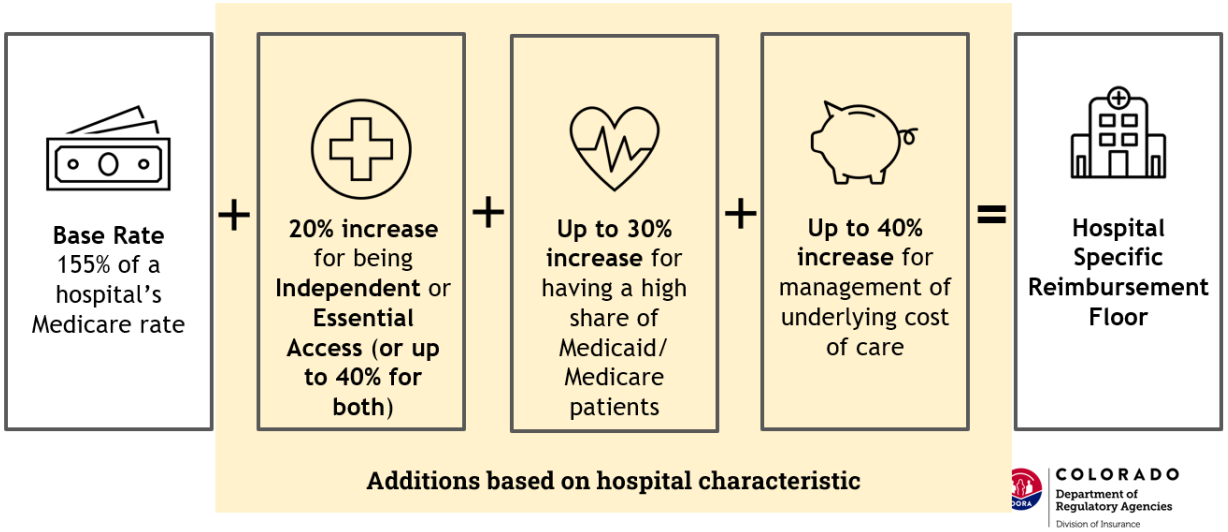
Wakely also recommends no adjustment to the hospital reimbursement floor methodology for quality. Similar to acuity, Medicare reimbursement levels are already inclusive of a hospital's quality performance, and a further adjustment for quality could be duplicative. In addition, selecting a quality program for an adjustment is subjective as hospital performance can vary depending on what measure or program is used.

Although we do not recommend adding a quality metric adjustment to the hospital floor methodology, we do recommend that hospitals report their Hospital Transformation Program (HTP) metrics to the Division for review and future consideration. The "Quality Considerations" section of this report provides more detail on our recommendations.

Background on Hospital Reimbursement Rate Floors

Within the Colorado Option Program, Colorado Option Standardized Plans are required to reduce premiums by targeted amounts each year. Starting in Plan Year 2024, if a Standardized Plan fails to meet the premium reduction requirement, a public hearing is held to determine the reason(s) for the carrier's failure to meet the requirement. If contracted reimbursement rates with a given hospital or health care provider is a contributing reason for the carrier not meeting the premium rate requirements or network adequacy requirements, the Commissioner of Insurance can require that the hospital or health care provider accept a reimbursement rate set by the Commissioner. The reimbursement rate must be greater than or equal to the minimum rate specified in the statute (i.e. the "floor").

The reimbursement rate floor is defined by a formula, and it is hospital specific. The floor is increased for certain types of hospitals, as defined in the statute. The current formula for the Hospital Specific Reimbursement Floor is summarized in the graphic below:



Section 10-16-1310(3) tasks the Division to study whether further adjustments should be introduced into the methodology above, specifically adjustments to recognize providers with a higher level of acuity (i.e. those that, on average, serve patients with a greater severity of illness) and that provide higher quality care.

Acuity Considerations

Overall Recommendations

Wakely recommends no additional adjustment to the Hospital Specific Reimbursement Floor. Medicare reimbursement is already tied to acuity through the relative weighting calculations employed by the respective prospective payment systems. Hospitals exempt from prospective payment systems are reimbursed at "reasonable cost" based on cost and charge information submitted by hospitals in their Cost Reports. Presumably, higher cost treatments for higher acuity cases would also be reflected in that collected data.

Definition of Acuity

In this context, "acuity" refers to the severity of illness within a hospital or provider. A hospital that serves sicker than average patients require a higher reimbursement level than a hospital with a less severe caseload.

For inpatient hospital stays, acuity is traditionally measured with a Case Mix Index (or "CMI"). The CMI is calculated based on average relative Medicare Severity-Diagnosis Related Group ("MS-DRG") weight, where the MS-DRG represents how Medicare classifies and pays for an inpatient stay related to a particular diagnosis and severity level. Each patient discharge is assigned one of 767 DRGs where the DRG recognizes the severity of illness and estimated length of stay for the discharge and serves as a proxy for expected hospital resource consumption associated with the discharge.

