Appendix B – Transportation Services Methodologies and Data

Executive Summary

The Department contracted with the actuarial firm **Optumas** to provide support in comparing Colorado Medicaid provider rates to those of other payers (a comparable benchmark) and for calculating access to care metrics.

The following service groups were reviewed by **Optumas** for transportation services, as part of the 2021 Medicaid Provider Rate Review Analysis Report:

- Emergency Medical Transportation (EMT)
- Non-Emergent Medical Transportation (NEMT)

The work performed on transportation services comprised three analyses:

1) Data validation
2) Rate comparison benchmark
3) Access to care

The data validation process includes:

- Volume checks over time to determine completeness and reliability of data
- Determination of relevant utilization base and appropriate exclusions
- Incurred but not reported (IBNR) adjustment

The rate comparison benchmark analysis for January 1, 2019 through December 31, 2019 (CY 2019) compares Colorado Medicaid's latest fee schedule estimated reimbursement[1] with the estimated reimbursement of the overall benchmark(s). The rate comparison benchmark analysis for Transportation considers Medicare rates the primary comparator. In cases where Medicare rates were not used for comparison, an average rate from a selected group of other states was used.

All else being equal, if Colorado Medicaid were to reimburse at 100.00% of the overall benchmark, expenditures for CY 2019 would see the estimated total funds impacts summarized in **Table 1**:

Table 1. Colorado as a Percent of the Benchmark and Estimated CY 2019 Fund Impact

Service Group	Colorado Repriced	Benchmark Repriced	Colorado as a Percent of Benchmark	Estimated CY 2019 Total Fund Impact
EMT	$27,486,917	$67,171,134	40.92%	$39,684,217
NEMT	$27,213,979	$72,546,529	37.51%	$45,332,551

The access to care analyses consist of a set of metrics to assist the Department in determining the ease in which members can obtain needed medical services by county classification over time and for the CY

[1] The Colorado Medicaid's estimated reimbursement does not include an adjustment for the transportation administrative brokerage fee

2019 time period. **Table 2** lists the access to care metrics, definitions, and the time period for which the metric was evaluated when available.

Table 2. Access to Care Definitions[2]

Metric	Definition	Time Period
Utilizers	The count of distinct utilizers	July 2017 – Dec 2019, Monthly
Providers	The count of active providers	July 2017 – Dec 2019, Monthly
Utilizers Per Provider (Panel Size)	Panel Size is the ratio of utilizers to active providers, and estimates average Medicaid members seen per provider	July 2017 – Dec 2019, Monthly
Member to Provider Ratio	Expressed as providers per 1,000 members, and allows for comparison across areas with large differences in population size	CY 2019
Utilizer Density Map	Utilizer count by county of residence	CY 2019
Penetration Rate Map	The estimated share of total Medicaid members that received the service by county of residence expressed as per 1,000 members	CY 2019

All metrics are screened for personal health information (PHI).

Data Validation

The Department provided two years and ten months (July 2017 through December 2019) of eligibility data and fee-for-service (FFS) EMT and NEMT claims data to **Optumas**. The data validation process included utilization and dollar volume summaries over time which were validated against the Department's expectations, as well as **Optumas'** expectations based on prior analyses in order to identify potential inconsistencies. In addition, a frequency analysis was performed to examine valid values appearing across all fields contained in the data. Overall, results of this process suggested that the CY 2019 data for EMT and NEMT is reliable.

Next, the data was reviewed to determine the relevant utilization after accounting for applicable exclusions. The exclusion criteria adhere to the general guidelines set forth in the Rate Review Schedule:[3]

- Claims attributed to members that are non-TXIX Medicaid eligible, i.e., Child Health Plan *Plus* (CHP+) program;
- Claims attributed to members with no corresponding eligibility span; and

[2] The access to care analyses for some services also included drive time estimates. Drive time estimates were completed by the Department.

[3] See the Rate Review Schedule on the Department's Medicaid Provider Rate Review Advisory Committee (MPRRAC) website.

- Claims associated with members enrolled in Medicaid and Medicare (dual membership) [4].

Furthermore, for the rate comparison benchmark, the validation process included three additional exclusions:

- Procedure codes that are manually priced, and therefore not comparable;
- Procedure codes that have a public utility commission rate; and
- Procedure codes that do not have a comparable Medicare or other states' average rate
    - EMT Procedure code A0021, outside of the state ambulance services, and
    - NEMT Procedure code A0430 and A0431, wing air transportation

The number of excluded procedure codes for each service group is shown in **Table 3**:

Table 3. Count of Procedure Codes Excluded

Service Group	Manually Priced	Public Utility Commission	No Comparable Rate Available
EMT	0	0	1
NEMT	3	1	2

Services were priced to the Colorado Medicaid fee schedules at the procedure code level. The summary of exclusions from the CY 2019 base data can be found in **Appendix B1**.

