MTAC Medical Transportation Access Coalition

# Understanding the Role of Non-Emergency Medical Transportation for Medicaid Beneficiaries by Race and Ethnicity

## Executive Summary

In this study, the Medical Transportation Access Coalition (MTAC), staffed by Faegre Drinker Consulting, partnered with the National Opinion Research Center (NORC) to examine 2019 data on non-emergency medical transportation (NEMT) use by race and ethnicity and several other enrollee characteristics from the Transformed Statistical Information System (T-MSIS) Analytic File (TAF).

Our study builds off the findings and recommendations of CMS, MACPAC, and others to provide further information on how beneficiaries of different races and ethnicities use NEMT. Documenting and reporting such differences are important first steps in understanding disparities in access to NEMT, identifying opportunities to expand access to NEMT, and ultimately informing policy solutions to address inequities in access to care.

Our study includes data from 32 states and territories (including the District of Columbia) with sufficient data quality as determined by a series of 25 data quality checks, detailed below. These states include the 10 largest states by share of the total Medicaid population. Our key findings included the following:

- Consistent with previous studies, we found that NEMT use was concentrated among a small group of enrollees. We identified about 66 million unique Medicaid and CHIP enrollees, 3.2 million of whom (4.6%) had at least one ride-day.
- Consistent with other studies, we found that NEMT use was higher (in terms of rate of use and frequency of use) among groups that tend to have higher, more complex health needs and a more frequent need for medical care. These include enrollees eligible on the basis of age, disability, and those dually eligible for Medicare and Medicaid, as well as enrollees with certain chronic conditions.
- Across racial and ethnic groups, the enrollee characteristic that drove the most NEMT use was end-stage renal disease (ESRD). Of enrollees in our analysis with ESRD, over half (51%) had at least one ride-day. This rate ranged from 40% among multiracial enrollees to 63% among American Indian and Alaska Native (AIAN) enrollees.
- For all 32 states and territories included in our analysis, we found that, overall, AIAN enrollees used NEMT at the highest rates, meaning that the share of AIAN enrollees who had at least one ride-day was higher than in other racial and ethnic groups. Black enrollees had the next-highest rate, followed by White enrollees. Asian, Hawaiian/Pacific Islander, Multiracial, and Hispanic enrollees had the lowest rates.
- NEMT use was not distributed across racial and ethnic groups equally, or in proportion to their enrollment – that is, certain racial and ethnic groups made up a higher share of NEMT riders and ride-days than they did enrollees, while others made up a lower share. This indicates that NEMT is not serving beneficiaries of different races and ethnicities equally and may suggest a need for focused education about NEMT to certain groups.

- In groups where NEMT use was concentrated among a small number of enrollees, NEMT use tended to be more frequent among those riders, than in less-concentrated groups. For example, Asian enrollees had one of the lowest rates of enrollees with at least one NEMT ride, but those who did use NEMT did so more frequency than riders in other groups.
- There was wide variation by state in how beneficiaries of different racial and ethnic groups used NEMT, and we did not find discernable patterns in NEMT use by race and ethnicity across states and territories. There was also wide variation across different subgroups.
- In general, the extent to which NEMT served enrollees of each racial group in proportion to their enrollment share was greater for groups with higher, more complex health needs. In other words, in high-need groups each racial and ethnic group used a more proportionate share of NEMT (both in terms of riders and ride-days), than in groups with lower needs. This suggests that as NEMT use becomes less concentrated (meaning more enrollees in the group are using NEMT), NEMT reaches a greater swath of the population, which in turn, results in a ridership that more closely reflects the population.
- NEMT stood out as particularly important for enrollees of certain racial and ethnic groups belonging to certain subgroups. For example, Hispanic enrollees with OUD used NEMT at a high rate compared to other Hispanic subgroups, as did Asian dually eligible enrollees compared to most other Asian subgroups.
- Across all racial and ethnic groups, NEMT played an extremely important role for people with high health needs and our selected chronic conditions. Future analyses using data from 2020 and later should examine how these patterns shift, and for which racial and ethnic groups, following the onset of the COVID-19 Pandemic and the rapid expansion of telehealth.

These findings shed further light – more than any other study to date – on how NEMT serves beneficiaries by race and ethnicity, and NEMT serves beneficiaries of different races and ethnicities but who have similar health needs or share other characteristics. They add further support to the already strong body of evidence showing the important role NEMT plays for a diverse population of enrollees, and the particularly important role it plays for certain groups.

Our findings raise several other important considerations. While examining data for 32 states and territories provides an important high-level look at NEMT use, it is important to use caution when interpreting data from the full analyses. Given the variation across states and beneficiary subgroups, it is important to examine individual state and beneficiary subgroups in conducting research into access to, and unmet need for, NEMT. The lack of quality data for remaining states is an additional barrier to further research: as CMS and others have pointed out, a crucial step in further research into NEMT use by beneficiaries of different races and ethnicities is improving collection and reporting of race and ethnicity data, particularly for vulnerable groups.

Finally, while our findings tell us important information on how beneficiaries use NEMT, they do not provide information on unmet need for services or other measures that might reflect the extent to which NEMT helps beneficiaries overcome access barriers. Future studies should focus on these questions and should be designed to inform policy discussions and decision making around ways to facilitate access to care for all Medicaid enrollees, reduce racial and ethnic disparities in access to care and health care outcomes, and ultimately improve health equity.

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## Introduction

Federal law requires state Medicaid programs to cover non-emergency medical transportation (NEMT) as a mandatory benefit. This requirement, referred to as Medicaid's assurance of transportation, has long been embedded in the Medicaid program. It was created to help Medicaid beneficiaries access medically needed services – a critical objective to the Medicaid program.[1] Although the requirement to provide transportation was specified in federal guidance and regulation as early as the late-1960s, it was not specified in the federal Medicaid statute until December 2020 with the enaction of the Consolidated Appropriations Act, 2021.

At the core of NEMT is its role as an access-to-care enabler for Medicaid beneficiaries. Medicaid beneficiaries, who represent some of the nation's most vulnerable populations, experience numerous challenges that can affect their ability to access needed health care services. In its 2021 report to Congress on NEMT, the Medicaid and CHIP Payment and Access Commission (MACPAC) found that nearly 2.5 million Medicaid beneficiaries reported delaying care due to a lack of transportation. Several studies have documented that certain racial and ethnic groups are more likely to experience transportation-related barriers to care in particular.[2,3,4,5] For example, MACPAC found that Black Medicaid beneficiaries were significantly more likely to report delaying care due to transportation than White beneficiaries.[6]

NEMT's role in helping beneficiaries overcome their transportation barriers is well established through published studies and through the experiences of beneficiaries and program administrators.[7,8] Given this evidence, it stands to reason that, if members of different racial and ethnic communities had sufficient access to NEMT, they would experience fewer transportation-related barriers to care, lessening disparities in access to care, and improving their overall health status. However, to date, there are no such studies examining NEMT's role in overcoming racial and ethnic disparities in access to care specifically; nor are there studies examining whether racial and ethnic disparities exist in access to NEMT itself.

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[1] Rosenbaum, S., Lopez, N., Morris, M. J., & Simon, M. (2009). *Medicaid's medical transportation assurance: Origins, evolution, current trends, and implications for health reform*. Washington, D.C.: Department of Health Policy, School of Public Health and Health Services, The George Washington University.

[2] Syed, S.T., Gerber, B.S. & Sharp, L.K. (2014). Traveling towards disease: Transportation barriers to health care access. *Journal of Community Health*, 38*(5):* 976–993. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4265215/#R56.

[3] Guidry, J.J., Aday, L.A., Zhang, D. & Winn, R.J. (1997). Transportation as a barrier to cancer treatment. *Cancer Practice*, 5(6): 361–366. https://pubmed.ncbi.nlm.nih.gov/9397704/.

[4] Wallace, R., Hughes-Cromwick, P., Mull, H., & Khasnabis S. (2005). Access to health care and nonemergency medical transportation: Two missing links. *Transportation Research Record*, 1924(1): 76–84. https://journals.sagepub.com/doi/10.1177/0361198105192400110.

[5] Call, K.T., McAlpine, D.D., Johnson, P.J., et al. (2006). Barriers to care among American Indians in public health care programs. *Medical Care*, 44(6): 595–600. https://journals.sagepub.com/doi/10.1177/0361198105192400110. [? Link does not open directly]

[6] Medicaid and CHIP Payment and Access Commission (MACPAC). (2021). *Mandated report on non- emergency medical transportation.* Washington, DC: MACPAC. https://www.macpac.gov/wp-content/uploads/2021/06/Chapter-5-Mandated-Report-on-Non-Emergency-Medical-Transportation.pdf.

[7] For example, a survey of NEMT users conducted by MTAC in 2018 found that over half (58%) reported that they would be unable to access any of their treatments without NEMT and an additional twenty percent (20%) said they would access fewer services. *See* Adelberg, M., et al. (2018). *Non-emergency medical transportation: Findings from a return on investment study.* Washington, DC: Medical Transportation Access Coalition. https://mtaccoalition.org/wp-content/uploads/2018/07/NEMT-ROI-Methodology-Paper.pdf.

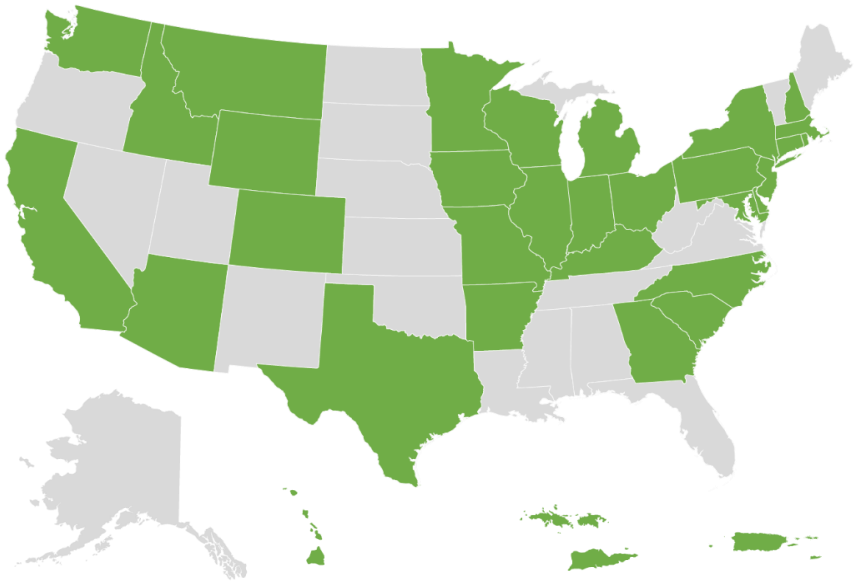
[8] In its 2021 report on NEMT, MACPAC found that while less than 5% of Medicaid beneficiaries used NEMT, "for beneficiaries who do use NEMT, it plays a vital role in facilitating access to care." See MACPAC 2021.

In fact, few studies have attempted to study, at a basic level, whether there are differences in NEMT use among beneficiaries of different races and ethnicities. MACPAC and others have called for additional study into these issues.[9] A recent study by the Centers for Medicare and Medicaid Services (CMS) was the first to take on such analysis, which was included in a report to Congress required by the Consolidated Appropriations Act, 2021.[10] CMS provided information on NEMT use by race and ethnicity for 32 states and territories (including the District of Columbia) with sufficient data quality for 2018 – 2020, but cited the need for additional research to determine whether there are disparities in access to NEMT across subgroups; for example, among subgroups with different characteristics (e.g., race or ethnicity) but similar health care needs (e.g., the same chronic conditions).[11]

## Study Approach

As noted above, MTAC partnered with NORC at the University of Chicago to analyze calendar year (CY) 2019 data from the TAF. We included in our study 32 states and territories which had sufficient data quality based on a series of 25 data quality checks (Figure 1). For example, given the primacy of race and ethnicity in our analysis, we conducted a series of tests to ensure that the presence and validity of various data elements (e.g., age, dual eligibility) was not correlated with race and ethnicity. Only states where the missingness of these data elements were largely uncorrelated with the enrollee's race and ethnicity were included. A detailed discussion of our methodology is included in Appendix 1.

**Figure 1. States and Territories Included in Our Analysis**



[9] MACPAC noted that "More data and research are needed to understand whether there are racial and ethnic disparities in access to and use of NEMT." *See* MACPAC 2021.

[10] Specifically, Section 209(b)(5) directed the U.S. Department of Health and Human Services, through CMS, to "conduct an analysis of, and submit to Congress a report on, the nationwide Transformed Medicaid Statistical Information System (T-MSIS) data set, identifying recommendations relating to Medicaid coverage of NEMT to medically necessary services."

[11] Centers for Medicare & Medicaid Services (CMS). (2022). Report to congress: Non-emergency medical transportation in Medicaid, 2018 – 2022. N.p.

**Note:** 29 states, the District of Columbia, and two territories: Puerto Rico and the U.S. Virgin Islands, are included in our analysis. We included states and territories that passed a series of 25 data quality checks detailed in Appendix 1.

We provide summary information about NEMT use during 2019, broken down by various enrollee characteristics, including but not limited to race and ethnicity. We include information for full-benefit Medicaid and CHIP enrollees who were enrolled in full-benefit or comprehensive benefits for at least one day during the year.[12]

To quantify NEMT utilization, we determined the number of days in which each of a defined list of Healthcare Common Procedural Coding System (HCPCS) and state-specific codes related to nonemergency transportation were used. Like previous studies of NEMT using TAF data, we express NEMT utilization in terms of NEMT ride-days, which reflects the number of days on which a beneficiary had an NEMT ride. This approach corrects for variation in state billing practices, but underrepresents utilization.[13] For this reason, and because T-MSIS likely does not capture all NEMT provided to beneficiaries, our estimates should be interpreted as a floor.[14]

There are other important limitations to our study, which primarily stem from data limitations related to the TAF data. While CMS and states have increased their efforts to collect and report race and ethnicity data, doing so remains optional. There are known challenges associated with collection and reporting of these data, which include the fact that race and ethnicity data must be reported to T-MSIS in specific categories which may not reflect how beneficiaries identify their race and/or ethnicity or align with racial and ethnic categories that are provided as options at the state level. For example, beneficiaries are not recorded within the TAF's race and ethnicity variable as being both Black and Hispanic. Instead, a beneficiary who reports being Black and Hispanic would be recorded as Hispanic.[15,16] Other challenges include reluctance to self-report due to concerns about privacy and potential for discrimination, and more.[17,18] These challenges are reflected in material rates of missing race and ethnicity records in several of our analyses.

Finally, it is important to note that T-MSIS captures information on the services that beneficiaries receive and does not provide information on unmet need for services or other measures that might reflect the extent to which NEMT helps beneficiaries overcome access barriers. Our study is not intended to shed light on these questions, but rather, to document the extent to which NEMT is used by beneficiaries of different racial and ethnic groups as a means of informing future work.

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[12] Specifically, we include data from months in which an enrollee had full benefits. If an enrollee had full benefits for one month in the year, we only examined NEMT utilization from that one month.

[13] For example, if a beneficiary took two NEMT rides on the same day (as part of a round trip), that would be counted in our analysis as one day rather than two individual rides.

[14] T-MSIS is designed to capture medical service expenditures and does not capture all NEMT that is treated as an administrative expenditure.

[15] This can cause transmittal issues. For example, if a state, on their own eligibility and enrollment forms, provides more racial and ethnic categories or asks the beneficiary to report their race and their ethnicity separately (e.g., Black and Hispanic), beneficiaries could ultimately be miscategorized in the TAF race and ethnicity variable.

[16] CMS Research Data Assistance Center. Race and Ethnicity Constructed Code – Latest in Year. https://resdac.org/cms-data/variables/race-and-ethnicity-constructed-code-latest-year.

[17] Medicaid and CHIP Payment and Access Commission (MACPAC). (2022). *Medicaid's role in advancing health equity.* Washington, DC: MACPAC. https://www.macpac.gov/publication/medicaids-role-in-advancing-health-equity/.

[18] Saunders, H., & Chidambaram, P. (2022). *Medicaid administrative data: Challenges with race, ethnicity, and other demographic variables.* Washington, DC: Kaiser Family Foundation. https://www.kff.org/medicaid/issue-brief/medicaid-administrative-data-challenges-with-race-ethnicity-and-other-demographic-variables/.

For detailed information on our methodology and the limitations of our analysis, see Appendix 1.

## Study Findings

### NEMT Utilization at a Glance

For all 32 states and territories included in our analysis, we identified over 66 million unique NEMT ride-days. We identified about 66 million unique Medicaid and CHIP enrollees, 3.2 million of whom (4.6%) had at least one ride-day for an average of 1.2 ride-days per full-year-equivalent enrollee (FYE). However, enrollees with at least one ride-day (NEMT riders) used NEMT for an average of 20.6 ride-days. This concentration of NEMT use among a small number of enrollees is a consistent theme across our analyses.

### State Variation

NEMT use varied widely across states. For example, of the 32 states and territories in our analysis:

- Alaska had the highest rate of enrollees with at least one ride-day (13.6%); while Maryland had the lowest (0.9%)
- Washington state had the highest number of ride-days per rider (54.57); while Wyoming had the lowest (4.55)
- Massachusetts had the highest number of ride-days per FYE (4.66); Maryland had the lowest (0.05).[19]

State-level details on NEMT use can be found in Appendix Table 2.1.

This variation may reflect a variety of factors, such as geographic characteristics, variation in patterns of care within the state, or variation in the extent to which a state promotes the availability of NEMT to Medicaid beneficiaries.[20] This last cause of variation may be of particular importance for addressing health equity. In its 2021 report to Congress on NEMT, MACPAC documented low awareness of the Medicaid NEMT benefit among Medicaid enrollees in general. If the state or others within the state (such as providers or community organizations) are actively promoting the availability of NEMT, it may result in noticeably higher rates of NEMT use.