The CMI for a given hospital is calculated as the average MS-DRG weight across all discharges at that hospital:

$$\text{CMI}_{\text{Hospital A}} = \frac{\Sigma\ (\text{MS-DRG Weight for Each Discharge at Hospital A})}{\text{Total Number of Discharges at Hospital A}}$$

For outpatient care, acuity is measured differently (since the MS-DRG system is for inpatient care only). Medicare reimbursement for outpatient care is built on a classification system known as Ambulatory Payment Classification (or "APC"). Outpatient services are classified into APC groupings based on the HCPCS codes on a claim. The APC captures expected clinical intensity and expected resource utilization and cost.

Acuity Included in Current Medicare Reimbursement

Details of Medicare Reimbursement change from year to year and are published in rulemaking notifications from the Centers for Medicare & Medicaid Services (CMS). However, the fundamental methodologies are consistent and set reimbursement using a prospective payment system (PPS) to control costs and stabilize payments.

The Acute Care Hospital Inpatient Prospective Payment System (IPPS), at its most basic terms, consists of a facility-specific base rate multiplied by discharge-specific Diagnosis-related Group (DRG) Weight. In fiscal year 2008, CMS replaced the CMS DRG system with the Medicare Severity Diagnosis-Related Group (MS-DRG) system to better recognize the severity of illness in their payment rates. Each discharge is assigned a major diagnostic category (MDC) and then further classified using more narrow diagnosis categories and procedure categories into a base DRG. Most are further divided based on the presence of a complication or comorbidity (CC) or major complication or comorbidity (MCC.) In order to represent materially different acuities, The CC and MCC subgroups are created within the base DRG when all the following criteria are met:

- A reduction in variance of costs of at least 3 percent.
- At least 5 percent of the patients in the MS-DRG fall within the CC or MCC subgroup.
- At least 500 cases are in the CC or MCC subgroup.
- There is at least a 20-percent difference in average costs between subgroups.
- There is a $2,000 difference in average costs between subgroups.

Each MS-DRG has a corresponding weight calculated by estimates of average resource intensity per case. The DRG weight is calculated by dividing the geometric mean cost for each DRG by the geometric mean cost for all DRGs. A step-by-step guide to the MS-DRG relative weight calculation can be found in the most recent IPPS Final Rule.[2]

The Outpatient Prospective Payment System (OPPS) functions similarly. Instead of DRGs, CMS classifies services by HCPCS code to an Ambulatory Payment Classification (APC) based on clinical and cost similarity. The payment rate for each service is the APC relative weight multiplied by the wage adjusted conversion factor.

Where DRGs are typically divided into 3 categories of severity, APCs have more variability in the division of severity and vary by clinical classification. Although there are some very specific services that have only one APC, the majority of classifications have between three and six levels. Like DRGs, the APC weight is an estimation of the average costs for the service. Estimated average costs are standardized to APC 5012 (Level 2 Examinations and Related Services) as it

[2] https://www.govinfo.gov/content/pkg/FR-2022-08-10/pdf/2022-16472.pdf

is the APC resulting from the most commonly billed outpatient service. The APC weight is calculated by dividing the geometric mean cost for each APC by the geometric mean cost for APC 5012. A more detailed accounting of APC Relative Weight calculation can be found the most recent Notice of Final Rulemaking (NFRM) OPPS Claim Accounting[3].

Although not all facilities are reimbursed using IPPS and OPPS, the development of the relative weights uses a large enough claim data set that the use of the weights as a measure of acuity is still valid regardless of a facility's current reimbursement rules. Certain services are not covered by Medicare, covered under a different code, or only covered in certain circumstances. Wakely has reviewed the proportion of commercial claims that are affected by these Medicare rules and determined the volume would not substantially affect an overall percentage of Medicare calculation.

Critical Access Hospitals (CAHs) are one type of hospital that is exempt from IPPS and OPPS and serve populations where access to facility care is limited. These facilities are paid interim payments based on 101% of average cost per day for inpatient stays and a percentage of charges for outpatient care, both calculated based on the previous year's cost report. The interim rate of payment can be adjusted if evidence is submitted that costs are or will be significantly different than the calculated rate.

Finally, Inpatient CMI tends to be significantly higher at large urban hospitals when compared to their rural peers. Adjusting the hospital specific floor methodology for acuity would be doubly punitive to facilities without the resources to provide the highest acuity care. Inpatient CMI by facility is included in Appendix A. Outpatient claim information was unavailable for a comparable calculation.

Quality Considerations

In accordance with the statute, Wakely also worked with the Division to consider adjustments to the hospital reimbursement floor methodology for quality performance (i.e. a higher floor for hospitals that provide higher quality care).

Overall Recommendations

At this time, Wakely does not recommend an adjustment for quality due to the following reasons:

1) For inpatient reimbursement, the current hospital reimbursement floor methodology already includes an adjustment for quality performance given that the formula's base rate is equal to a percentage of the hospital's Medicare rate. The IPPS Medicare rate is already inclusive of incentive payments and payment reductions related to quality performance,

[3] https://www.cms.gov/files/document/2023-nfrm-opps-claims-accounting.pdf

as described later in the "Quality Included in Current Medicare Reimbursement" section of this report.