CY 2019 claims data was selected as the base data of the repricing analysis because it yields an annualized result derived from the most recent experience. There is an inherent processing lag in claims between the time a claim is incurred when it is billed. Claims rendered in any given month can take weeks or months to be reported in the claims system. The claims data for Year Six services was provided with seven months of claims runout. While the raw claims data reflects the vast majority of FFS experience for Year Six services in CY 2019, a small incurred but not reported (IBNR) adjustment was performed to better estimate an annualized level of utilization after all services rendered have been fully realized. The IBNR utilization completion factors derived from this analysis for each service group can be found in **Appendix B2**.

After the data validations steps, the rate comparison benchmark analysis is performed.

Rate Comparison Benchmark Analysis

The first steps in the rate comparison benchmark analysis were identifying the other payer sources and the repricing validations. Many of the Transportation Year Six services offered by Colorado Medicaid are covered by Medicare. To identify comparable rates, publicly available documentation on reimbursement policy was referenced, and the analysis employed a fee schedule specific to Colorado to produce a more

[4] Medicare Part B covers ground ambulance and emergency airplane or helicopter transportation. In some cases, Medicare may also pay for nonemergency ambulance transportation as well.

valid comparison.[5] Rates were assigned by considering the procedure code present on each claim and included a geographic component. Medicare's base rate which includes a geographic breakout for Urban and Rural areas defined by a zip code crosswalk furnished by CMS is considered in order to compare an appropriate rate.

This left a small portion of the data for which a comparable rate could not be found under the Year Six service categories. The utilization in the base data associated with these non-comparable claims were excluded for the remainder of the rate comparison benchmark analysis. The distribution of procedure codes compared across benchmark sources for each service group is shown in **Table 4**:

Table 4. Count of Codes by Comparison Source

Service Group	Medicare	Other States	No Comparable Rate Available
EMT	9	1	1
NEMT	5	11	2

The range of ratios derived from comparing Health First Colorado rates to those of either Medicare or other states is shown by service group in **Table 5**:

Table 5. Rate Ratio Ranges by Comparison Source

Service Group	Medicare	Other States
EMT	26.92% - 98.50%	99.51%
NEMT	26.92% - 54.10%	36.18% - 134.51%

As an example, the top figures in Table 5 can be interpreted to mean that when comparing EMT services to Medicare rates by procedure code, the Colorado Medicaid rates were anywhere from 26.92% to 98.50% of the Medicare rate. The NEMT service group can be interpreted to mean when comparing NEMT services to other states average at the procedure code level, the Colorado Medicaid rates were anywhere from 36.18% to 134.51% of the other states average rates.

The final step consisted of applying the base utilization to reprice claims at Colorado Medicaid's latest available fee schedule as well as the matched rates from Medicare or other states. This entailed multiplication of utilization and the corresponding rates from each source, followed by subtraction of third-party liability (TPL) and copayments, to calculate the estimated total dollars that would theoretically be reimbursed by each source.

Estimated expenditures were only compared for the subset of Year Six services that are common between Colorado Medicaid and another source. In other words, if no comparable rate could be found

[5] The payment rate comparison is influenced by the choice of fee schedule since Colorado-specific Medicare rates are higher than those derived from unadjusted national relative value units. All Medicare rates and relevant information were effective calendar year 2020.

for a specific service offered in Colorado Medicaid, then the associated utilization and costs were not shown within the comparison results.

In the service-specific payment comparison sections of the narrative that follow, more detailed information can be found on the Medicare and other states portions of the rate comparison benchmark.

EMT Payment Comparison

The rate comparison analysis for Emergency Medical Transportation (EMT) services first assigns the Colorado Medicaid EMT rates effective July 1st, 2020 by procedure code to obtain a Colorado Repriced amount.

The next step assigns Medicare's Ambulance fee schedule to Colorado's base utilization. Medicare provides rates that are carrier specific to Colorado and includes a breakout of urban and rural geographic area defined by zip code. Medicare's Colorado specific urban and rural rates are applied to Colorado's base utilization by procedure code.

For services without a comparable Medicare rate, supplemental rates were drawn from other state Medicaid programs. Alabama, Arkansas, California, Montana, Oklahoma, and Wisconsin are linked to the Colorado Medicaid claims on a procedure code basis and the simple average of all corresponding rates is used.