### Beneficiary Characteristics

NEMT use also varied based on different beneficiary characteristics. Our analysis revealed similar findings as previous studies (Table 1). For example:

- Beneficiaries over age 65 used NEMT at higher rates and with greater frequently than other groups. Children under 18, as well as 19–20-year-olds, used NEMT at lower rates and with lesser frequency than other age groups.

[19] Maryland's low number of NEMT ride-days may be a result of Maryland reporting much of its NEMT expenditures as administrative expenditures (rather than through claims or encounters). T-MSIS is not designed to capture administrative spending.

[20] State variation may also reflect data quality issues. For example, Maryland reported a low number of claims and encounters that were identified by our algorithm as NEMT rides, which may indicate that either T-MSIS or our algorithm is not sufficiently capturing Maryland's NEMT use. See Appendix 1 for further information on methodology.

- Enrollees eligible on the basis of age or disability used NEMT at significantly higher rates than other groups. They also used NEMT more frequently, both in terms of ride-days per FYE and ride-days per rider.
- Enrollees dually eligible for Medicaid and Medicare benefits used NEMT at significantly higher rates and with significantly greater frequency than those who are only eligible for Medicaid.
- Fewer male than female enrollees use NEMT, but when they did use NEMT, they did so more frequently.
- Fewer urban than rural enrollees use NEMT, but when they did use NEMT, they did so more frequently.

Several of these findings are expected. Greater and more frequent use of NEMT by enrollees eligible on the basis of age or disability, those over age 65 and those dually eligible for Medicare and Medicaid likely reflects their higher and more frequent need for medical care. Similarly, groups with health care needs that are, on average, lower and less frequent such as children and the ACA's new adult group, used NEMT at lower rates and frequency. Other trends are less clear; for example, it is not clear why female enrollees used NEMT at higher rates than male enrollees.

**TABLE 1. NEMT Utilization at a Glance**

| Enrollee Characteristic | Total Ride-Days | Total Riders | Riders as a Share of Enrollees | Ride-Days per FYE | Ride-Days per Rider |
|---|---|---|---|---|---|
| **All Enrollees** | **66,000,602** | **3,209,622** | **4.6%** | **1.19** | **20.56** |
| **Age** | | | | | |
| <=18 | 9,510,164 | 597,101 | 1.9% | 0.35 | 15.93 |
| 19-20 | 775,921 | 46,616 | 2.2% | 0.48 | 16.64 |
| 21-40 | 13,188,528 | 569,903 | 3.8% | 1.11 | 23.14 |
| 41-64 | 24,737,834 | 1,098,584 | 9.3% | 2.47 | 22.52 |
| >=65 | 17,773,370 | 841,964 | 16.1% | 3.89 | 21.11 |
| Missing Age | 30 | 19 | 0.0% | 0.00 | 1.58 |
| **Sex** | | | | | |
| Female | 34,953,204 | 1,785,587 | 5.1% | 1.17 | 19.58 |
| Male | 31,032,305 | 1,368,197 | 4.5% | 1.21 | 22.68 |
| Missing sex | 338 | 42 | 0.1% | 0.01 | 8.05 |
| **Rurality** | | | | | |
| Rural | 9,039,822 | 554,336 | 5.7% | 1.08 | 16.31 |
| Urban | 56,488,475 | 2,575,360 | 4.7% | 1.21 | 21.93 |
| Unknown Rurality | 457,550 | 24,099 | 3.5% | 1.07 | 18.99 |

| Enrollee Characteristic | Total Ride-Days | Total Riders | Riders as a Share of Enrollees | Ride-Days per FYE | Ride-Days per Rider |
|---|---|---|---|---|---|
| **Basis of Eligibility** | | | | | |
| Aged | 17,545,001 | 828,610 | 16.4% | 3.98 | 21.17 |
| Children | 4,242,177 | 454,031 | 1.6% | 0.18 | 9.34 |
| Disabled | 33,730,111 | 1,121,846 | 16.2% | 5.48 | 30.07 |
| New Adult Group | 6,750,292 | 509,896 | 3.2% | 0.58 | 13.24 |
| Other Adults | 3,493,597 | 272,386 | 3.0% | 0.53 | 12.83 |
| Other | 209,914 | 17,387 | 0.4% | 0.07 | 12.07 |
| Missing | 14,755 | 2,733 | 1.3% | 0.16 | 5.40 |
| Total | 65,985,847 | 3,206,889 | 4.6% | 1.19 | 20.58 |
| **Dually Eligible Status** | | | | | |
| Dually Eligible | 32,913,313 | 1,284,301 | 16.9% | 4.99 | 25.63 |
| Not Dually Eligible | 32,999,790 | 1,889,045 | 3.3% | 0.68 | 17.47 |
| Missing or Unknown Dually Eligible Status | 72,744 | 3,101 | 0.3% | 0.10 | 23.46 |

**Notes:** FYE is full-year-equivalent enrollee. Dually eligible group includes full-benefit Medicaid beneficiaries who are also eligible for Medicare. Includes data for 32 states and territories including the District of Columbia.
**Source:** NORC and MTAC analysis of 2019 Transformed Medicaid Statistical Information System (T-MSIS) Analytic File (TAF) Data.

## NEMT Use by Race and Ethnicity

Our analysis looked at NEMT utilization across seven racial and ethnic groups: White, non-Hispanic; Black, non-Hispanic; Asian, non-Hispanic; American Indian/Alaska Native (AIAN), non-Hispanic; Hawaiian/Pacific Islander, non-Hispanic; multiracial, non-Hispanic; and Hispanic (all races).[21] An eighth group reflects data for enrollees for whom race and ethnicity information is missing.

NEMT use varied significantly across these different racial and ethnic groups (Table 2). For all states and territories in our analysis:

- **AIAN beneficiaries used NEMT at a much higher rate than other groups:** 13% of AIAN enrollees had at least one NEMT-ride day, almost three-times the rate for all enrollees in our analysis (about 5%). They also used NEMT more frequently, averaging 2.7 ride-days per FYE, more than double the number for all enrollees (1.2). However, AIAN riders used NEMT less frequently than the overall population of riders: AIAN riders averaged 17.6 ride-days per rider, compared to 20.9 for all riders. This reflects the fact that NEMT use is more common – and therefore less concentrated – within the AIAN population than it is for other groups. It is important to note that this high rate of NEMT use appears to be driven by

[21] States, counties, and Medicaid managed care organizations may offer more race and ethnicity categories on their forms or questionnaires or allow enrollees to choose more than one category when collecting this information.

exceptionally high rates of NEMT use in two states: Alaska and Arizona (discussed further below).

- **Black and White enrollees also used NEMT at higher rates than the overall population:** 6.5% of Black enrollees and 5.5% of White enrollees had at least one ride-day. However, as was the case in the AIAN group, Black and White NEMT riders each used NEMT less frequently than the overall population of riders (18 ride-days per Black rider and 19.7 per White rider, compared to 20.9 per rider overall).
- **Asian and Multiracial enrollees used NEMT at similarly low rates, but Asian NEMT riders used NEMT much more frequently:** In both groups, about 3% of enrollees had at least one ride-day. However, the number of ride-days per rider was 32.7 for Asian riders, compared to just 14.7 for Multiracial riders.
- **Hawaiian/Pacific Islander and Hispanic enrollees used NEMT at lower rates than other groups, but riders in each group used NEMT more frequently:** In each group, just 2.9 and 2.6% of enrollees, respectively, had at least one ride-day. NEMT riders from these groups used NEMT more frequently than the overall population (23.3 ride-days per Hawaiian/Pacific Islander rider and 23.7 ride-days per Hispanic rider).

**TABLE 2. NEMT by Race and Ethnicity**

| Race/Ethnicity | NEMT Ride-Days | Total Riders | Riders as a Share of Enrollees | Ride-Days Per FYE | Ride-Days Per Rider |
|---|---|---|---|---|---|
| Total | 65,985,847 | 3,154,194 | 4.81% | 1.19 | 20.92 |
| White, non-Hispanic | 25,652,347 | 1,305,442 | 5.50% | 1.27 | 19.65 |
| Black, non-Hispanic | 13,753,513 | 762,478 | 6.48% | 1.36 | 18.04 |
| Asian, non-Hispanic | 3,395,299 | 103,716 | 3.32% | 1.26 | 32.74 |
| American Indian and Alaska Native (AIAN), non-Hispanic | 1,692,493 | 96,027 | 13.30% | 2.73 | 17.63 |
| Hawaiian/Pacific Islander | 298,824 | 12,804 | 2.87% | 0.80 | 23.34 |
| Multiracial, non-Hispanic | 74,725 | 5,100 | 2.98% | 0.51 | 14.65 |
| Hispanic, all races | 9,047,057 | 382,017 | 2.63% | 0.71 | 23.68 |
| Missing | 12,071,589 | 486,610 | 4.39% | 1.37 | 24.81 |

**Notes:** Reflects data from 32 states and territories including the District of Columbia. For all states and territories included and other methodology information, see Appendix 1. FYE is a full-year equivalent enrollee. Race and ethnicity are self-reported by the beneficiary.
**Source:** NORC and MTAC analysis of 2019 T-MSIS data.

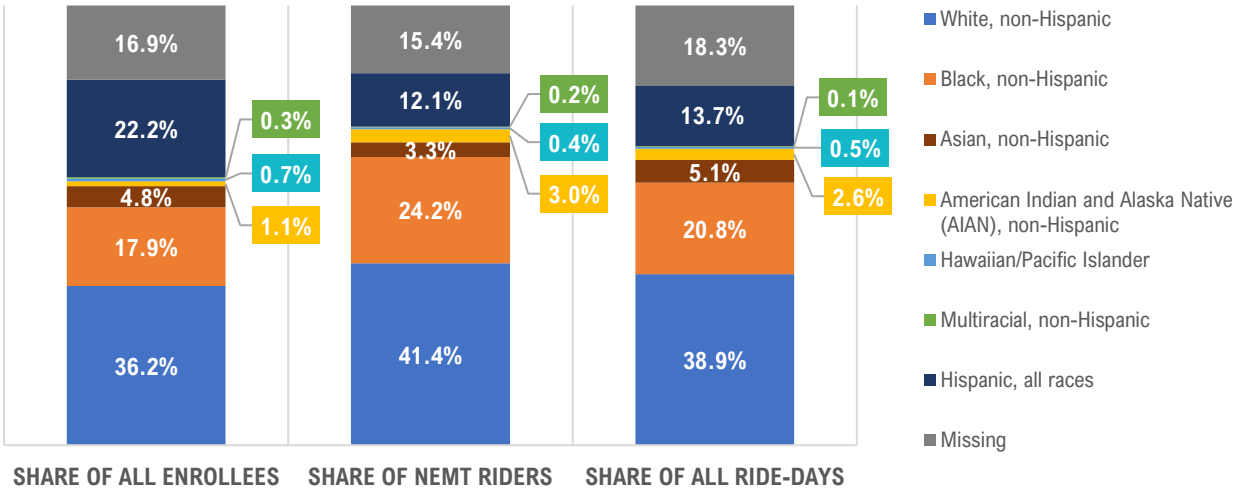
## NEMT Use in Proportion to Enrollment Share

In order to help understand the extent to which NEMT is used across racial and ethnic groups, we examined each group's NEMT use in proportion to its share of enrollment. Our data show that NEMT use for each racial and ethnic group was disproportionate to their share of enrollment

– that is, certain racial and ethnic groups made up a higher share of NEMT riders and ride-days than they did enrollees, while others made up a lower share. This indicates that NEMT does not serve beneficiaries of different racial and ethnic groups equally. If it did, we would expect each group's share of NEMT riders and ride-days to be more closely aligned with the share of enrollment they represent. Specifically,

- White and Black enrollees used NEMT disproportionately, both in terms of their share of riders and, to a lesser degree, of ride-days. White enrollees made up 36% of enrollees in our analysis, but 41% of riders and 39% of ride-days; and Black enrollees made up 18% of enrollees, but 24% of riders and 21% of ride-days.
- AIAN enrollees also used NEMT disproportionately: they made up just over 1% of enrollees; but nearly 3% of riders and ride-days – this reflects a very high rate of NEMT use among this population (see above).
- Hispanic enrollees made up a disproportionately low share of riders and ride-days: they made up 22% of enrollment, but only 12% of riders and 14% of ride-days. It is important to note that result appears to be driven by a very low rate of NEMT use in California, where nearly half (45%) of Hispanic enrollees in our analysis live (see below). It may also be driven by differences in how states collect data on ethnicity and transmit that information to T-MSIS.[22]
- Asian enrollees made up a nearly proportionate share of ride-days and enrollment (about 5% of each), but a lower share of riders (3%), reflecting a low rate of NEMT use among the Asian population, but very high frequency of NEMT use among the small share of Asian enrollees who did use NEMT.
- NEMT use was more proportionate for Multiracial and Hawaiian/Pacific Islander enrollees.

**FIGURE 2 – Share of Enrollment Compared to Share of NEMT Use, All Enrollees**




[22] We do not have data to support that these differences are correlated with NEMT utilization. However, if they are, it could be influencing our results.

**Notes:** NEMT riders are enrollees with at least one ride-day. Race and ethnicity are self-reported by the beneficiary. Reflects data for 32 states and territories including the District of Columbia. For all states and territories included and other methodology information, see Appendix 1.
**Source:** NORC and MTAC analysis of 2019 Transformed Medicaid Statistical Information System (T-MSIS) Analytic File (TAF) Data.

### State Variation in NEMT Use by Race and Ethnicity

It is important to note that these trends are not consistent across all states and territories. We identified few discernable patterns in NEMT use by race and ethnicity across states and territories. For example, for the full analysis (using data from all 32 states and territories), White, non-Hispanic enrollees and Black, non-Hispanic enrollees had a similar number of ride-days per rider (19.6 and 18.0). However, this was not the case in all states, nor was it true that the number of ride-days per rider was always (i.e., in every state) higher for White enrollees than for Black enrollees. For example, in Iowa, White enrollees had about 51 ride-days per rider while Black enrollees had 32, but in New York, White enrollees had about 52 ride-days per rider while Black enrollees had 57 (Appendix Table 2.2).

Trends observed in state-level results provide possible explanations for the trends observed in the full analysis. For example, as noted above, in the full analysis, AIAN enrollees had by far the highest share of enrollees with at least one ride-day (13%). This held true in several states, but appears to be primarily driven by two states, Alaska and Arizona, where about 29% and 24% of AIAN enrollees had at least one ride-day, respectively. In most other states, AIAN enrollees used NEMT at lower rates. For example, in Illinois, AIAN enrollees were one of the least likely groups to use NEMT (with about 2% enrollees with at least one ride-day) compared to a rate of over 4% across all racial and ethnic groups. This suggests that NEMT programs in Alaska and Arizona have been remarkably successful in serving AIAN beneficiaries, perhaps because of state or Tribal and Village outreach.[23]

As another example, the low rate of NEMT use among Hispanics observed in the full analysis (less than 3%) may be explained by exceptionally low use of NEMT by Hispanics in California, where nearly half (45%) of Hispanics in our analysis live.

Although this does not necessarily mean that there is unmet need for NEMT among Hispanic beneficiaries in California, it does suggest the need for further research into whether this is the case.

(For a detailed breakdown of NEMT use by state, race, and ethnicity, see Appendix Table 2.2.)

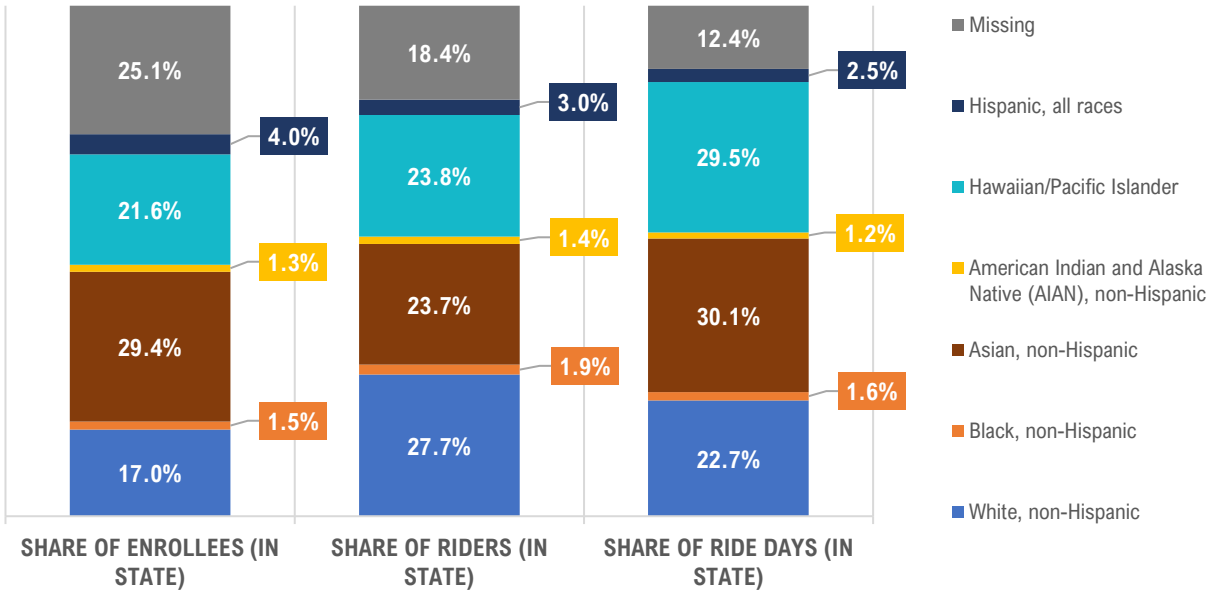
### State-Level Trends: Share of Enrollment Compared to Share of NEMT Use

States also vary in the extent to which the share of enrollment for each racial and ethnic group aligns with their share in NEMT use. Two examples are provided below. (A detailed breakdown for each state is provided in Appendix Table 2.2.)