For claims paid under OPPS, quality adjustments built into the payment are more limited. The Outpatient Quality Reporting (OQR) program requires hospitals to report quality data in order to receive their full OPPS reimbursement. If they do not meet the reporting requirements, payment is reduced by 2%.

For inpatient claims, any further adjustment to the hospital reimbursement floor methodology for quality performance runs the risk of being duplicative and double penalizing or double rewarding a hospital. Outpatient claims or claims at facilities outside of PPS could warrant an additional adjustment, but if so, further study is required to determine the appropriate measure(s) and methodology.

2) There is subjectivity involved in determining the appropriate quality measure(s) or program. A hospital's quality performance relative to other hospitals can vary across programs, depending on what measures are used. There can be instances where a given hospital performs very favorably under certain quality metrics but unfavorably under other metrics. See Table 1in the "Other Existing Quality Programs" section of this report for real-life examples of this variability in Colorado hospitals' scoring across existing quality programs.

3) Quality measures can be manipulated by certain hospital practices, so any adjustment to the hospital reimbursement floor methodology would need to be monitored accordingly. An example of this could be a facility utilizing observation status as opposed to admitting a patient which reduces the readmission count.

4) Some measures can disproportionately penalize certain hospitals, such as Safety Net, Critical Access, or rural hospitals. For example, hospitals that serve a larger number of patients facing housing insecurity may be adversely affected in certain quality metrics due to this economic instability and regardless of the quality of care provided.

While Wakely does not recommend an adjustment to the hospital floor reimbursement methodology, we ***do*** recommend that the Division collect quality metrics from the hospitals for the Colorado Health Transformation Program ("HTP"). See the "Colorado Health Transformation Program" section of the report for background and considerations related to HTP.

The hospitals are already reporting HTP metrics so the added administrative burden to do this reporting is low. By collecting these metrics, the Division can review them and give further consideration to whether an adjustment to the hospital reimbursement floor methodology, particularly for outpatient claims and facilities not paid under PPS, should be implemented at a future date.

Quality Included in Current Medicare Reimbursement

As mentioned, the current IPPS Medicare fee-for-service (FFS) reimbursement includes incentive payments and payment reductions related to quality performance. CMS operates four programs in the inpatient setting upon which quality incentives/reductions are based. These incentive/reductions are payment amounts incorporated into each hospital specific base rate used to calculate each per discharge payment at 100% of Medicare. The current programs are summarized below and apply to all hospitals paid under IPPS:

1) Hospital Inpatient Quality Reporting Program (IQR):

   - Measures[4] in FY2024 include National Healthcare Safety Network measures, Chart-Abstracted Clinical Process of Care measures, EHR-based measures, data in the eCQM measure set, patient survey results, outcome measures, claims-based measures (including risk-adjusted mortality, and readmission measures).
   - Results for almost all measurements are publicly reported on Hospital Compare.[5]
   - Hospitals that don't meet the measurement criteria have a payment reduction. The annual market basket update is reduced by one-fourth[6] for these hospitals. In recent years, most hospitals (over 95%) met the requirements and avoided the payment reduction.

2) Hospital Readmissions Reduction Program (HRRP)

   - Reduces reimbursement to hospitals with excessive readmissions. The payment reduction[7] is calculated with a peer grouping methodology and is capped at 3%.
   - The measurement metric is an excess readmission ratio (ERR) for the following conditions.[8]: Acute Myocardial Infarction, Chronic Obstructive Pulmonary Disease, Heart Failure, Pneumonia, Coronary Artery Bypass Graft Surgery, Elective Hip or Knee Arthroplasty.
   - Safety Net hospitals were found to have higher readmission rates and were initially penalized more frequently. Today, a peer grouping methodology is followed where hospitals are grouped into quintiles according to their proportion of dual-eligible

[4] https://qualitynet.cms.gov/inpatient/iqr/measures

[5] https://www.medicare.gov/care-compare/?providerType=Hospital&redirect=true

[6] https://www.cms.gov/medicare/quality-initiatives-patient-assessment-instruments/hospitalqualityinits/hospitalrhqdapu

[7] https://qualitynet.cms.gov/files/62ed828525af600016945280?filename=FY2023_HRRP_PymntRdctnFormula.pdf

[8] https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/Value-Based-Programs/HRRP/Hospital-Readmission-Reduction-Program

patients. The HRRP payment adjustment is determined by comparing within the peer group.

3) Hospital-Acquired Conditions Reduction Program (HACRP)

- Measures of hospital-acquired conditions include the CMS PSI 90 composite patient safety measure and the CDC's healthcare-associated infection ("HAI") tracking measures.
- The lowest performing 25 percent of hospitals in the country receive a 1% reduction in their final IPPS payment. The reduction is made to the final payment (as opposed to the base payment prior to adjustments like GME and DSH).
- In 2023, due to the impact of COVID-19 on measure data, no hospital will be ranked in the worst-performing quartile or subject to the 1-percent payment reduction. All paused measures will continue to be reported.