Overall, there is a matching Medicare rate for over 99% of the base EMT utilization in CY 2019. Other states average Medicaid rate is utilized for one procedure code, A0422 'ambulance 02 life sustaining'. The Benchmark repriced amount is the combination of Medicare and Other States repriced amount combined.

Table 6 summarizes the EMT rate benchmark by the comparison sources.

Table 6. Benchmark Comparison Results by Comparison Source

Comparison Source	Colorado Repriced	Benchmark Repriced	Colorado as a Percent of Benchmark
Other States Average	$133,112	$133,774	99.51%
Medicare	$27,353,805	$67,037,361	40.80%
Total	**$27,486,917**	**$67,171,134**	**40.92%**

Table 7 summarizes the payment comparison and estimated fiscal impact in aggregate.

Table 7. Estimated Fiscal Impact

Colorado as a Percentage of Benchmark	40.92%
Colorado Repriced Amount	$27,486,917
Benchmark Repriced Amount	$67,171,134
Est. CY 2019 Total Fund Impact	**$39,684,217**

Table 7 can be interpreted to mean that for EMT services under review, Colorado Medicaid pays an estimated 59.08% less than the benchmark. Had Colorado Medicaid reimbursed at 100.00% of the benchmark rates in CY 2019, the estimated impact to the Total Fund would be $39,684,214. Detailed comparison results can be found in **Appendix B3**.

NEMT Payment Comparison

The rate comparison analysis for Non-Emergent Medical Transportation (NEMT) services first assigns the Colorado Medicaid NEMT rates effective July 1st, 2020 by procedure code to obtain a Colorado Repriced amount.

The next step assigns Medicare's Ambulance fee schedule to Colorado's base utilization, similar to process done for EMT services. Medicare provides rates that are carrier specific to Colorado and includes a breakout of urban and rural geographic area defined by zip code. Medicare's Colorado specific urban and rural rates are applied to Colorado's base utilization by procedure code.

For services without a comparable Medicare rate, supplemental rates were drawn from other state Medicaid programs. Alabama, Alaska, Arizona, Arkansas, California, Connecticut, Illinois, Montana, Nebraska, New Mexico, North Dakota, Ohio, Oklahoma, and Wisconsin are linked to the Colorado Medicaid claims on a procedure code basis and the simple average of all corresponding rates is used.

Overall, there is a matching Medicare rate for 48.35% of the base NEMT utilization in CY 2019. The Benchmark repriced amount is the combination of Medicare and Other States repriced amount combined.

Table 8 summarizes the NEMT rate benchmark by the comparison sources.

Table 8. Benchmark Comparison Results by Comparison Source

Comparison Source	Colorado Repriced	Benchmark Repriced	Colorado as a Percent of Benchmark
Other States Average	$13,753,641	$24,598,445	55.91%
Medicare	$13,460,337	$47,948,084	28.07%
Total	**$27,213,979**	**$72,546,529**	**37.51%**

Table 9 summarizes the payment comparison and estimated fiscal impact in aggregate.

Table 9. Estimated Fiscal Impact

Colorado as a Percentage of Benchmark	37.51%
Colorado Repriced Amount	$27,213,979
Benchmark Repriced Amount	$72,546,529
Est. CY 2019 Total Fund Impact	**$45,332,551**

Table 9 can be interpreted to mean that for NEMT services under review, Colorado Medicaid pays an estimated 62.49% less than the benchmark. Had Colorado Medicaid reimbursed at 100.00% of the benchmark rates in CY 2019, the estimated impact to the Total Fund would be $45,332,551. Detailed comparison results can be found in **Appendix B4**.

Access to Care

This year, the Department contracted with **Optumas** to analyze access to care metrics for Year Five services. These metrics inform the Department about the ease with which members can access these services and patterns over time. The metrics analyzed included:

1. **Distinct utilizers over time by county classification** showing the monthly number of members that receive a service in each county classification of residence. Utilizers are identified by their unique Member ID;
2. **Active providers over time by county classification** showing the monthly number of providers providing services to members residing in each county classification residence. Providers are identified by their rendering provider Medicaid ID for all service groups except for HH and PDN, for which the billing provider's Medicaid ID was considered the unique provider identifier;
3. **Utilizer per Provider (Panel Size) over time by county classification** estimating the number of utilizers per provider actively servicing members who reside in that county classification;
4. **Member-to-Provider Ratios by county classification in CY 2019** which is useful in normalizing, and eventually standardizing, the supply of active providers relative to total membership in different county classifications;
5. **Utilizer Density by county in CY 2019** showing on a map the geographic distribution and prevalence of members utilizing each service group, and;
6. **Penetration Rates by county in CY 2019** showing on a map the relative share of members utilizing each service group across different counties, normalizing for the total number of Medicaid members residing in each county expressed as per 1,000.