[23] Many American Indian Tribes and Tribal Organizations and Alaska Native Villages are highly involved in connecting their members to Medicaid services, which can supplement or complement services received through the Indian Health Services. See Medicaid and CHIP Payment and Access Commission (MACPAC). (2021). *Medicaid's role in health care for American Indians and Alaska Natives.* Washington, DC: MACPAC. https://www.macpac.gov/publication/16275/.

Hawaii (Figure 3) is an example of a state where the share of enrollment is more closely proportionate to share of riders and ride-days for several groups, compared with the results from the breakdown for all states and territories in our analysis (Figure 1). For example, in the full analysis, Hispanic enrollees make up about 22% of enrollees and just 12% of riders. But in Hawaii, they make up a closely proportionate share of enrollees and riders (3% and 4%, respectively). Additionally, unlike in the full analysis, Hawaiian/Pacific Islanders in Hawaii make up a closely proportionate share of enrollees and riders (22% and 24%, respectively) but a disproportionately higher share of ride-days (30%).

**FIGURE 3 – Share of Enrollment Compared to Share of NEMT Use, Hawaii**



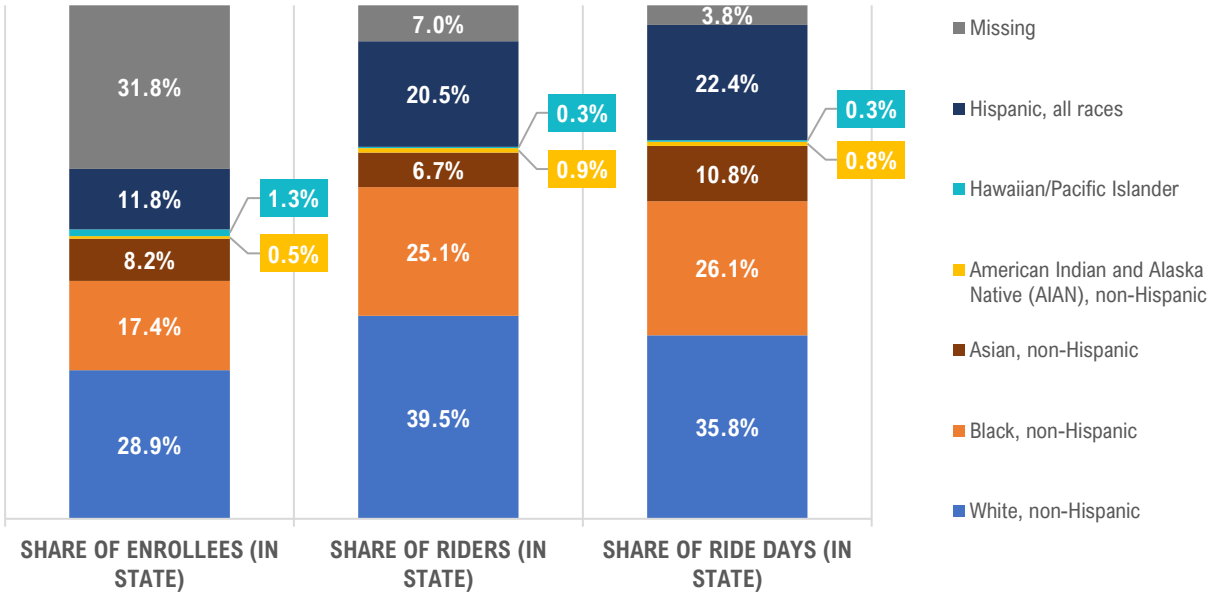

**Notes:** NEMT riders are enrollees with at least one ride-day. Race and ethnicity are self-reported by the beneficiary. For methodology information, see Appendix 1.
**Source:** NORC and MTAC analysis of 2019 Transformed Medicaid Statistical Information System (T-MSIS) Analytic File (TAF) Data.

New York (Figure 4) is an example of a state where the share of enrollment is less closely proportionate to the share of riders and ride-days for most groups, compared with the results from the overall analysis (Figure 2). For example, while White enrollees made up a smaller share of enrollees in New York than in the full analysis (29% of enrollees vs. 36% of enrollees, respectively), they made up a similar share of riders (40% and 41%, respectively). Additionally, unlike in the full analysis, Hispanics in New York used NEMT at a disproportionately high rate: they made up 12% of enrollees, 21% of riders, and 22% of ride-days.

Notably, New York has a high rate of enrollees with missing race and ethnicity data (32%). However, this group represents a much smaller share of NEMT riders (7%) and ride-days (4%). This may indicate that enrollees who use NEMT are more likely to report their race and

ethnicity, perhaps because they are interacting with the Medicaid program (not necessarily because they are using NEMT specifically).[24]

**FIGURE 4. Share of Enrollment Compared to Share of NEMT Use, New York**




**Notes:** NEMT riders are enrollees with at least one ride-day. Race and ethnicity are self-reported by the beneficiary. For methodology information, see Appendix 1.
**Source:** NORC and MTAC analysis of 2019 Transformed Medicaid Statistical Information System (T-MSIS) Analytic File (TAF) Data.

## Subgroup Analysis

To better understand the role of NEMT for beneficiaries who belong to different racial and ethnic groups, but share other characteristics, we examined NEMT use by race and ethnicity across several different subgroups, including:

- Basis of eligibility (i.e., eligibility group)
- Dually eligible status
- Rurality
- Selected chronic conditions: End-Stage Renal Disease (ESRD), Opioid Use Disorder (OUD), Serious Mental Illness (SMI), and Intellectual and Developmental Disabilities (ID/DD).

[24] There are a wide variety of reasons why individuals may choose not to report race and ethnicity data. States vary in how often and on which forms they collect this information, as well as their instructions, the specific race and ethnicity options listed, and whether they allow write-in answers. An individual may choose not to report their information because the instructions and rationale for providing race/ethnicity data are unclear, if they are concerned about how the state or provider will use their data, or if they do not feel they fit into one of the options provided. While we do not have data to support that missing values in T-MSIS are weighted more towards certain racial and ethnic groups than others, some studies have suggested that people of color may be especially disinclined to report due to privacy concerns and concerns about facing discrimination. Additionally, missing race and ethnicity data in T-MSIS may result in reporting challenges on the state's part, rather than a beneficiary's choice not to report their information; for example, from a problem with how the state transforms data when reporting to T-MSIS.
*See* KFF 2022 and MACPAC 2022.

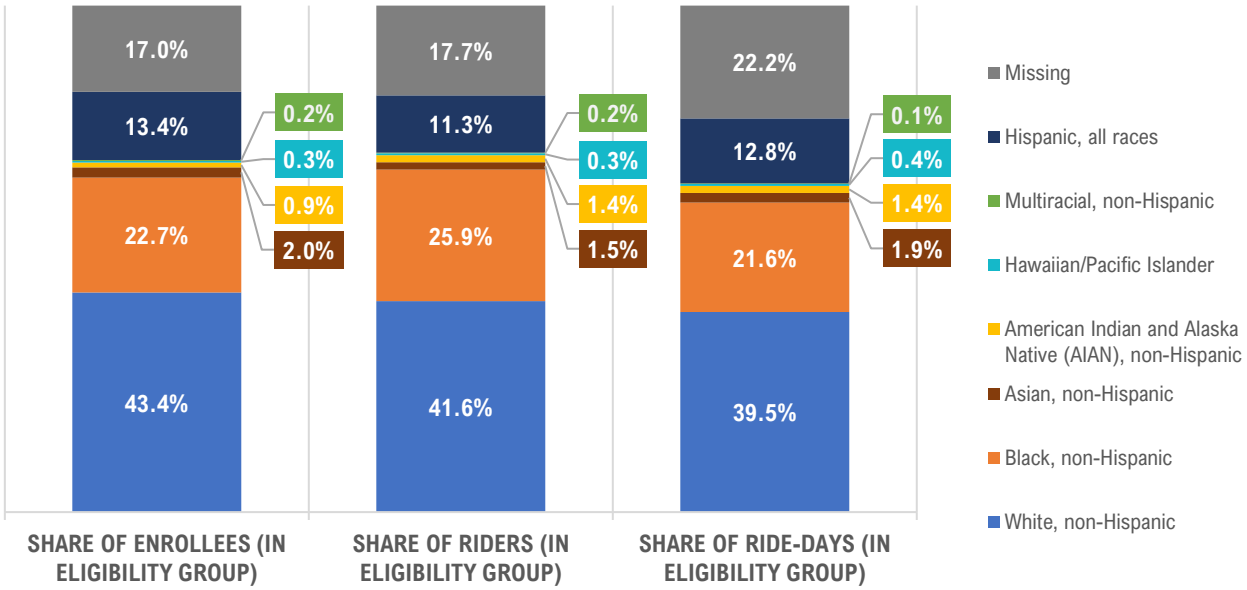
## Eligibility Group and Dually Eligible Status

### *Eligibility Group*

In examining NEMT use by race and ethnicity for major individual eligibility group categories, we found that patterns in NEMT use varied by eligibility group. Our finding from the full analysis that each racial and ethnic group used NEMT in disproportion to their share enrollment held true for several eligibility groups, including children, the ACA new adult group, and other adults. However, among groups eligible on the basis of age or disability, NEMT use for each racial and ethnic group was much more proportionate. Figures showing the share of enrollment compared to the share of NEMT use are provided below for beneficiaries eligible on the basis of disability (Figure 5) and the new adult group (Figure 6).

Medicaid enrollees eligible on the basis of disability are generally individuals who meet the definition of "disabled" used for the Supplemental Security Income (SSI) program, which generally requires a high level of impairment and functional ability. For this group, NEMT use (both in terms of ridership and ride-days) was relatively proportionate to enrollment share for each racial and ethnic group (Figure 5). For example, Hispanic enrollees eligible on the basis of disability made up about 13% of enrollees with disabilities, 11% of NEMT riders with disabilities, and 13% of ride-days attributable to enrollees with disabilities. Contrast this with the result from the full analysis of all enrollees regardless of eligibility group, where Hispanic enrollees made up 22% of enrollees, 12% of riders, and 14% of ride-days (Figure 2).

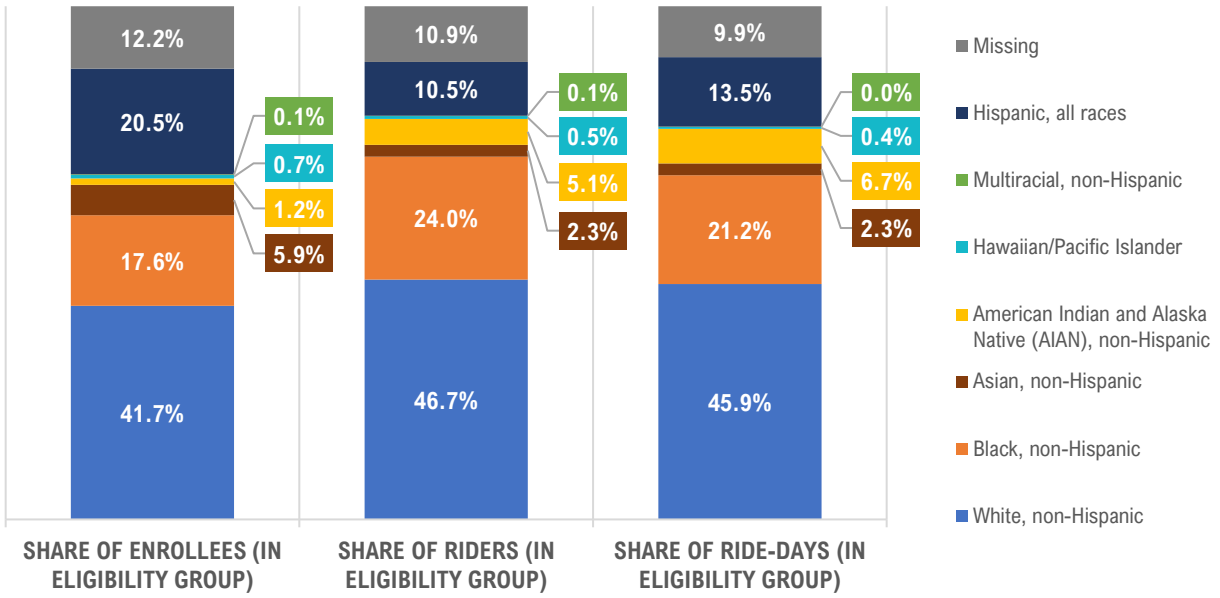
**Figure 5: Share of Enrollment Compared to Share of NEMT Use (Eligible on the Basis of Disability)**




**Notes:** NEMT riders are enrollees with at least one ride-day. Race and ethnicity are self-reported by the beneficiary. Reflects data for 32 states and territories including the District of Columbia. For all states and territories included and other methodology information, see Appendix 1.
**Source:** NORC and MTAC analysis of 2019 Transformed Medicaid Statistical Information System (T-MSIS) Analytic File (TAF) Data.

NEMT use among members of the new adult group, on the other hand, was disproportionate for each racial and ethnic group to a similar degree as observed in the full analysis (Figure 6).

**FIGURE 6: Share of Enrollment Compared to Share of NEMT Use (New Adult Group)**




**Notes:** NEMT riders are enrollees with at least one ride-day. Race and ethnicity are self-reported by the beneficiary. Reflects data for 32 states and territories including the District of Columbia. For all states and territories included and other methodology information, see Appendix 1.
**Source:** NORC and MTAC analysis of 2019 Transformed Medicaid Statistical Information System (T-MSIS) Analytic File (TAF) Data.

The more proportionate NEMT use across racial and ethnic groups among enrollees eligible on the basis of disability may reflect the overall higher rate of NEMT use among this population: 16% of enrollees eligible on the basis of disability used NEMT, and they averaged 5.5 ride-days per FYE (Table 1). Higher NEMT use may also reflect their higher health needs and better access to services such as case management that can help facilitate access to NEMT.

These results are similar to those found for other subgroups with high needs (see below). They suggest that as NEMT use becomes less concentrated (meaning more enrollees in the group are using NEMT), NEMT reaches a greater swath of the population, which in turn, results in a ridership that more closely reflects the population as a whole.

By contrast, the disproportionate use of NEMT by racial and ethnic groups among members of the new adult group and other eligibility groups that tend to have comparatively lower needs (other adults and children) may reflect lower overall NEMT use due to a lower need for services, and a greater concentration of NEMT use among NEMT riders. For example, just 3% of new adult group members used NEMT, and they averaged just 0.6 ride-days per FYE (Table 1).

### *Dually Eligible Status*

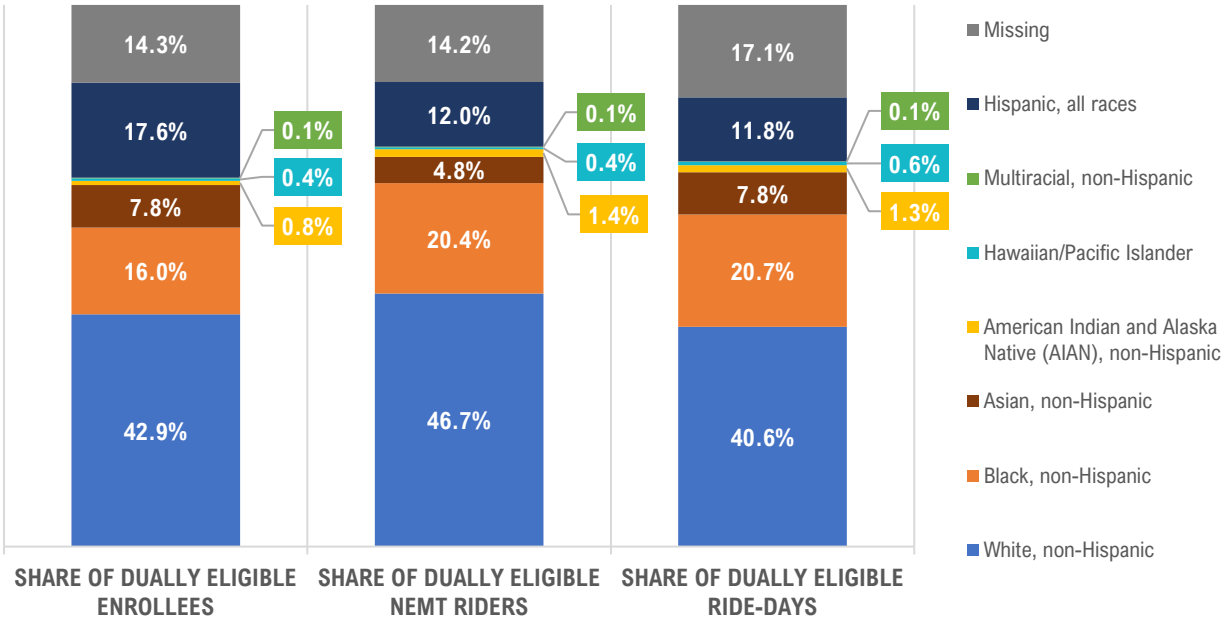
Beneficiaries dually eligible for Medicaid and Medicare are major users of NEMT. They are among the most vulnerable and highest need Medicaid and Medicare enrollees. In addition to encompassing enrollees eligible on the basis of age and disability, this group also includes enrollees with ESRD. For all 32 states and territories included in our analysis, 17% of dually

eligible enrollees had at least one ride-day, for an average of 5 ride-days per FYE and 26 ride-days per rider (Table 1). Dually eligible enrollees made up just 12% of enrollees, but 40% of riders and half (49.5%) of ride-days.