4) Value-based Purchasing (VBP) Program:

- VBP is a budget-neutral program that begins with a 2% withhold in participating hospitals' Medicare payments. The total withheld amount then funds incentive payments that are doled out to hospitals based on their performance in VBP measures. Depending on the hospital's performance, a hospital may earn back a percentage that is less than, equal to, or more than the amount withheld.
- Measures include: Clinical Care (weighted 25%), Person and Community Engagement (25%), Safety (25%), and Efficiency and Cost Reduction (25%).

For outpatient services, CMS utilizes the Outpatient Quality Reporting (OQR) program. This program requires hospitals to report quality data in order to receive their full OPPS reimbursement. Current measures include measures that assess processes of care, imaging efficiency patterns, care transitions, ED throughput efficiency, the use of health information technology, care coordination, patient safety, and volume. The reported data is publicly available by hospital on the CMS Care Compare website. If a hospital does not meet the OQR reporting requirements, OPPS payment is reduced by 2%.

Other Existing Quality Programs

If a further adjustment to the hospital reimbursement floor methodology for quality were deemed necessary, now or in the future, the Division should carefully consider the appropriate quality program to use. The appropriate program is likely an existing program, since creating something new would be onerous for the hospitals.

A few examples of existing quality programs include:

- CMS Hospital Star Ratings: developed by CMS to improve the usability of publicly reported data on its Care Compare website. The Overall Star Rating combines the results across many measures and five areas of quality into a single summary score. Weights across the five areas are: Mortality (22%), Safety (22%), Readmission (22%), Patient Experience (22%), Timely & Effective Care (12%).

- LeapFrog Group: survey assessment of inpatient and outpatient hospital performance on measures of safety, quality, and efficiency. The LeapFrog Group also reports a Hospital Safety Grade representing a hospital's performance in patient safety related to infections, errors, injuries, and accidents.

- Agency for Healthcare Research and Quality (AHRQ) Quality Indicators (QIs): quality measures in four modules: Inpatient Quality Indicators (IQI), Pediatric Quality Indicators (PQI), Prevention Quality Indicators (PQI), Patient Safety Indicators (PSI). Many are endorsed by the National Quality Forum (NQF).

- The Joint Commission's ORYX Performance Measures: The Joint Commission integrates performance measurement data into the accreditation process. Hospital data reported is publicly available on The Joint Commission's Quality Check website.

- CAHPS Patient Experience Surveys: survey results about patient hospital experience. NQF-endorsed.

The table below summarizes the state's highest volume[9] hospitals (top 15 by bed size) in Colorado and how each performed under various existing quality programs:

Table 1: Hospital Performance Across Multiple Quality Programs

Hospital	Bed Size	Medicaid %age - % of IP Days[10]	Location	CMS Star Rating[11]	LeapFrog Safety Grade[12]	CAHPS[13]
UNIVERSITY OF COLORADO HOSPITAL AUTHORITY	653	35%	AURORA	4	D	4
CENTURA HEALTH-PENROSE ST FRANCIS HEALTH SERVICES	473	26%	COLORADO SPRINGS	5	A	4
UCH-MEMORIAL HEALTH SYSTEM	425	32%	COLORADO SPRINGS	4	C	4
DENVER HEALTH & HOSPITAL AUTHORITY	369	60%	DENVER	3	B	3
SAINT JOSEPH HOSPITAL	358	26%	DENVER	5	A	5
HCA-HEALTHONE DBA SWEDISH MEDICAL CENTER	342	26%	ENGLEWOOD	3	A	4

[9]Top 15 hospitals by inpatient bed size in the 2023 Final Rule IPPS Impact file. For a full listing of all hospitals, see Appendix B.

[10]From the 2023 Final Rule IPPS Impact file. Medicaid days as a percent of total inpatient days.

[11]July 2022 Overall Star Rating. Time period for specific measures varies as shown here: https://qualitynet.cms.gov/inpatient/public-reporting/overall-ratings/data-collection

[12]2022 LeapFrog Hospital Safety Grade

[13]HCAHPS, Patient Survey Star Rating for 2021 (https://data.cms.gov/provider-data/topics/hospitals)

Hospital	Bed Size	Medicaid %age - % of IP Days[10]	Location	CMS Star Rating[11]	LeapFrog Safety Grade[12]	CAHPS[13]
AURORA SOUTH HOSPITAL AND MEDICAL CENTER	322	36%	AURORA	4	C	3
PRESBYTERIAN ST LUKE'S MEDICAL CENTER	315	43%	DENVER	3	A	4
SKY RIDGE MEDICAL CENTER	274	13%	LONE TREE	5	A	3
PARKVIEW MEDICAL CENTER, INC	268	31%	PUEBLO	3	D	3
ST MARYS MEDICAL CENTER	253	29%	GRAND JUNCTION	4	A	4
POUDRE VALLEY HOSPITAL	243	28%	FORT COLLINS	5	C	4
CENTURA HEALTH-ST ANTHONY HOSPITAL	220	23%	LAKEWOOD	4	B	4
ROSE MEDICAL CENTER	219	25%	DENVER	5	A	4
NORTH COLORADO MEDICAL CENTER	206	35%	GREELEY	2	A	3

Depending on the measures used, a hospital's quality performance relative to other hospitals can vary across programs. For example, in the table above, University of Colorado Hospital Authority (the largest hospital by bed size) achieved an above-average rating (4) for CMS Stars and CAHPS but a below-average rating (D) for its LeapFrog Safety Grade. North Colorado Medical Center in Greeley received a below-average rating (2) for CMS Stars but the highest grade (A) for LeapFrog Safety.