For the definition of each metric, please view Table 2 above. More detailed information including data visualization is included in the main body of the Department's 2021 Medicaid Provider Rate Review Analysis Report (the report).

Data Validation

The access to care analysis applies the following exclusion criteria to the EMT and NEMT July 2017 through December 2019 FFS claims data the Department provided as part of the rate review analysis:

- Claims attributed to members that are non-TXIX Medicaid eligible, i.e. Child Health Plan *Plus* (CHP+) program; and
- Claims attributed to members with no corresponding eligibility span;

No other adjustments are made to the access to care data.

Interpretation of Results

To address access to care for Year Six services, different partitions in the data are analyzed to enhance the value and actionability of the results. There are considerations to be made at different levels of aggregation and data partitioning to accurately interpret what the summarized figures and distinct counts represent. Distinct counts of members and providers, when grouped by different dimensions, will have varying degrees of duplication and may not be directly summed to arrive back at total, undivided distinct utilizer and provider counts. The two main types of data partition are discussed below, along with considerations one should make when accurately interpreting access to care results.

Geographic Partitions

Geographic partitions are arranged in the access metrics because they provide important distinctions when comparing and evaluating access to care for members residing in similar and dissimilar geographic locations. The utilizer and member counts grouped by county and county classification are nonduplicative when analyzed over time on a monthly basis and may be duplicative at the CY 2019 aggregate level. However, the active provider counts grouped by county and county classification maintain potential for duplication even within a single month because these geographic partitions represent the county of residence for the utilizers in the data. For example, if a member resided in both an urban and rural county during the CY 2019 time period, that member would contribute to both the urban CY 2019 total utilizer counts as well as the rural CY 2019 total utilizer counts for the service groups applicable to this member. To the degree that members residing in multiple counties were able to access a single provider within a given month, that provider contributes to the active provider counts for all counties in which that provider's panel resides. Although this duplication does not adversely impact the informational value of the annualized access metrics, it should be considered when interpreting the aggregated results.

The following appendices provide more detailed rate comparison benchmark summaries and results that were introduced and discussed in the narrative.

Appendix B1: Base Data Summary

	EMT	NEMT
CY 2019 Paid Amount	$26,385,307	$53,636,108
Exclusions		
Non-TXIX	$358,628	$26,795
No Eligibility Span	$110,178	$88,533
Dual Eligible	$1,029,217	$19,649,363
Manually Priced	$0	$835,285
Public Utility Commission	$0	$7,766,854
No Comparable Rate	$432	$282
Total Exclusions	$1,498,455	$28,367,111
Repricing Base		
Year Six Base Data	$24,886,852	$25,268,997
Percentage of Raw	94.32%	47.11%

Note: as an example, the EMT final figures in the above table can be interpreted to mean that 94.32% (accounting for $24,886,852 in unadjusted paid dollars) of the CY 2019 data provided by the Department was appropriate for use in the payment rate comparison analysis.

Appendix B2: Utilization IBNR

Service Group	Utilization Factor
EMT	0.9684
NEMT	0.9814

Note: as an example, the first figure in this table can be interpreted as an estimate that the raw utilization data for EMT represents 96.84% of the true total expected for CY 2019 after all claims run-out has been reported in the payment system.

Appendix B3: EMT Rate Ratio Results

These appendices show the rate ratios for all unique combinations of Colorado Medicaid and benchmark comparison rates found in the rate comparison benchmark analysis at a procedure code level. Procedure codes are duplicated to the extent that Medicare's geographic rate break-out of urban and rural rates are applied.