For every racial and ethnic group, dually eligible beneficiaries had much higher and more frequent NEMT use compared with enrollees who were only eligible for Medicaid. As such, their NEMT use was disproportionate to their share of enrollment in all groups. This pattern was especially pronounced for Asian dually eligible enrollees, who made up 19% of all Asian enrollees, but 60% of Asian riders and 76% of ride-days attributable to Asian enrollees. The pattern was also very pronounced for Multiracial dually eligible beneficiaries, who made up 5% of Multiracial enrollees, 40% of Multiracial riders, and 50% of ride-days attributable to Multiracial enrollees. It was less pronounced for AIAN dually eligible beneficiaries, who made up about 8% of AIAN enrollees but only 18% of AIAN riders and 25% of ride-days attributable to AIAN beneficiaries – perhaps reflecting the fact that NEMT is used by a larger share (and thus, wider array) of AIAN enrollees than it is in other populations.

In line with our findings in the subgroup analysis for aged and disabled beneficiaries, NEMT use by dually eligible beneficiaries for each racial and ethnic group is relatively proportionate to their share of enrollment (Figure 7).

**FIGURE 7: Share of Enrollment Compared to Share of NEMT Use (Dually Eligible Enrollees)**




**Notes:** Dually eligible enrollees are full-benefit Medicaid enrollees who are dually eligible for Medicare. NEMT riders are enrollees with at least one ride-day. Race and ethnicity are self-reported by the beneficiary. Reflects data for 32 states and territories including the District of Columbia. For all states and territories included and other methodology information, see Appendix 1.
**Source:** NORC and MTAC analysis of 2019 Transformed Medicaid Statistical Information System (T-MSIS) Analytic File (TAF) Data.

## Rurality

In our full analysis, we found that enrollees living in rural areas used NEMT at a higher rate than those living in urban areas, with 5.7% of rural enrollees using NEMT for at least one ride-day, compared to 4.7% for urban enrollees. However, urban enrollees use NEMT more frequently, with a higher number of ride-days per FYE and per rider. This pattern held true for most racial and ethnic groups, with some exceptions (Table 3). For example:

- AIAN ridership was driven by rural enrollees: 18% of rural AIAN enrollees had at least one ride-day, compared with 10% of urban enrollees. However, urban AIAN riders used NEMT slightly more frequently than rural riders (20 ride-days per rider vs. 16).
- Rural enrollees in the Hawaiian/Pacific Islander group used NEMT at twice the rate of their urban counterparts (5.3% vs. 2.7%) for a similar number of ride-days per FYE. However, among those who used NEMT (i.e., NEMT riders) those in urban areas used NEMT at twice the frequency of their rural counterparts (27 vs. 11 ride-days per rider). A similar pattern was present within the Multiracial group.
- Among Asian enrollees, rural and urban enrollees used NEMT at a similar rate (about 3.5%); however, urban enrollees used NEMT at twice the frequency of rural enrollees (1.28 ride days per FYE compared to 0.56). The same was true among Asian riders (33 ride-days per urban rider vs. 13 per rural rider).
- For the Black and Hispanic groups, urban and rural enrollees used NEMT at similar rates and frequencies.
- White enrollees were the only group in which urban enrollees used NEMT at a slightly higher rate than rural enrollees (5.5% vs. 5.4%).

**Table 3: NEMT Use by Race, Ethnicity, and Rural vs. Urban Location**

| | Riders as a Share of Enrollees | | Ride-Days per FYE | | Ride-Days per Rider | |
|---|---|---|---|---|---|---|
| | Rural | Urban | Rural | Urban | Rural | Urban |
| All | 5.7% | 4.7% | 1.08 | 1.21 | 16.30 | 21.93 |
| American Indian and Alaska Native (AIAN), non-Hispanic | 17.5% | 9.8% | 3.25 | 2.27 | 16.17 | 19.75 |
| Asian, non-Hispanic | 3.7% | 3.3% | 0.56 | 1.28 | 12.96 | 33.41 |
| Black, non-Hispanic | 7.7% | 6.4% | 1.44 | 1.36 | 16.42 | 18.18 |
| Hawaiian/Pacific Islander | 5.3% | 2.7% | 0.67 | 0.85 | 11.04 | 26.59 |
| Hispanic, all races | 2.6% | 2.6% | 0.64 | 0.72 | 21.18 | 23.91 |
| Missing | 5.5% | 4.3% | 1.30 | 1.38 | 19.34 | 25.99 |
| Multiracial, non-Hispanic | 4.9% | 2.4% | 0.59 | 0.50 | 10.68 | 17.04 |
| White, non-Hispanic | 5.4% | 5.5% | 0.97 | 1.38 | 15.31 | 21.12 |

**Notes:** NEMT riders are enrollees with at least one ride-day. Race and ethnicity are self-reported by the beneficiary. Reflects data for 32 states and territories including the District of Columbia. For all states and territories included and other methodology information, see Appendix 1.
**Source:** NORC and MTAC analysis of 2019 Transformed Medicaid Statistical Information System (T-MSIS) Analytic File (TAF) Data.

In both rural and urban areas, NEMT use was disproportionate to enrollment share for most racial and ethnic groups (Table 4). Specifically:

- Unlike in the full analysis, and almost all other subgroup analyses, White enrollees in rural areas made up a disproportionately lower share of rural NEMT ride-days. Among all rural enrollees included in our analysis, White enrollees made up 62% of enrollment and 36% of ride-days. The reason for this is not clear, and there may be multiple explanations. For example, low-income, White enrollees in rural areas may have better access to personal vehicles than their urban counterparts, given the car-dependent nature of rural areas. Or they may be in comparatively better health than rural enrollees belonging to other racial and ethnic groups.[25]
- Black enrollees in urban areas used NEMT at disproportionately high rates: they made up 20% of urban enrollees, but 27% of urban riders. For Black enrollees in rural areas, NEMT use (in terms of both share of rural riders and share of rural ride-days) was relatively proportionate to their share of rural enrollment.
- AIAN beneficiaries in both rural and urban areas used NEMT at disproportionately high rates compared to their enrollment share, especially those in rural areas: rural AIAN enrollees made up 3% of rural enrollees, but 10% of rural riders and rural ride-days.
- Hispanic beneficiaries in both rural and urban areas used NEMT at disproportionately low rates compared to their enrollment share.
- Asian, Hawaiian/Pacific Islander, and Multiracial enrollees in both rural and urban areas used NEMT at rates that were relatively proportionate to their enrollment share.

**Table 4: Share of Enrollment and NEMT Use by Urban vs. Rural Location**

| | Share of Enrollment | | Share of Riders | | Share of Ride-Days | |
|---|---|---|---|---|---|---|
| | Rural | Urban | Rural | Urban | Rural | Urban |
| All | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |
| American Indian and Alaska Native (AIAN), non-Hispanic | 3.3% | 0.7% | 10.3% | 1.5% | 10.3% | 1.3% |
| Asian, non-Hispanic | 0.9% | 5.5% | 0.6% | 3.9% | 0.5% | 5.9% |
| Black, non-Hispanic | 8.0% | 19.8% | 10.8% | 27.2% | 10.9% | 22.5% |
| Hawaiian/Pacific Islander | 0.5% | 0.7% | 0.5% | 0.4% | 0.3% | 0.5% |
| Hispanic, all races | 12.3% | 24.2% | 5.7% | 13.6% | 7.4% | 14.8% |
| Missing | 12.7% | 16.9% | 12.3% | 15.5% | 14.6% | 18.4% |
| Multiracial, non-Hispanic | 0.4% | 0.2% | 0.3% | 0.1% | 0.2% | 0.1% |
| White, non-Hispanic | 61.9% | 32.0% | 59.4% | 37.8% | 55.8% | 36.4% |

[25] For example, see Richman, L., Pearson, J., Beasley, C. & Stanifer, J. (2019). Addressing health inequalities in diverse, rural communities: An unmet need. *SSM – Population Health*, 7. https://www.sciencedirect.com/science/article/pii/S2352827318303409.

**Notes:** NEMT riders are enrollees with at least one ride-day. Race and ethnicity are self-reported by the beneficiary. Reflects data for 32 states and territories including the District of Columbia. For all states and territories included and other methodology information, see Appendix 1.
**Source:** NORC and MTAC analysis of 2019 Transformed Medicaid Statistical Information System (T-MSIS) Analytic File (TAF) Data.

## Selected Chronic Conditions

To understand the role of NEMT for beneficiaries of different race and ethnicity but similar specific health needs, we conducted additional subgroup analyses for four individual chronic conditions: ESRD, OUD, SMI, and ID/DD.

### *End-Stage Renal Disease (ESRD)*

Enrollees with ESRD use NEMT at a much higher rate and with much greater frequently than those without. Enrollees with ESRD made up less than 0.5% of enrollees in our analysis, but more than 4% of riders and 14% of ride-days. Of the enrollees with ESRD in our analysis, half had at least one ride-day. They used NEMT for an average of 40 ride-days per FYE, and 68 ride-days per rider.

This high rate of NEMT use reflects the frequency with which people with ESRD must access in-person, medically necessary but non-emergent services, including dialysis which is typically provided at least three times per week. Several prior studies have similarly documented NEMT's vital role for people with ESRD.[26]

Additionally, of the enrollees with ESRD in our analysis:

- In each racial and ethnic group except the Multiracial group, nearly half or over half of enrollees with ESRD used NEMT for at least one ride-day. (In the multi-racial group, 40% used NEMT.)
- In each racial and ethnic group, enrollees with ESRD used NEMT at over 30 times the frequency of those without (as measured by ride-days per FYE). Notably, Hispanic and Hawaiian/Pacific Islander enrollees with ESRD used NEMT at 73 and 80 times the frequency of those without, respectively.
- In each racial and ethnic group, NEMT riders with ESRD used NEMT at about 3 times (or more) the frequency of those without (as measured by ride-days per Rider). The difference was more than four-fold for Black, AIAN, Hawaiian/Pacific Islander, Multiracial, and Hispanic NEMT riders.
- AIAN enrollees used NEMT most frequently, averaging about 50 ride-days per FYE; but among NEMT riders with ESRD, Asian riders used NEMT most frequently, with 83 ride-days per rider.

A detailed breakdown of NEMT use among enrollees of each race and ethnicity, with and without ESRD, is provided in Appendix Table 2.3.

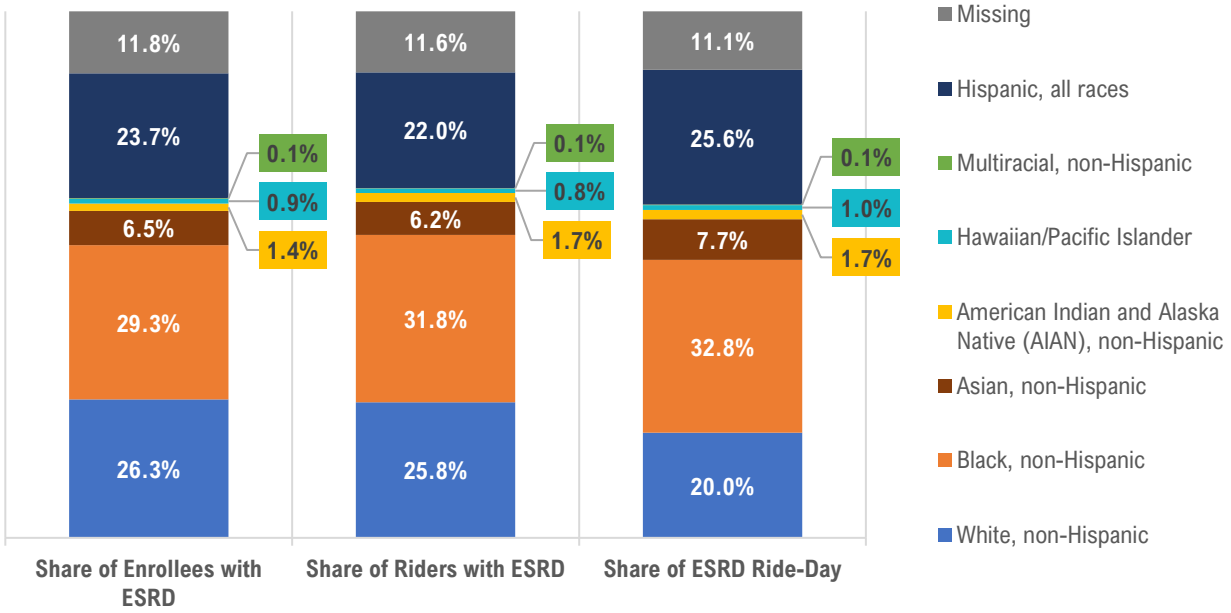
As with other high-need groups, including beneficiaries eligible for Medicaid on the basis of age and disability and those dually eligible for Medicare and Medicaid, NEMT use among enrollees

[26] One key example is MTAC's 2018 report, "The Value of Medicaid's Transportation Benefit," which found that the return on investment for NEMT to attend regular dialysis treatments for treating kidney disease per 10,000 members per month is $34,229,448. *See* Adelberg et al. 2018.

with ESRD for each racial and ethnic group is relatively proportionate to their share of enrollment.

Notably, unlike in the full analysis (and almost all other subgroup analyses), White enrollees with ESRD use NEMT at a disproportionately low rate. Though they comprise 26% of enrollees with ESRD – almost directly proportionate to their share of riders – they make up just 20% of ESRD ride-days (Figure 6). Additionally, while Hispanics included in the full analysis use NEMT at a very disproportionately low rate (Figure 1), Hispanics with ESRD make up a slightly higher share of ESRD ride-days (26%) compared to their share of ESRD enrollment (24%) (Figure 7).

**FIGURE 7: Share of Enrollment Compared to Share of NEMT Use (Enrollees with ESRD)**




**Notes:** ESRD is end-stage renal disease. NEMT riders are enrollees with at least one ride-day. "ESRD Ride-Days" are days in which an enrollee with ESRD had at least one NEMT ride; they do not necessarily reflect rides to ESRD-related medical appointments. Reflects data for 32 states and territories including the District of Columbia. For more on how we identified enrollees with ESRD in our analysis, see Appendix 1.
**Source:** NORC and MTAC analysis of 2019 Transformed Medicaid Statistical Information System (T-MSIS) Analytic File (TAF) Data.

### *Opioid Use Disorder (OUD)*

Opioid Use Disorder (OUD) involves misuse of prescription or illicit opioids and is defined as a problematic pattern of opioid use that causes significant impairment or distress.[27] OUD affects Medicaid beneficiaries disproportionately.[28] Medicaid enrollees with OUD use NEMT at a much higher rate and with much greater frequency than those without. This likely reflects the nature of OUD treatment, which may include frequent appointments to receive Medication for OUD

[27] Centers for Disease Control and Prevention (CDC). (2022). Prevent Opioid Use Disorder. Atlanta, Georgia: CDC. https://www.cdc.gov/opioids/overdoseprevention/opioid-use-disorder.html
[28] Medicaid and CHIP Payment and Access Commission (MACPAC). (2019). *Report to congress: Utilization management of medication-assisted treatment in Medicaid.* Washington, DC: MACPAC. https://www.macpac.gov/wp-content/uploads/2019/10/Report-to-Congress-Utilization-Management-of-Medication-Assisted-Treatment-in-Medicaid.pdf.

(MOUD) and behavioral health treatment, as well as appointments related to medical complications associated with OUD. (It is important to note that our 2019 data is unlikely to capture substantial telehealth services for OUD, which were available on a more limited basis prior to the COVID-19 pandemic.)[29]

Enrollees with OUD made up 2.5% of enrollees in our analysis, but nearly 10% of riders and 15% of ride-days. Of the enrollees with OUD in our analysis, approximately 20% had at least one ride-day. They used NEMT for an average of 7 ride-days per FYE and 32 ride-days per rider. Additionally, of the enrollees with OUD in our analysis:

- AIAN and Black enrollees with OUD used NEMT at the highest rate compared to enrollees in other race and ethnicity groups: about 25% of enrollees with OUD in each group had at least one ride-day. Multiracial enrollees with OUD used NEMT at the lowest rate (13%).
- Hispanic enrollees with OUD used NEMT with the greatest frequency, with about 9 ride-days per FYE and 43 ride-days per rider.
- In each racial and ethnic group except the Asian and AIAN groups, enrollees with OUD used NEMT at 5 times (or more) the frequency of those without (as measured by ride-days per FYE). Notably, Hispanic enrollees with OUD used NEMT at 14 times the frequency of those without, suggesting that NEMT plays an especially important role for Hispanic enrollees with OUD.
- In most racial and ethnic groups, NEMT riders with OUD used NEMT at about 1.5 times (or more) the frequency of those without (as measured by ride-days per rider). Multiracial and Hawaiian/Pacific Islander riders were the exception: In these groups, NEMT riders with and without OUD used NEMT at about the same frequency.

A detailed breakdown of NEMT use among enrollees of each race and ethnicity, with and without OUD, is provided in Appendix Table 2.4.