Equity is another consideration in selecting the appropriate quality measure to use. Measures of outcome and readmission can be impacted by factors well outside of a hospital's control. Hospitals that serve patients that are limited by housing, food or transportation insecurity may be adversely affected in those quality metrics by economic instability regardless of the quality of care provided. In Table 1 above, we see that the hospitals serving the highest proportion of Medicaid patients, Denver Health & Hospital Authority (60% of inpatient bed days) and Presbyterian St. Luke's Medical Center (43% of inpatient bed days) score relatively low under the CMS Star Rating system, both with a score of "3". Conversely, the hospitals with the lowest proportion of Medicaid business, Sky Ridge Medical Center (13% of inpatient bed days) and Rose Medical Center (25% of inpatient bed days) both received a score of "5" (highest possible score) under the CMS Star Rating system.

The variability in hospital performance across existing quality programs presents a risk in selecting a program to use for the hospital reimbursement floor methodology adjustment. Depending on which measures are used in an adjustment to the floor, a hospital could be rewarded or penalized differently relative to its peers. Furthermore, rewarding based on a particular quality program could produce unintended consequences if not given careful consideration.

Colorado Hospital Transformation Program

In Colorado, a new program called the Colorado Hospital Transformation Program (HTP) was implemented for Colorado Medicaid with a goal of improving hospital quality for Medicaid members. HTP measures are focused in three areas: 1) maternal health and perinatal care; 2) patient safety; and 3) patient experience. More details on the specific measures in each area and the scoring can be found at: https://hcpf.colorado.gov/hospital-quality-incentive-payment-program.

HTP ties hospital payments to quality-based initiatives, with the payment structure transitioning over a five year period. The program began on October 1, 2021, with its first Program Year ending on September 30, 2022.

HTP was designed for a Medicaid population and certain aspects of the program may not be relevant or appropriate for the Colorado Option Program. Given this and given that HTP is still in its early stages of implementation, we recommend further study on its application. At this time, we do not recommend that HTP metrics be used for an adjustment to the floor formula.

We do, however, recommend that the Division collect quality metrics from the hospitals for HTP. The hospitals are already reporting HTP metrics so the added administrative burden to do this reporting is low. By collecting these metrics, the Division can review them and give further consideration to whether an adjustment to the hospital reimbursement floor methodology should be implemented at a future date.

Reliances and Caveats

The following is a list of the data Wakely relied on for the analysis:

- 2023 Final Rule IPPS Impact File
- Hospital Compare data for quality comparisons such as CMS Star Rating and CAHPS scores
- LeapFrog Safety Grade website
- Colorado All Payer Claims Database reports

The following are additional reliances and caveats that could have an impact on results:

- Data Limitations. We did not perform data analysis to determine which hospitals would be winners or losers if an additional adjustment for acuity or quality were to be implemented. Our recommendations are based on publicly available data and on knowledge of acuity and quality adjustments already included in Medicare reimbursement.

- Political Uncertainty. There is significant policy uncertainty. Future federal actions such as changes to Medicare reimbursement and the IPPS/OPPS rules, could change the recommendations enclosed in this report.
- Economic Uncertainty. There remains considerable uncertainty as to the economic conditions in 2023, which could affect hospitals' utilization and financial patterns and could present a reason to revisit the recommendations enclosed in this report.

Disclosures and Limitations

Responsible Actuaries. Emily Janke is the actuary responsible for this communication. She is a Member of the American Academy of Actuaries and Fellow of the Society of Actuaries. She meets the Qualification Standards of the American Academy of Actuaries to issue this report. Julie Steiner contributed significantly to the analysis and report.

Intended Users. This information has been prepared for the sole use of the state of Colorado. Distribution to parties should be made in its entirety and should be evaluated only by qualified users. The parties receiving this report should retain their own actuarial experts in interpreting results.

Risks and Uncertainties. The assumptions and resulting estimates included in this report and produced by the modeling are inherently uncertain. Users of the results should be qualified to use it and understand the results and the inherent uncertainty. Actual results may vary, potentially materially, from our estimates. Wakely does not warrant or guarantee that Colorado or the carriers will attain the estimated values included in the report. It is the responsibility of those receiving this output to review the assumptions carefully and notify Wakely of any potential concerns.