The services analyzed in the EMT rate comparison benchmark analysis is repriced using methodology that incorporates the following data elements:

- Procedure Code
- Zip Code

Procedure Code	Procedure Description	Benchmark Source	Colorado Rate	Benchmark Rate	Rate Ratio
A0422	AMBULANCE 02 LIFE SUSTAINING	Other States Average	$14.09	$14.16	99.51%
A0425	GROUND MILEAGE	Medicare Urban Rate	$2.07	$7.62	27.17%
A0425	GROUND MILEAGE	Medicare Rural Rate	$2.07	$7.69	26.92%
A0427	ALS1-EMERGENCY	Medicare Urban Rate	$197.81	$459.96	43.01%
A0427	ALS1-EMERGENCY	Medicare Rural Rate	$197.81	$464.47	42.59%
A0429	BLS-EMERGENCY	Medicare Urban Rate	$135.31	$387.34	34.93%
A0429	BLS-EMERGENCY	Medicare Rural Rate	$135.31	$391.13	34.59%
A0430	FIXED WING AIR TRANSPORT	Medicare Urban Rate	$3,151.79	$3,199.85	98.50%
A0430	FIXED WING AIR TRANSPORT	Medicare Rural Rate	$3,151.79	$4,799.78	65.67%
A0431	ROTARY WING AIR TRANSPORT	Medicare Urban Rate	$2,790.43	$3,720.31	75.01%
A0431	ROTARY WING AIR TRANSPORT	Medicare Rural Rate	$2,790.43	$5,580.46	50.00%
A0433	ALS 2	Medicare Urban Rate	$216.97	$665.74	32.59%
A0433	ALS 2	Medicare Rural Rate	$216.97	$672.26	32.27%
A0434	SPECIALTY CARE TRANSPORT	Medicare Urban Rate	$232.44	$786.78	29.54%
A0434	SPECIALTY CARE TRANSPORT	Medicare Rural Rate	$232.44	$794.49	29.26%
A0435	FIXED WING AIR MILEAGE	Medicare Urban Rate	$7.54	$8.93	84.43%
A0435	FIXED WING AIR MILEAGE	Medicare Rural Rate	$7.54	$13.40	56.27%

A0436	ROTARY WING AIR MILEAGE	Medicare Urban Rate	$10.15	$23.83	42.59%
A0436	ROTARY WING AIR MILEAGE	Medicare Rural Rate	$10.15	$35.75	28.39%

Appendix B4: NEMT Rate Ratio Results

These appendices show the rate ratios for all unique combinations of Colorado Medicaid and benchmark comparison rates found in the rate comparison benchmark analysis at a procedure code level. Procedure codes are duplicated to the extent that Medicare's geographic rate break-out of urban and rural rates are applied.

The services analyzed in the NEMT rate comparison benchmark analysis is repriced using methodology that incorporates the following data elements:

- Procedure Code
- Zip Code

Procedure Code	Procedure Description	Benchmark Source	Colorado Rate	Benchmark Rate	Rate Ratio
A0080	NONINTEREST ESCORT IN NON ER	Other States Average	$0.44	$0.51	87.13%
A0090	INTEREST ESCORT IN NON ER	Other States Average	$0.44	$0.42	105.60%
A0120	NONER TRANSPORT MINI-BUS	Other States Average	$17.91	$49.51	36.18%
A0130	NONER TRANSPORT WHEELCH VAN	Other States Average	$31.72	$23.58	134.51%
A0180	NONER TRANSPORT LODGNG RECIP	Other States Average	$93.06	$79.81	116.61%
A0190	NONER TRANSPORT MEALS RECIP	Other States Average	$40.84	$32.39	126.11%
A0200	NONER TRANSPORT LODGNG ESCRT	Other States Average	$93.06	$79.81	116.61%
A0210	NONER TRANSPORT MEALS ESCORT	Other States Average	$40.84	$36.00	113.44%
A0422	AMBULANCE 02 LIFE SUSTAINING	Other States Average	$14.09	$14.16	99.51%
A0425	GROUND MILEAGE	Medicare Urban Rate	$2.07	$7.62	27.17%
A0425	GROUND MILEAGE	Medicare Rural Rate	$2.07	$7.69	26.92%
A0426	ALS 1	Medicare Urban Rate	$146.84	$290.50	50.55%
A0426	ALS 1	Medicare Rural Rate	$146.84	$293.35	50.06%
A0428	BLS	Medicare Urban Rate	$130.97	$242.09	54.10%
A0428	BLS	Medicare Rural Rate	$130.97	$244.46	53.58%
A0433	ALS 2	Medicare Urban Rate	$216.97	$665.74	32.59%
A0433	ALS 2	Medicare Rural Rate	$216.97	$672.26	32.27%

A0434	SPECIALTY CARE TRANSPORT	Medicare Urban Rate	$232.44	$786.78	29.54%
A0434	SPECIALTY CARE TRANSPORT	Medicare Rural Rate	$232.44	$794.49	29.26%
S0209	WC VAN MILEAGE PER MI	Other States Average	$1.05	$1.64	64.22%
T2005	N-ET; STRETCHER VAN	Other States Average	$45.91	$53.88	85.21%