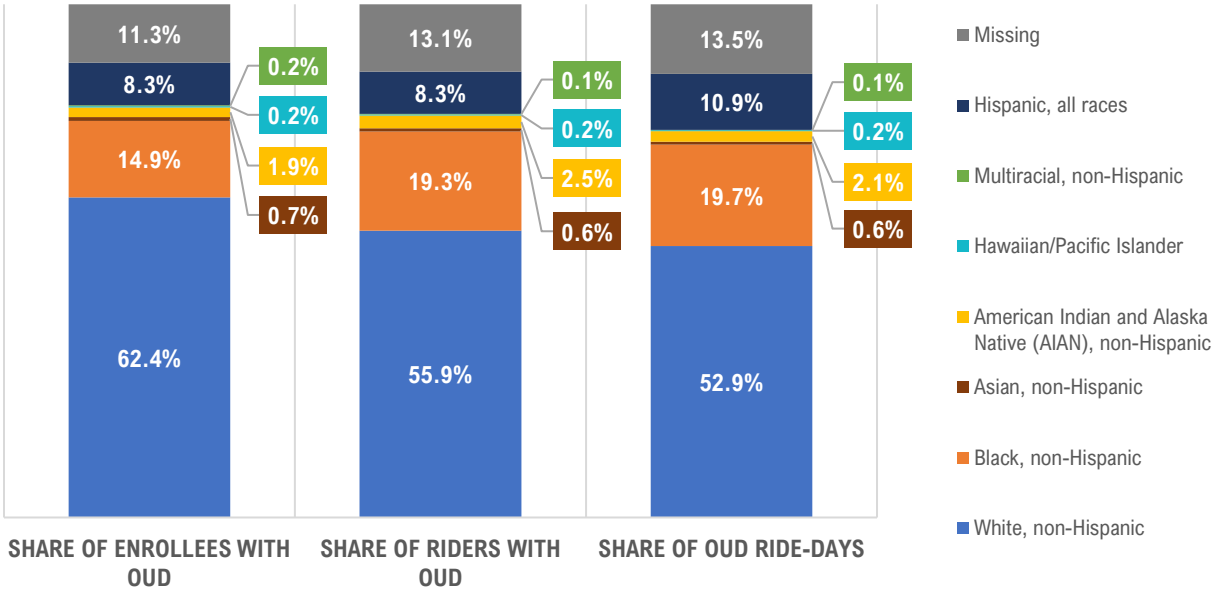
NEMT use among enrollees with OUD is relatively proportionate to the share of enrollment for each racial and ethnic group, with a few exceptions (Figure 8). Specifically, White enrollees, who make up almost two-thirds (62%) of enrollees with OUD in our analysis, used NEMT at disproportionately low rates: they made up 56% of NEMT riders with OUD, and 53% of OUD ride-days. There may be several reasons for this. For example, given the known access barriers to treatment for OUD and other substance use disorders, White enrollees with OUD may use NEMT less than White enrollees with other conditions, because they are able to access treatment at lower rates than they are able to access treatment for other conditions.

By contrast, Black enrollees with OUD used NEMT at disproportionately high rates: they made up about 15% of enrollees with OUD, 19% of riders with OUD, and 20% of OUD ride-days. For Hispanic enrollees with OUD, their share of ridership and enrollment were in direct proportion at

[29] Since the onset of the COVID-19 pandemic, CMS and state Medicaid programs have rapidly expanded the availability of telehealth for OUD and other substance use disorder treatment. The federal government and many states have also loosened restrictions around in-person OUD treatment and MOUD prescribing. *See* Treitler, P.C., Bowden, C.F., Lloyd, J., et al. (2022). Perspectives of opioid use disorder treatment providers during COVID-19: Adapting to flexibilities and sustaining reforms. *Journal of Substance Abuse Treatment*, 132. https://www.journalofsubstanceabusetreatment.com/action/showPdf?pii=S0740-5472%2821%2900240-3. *See also* Libersky, J., Soyer, E., Masaoay, T. et al. (2020). *Changes in Medicaid telehealth policies due to COVID-19: Catalog overview and findings.* Washington, DC: Mathematica. https://www.macpac.gov/publication/changes-in-medicaid-telehealth-policies-due-to-covid-19-catalog-overview-and-findings/.

about 8% each, but they made up a disproportionately high share of ride-days (11%), reflecting the frequency of their NEMT use as noted above.

**FIGURE 8: Share of Enrollment Compared to Share of NEMT Use (Enrollees with OUD)**




**Notes:** OUD is opioid use disorder. NEMT riders are enrollees with at least one ride-day. "OUD Ride-Days" are days in which an enrollee with OUD had at least one NEMT ride; they do not necessarily reflect rides to OUD-related medical appointments. Reflects data for 32 states and territories including the District of Columbia. For more on how we identified enrollees with OUD in our analysis, see Appendix 1.
**Source:** NORC and MTAC analysis of 2019 Transformed Medicaid Statistical Information System (T-MSIS) Analytic File (TAF) Data.

### *Serious Mental Illness (SMI)*

The definition of SMI varies, but generally refers to mental illnesses that interfere with a person's life and ability to function.[30,31] As is the case with other chronic conditions in our analysis, enrollees with SMI use NEMT at high rates. Enrollees with SMI make up less than 3% of enrollees in our analysis, but 14% of riders and 11% of ride-days. Of the enrollees with SMI in our analysis, approximately one-quarter (26%) had at least one ride-day. They used NEMT for an average of about 5 ride-days per FYE and 17 ride-days per rider.

Additionally, among enrollees with SMI in our analysis:

- AIAN enrollees with SMI used NEMT at the highest rate, compared with other racial and ethnic groups: 36% had at least one ride-day. Multiracial and Hispanic enrollees with SMI used NEMT at the lowest rate: 18% in each group had at least one ride-day.
- AIAN enrollees with SMI also used NEMT most frequently, for an average of 7.4 ride-days per FYE. Hawaiian/Pacific Islander enrollees, Multiracial enrollees, and Hispanic

[30] We used a narrow definition of SMI that includes "schizophrenia and other psychotic disorders" and "bipolar disorder." For a detailed discussion of how we identified enrollees with SMI, see Appendix 1.
[31] Substance Abuse and Mental Health Services Administration (SAMHSA). (2022). Living well with serious mental illness. Rockville, MD: SAMHSA. https://www.samhsa.gov/serious-mental-illness.

enrollees with SMI used NEMT at the lowest frequency (about 2.5 ride-days per FYE in each group).

- In all racial and ethnic groups, enrollees with SMI used NEMT at a frequency of about 3 times (or more) the frequency of enrollees without SMI. The difference was especially pronounced for Multiracial enrollees with SMI, who used NEMT at about 5.5 times the rate of those without.
- In contrast to our findings for other groups with chronic conditions, NEMT riders with SMI used NEMT with lower frequency than riders without SMI. This was true in all racial and ethnic groups, but especially pronounced among Hawaiian/Pacific Islander enrollees, where riders with SMI used NEMT at about half the frequency of riders without SMI (13 ride-days per rider vs. 24).

A detailed breakdown of NEMT use among enrollees of each race and ethnicity, with and without SMI, is provided in Appendix Table 2.5.

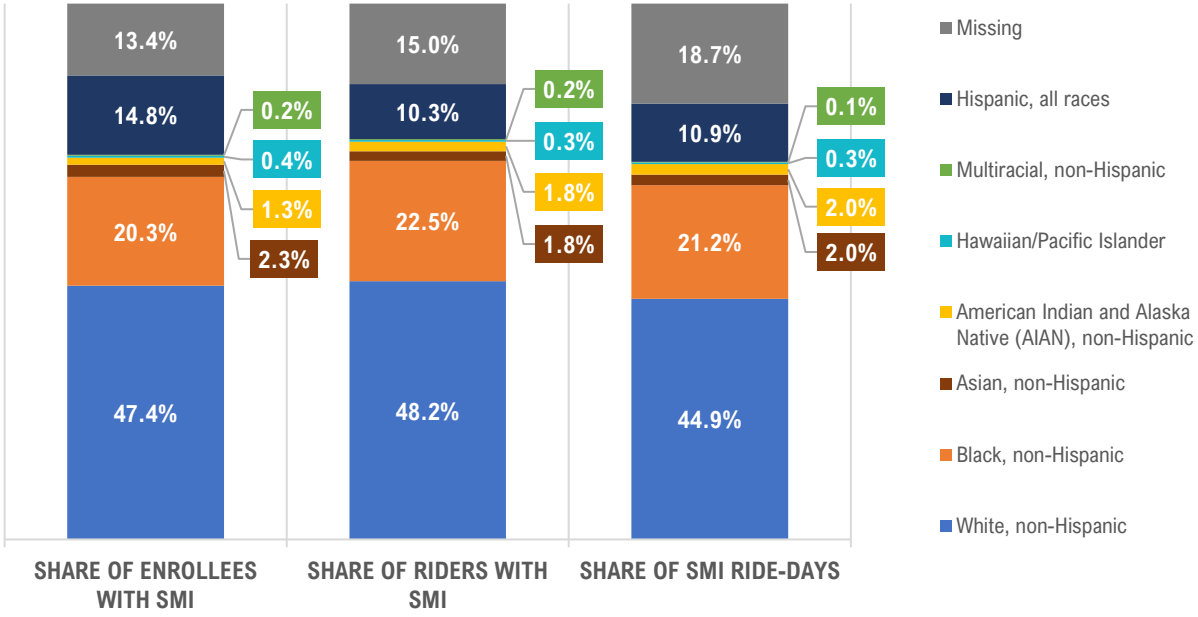
The high rate of NEMT use for enrollees with SMI likely reflect these enrollees' need for behavioral and physical health services, as well as their functional level. By definition, SMI impairs individuals' ability to function in daily tasks, such as driving, taking public transportation, etc., which may result in more enrollees with SMI needing NEMT services than those without SMI.

At the same time, the relatively low frequency of NEMT use by NEMT riders may reflect the fact that individuals with SMI do not necessarily require the same frequency of medical appointments as those with ESRD receiving dialysis or those with OUD receiving MOUD and attending meetings and other supportive services. Due to the functional challenges associated with SMI, these enrollees may also experience greater challenges in adhering to care plans, handling logistics related to scheduling, or seeing doctors. And unlike people with high physical health needs, they may be able to receive a greater portion of their care through virtual options. (While telehealth was available on a limited basis prior to the COVID-19 pandemic, data from future years may reflect this more prominently.)[32]

NEMT use among enrollees with SMI is relatively proportionate to the share of enrollment for each racial and ethnic group. One exception is Hispanic enrollees with SMI, who make up about 15% of enrollees with SMI, but just 10% and 11% of NEMT riders with SMI and SMI ride-days. Another exception is AIAN enrollees with SMI, who make up about 1% of enrollees with SMI but about 2% of riders and ride-days (Figure 9).

[32] *See* Libersky et al. 2020.

**FIGURE 9: Share of Enrollment Compared to Share of NEMT Use (SMI)**




**Notes:** SMI is Serious Mental Illness. NEMT riders are enrollees with at least one ride-day. "SMI Ride-Days" are days in which an enrollee with SMI had at least one NEMT ride; they do not necessarily reflect rides to SMI-related medical appointments. Reflects data for 32 states and territories including the District of Columbia. For more on how we identified enrollees with OUD in our analysis, see Appendix 1.

### *Intellectual and Developmental Disabilities*

The terms intellectual disabilities (ID) and developmental disabilities (DD) are used to describe people with varying conditions and functional limitations. They each have separate definitions but are often used together. DD is defined as a severe, chronic disability of an individual that is attributable to a mental or physical impairment, results in substantial functional limitations, and reflects the individual's need for a combination of services and supports for a lifetime or extended duration. ID is defined as a disability characteristic by significant limitations in intellectual functioning and adaptive behavior, including everyday practical skills.[33] Individuals in both groups have very high health needs and rely on a broad range of services and supports.

Enrollees with ID/DD use NEMT at a high rate. Given their high health needs, this is unsurprising. Enrollees with ID/DD also often have additional supports available to them that are unavailable to many other Medicaid enrollees, including paid caregivers and case managers who can assist with scheduling and accompanying beneficiaries on rides.

Of the enrollees with ID/DD in our analysis, 20% had at least one ride-day. They averaged nearly 11 ride-days per FYE – the second highest of any subgroup in our analysis, after enrollees with ESRD. The enrollees with ID/DD who used NEMT did so very frequently, for an average of 51 ride-days per NEMT rider.

[33] Barth, S., Lewis, S. & Simmons, T. (2020). *Medicaid services for people with intellectual and developmental disabilities – Evolution of addressing service needs and preferences.* Washington, DC: Health Management Associates. https://www.macpac.gov/wp-content/uploads/2021/01/Medicaid-Services-for-People-with-Intellectual-or-Developmental-Disabilities-%E2%80%93-Evolution-of-Addressing-Service-Needs-and-Preferences.pdf.

Additionally, of the enrollees with ID/DD in our analysis:

- AIAN enrollees used NEMT at the highest rate: nearly 30% had at least one ride-day. Hawaiian/Pacific Islander enrollees used NEMT at the lowest rate: 12% had at least one ride-day.
- White and Black enrollees used NEMT at similar rates (about 20% in each group had at least one ride-day); however, White enrollees used NEMT more frequently, averaging 10 ride-days per FYE (vs. 7 per Black FYE) and 51 ride-days per rider (vs. 35 per Black rider).
- Notably, the group of enrollees with ID/DD that used NEMT most frequently (as measured by ride-days per FYE) was the group with a missing race/ethnicity value. This group averaged 22 ride-days per FYE and 73 ride-days per rider. This group also used NEMT disproportionately (see below).
- Among NEMT riders with ID/DD, the group that used NEMT most frequently (as measured by ride-days per rider) was Asian riders, who averaged 32 ride-days per rider. This was much higher than the overall figure for ID-DD riders (19), suggesting that NEMT plays an especially important role for this group.
- In each racial and ethnic group, enrollees with ID/DD used NEMT at 4.5 times (or more) the frequency of those without (as measured by ride-days per FYE). Notably, enrollees with ID/DD for whom race and ethnicity information was missing used NEMT at 21 times the frequency of their counterparts without ID/DD.
- In most racial and ethnic groups, NEMT riders with ID/DD used NEMT at 2 times (or more) the frequency of those without (as measured by ride-days per rider). Multiracial and Hawaiian/Pacific Islander riders were the exception: in these groups, NEMT riders with and without ID/DD used NEMT at about the same frequency.

A detailed breakdown of NEMT use among enrollees of each race and ethnicity, with and without ID/DD, is provided in Appendix Table 2.6.

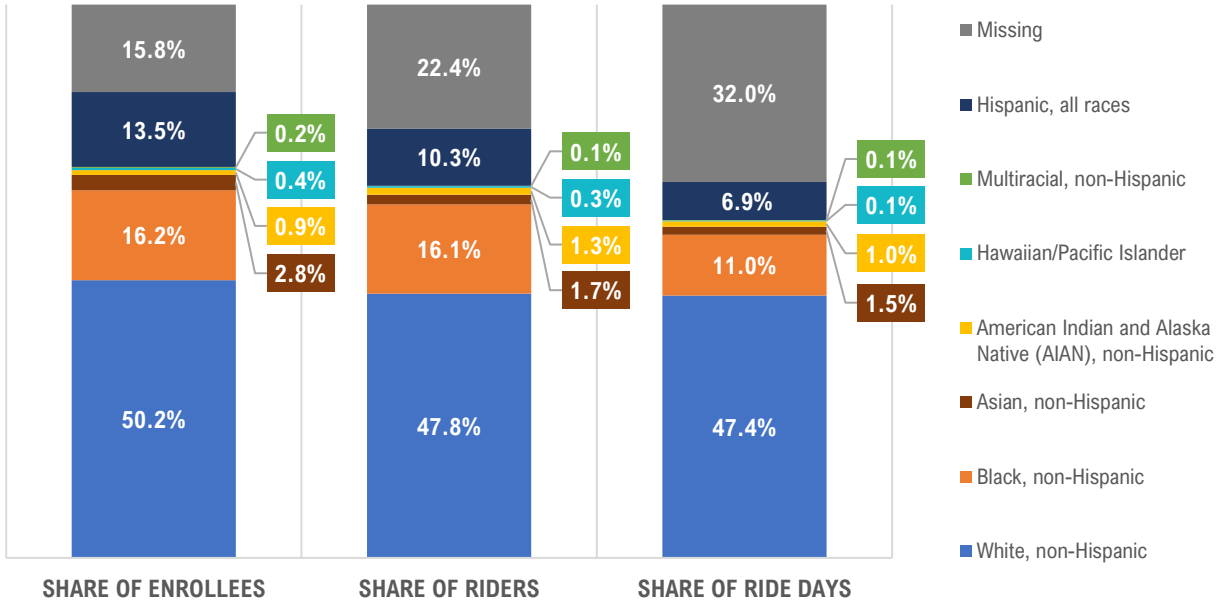
Unlike other high-need groups we analyzed, including those with other chronic conditions and the larger group eligible for Medicaid on the basis of disability (Figure 5),[34] NEMT use among enrollees with ID/DD is quite disproportionate to the share of enrollment for each racial and ethnic group (Figure 10). As noted above, the group of ID/DD enrollees with missing race or ethnicity information used NEMT at a disproportionately high rate: they made up 16% of enrollees with ID/DD in our analysis, but 22% of NEMT riders with ID/DD and nearly one-third (32%) of ID/DD ride-days. This suggests that race and ethnicity is less likely to be reported for individuals with ID/DD who use NEMT, than for those without ID/DD who use NEMT.

Perhaps related to this, several racial and ethnic groups make up a proportionate, or relatively proportionate share of NEMT riders with ID/DD compared to their share of ID/DD enrollment, but a disproportionately low share of NEMT ride-days (Figure 10). For example, Black enrollees with ID/DD make up a proportionate share of NEMT riders with ID/DD (16%), but a

[34] The results for the group of Medicaid enrollees with ID/DD are different than the results for the "disabled" eligibility subgroup because the two groups do not include an aligned group of enrollees. While many Medicaid enrollees with ID/DD are eligible on the basis of disability and are included in this group for the purposes of our eligibility group subgroup analysis, some individuals with ID/DD are likely eligible for Medicaid on bases other than disability (e.g., if they do not have an SSI disability determination). Additionally, a larger group of individuals with disabilities (e.g., people with physical disabilities) are included in the disabled eligibility group.

disproportionately lower share of NEMT ride-days (11%). A similar pattern is true of Hawaiian/Pacific Islander enrollees. Asian and Hispanic enrollees make up a disproportionately low share of both NEMT riders with ID/DD and ID/DD ride-days.