Conflict of Interest. Wakely provides actuarial services to a variety of clients throughout the health industry. Our clients include commercial, Medicare, and Medicaid health plans, the federal government and state governments, medical providers, and other entities that operate in the domestic and international health insurance markets. Wakely has implemented various internal practices to reduce or eliminate conflict of interest risk in serving our various clients. Except as noted here, the responsible actuary is financially independent and free from conflict concerning all matters related to performing the actuarial services underlying this analysis. In addition, Wakely is organizationally and financially independent to the state of Colorado.

Data and Reliance. We have relied on others for data and assumptions used in the assignment. We have reviewed the data for reasonableness but have not performed any independent audit or otherwise verified the accuracy of the data/information. If the underlying information is incomplete or inaccurate, our estimates may be impacted, potentially significantly. The information included in the 'Reliances and Caveats' sections identifies the key data and reliances.

Subsequent Events. Material changes to Medicare IPPS or OPPS rules may have a material impact on the results included in this report. There are no other known relevant events subsequent to the date of information received that would impact the results of this report.

Contents of Actuarial Report. This document constitutes the entirety of actuarial report and supersede any previous communications on the project.

Deviations from ASOPs. Wakely completed the analyses using sound actuarial practice. To the best of our knowledge, the report and methods used in the analyses are in compliance with the appropriate ASOPs with no known deviations.

Appendix A

Case Mix Index[14] by Facility

Facility Name	Admission Volume	Case Mix Index
SAINT JOSEPH HOSPITAL, INC	42,990	1.396
ROSE MEDICAL CENTER	31,908	1.048
SKY RIDGE MEDICAL CENTER	30,200	1.278
GOOD SAMARITAN MEDICAL CENTER, LLC	20,032	1.138
UCH-MHS	16,390	1.287
UNIVERSITY OF COLORADO HOSPITAL AUTHORITY	15,536	2.555
PORTERCARE ADVENTIST HEALTH SYSTEM	14,104	1.086
CENTURA HEALTH - PENROSE ST. FRANCIS HEALTH	11,576	1.347
SWEDISH MEDICAL CENTER	11,352	1.833
PRESBYTERIAN/ST. LUKE'S MEDICAL CENTER	10,500	2.519
CENTURA HEALTH-CASTLE ROCK ADVENTIST HOSPITAL	10,350	1.119
POUDRE VALLEY HEALTH CARE INC.	10,064	1.420
DENVER HEALTH AND HOSPITAL AUTHORITY	8,880	1.146
THE MEDICAL CENTER OF AURORA	6,930	1.305
ST. MARY'S HOSPITAL AND MEDICAL CENTER, INC.	6,924	1.525
NORTH SUBURBAN MEDICAL CENTER	6,420	1.352
MEDICAL CENTER OF THE ROCKIES	5,136	1.230
PARKVIEW MEDICAL CENTER, INC.	5,110	0.900
UCHEALTH HIGHLANDS RANCH HOSPITAL	4,576	0.985
CENTURA HEALTH - PORTER ADVENTIST HOSPITAL	3,496	2.122
BOULDER COMMUNITY HEALTH	3,342	0.904
MERCY REGIONAL MEDICAL CENTER	3,252	1.081
LITTLETON ADVENTIST HOSPITAL	2,598	0.772
LONGS PEAK HOSPITAL	2,136	0.805
UCHEALTH GREELEY HOSPITAL	1,744	0.865
VALLEY VIEW HOSPITAL ASSOCIATION	1,740	0.711

[14] High case mix index (over 1) indicates higher acuity

Facility Name	Admission Volume	Case Mix Index
CHILDREN'S HOSPITAL COLORADO	1,453	1.831
PLATTE VALLEY MEDICAL CENTER	1,280	0.611
CENTURA HEALTH - ST. ANTHONY SUMMIT MEDICAL	1,088	0.669
BANNER HEALTH	1,032	0.772
COMMUNITY HOSPITAL	960	1.013
VAIL HEALTH HOSPITAL	954	1.262
YAMPA VALLEY MEDICAL CENTER	896	0.661
LONGMONT UNITED HOSPITAL	880	0.788
CENTURA HEALTH - ST. ANTHONY HOSPITAL	784	1.660
MONTROSE MEMORIAL HOSPITAL, INC	688	1.009
NORTH COLORADO MEDICAL CENTER	606	1.134
LUTHERAN HOSPITAL ASSOCIATION OF THE SAN LUIS VALLEY	366	0.715
MCKEE MEDICAL CENTER	240	1.019
UCHEALTH GRANDVIEW HOSPITAL	198	1.878
DELTA COUNTY MEMORIAL HOSPITAL	168	1.845
ASPEN VALLEY HOSPITAL DISTRICT	113	0.612
STERLING REGIONAL MEDCENTER	110	0.531
CURAWEST, LLC	106	0.826
ARKANSAS VALLEY REGIONAL MEDICAL CENTER	32	1.394
SALIDA HOSPITAL DISTRICT	30	0.386
WRAY COMMUNITY DISTRICT HOSPITAL	30	0.461
EASTERN RIO BLANCO COUNTY HEALTH SERVICE DISTRICT	30	1.878

Appendix B

Hospital	Location	CMS Star Rating	LeapFrog Safety Grade	CAHPS
ANIMAS SURGICAL HOSPITAL, LLC	DURANGO	Not Available	Not Available	5
ARKANSAS VALLEY REGIONAL MEDICAL CENTER	LA JUNTA	1	Not Available	Not Available
ASPEN VALLEY HOSPITAL	ASPEN	Not Available	Not Available	4
AURORA SOUTH HOSPITAL AND MEDICAL CENTER	AURORA	4	C	3
BANNER FORT COLLINS MEDICAL CENTER	FORT COLLINS	Not Available	B	4
BOULDER COMMUNITY HEALTH	BOULDER	5	B	4
CASTLE ROCK ADVENTIST HOSPITAL	CASTLE ROCK	5	A	4
CEDAR SPRINGS HOSPITAL	COLORADO SPRINGS	Not Available	Not Available	Not Available
CENTENNIAL PEAKS HOSPITAL	LOUISVILLE	Not Available	Not Available	Not Available
CENTURA HEALTH-AVISTA ADVENTIST HOSPITAL	LOUISVILLE	3	A	4
CENTURA HEALTH-PENROSE ST FRANCIS HEALTH SERVICES	COLORADO SPRINGS	5	A	4
CENTURA HEALTH-PORTER ADVENTIST HOSPITAL	DENVER	4	A	4
CENTURA HEALTH-ST ANTHONY HOSPITAL	LAKEWOOD	4	B	4
CENTURA HEALTH-ST ANTHONY NORTH HEALTH CAMPUS	WESTMINSTER	5	A	4
CENTURA HEALTH-ST THOMAS MORE HOSPITAL	CANON CITY	2	Not Available	3
CHILDREN'S HOSPITAL COLORADO	AURORA	Not Available	Not Available	Not Available
CHILDREN'S HOSPITAL COLORADO - COLORADO SPRINGS	COLORADO SPRINGS	Not Available	Not Available	Not Available
COLORADO CANYONS HOSPITAL AND MEDICAL CENTER	FRUITA	Not Available	Not Available	Not Available
COLORADO MENTAL HEALTH INSTITUTE AT FT LOGAN	DENVER	Not Available	Not Available	Not Available
COLORADO MENTAL HEALTH INSTITUTE AT PUEBLO-PSYCH	PUEBLO	Not Available	Not Available	Not Available
COLORADO PLAINS MEDICAL CENTER	FORT MORGAN	4	Not Available	3
COMMUNITY HOSPITAL	GRAND JUNCTION	4	A	4
DELTA COUNTY MEMORIAL HOSPITAL	DELTA	4	C	3
DENVER HEALTH & HOSPITAL AUTHORITY	DENVER	3	B	3
DENVER SPRINGS	ENGLEWOOD	Not Available	Not Available	Not Available
EAST MORGAN COUNTY HOSPITAL	BRUSH	3	Not Available	Not Available

Hospital	Location	CMS Star Rating	LeapFrog Safety Grade	CAHPS
EASTERN RIO BLANCO COUNTY HEALTH SERVICE DISTRICT	MEEKER	Not Available	Not Available	4
ESTES PARK MEDICAL CENTER	ESTES PARK	Not Available	Not Available	Not Available
GOOD SAMARITAN MEDICAL CENTER LLC	LAFAYETTE	4	A	4
GRAND RIVER HOSPITAL DISTRICT	RIFLE	Not Available	Not Available	3
GUNNISON VALLEY HOSPITAL	GUNNISON	Not Available	Not Available	Not Available
HAXTUN HOSPITAL DISTRICT	HAXTUN	Not Available	Not Available	Not Available
HCA-HEALTHONE DBA SWEDISH MEDICAL CENTER	ENGLEWOOD	3	A	4
HEART OF THE ROCKIES REGIONAL MEDICAL CENTER	SALIDA	4	Not Available	4
HIGHLANDS BEHAVIORAL HEALTH SYSTEM	LITTLETON	Not Available	Not Available	Not Available
KEEFE MEMORIAL HOSPITAL	CHEYENNE WELLS	Not Available	Not Available	Not Available
KIT CARSON COUNTY MEMORIAL HOSPITAL	BURLINGTON	Not Available	Not Available	Not Available
LINCOLN HEALTH HOSPITAL	HUGO	Not Available	Not Available	Not Available
LITTLETON ADVENTIST HOSPITAL, CENTURA HEALTH	LITTLETON	4	B	4
LONGMONT UNITED HOSPITAL	LONGMONT	3	A	3
LONGS PEAK HOSPITAL	LONGMONT	5	D	4
LUTHERAN MEDICAL CENTER	WHEAT RIDGE	4	A	4
MCKEE MEDICAL CENTER	LOVELAND	4	A	3
MEDICAL CENTER OF THE ROCKIES	LOVELAND	5	C	4
MELISSA MEMORIAL HOSPITAL	HOLYOKE	Not Available	Not Available	Not Available
MEMORIAL HOSPITAL, THE	CRAIG	Not Available	Not Available	Not Available
MERCY REGIONAL MEDICAL CENTER	DURANGO	5	B	4
MIDDLE PARK MEDICAL CENTER	KREMMLING	Not Available	Not Available	Not Available
MONTROSE REGIONAL HEALTH	MONTROSE	4	B	4
MT SAN RAFAEL HOSPITAL	TRINIDAD	5	Not Available	Not Available
NATIONAL JEWISH HEALTH	DENVER	Not Available	Not Available	Not Available
NORTH COLORADO MEDICAL CENTER	GREELEY	2	A	3
NORTH SUBURBAN MEDICAL CENTER	THORNTON	3	C	2
ORTHOCOLORADO HOSPITAL AT ST ANTHONY MED CAMPUS	LAKEWOOD	Not Available	Not Available	5