**FIGURE 10: Share of Enrollment Compared to Share of NEMT Use (Enrollees with ID/DD)**




**Notes:** ID/DD is intellectual and developmental disabilities. NEMT riders are enrollees with at least one ride-day. "ID/DD ride-days" are days in which an enrollee with ID/DD had at least one NEMT ride; they do not necessarily reflect rides to ID/DD-related medical appointments. Reflects data for 32 states and territories including the District of Columbia. For more on how we identified enrollees with OUD in our analysis, see Appendix 1.
**Source:** NORC and MTAC analysis of 2019 Transformed Medicaid Statistical Information System (T-MSIS) Analytic File (TAF) Data.

## Conclusion

These findings, though limited to only 32 states and territories, offer an important window into how beneficiaries of different race and ethnicity use NEMT. They underscore the importance of state-level, and perhaps even county-level, opportunities to improve access to care through NEMT. They also underscore the value of examining vulnerable subgroups, such as enrollees with ESRD, OUD, and other chronic conditions, in efforts to improve access to care for those subgroups.

Future research should focus not only on identifying differences in NEMT use, but also on identifying and addressing the root causes of these differences, with an eye towards ultimately ensuring that NEMT is available and accessible to all enrollees who might benefit. For example, researchers or policymakers might consider the low rate of NEMT use among Hispanic beneficiaries in California, and whether this could be due to a lack of Spanish-language notices, informational resources, and interpreters; and how this affects Hispanic enrollees' awareness of, and willingness to use, NEMT services.

Future research should also consider how the rapid expansion of telehealth following the onset of the COVID-19 pandemic may shift how beneficiaries belonging to various racial and ethnic groups and other characteristics (e.g., with certain chronic conditions) use NEMT. This will provide a critical window into how NEMT interacts with telehealth to facilitate access to care, and ultimately, address access disparities.

Finally, as CMS, MACPAC, and others have noted, a critical component for the success of future research is to improve collection and reporting of race and ethnicity data within the Medicaid program.[35] Lack of adequate, quality data not only inhibits researchers' ability to find out information, but also their ability to interpret results to inform policy. States, in coordination with CMS, transportation brokers, and other stakeholders, should continue these efforts. A follow-up research study should be illustrative to the progress policymakers make in these efforts and conducted when T-MSIS data reflects a normalization (or "new normal") of health care utilization and corresponding NEMT usage in the years following the COVID-19 pandemic.

[35] *See* CMS 2022 and MACPAC 2021.

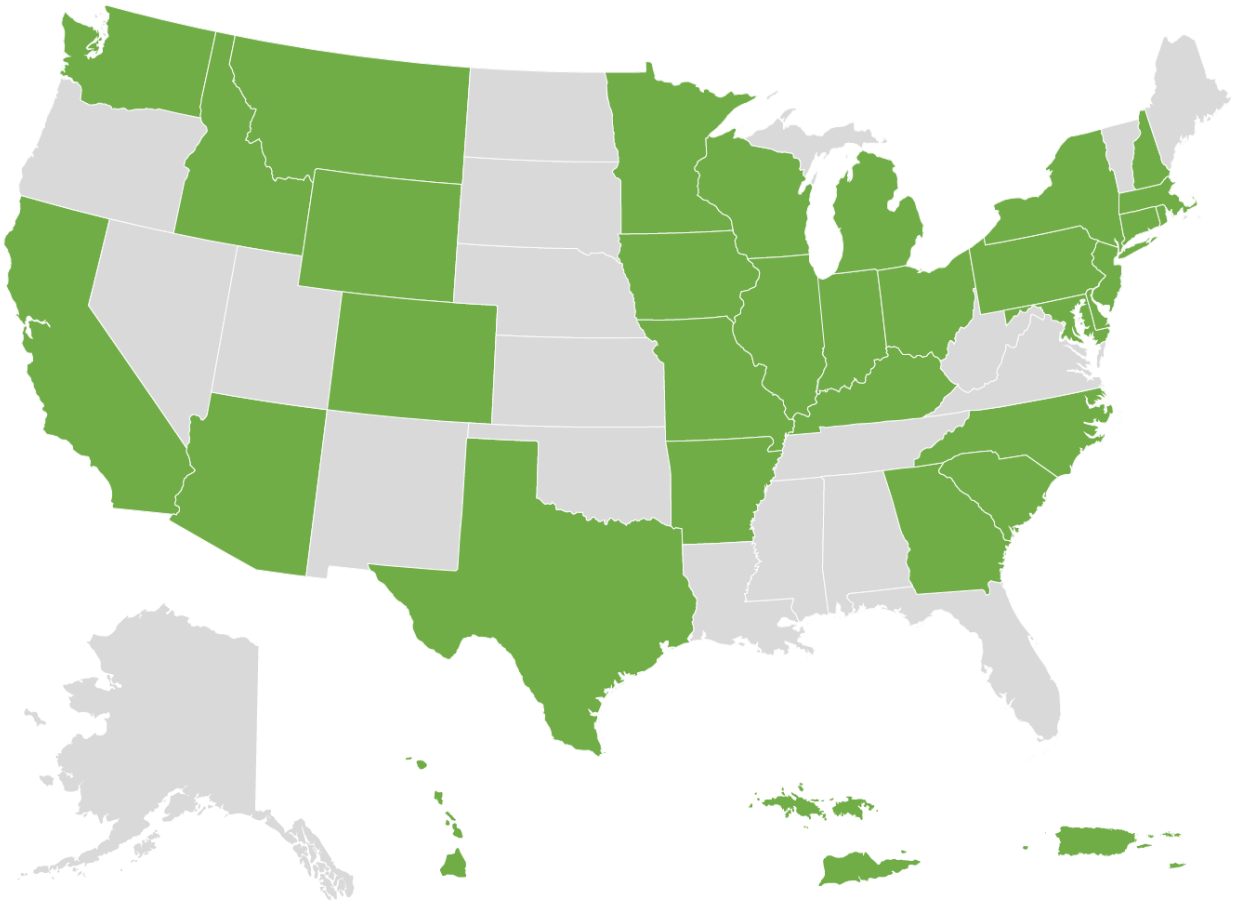
# Appendix 1: Methodology and Limitations

## Methodology Overview

We performed a descriptive analysis of non-emergency medical transportation (NEMT) utilization among Medicaid enrollees in 2019. We utilized the 2019 T-MSIS Analytic Files (TAFs) to both identify NEMT services as well as ascertain demographic and other characteristics of the enrollees who received NEMT services by which to analyze utilization. We chose the year 2019 because it is the most recent year prior to the COVID-19 pandemic, which caused major disruptions in NEMT use.

We included 32 states and territories including the District of Columbia in our analysis, which had sufficient data quality based on 25 data quality (DQ) tests (discussed below) (Appendix Figure 1.1).

**Appendix Figure 1.1: States and Territories Included in Analysis**



**Note:** 29 states, the District of Columbia, and two territories: Puerto Rico and the U.S. Virgin Islands, are included in our analysis. We included states and territories that passed a series of 25 data quality checks detailed below.

## Data Quality Assessments

The TAFs are known to have a number of data quality issues, some of which may impair our ability to reliably identify NEMT services. Prior to embarking on our analysis, we conducted a data quality (DQ) assessment to ensure the viability of the data analysis. As the TAFs consist of records submitted by each of the individual state Medicaid programs, we conducted the DQ assessment at the state level. Results from the assessment were used to create included and excluded lists of states for the remainder of the analysis.

The DQ assessment was comprised of a series of 25 tests which appear in Table 1 below. While most tests were written de novo for the purposes of this assessment, some were sourced from the CMS T-MSIS Data Quality Atlas.[36] Tests included checks for completeness of data elements, reasonableness and validity of values, and the degree to which missing or invalid data in particular fields correlate with race/ethnicity (Appendix Table 1.1)

Notably, we took a different approach to DQ criteria for race and ethnicity than several other studies that use these data from the TAF, which typically use thresholds for missing data and similarity to external benchmarks, such as the American Community Survey. We considered excluding states that had more than 10 percent of records missing race and ethnicity information, or if the distribution of race and ethnicity groups varied from the American Community Survey (ACS) by more than 5 percent for any group. However, we ultimately decided against excluding data on the basis of these checks.

Our objective was to descriptively assess NEMT utilization by groups of Medicaid enrollees defined by characteristics such as race and ethnicity, reason for Medicaid eligibility, dual-eligibility for Medicare, age, sex, and the presence of chronic conditions. To ensure that our analysis was both valid and interesting, we only considered states that reported reliable data for these enrollee characteristics and information needed to measure NEMT utilization. Additionally, due to the primacy of race and ethnicity in our analysis, we conducted a series of tests to ensure that the presence and validity of other data elements was not correlated with race and ethnicity. Only states where the missingness of data elements such as the enrollee's age were largely uncorrelated with the enrollee's race and ethnicity were included.

**Appendix Table 1.1 - Data Quality Assessment Tests**

| Test | Value Measured | Failure Threshold |
|---|---|---|
| Age Presence at the State Level | Percent of unique, non-missing enrollees | <90% present |
| CHIP Enrollment Presence at the State Level | Percent of unique, non-missing enrollees | <90% present |
| CHIP Enrollment Validity at the State Level | Percent of unique, non-missing enrollees | <90% valid |
| Correlation of presence of enrollee age data with race/ethnicity | Cramer's V | ≥0.1 |

[36] Centers for Medicare & Medicaid Services (CMS) (2022). Exploring data quality (DQ) assessments by topic. Baltimore, MD: CMS. https://www.medicaid.gov/dq-atlas/landing/topics/info.

| Test | Value Measured | Failure Threshold |
|---|---|---|
| Correlation of presence of enrollee CHIP enrollment span data with race/ethnicity | Cramer's V | ≥0.1 |
| Correlation of presence of enrollee dual-eligibility data with race/ethnicity | Cramer's V | ≥0.1 |
| Correlation of presence of enrollee eligibility group code data with race/ethnicity | Cramer's V | ≥0.1 |
| Correlation of presence of enrollee location data with race/ethnicity | Cramer's V | ≥0.1 |
| Correlation of presence of enrollee Medicaid enrollment span data with race/ethnicity | Cramer's V | ≥0.1 |
| Correlation of presence of enrollee scope of benefits data with race/ethnicity | Cramer's V | ≥0.1 |
| Correlation of presence of enrollee sex data with race/ethnicity | Cramer's V | ≥0.1 |
| Dual-Eligibility Presence at the State Level | Percent of unique, non-missing enrollees | <90% present |
| Eligibility Group Presence at the State Level | Percent of unique, non-missing enrollees | <90% present |
| Medicaid Dual-Eligibility Validity at the State Level | Percent of unique, non-missing enrollees | <90% valid |
| Medicaid Eligibility Group Code Validity at the State Level | Percent of unique, non-missing enrollees | <90% valid |
| Medicaid Enrollment Presence at the State Level | Percent of unique, non-missing enrollees | <90% present |
| Medicaid Enrollment Validity at the State Level | Percent of unique, non-missing enrollees | <90% valid |
| Medicaid Scope of Benefits Presence at the State Level | Percent of unique, non-missing enrollees | <90% present |
| Medicaid Scope of Benefits Validity at the State Level | Percent of unique, non-missing enrollees | <90% valid |
| Orphan/Service Tracking Claim Prevalence at the State Level | Percent of OT file records | ≥10% orphan/service tracking claims |
| Presence and Validity of ICD-10-CM Codes on Outpatient Hospital, Physician, & Clinic Claims at the State Level (DQ Atlas) | Percent of OT file records | <90% present and valid |
| Sex Presence at the State Level | Percent of unique, non-missing enrollees | <90% present |
| Zip Code Presence and Validity at the State Level | Percent of unique, non-missing enrollees | <90% present and valid |
| Presence of Multiple Enrollment Gaps in the Year (DQ Atlas) | Percent of enrollees | ≥2% of enrollees |

| Test | Value Measured | Failure Threshold |
|---|---|---|
| Presence of Procedure Codes at the State Level in Professional Services Claims (DQ Atlas) | Percent of OT line file records | <90% present |

Some exceptions to the DQ assessment results were made to ensure that states that comprise a large share of the national Medicaid population were included. These include:

- **New York**, where dual-eligibility information was missing for >10% of enrollees and missing values of dual-eligibility, zip code, and enrollment span data tended to be correlated with race/ethnicity. Certain groups are missing data more often than others.
- **Georgia, Illinois, and Ohio**, where the presence of data on the number of days of enrollment in CHIP in each month tended to be correlated with race/ethnicity.

The inclusion of these states despite data quality issues may create biases in our results. For example, if NEMT utilization is highly correlated with race/ethnicity, an analysis of NEMT utilization among dually eligible enrollees in New York may be biased as we will be disproportionately missing dual-eligibility information from racial and ethnic groups. We ultimately included these states despite these issues, because we believe the exclusion of these states would have substantially limited the representativeness of our findings.

### Isolation of Relevant Population

Individual Medicaid enrollees may be entitled to differing sets of services. They may, for example, be restricted only to family planning services. As the restriction of benefits would also likely imply less use of NEMT, we limited our analysis to enrollees with no benefit restrictions. Benefit restrictions, as with many other enrollee characteristics, are tracked at the month level. As such, we included person-months where benefits were not restricted even if the enrollee had restricted benefits in other months. A value of "1" (full-benefits) from any state was included. Additionally, as Idaho groups the vast majority of its enrollees under the code "7" (alternative benefits package), we elected to include beneficiaries with this value from Idaho.

Beyond consideration of benefit restrictions, we also excluded enrollees without an MSISID, the T-MSIS internal person identifier. Without this, it is not possible to identify most of the eligibility characteristics for the individual, such as eligibility group, age, gender, race/ethnicity, etc. Finally, we excluded enrollees marked as missing eligibility data. Records marked as such typically indicate it is a "dummy" enrollment record generated to accompany a claim for which there is no matching enrollment record.

### Identification of NEMT Services

NEMT services, which appear on the T-MSIS Other Services (OT) file, were identified based on procedure codes. The code set we used (Appendix Table 1.2) consists of both national HCPCS codes as well several state-specific procedure codes indicating NEMT rides. This list of codes was sourced from a report on NEMT utilization published by MACPAC in 2021, as well as

additional codes identified by the U.S. Department of Health and Human Services in their report to Congress on NEMT utilization.[37][38]

**Appendix Table 1.2 -** NEMT Procedure Codes

| Code | Code Description | Code Type |
|---|---|---|
| A0080 | Volunteer vehicle mileage | HCPCS |
| A0090 | Individual vehicle mileage | HCPCS |
| A0100 | Non-emergency transport taxi | HCPCS |
| A0110 | Public or mass transportation | HCPCS |
| A0120 | Non-emergency transport mini-bus | HCPCS |
| A0130 | Non-emergency transport wheelchair van | HCPCS |
| A0140 | Non-emergency transport air | HCPCS |
| A0170 | Transport parking fees or tolls | HCPCS |
| A0180 | NEMT: lodging recipient | HCPCS |
| A0190 | NEMT: meals recipient | HCPCS |
| A0200 | NEMT: lodging escort | HCPCS |
| A0210 | NEMT: meals escort | HCPCS |
| S0209 | Wheelchair van mileage | HCPCS |
| S0215 | Non-emergency transportation mileage | HCPCS |
| A0170 | Transport parking fees or tolls | HCPCS |
| T2003 | Non-emergency transportation: encounter or trip | HCPCS |
| T2004 | Non-emergency transportation: commercial carrier pass | HCPCS |
| T2005 | Non-emergency transportation: stretcher van | HCPCS |
| Z2713 | Non-emergency transportation | Arkansas |
| W7274 | Transportation (non-emergency trip): 0 to 20 miles | Pennsylvania |
| W7275 | Transportation (non-emergency trip): 20 to 40 miles | Pennsylvania |
| W7276 | Transportation (non-emergency trip): 40 to 60 miles | Pennsylvania |
| M0372 | Transportation: level of care 1 (medication management) | Texas |
| M0419 | Transportation: community support | Texas |
| M0373 | Transportation: consumer directed services (CDS), level of care 1 | Texas |
| M0374 | Transportation: level of care 8 | Texas |

[37] MACPAC 2021.
[38] CMS 2022.

| Code | Code Description | Code Type |
|---|---|---|
| M0418 | Transportation: CDS, level of care 8 | Texas |
| M0420 | Transportation: CDS, community support | Texas |
| M0374 | Transportation: level of care 8 | Texas |
| A0426 | Ambulance service, advanced life support, non-emergency transport | HCPCS |
| A0428 | Ambulance service, basic life support, non-emergency transport, (BLS) | HCPCS |
| T2049 | Non-emergency transportation: stretcher van, mileage | California |
| X0200 | Non-emergency transport: wheelchair van | California |
| X0202 | Non-emergency transport: wheelchair van | California |
| X0204 | Non-emergency transport: wheelchair van | California |
| X0206 | Non-emergency transport: wheelchair van | California |
| X0406 | Non-emergency transport: wheelchair van | California |
| X0400 | Ambulance service, basic life support, non-emergency transport (BLS) | California |
| X0032 | Ambulance service, basic life support, non-emergency transport (BLS) | California |

## Definition of Enrollee Characteristics

We summarized NEMT utilization across several different enrollee characteristics. Enrollee characteristics we examined include the following:

- State Medicaid program paying for the enrollee
- Rurality of the enrollee's zip code of residence
- Enrollee age
- Enrollee sex
- Enrollee dual-eligibility status
- Enrollee Medicaid eligibility group
- Enrollee race/ethnicity
- Enrollee diagnosis/procedure history indicating opioid use disorder (OUD)
- Enrollee diagnosis history indicating serious mental illness (SMI)
- Enrollee diagnosis history for intellectual and developmental disabilities (ID/DD)
- Enrollee diagnosis history for end-stage renal disease (ESRD)

While several of these characteristics (e.g., state, sex) are recorded directly in the T-MSIS demographic and eligibility file, some required either additional data or processing. Our methodology for defining characteristic categories is recorded below.