Hospital	Location	CMS Star Rating	LeapFrog Safety Grade	CAHPS
PAGOSA SPRINGS MEDICAL CENTER	PAGOSA SPRINGS	Not Available	Not Available	Not Available
PARKER ADVENTIST HOSPITAL	PARKER	4	A	3
PARKVIEW MEDICAL CENTER, INC	PUEBLO	3	D	3
PEAK VIEW BEHAVIORAL HEALTH	COLORADO SPRINGS	Not Available	Not Available	Not Available
PLATTE VALLEY MEDICAL CENTER	BRIGHTON	4	A	3
POUDRE VALLEY HOSPITAL	FORT COLLINS	5	C	4
PRESBYTERIAN ST LUKE'S MEDICAL CENTER	DENVER	3	A	4
PROWERS MEDICAL CENTER	LAMAR	Not Available	Not Available	Not Available
RANGELY DISTRICT HOSPITAL	RANGELY	Not Available	Not Available	Not Available
RIO GRANDE HOSPITAL	DEL NORTE	Not Available	Not Available	4
ROSE MEDICAL CENTER	DENVER	5	A	4
SAINT JOSEPH HOSPITAL	DENVER	5	A	5
SAN LUIS VALLEY HEALTH	ALAMOSA	2	D	2
SAN LUIS VALLEY HEALTH CONEJOS COUNTY HOSPITAL	LA JARA	Not Available	Not Available	Not Available
SEDGWICK COUNTY MEMORIAL HOSPITAL	JULESBURG	Not Available	Not Available	Not Available
SKY RIDGE MEDICAL CENTER	LONE TREE	5	A	3
SOUTHEAST COLORADO HOSPITAL DISTRICT	SPRINGFIELD	Not Available	Not Available	Not Available
SOUTHWEST MEMORIAL HOSPITAL	CORTEZ	3	Not Available	3
SPANISH PEAKS REGIONAL HEALTH CENTER	WALSENBURG	Not Available	Not Available	Not Available
ST ANTHONY SUMMIT MEDICAL CENTER	FRISCO	Not Available	A	5
ST MARY CORWIN MED CTR, CENTURA HEALTH	PUEBLO	4	A	3
ST MARYS MEDICAL CENTER	GRAND JUNCTION	4	A	4
ST VINCENT GENERAL HOSPITAL DISTRICT	LEADVILLE	Not Available	Not Available	Not Available
STERLING REGIONAL MEDCENTER	STERLING	3	Not Available	3
UCHEALTH BROOMFIELD HOSPITAL	BROOMFIELD	Not Available	A	Not Available
UCHEALTH GRANDVIEW HOSPITAL	COLORADO SPRINGS	Not Available	Not Available	4
UCHEALTH GREELEY HOSPITAL	GREELEY	Not Available	B	4
UCHEALTH HIGHLANDS RANCH HOSPITAL	HIGHLANDS RANCH	3	C	4

Hospital	Location	CMS Star Rating	LeapFrog Safety Grade	CAHPS
UCHEALTH PIKES PEAK REGIONAL HOSPITAL	WOODLAND PARK	Not Available	Not Available	4
UCHEALTH YAMPA VALLEY MEDICAL CENTER	STEAMBOAT SPRINGS	5	B	4
UCH-MEMORIAL HEALTH SYSTEM	COLORADO SPRINGS	4	C	4
UNIVERSITY OF COLORADO HOSPITAL AUTHORITY	AURORA	4	D	4
VAIL HEALTH HOSPITAL	VAIL	5	A	4
VALLEY VIEW HOSPITAL ASSOCIATION	GLENWOOD SPRINGS	4	C	4
WEISBROD MEMORIAL COUNTY HOSPITAL	EADS	Not Available	Not Available	Not Available
WEST SPRINGS HOSPITAL, INC	GRAND JUNCTION	Not Available	Not Available	Not Available
WRAY COMMUNITY DISTRICT HOSPITAL	WRAY	Not Available	Not Available	Not Available
YUMA DISTRICT HOSPITAL	YUMA	Not Available	Not Available	Not Available