**State Medicaid program paying for the enrollee:** The state (STATE_CD) field on the enrollment record.

**Rurality of the enrollee's zip code of residence:** Enrollee zip codes of residence (ZIP_CD) were mapped to RUCA codes using the USDA's crosswalk[39]. RUCA values of 1-3 were considered rural while values 4-10 were considered rural.

**Enrollee age:** Enrollee age (AGE) was grouped into several categories: ≤18, 19-20, 21-40, 41-64, ≥65.

**Enrollee sex:** Enrollee sex (SEX_CD) as recorded on the enrollment record.

**Enrollee dual-eligibility status:** The enrollee's monthly dual-eligibility status codes (DUAL_ELGBL_CD_01- DUAL_ELGBL_CD_12) were grouped according to the following table. Groupings were derived from CMS guidance recorded in the CCW's data dictionaries.

[39] U.S. Department of Agriculture (USDA), Economic Research Services. (2022). Documentation :2010 Rural-Urban Commuting Area (RUCA) Codes. Washington, DC: USDA. https://www.ers.usda.gov/data-products/rural-urban-commuting-area-codes/documentation/.

**Appendix Table 1.3 - Dual-Eligibility Code Mapping**

| DUAL_ELGBL_CD Value | Value Description | Grouping Used for Analysis |
|---|---|---|
| 00 | Eligible is not a Medicare beneficiary | Non-Dual |
| 01 | Eligible is entitled to Medicare-Qualified Medicare Beneficiary (QMB) only | Partial Dual |
| 02 | Eligible is entitled to Medicare-QMB and Medicaid coverage including prescription drugs | Full Dual |
| 03 | Eligible is entitled to Medicare-Specified Low-Income Medicare Beneficiary (SLMB) only | Partial Dual |
| 04 | Eligible is entitled to Medicare-SLMB and Medicaid coverage including prescription drugs | Full Dual |
| 05 | Eligible is entitled to Medicare-Qualified Disabled Working Individual (QDWI) | Partial Dual |
| 06 | Eligible is entitled to Medicare-Qualifying Individuals (QI) | Partial Dual |
| 07 | Eligible is entitled to Medicare-Other Dual Eligibles (Non QMB, SLMB, QDWI or QI) including prescription drugs | Other Dual |
| 08 | Eligible is entitled to Medicare – but without Medicaid coverage (This code is to be used only with specific CMS approval). | Full Dual |
| 09 | Separate CHIP Eligible is entitled to Medicare | Other Dual |
| 10 | Eligible is entitled to Medicare-Qualified Medicare Beneficiary (QMB) only | Other Dual |

**Note:** Those dually eligible as a QDWI or QI would be excluded from the analysis due to having restricted benefits.

**Enrollee Medicaid eligibility group:** Enrollee monthly eligibility group codes (ELGBLTY_GRP_CD_01-ELGBLTY_GRP_CD_012) were rolled up into higher level categories according to the table below. The enrollee's age was also used to facilitate grouping. Groupings were derived from MACPAC guidance.[40]

**Appendix Table 1.4 - Eligibility Group Code Mapping**

| ELGBLTY_GRP_CD Value | Value Description | Grouping Used for Analysis |
|---|---|---|
| 01 | Parents and Other Caretaker Relatives | Children (age <19)<br>Other Adult (age 19+) |
| 02 | Transitional Medical Assistance | Children (age <19)<br>Other Adult (age 19+) |
| 03 | Extended Medicaid due to Earnings | Children (age <19)<br>Other Adult (age 19+) |

[40] Medicaid and CHIP Payment and Access Commission (MACPAC). (2021). *MACStats Exhibit 47: MACPAC assignment of T-MSIS eligibility codes.* Washington, DC: MACPAC. https://www.macpac.gov/macstats/data-sources-and-methods/.

| ELGBLTY_GRP_CD Value | Value Description | Grouping Used for Analysis |
|---|---|---|
| 04 | Extended Medicaid due to Spousal Support Collections | Children (age <19)<br>Other Adult (age 19+) |
| 05 | Pregnant Women | Other Adult |
| 06 | Deemed Newborns | Children |
| 07 | Infants and Children under Age 19 | Children |
| 08 | Children with Title IV-E Adoption Assistance, Foster Care or Guardianship Care | Children |
| 09 | Former Foster Care Children | Other Adult |
| 11 | Individuals Receiving SSI | Disabled (age <65)<br>Aged (age 65+) |
| 12 | Aged, Blind and Disabled Individuals in 209(b) States | Disabled (age <65)<br>Aged (age 65+) |
| 13 | Individuals Receiving Mandatory State Supplements | Disabled (age <65)<br>Aged (age 65+) |
| 14 | Individuals Who Are Essential Spouses | Children (age <19)<br>Disabled (age 19-65)`<br>Aged (age 65+) |
| 15 | Institutionalized Individuals Continuously Eligible Since 1973 | Disabled (age <65)<br>Aged (age 65+) |
| 16 | Blind or Disabled Individuals Eligible in 1973 | Disabled (age <65<br>Aged (age 65+)) |
| 17 | Individuals Who Lost Eligibility for SSI/SSP Due to an Increase in OASDI Benefits in 1972 | Disabled (age <65)<br>Aged (age 65+) |
| 18 | Individuals Who Would be Eligible for SSI/SSP but for OASDI COLA increases since April, 1977 | Disabled (age <65)<br>Aged (age 65+) |
| 19 | Disabled Widows and Widowers Ineligible for SSI due to Increase in OASDI | Disabled (age <65)<br>Aged (age 65+) |
| 20 | Disabled Widows and Widowers Ineligible for SSI due to Early Receipt of Social Security | Disabled (age <65)<br>Aged (age 65+) |
| 21 | Working Disabled under 1619(b) | Disabled (age <65)<br>Aged (age 65+) |
| 22 | Disabled Adult Children | Disabled (age <65)<br>Aged (age 65+) |
| 23 | Qualified Medicare Beneficiaries | Disabled (age <65)<br>Aged (age 65+) |
| 24 | Qualified Disabled and Working Individuals | Disabled (age <65)<br>Aged (age 65+) |
| 25 | Specified Low-Income Medicare Beneficiaries | Disabled (age <65)<br>Aged (age 65+) |
| 26 | Qualifying Individuals | Disabled (age <65)<br>Aged (age 65+) |

| ELGBLTY_GRP_CD Value | Value Description | Grouping Used for Analysis |
|---|---|---|
| 27 | Optional Coverage of Parents and Other Caretaker Relatives | Children (age <19)<br>Other Adult (age 19+) |
| 28 | Reasonable Classifications of Individuals under Age 21 | Children |
| 29 | Children with Non-IV-E Adoption Assistance | Children |
| 30 | Independent Foster Care Adolescents | Children |
| 31 | Optional Targeted Low Income Children | Children |
| 32 | Individuals Electing COBRA Continuation Coverage | Children (age <19)<br>Other Adult (age 19-64)<br>Aged (age 65+) |
| 33 | Individuals above 133% FPL under Age 65 | Children (age <19)<br>Other Adult (age 19+) |
| 34 | Certain Individuals Needing Treatment for Breast or Cervical Cancer | Other |
| 35 | Individuals Eligible for Family Planning Services | Children (age <19)<br>Other Adult (age 19+) |
| 36 | Individuals with Tuberculosis | Children (age <19)<br>Other Adult (age 19+) |
| 37 | Aged, Blind or Disabled Individuals Eligible for but Not Receiving Cash Assistance | Disabled (age <65)<br>Aged (age 65+) |
| 38 | Individuals Eligible for Cash Assistance except for Institutionalization | Disabled (age <65)<br>Aged (age 65+) |
| 39 | Individuals Receiving Home and Community-Based Services under Institutional Rules | Disabled (age <65)<br>Aged (age 65+) |
| 40 | Optional State Supplement Recipients - 1634 States, and SSI Criteria States with 1616 Agreements | Disabled (age <65)<br>Aged (age 65+) |
| 41 | Optional State Supplement Recipients - 209(b) States, and SSI Criteria States without 1616 Agreements | Disabled (age <65)<br>Aged (age 65+) |
| 42 | Institutionalized Individuals Eligible under a Special Income Level | Disabled (age <65)<br>Aged (age 65+) |
| 43 | Individuals participating in a PACE Program under Institutional Rules | Disabled (age <65)<br>Aged (age 65+) |
| 44 | Individuals Receiving Hospice Care | Disabled (age <65)<br>Aged (age 65+) |
| 45 | Qualified Disabled Children under Age 19 | Disabled (age <65)<br>Aged (age 65+) |
| 46 | Poverty Level Aged or Disabled | Disabled (age <65)<br>Aged (age 65+) |
| 47 | Work Incentives Eligibility Group | Disabled (age <65)<br>Aged (age 65+) |
| 48 | Ticket to Work Basic Group | Disabled (age <65)<br>Aged (age 65+) |

| ELGBLTY_GRP_CD Value | Value Description | Grouping Used for Analysis |
|---|---|---|
| 49 | Ticket to Work Medical Improvements Group | Disabled (age <65)<br>Aged (age 65+) |
| 50 | Family Opportunity Act Children with Disabilities | Disabled (age <65)<br>Aged (age 65+) |
| 51 | Individuals Eligible for Home and Community-Based Services | Disabled (age <65)<br>Aged (age 65+) |
| 52 | Individuals Eligible for Home and Community-Based Services - Special Income Level | Disabled (age <65)<br>Aged (age 65+) |
| 53 | Medically Needy Pregnant Women | Other |
| 54 | Medically Needy Children under Age 18 | Children |
| 55 | Medically Needy Children Age 18 through 20 | Children |
| 56 | Medically Needy Parents and Other Caretakers | Children (age <19)<br>Other Adult (age 19+) |
| 59 | Medically Needy Aged, Blind or Disabled | Disabled (age <65)<br>Aged (age 65+) |
| 60 | Medically Needy Blind or Disabled Individuals Eligible in 1973 | Disabled (age <65)<br>Aged (age 65+) |
| 61 | Targeted Low-Income Children | Other |
| 62 | Deemed Newborn | Other |
| 63 | Children Ineligible for Medicaid Due to Loss of Income Disregards | Other |
| 64 | Coverage from Conception to Birth | Other |
| 65 | Children with Access to Public Employee Coverage | Other |
| 66 | Children Eligible for Dental Only Supplemental Coverage | Other |
| 67 | Targeted Low-Income Individuals | Other |
| 68 | Pregnant Women with Access to Public Employee Coverage | Other |
| 69 | Individuals with Mental Health Conditions (expansion group) | Children (age <19)<br>Other Adult (age 19+) |
| 70 | Family Planning Participants (expansion group) | Children (age <19)<br>Other Adult (age 19+) |
| 71 | Other expansion group | Children (age <19)<br>Other Adult (age 19+) |
| 72 | Adult Group - Individuals at or below 133% FPL,19-64, newly eligible for all states | New Adult Group |
| 73 | Adult Group - Individuals at or below 133% FPL,19-64, not newly eligible for non 1905z(3) states | New Adult Group |
| 74 | Adult Group - Individuals at or below 133% FPL,19-64, not newly eligible parent/caretaker-relative(s) in 1905z(3) states | New Adult Group |

| ELGBLTY_GRP_CD Value | Value Description | Grouping Used for Analysis |
|---|---|---|
| 75 | Adult Group - Individuals at or below 133% FPL,19-64, not newly eligible nonparent/caretaker-relative(s) in 1905z(3) states | New Adult Group |

Some enrollee characteristics we utilized, namely eligibility group, whether or not the enrollee is eligible for comprehensive benefits, and dual-eligibility status are tracked for each month in the year in the T-MSIS Demographic and Eligibility Files. In cases where an enrollee's characteristics changed throughout the year, we attributed the enrollee to both groups for the months in which the enrollee belonged to them. For example, a beneficiary that begins the year in the new adult eligibility group, but moves into the disabled group in July, we attribute the first six months of enrollment, and any associated NEMT rides, to the new adult group and the latter 6 months of enrollment and their associated NEMT rides to the disabled group. As such, when counting distinct enrollees in each category defined by eligibility group or dual-eligibility, a unique enrollee may be counted twice or more.

**Enrollee race/ethnicity:** Enrollee race/ethnicity (RACE_ETHNCTY_CD) as recorded on the enrollment record.

**Enrollee diagnosis/procedure history indicating opioid use disorder (OUD):** Enrollees with any of:

- At least one non-drug claim with a diagnosis code in the list (F1110, F11120, F11121, F11122, F11129, F1114, F11150, F11151, F11159, F11181, F11182, F11188, F1119, F1120, F11220, F11221, F11222, F11229, F1123, F1124, F11250, F11251, F11259, F11281, F11282, F11288, F1129, F1190, F11920, F11921, F11922, F11929, F1193, F1194, F11950, F11951, F11959, F11981, F11982, F11988, F1199, T400X1A, T400X2A, T400X3A, T400X4A, T401X1A, T401X2A, T401X3A, T401X4A, T402X1A, T402X2A, T402X3A, T402X4A, T403X1A, T403X2A, T403X3A, T403X4A, T403X5A, T404X1A, T404X2A, T404X3A, T404X4A, T40411A, T40412A, T40413A, T40414A, T40415A, T40421A, T40422A, T40423A, T40424A, T40425A, T40491A, T40492A, T40493A, T40494A, T40495A, T40601A, T40602A, T40603A, T40604A, T40691A, T40692A, T40693A, T40694A, F1110, F11120, F11121, F11122, F11129, F1113, F1114, F11150, F11151, F11159, F11181, F11182, F11188, F1119, F1120, F11220, F11221, F11222, F11229, F1123, F1124, F11250, F11251, F11259, F11281, F11282, F11288, F1129, F1190, F11920, F11921, F11922, F11929, F1193, F1194, F11950, F11951, F11959, F11981, F11982, F11988, F1199, T400X1A, T400X1D, T400X1S, T400X2A, T400X2D, T400X2S, T400X3A, T400X3D, T400X3S, T400X4A, T400X4D, T400X4S, T400X5A, T400X5D, T400X5S, T401X1A, T401X1D, T401X1S, T401X2A, T401X2D, T401X2S, T401X3A, T401X3D, T401X3S, T401X4A, T401X4D, T401X4S, T402X1A, T402X1D, T402X1S, T402X2A, T402X2D, T402X2S, T402X3A, T402X3D, T402X3S, T402X4A, T402X4D, T402X4S, T402X5A, T402X5D, T402X5S, T403X1A, T403X1D, T403X1S, T403X2A, T403X2D, T403X2S, T403X3A, T403X3D, T403X3S, T403X4A, T403X4D, T403X4S, T403X5A, T403X5D, T403X5S, T404X1A, T404X1D, T404X1S, T404X2A, T404X2D, T404X2S, T404X3A, T404X3D, T404X3S, T404X4A, T404X4D, T404X4S, T404X5A, T404X5D, T404X5S, T40411A, T40411D, T40411S, T40412A, T40412D, T40412S, T40413A, T40413D, T40413S, T40414A, T40414D, T40414S, T40415A, T40415D, T40415S, T40421A, T40421D, T40421S, T40422A, T40422D, T40422S, T40423A, T40423D, T40423S, T40424A, T40424D, T40424S, T40425A, T40425D, T40425S, T40491A, T40491D, T40491S, T40492A, T40492D, T40492S, T40493A, T40493D, T40493S, T40494A, T40494D, T40494S, T40495A, T40495D, T40495S, T40601A, T40601D, T40601S, T40602A, T40602D, T40602S, T40603A, T40603D, T40603S, T40604A, T40604D, T40604S,

T40605A, T40605D, T40605S, T40691A, T40691D, T40691S, T40692A, T40692D, T40692S, T40693A, T40693D, T40693S, T40694A, T40694D, T40694S, T40695A, T40695D, T40695S)

- At least one non-drug claim with a procedure code in the list (G2067, G2068, G2069, G2070, G2071, G2072, G2073, G2078, G2079, H0020, J0571, J0572, J0573, J0574, J0575, J0592, J1230, J2315, S0109)
- At least one drug claim with an NDC in the list (00054017613, 54017713, 54018813, 54018913, 93537856, 93537956, 93572056, 93572156, 228315303, 228315403, 228315473, 228315503, 228315567, 228315573, 228315603, 378092393, 378092493, 378876716, 378876793, 378876816, 378876893, 406192303, 406192403, 406800503, 406802003, 490005100, 490005130, 490005160, 490005190, 781721606, 781721664, 781722706, 781722764, 781723806, 781723864, 781724906, 781724964, 12496010001, 12496010002, 12496010005, 12496030001, 12496030002, 12496030005, 12496120201, 12496120203, 12496120401, 12496120403, 12496120801, 12496120803, 12496121201, 12496121203, 12496127802, 12496128302, 12496130602, 12496131002, 16590066605, 16590066630, 16590066705, 16590066730, 16590066790, 23490927003, 23490927006, 23490927009, 35356000407, 35356000430, 35356055530, 35356055630, 42291017430, 42291017530, 42858050103, 42858050203, 43063018407, 43063018430, 43063066706, 43063075306, 43598057901, 43598057930, 43598058001, 43598058030, 43598058101, 43598058130, 43598058201, 43598058230, 47781035503, 47781035511, 47781035603, 47781035611, 47781035703, 47781035711, 47781035803, 47781035811, 49999039507, 49999039515, 49999039530, 49999063830, 49999063930, 50090292400, 50268014411, 50268014415, 50268014511, 50268014515, 50383028793, 50383029493, 50383092493, 50383093093, 52427069203, 52427069211, 52427069403, 52427069411, 52427069803, 52427069811, 52427071203, 52427071211, 52440010014, 52959030430, 52959074930, 53217013830, 53217024630, 54123011430, 54123090730, 54123091430, 54123092930, 54123095730, 54123098630, 54569549600, 54569573900, 54569573901, 54569573902, 54569639900, 54569640800, 54569657800, 54868570700, 54868570701, 54868570702, 54868570703, 54868570704, 54868575000, 55045378403, 55700014730, 55700018430, 55700030230, 55700030330, 58284010014, 59385001201, 59385001230, 59385001401, 59385001430, 59385001601, 59385001630, 60429058611, 60429058630, 60429058633, 60429058711, 60429058730, 60429058733, 60687048111, 60687048121, 60687049211, 60687049221, 62175045232, 62175045832, 62756045983, 62756046083, 62756096983, 62756097083, 63629402801, 63629403401, 63629403402, 63629403403, 63629409201, 63874108403, 63874108503, 63874117303, 65162041503, 65162041603, 66336001630, 68071138003, 68071151003, 68258299103, 68258299903, 68308020230, 68308020830, 71335115403, 00056001122, 56001130, 56001170, 56007950, 56008050, 185003901, 185003930, 406009201, 406009203, 406117001, 406117003, 555090201, 555090202, 904703604, 16729008101, 16729008110, 42291063230, 43063059115, 47335032683, 47335032688, 50090286600, 50436010501, 51224020630, 51224020650, 51285027501, 51285027502, 52152010502, 52152010504, 52152010530, 54868557400, 63459030042, 63629104601, 63629104701, 65694010003, 65694010010, 65757030001, 65757030202, 68084029111, 68084029121, 68094085362, 68115068030) were labeled as having OUD.

**Enrollee diagnosis history indicating serious mental illness (SMI):** Enrollees with at least one non-drug claim from 2018 or 2019 with a diagnosis code in the list (F060, F062, F20, F21, F22,

F23, F24, F25, F28, F29, F323, F333, F4489, F30, F31, F338, F348, F349, F39) present in any position on the claim were labeled as having SMI.

**Enrollee diagnosis history for intellectual and developmental disabilities (ID/DD):** Enrollees with at least one non-drug claim from 2018 or 2019 with a diagnosis code in the list (E7871, E7872, F70, F71, F72, F73, F78, F79, P043, Q860, Q871, Q872, Q873, Q875, Q8781, Q8789, Q897, Q898, Q90, Q91, Q92, Q930, Q931, Q932, Q933, Q934, Q935, Q937, Q9381, Q9388, Q9389, Q939, Q952, Q953, Q992) present in any position on the claim were labeled as having IDD.

**Enrollee diagnosis history for end-stage renal disease (ESRD):** Enrollees with at least one non-drug claim from 2018 or 2019 with the diagnosis code N186 present in any position on the claim were labeled as having ESRD.

**Summarization of NEMT Utilization**

As the procedure codes outlined in Table 2 may refer to reimbursement for a ride or for other components of the trip (e.g., tolls), an individual instance of a ride may be represented by multiple lines on the claim. To avoid double counting rides, we measured NEMT utilization in ride-days – unique calendar days in which at least one code indicative of NEMT services appeared for the enrollee. As such, each enrollee was assigned a number of ride-days between 0 and 31 for each month (or 0-30 or 0-28, depending on the month) based on the claims. We then calculated the following summary statistics for a given set of enrollee characteristics:

- Total Ride-days – The total number of ride-days across all enrollee-months
- Total Number of Enrollee-Months – The total number of enrollee-months observed
- Total Rider Enrollment Months – The total number of enrollee-months with at least one ride-day in the month
- Total Riders – The number of unique enrollees with at least one ride-day in the year
- Total Enrollees – The number of unique enrollees observed
- Ride-days per Rider – The number of ride-days observed divided by the number of unique enrollees with at least one ride-day in the year
- Ride-days per Full-Year Equivalent – The number of ride-days divided by the number of enrollment months divided by 12. In effect, ride-days per enrollee normalized to account for those not eligible for the full year.
- T-Test Probability – The probability that, were we to observe infinitely many enrollees, that we would observe the difference we did in ride-days per full-year equivalent metric between the group and its complement (i.e., all enrollees not in that group).

Note that, since many enrollee characteristics are measured monthly, enrollees may be double counted in the total number of riders and total number of enrollees fields. For example, if an enrollee is not dually eligible for the first half of the year but becomes dually eligible for the second half of the year, the individual will be considered both when counting the number of unique dually eligible enrollees **and** when counting the number of unique non-dually eligible enrollees.

# Appendix 2: NEMT Use by Race and Ethnicity – Additional Analyses

## Appendix Table 2.1 – NEMT Use by State

| State | Total Enrollees | Total Riders | Riders as a Share of Enrollees | Ride-Days per Rider | Ride-Days per FYE | Share of Enrollment | Share of Riders | Share of Ride-Days |
|---|---|---|---|---|---|---|---|---|
| **Total** | **65,840,654** | **3,154,742** | **4.8%** | **20.92** | **1.19** | **100.0%** | **100.0%** | **100.0%** |
| AK | 251,312 | 34,218 | 13.6% | 7.96 | 1.23 | 0.4% | 1.1% | 0.4% |
| AZ | 2,094,090 | 248,359 | 11.9% | 21.17 | 2.95 | 3.2% | 7.9% | 8.0% |
| CA | 13,851,073 | 312,901 | 2.3% | 16.33 | 0.43 | 21.0% | 9.9% | 7.7% |
| CO | 996,095 | 45,988 | 4.6% | 23.76 | 1.36 | 1.5% | 1.5% | 1.7% |
| CT | 992,078 | 53,745 | 5.4% | 17.14 | 1.06 | 1.5% | 1.7% | 1.4% |
| DC | 271,016 | 23,569 | 8.7% | 18.74 | 1.78 | 0.4% | 0.7% | 0.7% |
| DE | 265,657 | 11,744 | 4.4% | 17.34 | 0.92 | 0.4% | 0.4% | 0.3% |
| GA | 2,254,795 | 104,797 | 4.6% | 15.24 | 0.84 | 3.4% | 3.3% | 2.4% |
| HI | 395,560 | 18,020 | 4.6% | 11.19 | 0.60 | 0.6% | 0.6% | 0.3% |
| IA | 793,059 | 43,377 | 5.5% | 21.24 | 1.36 | 1.2% | 1.4% | 1.4% |
| ID | 323,906 | 16,035 | 5.0% | 36.44 | 2.16 | 0.5% | 0.5% | 0.9% |
| IL | 3,382,955 | 145,789 | 4.3% | 13.28 | 0.68 | 5.1% | 4.6% | 2.9% |
| IN | 1,666,330 | 70,777 | 4.2% | 6.90 | 0.36 | 2.5% | 2.2% | 0.7% |
| KY | 1,591,827 | 67,778 | 4.3% | 25.66 | 1.18 | 2.4% | 2.1% | 2.6% |
| MA | 1,916,125 | 168,383 | 8.8% | 45.56 | 4.66 | 2.9% | 5.3% | 11.6% |



**Source:** NORC and MTAC analysis of 2019 Transformed Medicaid Statistical Information System (T-MSIS) Analytic File (TAF) Data.

| State | Total Enrollees | Total Riders | Riders as a Share of Enrollees | Ride-Days per Rider | Ride-Days per FYE | Share of Enrollment | Share of Riders | Share of Ride-Days |
|---|---|---|---|---|---|---|---|---|
| MD | 1,511,944 | 13,823 | 0.9% | 5.17 | 0.05 | 2.3% | 0.4% | 0.1% |
| MI | 2,865,213 | 134,470 | 4.7% | 10.73 | 0.60 | 4.4% | 4.3% | 2.2% |
| MN | 1,282,105 | 147,664 | 11.5% | 22.10 | 3.17 | 1.9% | 4.7% | 4.9% |
| MO | 1,133,615 | 86,654 | 7.6% | 9.12 | 0.86 | 1.7% | 2.7% | 1.2% |
| MT | 204,053 | 5,425 | 2.7% | 17.97 | 0.50 | 0.3% | 0.2% | 0.1% |
| NC | 2,134,387 | 82,295 | 3.9% | 14.48 | 0.65 | 3.2% | 2.6% | 1.8% |
| NH | 188,598 | 1,896 | 1.0% | 18.26 | 0.23 | 0.3% | 0.1% | 0.1% |
| NJ | 1,895,177 | 118,418 | 6.2% | 24.53 | 1.86 | 2.9% | 3.8% | 4.4% |
| NY | 5,640,963 | 491,547 | 8.7% | 23.84 | 2.57 | 8.6% | 15.6% | 17.8% |
| OH | 3,169,546 | 149,907 | 4.7% | 7.04 | 0.39 | 4.8% | 4.8% | 1.6% |
| PA | 3,395,930 | 52,608 | 1.5% | 5.86 | 0.11 | 5.2% | 1.7% | 0.5% |
| PR | 1,492,090 | 18,285 | 1.2% | 7.63 | 0.11 | 2.3% | 0.6% | 0.2% |
| RI | 256,666 | 16,109 | 6.3% | 20.28 | 1.73 | 0.4% | 0.5% | 0.5% |
| SC | 1,241,112 | 68,192 | 5.5% | 21.65 | 1.36 | 1.9% | 2.2% | 2.2% |
| TX | 4,974,509 | 209,638 | 4.2% | 28.48 | 1.45 | 7.6% | 6.6% | 9.0% |
| VI | 31,786 | 318 | 1.0% | 12.58 | 0.14 | 0.0% | 0.0% | 0.0% |
| WA | 2,043,237 | 63,964 | 3.1% | 54.57 | 2.02 | 3.1% | 2.0% | 5.3% |
| WI | 1,254,882 | 126,635 | 10.1% | 25.71 | 3.13 | 1.9% | 4.0% | 4.9% |
| WY | 78,963 | 1,414 | 1.8% | 4.55 | 0.11 | 0.1% | 0.0% | 0.0% |



**Source:** NORC and MTAC analysis of 2019 Transformed Medicaid Statistical Information System (T-MSIS) Analytic File (TAF) Data.

## Appendix Table 2.2 – NEMT Use by State, Race, and Ethnicity

| Row Labels | Total Enrollees | Total Riders | Total Ride-Days | Riders as a Share of Enrollees | Ride-Days per Rider | Ride-Days per FYE | Share of enrollees (in state) | Share of Riders (in state) | Share of Ride-Days (in state) |
|---|---|---|---|---|---|---|---|---|---|
| **AK** | **251,265** | **34,211** | **272,115** | **13.6%** | **8.0** | **1.2** | **100.0%** | **100.0%** | **100.0%** |
| American Indian and Alaska Native (AIAN), non-Hispanic | 81,541 | 23,495 | 148,640 | 28.8% | 6.3 | 2.0 | 32.5% | 68.7% | 54.6% |
| Asian, non-Hispanic | 13,087 | 488 | 9,398 | 3.7% | 19.3 | 0.8 | 5.2% | 1.4% | 3.5% |
| Black, non-Hispanic | 9,496 | 619 | 8,228 | 6.5% | 13.3 | 1.0 | 3.8% | 1.8% | 3.0% |
| Hawaiian/Pacific Islander | 10,355 | 350 | 6,907 | 3.4% | 19.7 | 0.8 | 4.1% | 1.0% | 2.5% |
| Hispanic, all races | 7,048 | 362 | 4,003 | 5.1% | 11.1 | 0.7 | 2.8% | 1.1% | 1.5% |
| Missing | 16,989 | 853 | 7,031 | 5.0% | 8.2 | 0.5 | 6.8% | 2.5% | 2.6% |
| Multiracial, non-Hispanic | 13,558 | 990 | 6,339 | 7.3% | 6.4 | 0.5 | 5.4% | 2.9% | 2.3% |
| White, non-Hispanic | 99,191 | 7,054 | 81,569 | 7.1% | 11.6 | 0.9 | 39.5% | 20.6% | 30.0% |
| **AZ** | **2,094,090** | **248,351** | **5,257,863** | **11.9%** | **21.2** | **2.9** | **100.0%** | **100.0%** | **100.0%** |
| American Indian and Alaska Native (AIAN), non-Hispanic | 196,288 | 47,934 | 1,107,724 | 24.4% | 23.1 | 6.4 | 9.4% | 19.3% | 21.1% |



**Source:** NORC and MTAC analysis of 2019 Transformed Medicaid Statistical Information System (T-MSIS) Analytic File (TAF) Data.

| Row Labels | Total Enrollees | Total Riders | Total Ride-Days | Riders as a Share of Enrollees | Ride-Days per Rider | Ride-Days per FYE | Share of enrollees (in state) | Share of Riders (in state) | Share of Ride-Days (in state) |
|---|---|---|---|---|---|---|---|---|---|
| Asian, non-Hispanic | 39,954 | 2,390 | 28,671 | 6.0% | 12.0 | 0.8 | 1.9% | 1.0% | 0.5% |
| Black, non-Hispanic | 177,750 | 24,942 | 402,206 | 14.0% | 16.1 | 2.7 | 8.5% | 10.0% | 7.6% |
| Hawaiian/Pacific Islander | 6,902 | 423 | 6,827 | 6.1% | 16.1 | 1.2 | 0.3% | 0.2% | 0.1% |
| Hispanic, all races | 15,928 | 4,121 | 92,762 | 25.9% | 22.5 | 6.2 | 0.8% | 1.7% | 1.8% |
| Missing | 666,445 | 67,673 | 1,512,854 | 10.2% | 22.4 | 2.7 | 31.8% | 27.2% | 28.8% |
| White, non-Hispanic | 990,823 | 100,868 | 2,106,819 | 10.2% | 20.9 | 2.5 | 47.3% | 40.6% | 40.1% |
| **CA** | **13,851,062** | **312,887** | **5,108,730** | **2.3%** | **16.3** | **0.4** | **100.0%** | **100.0%** | **100.0%** |
| American Indian and Alaska Native (AIAN), non-Hispanic | 64,178 | 2,668 | 39,642 | 4.2% | 14.9 | 0.7 | 0.5% | 0.9% | 0.8% |
| Asian, non-Hispanic | 1,488,712 | 26,665 | 586,021 | 1.8% | 22.0 | 0.4 | 10.7% | 8.5% | 11.5% |
| Black, non-Hispanic | 1,186,860 | 49,540 | 754,105 | 4.2% | 15.2 | 0.7 | 8.6% | 15.8% | 14.8% |
| Hawaiian/Pacific Islander | 67,421 | 1,171 | 33,040 | 1.7% | 28.2 | 0.6 | 0.5% | 0.4% | 0.6% |
| Hispanic, all races | 6,705,759 | 109,298 | 2,200,938 | 1.6% | 20.1 | 0.4 | 48.4% | 34.9% | 43.1% |



**Source:** NORC and MTAC analysis of 2019 Transformed Medicaid Statistical Information System (T-MSIS) Analytic File (TAF) Data.

| Row Labels | Total Enrollees | Total Riders | Total Ride-Days | Riders as a Share of Enrollees | Ride-Days per Rider | Ride-Days per FYE | Share of enrollees (in state) | Share of Riders (in state) | Share of Ride-Days (in state) |
|---|---|---|---|---|---|---|---|---|---|
| Missing | 1,401,801 | 19,165 | 238,584 | 1.4% | 12.4 | 0.2 | 10.1% | 6.1% | 4.7% |
| White, non-Hispanic | 2,936,331 | 104,380 | 1,256,400 | 3.6% | 12.0 | 0.5 | 21.2% | 33.4% | 24.6% |
| **CO** | **995,470** | **45,960** | **1,092,068** | **4.6%** | **23.8** | **1.4** | **100.0%** | **100.0%** | **100.0%** |
| American Indian and Alaska Native (AIAN), non-Hispanic | 8,196 | 398 | 5,951 | 4.9% | 15.0 | 0.9 | 0.8% | 0.9% | 0.5% |
| Asian, non-Hispanic | 22,259 | 1,265 | 30,710 | 5.7% | 24.3 | 1.6 | 2.2% | 2.8% | 2.8% |
| Black, non-Hispanic | 69,672 | 3,733 | 70,488 | 5.4% | 18.9 | 1.2 | 7.0% | 8.1% | 6.5% |
| Hawaiian/Pacific Islander | 2,740 | 63 | 1,748 | 2.3% | 27.7 | 0.8 | 0.3% | 0.1% | 0.2% |
| Hispanic, all races | 104,492 | 2,232 | 57,032 | 2.1% | 25.6 | 0.7 | 10.5% | 4.9% | 5.2% |
| Missing | 436,306 | 14,607 | 358,847 | 3.3% | 24.6 | 1.0 | 43.8% | 31.8% | 32.9% |
| White, non-Hispanic | 351,805 | 23,662 | 567,292 | 6.7% | 24.0 | 2.0 | 35.3% | 51.5% | 51.9% |
| **CT** | **992,078** | **53,731** | **921,288** | **5.4%** | **17.1** | **1.1** | **100.0%** | **100.0%** | **100.0%** |
| American Indian and Alaska Native (AIAN), non-Hispanic | 5,820 | 330 | 3,980 | 5.7% | 12.1 | 0.8 | 0.6% | 0.6% | 0.4% |



**Source:** NORC and MTAC analysis of 2019 Transformed Medicaid Statistical Information System (T-MSIS) Analytic File (TAF) Data.

| Row Labels | Total Enrollees | Total Riders | Total Ride-Days | Riders as a Share of Enrollees | Ride-Days per Rider | Ride-Days per FYE | Share of enrollees (in state) | Share of Riders (in state) | Share of Ride-Days (in state) |
|---|---|---|---|---|---|---|---|---|---|
| Asian, non-Hispanic | 30,657 | 668 | 10,712 | 2.2% | 16.0 | 0.4 | 3.1% | 1.2% | 1.2% |
| Black, non-Hispanic | 168,988 | 10,566 | 161,994 | 6.3% | 15.3 | 1.1 | 17.0% | 19.7% | 17.6% |
| Hawaiian/Pacific Islander | 1,730 | 59 | 805 | 3.4% | 13.6 | 0.5 | 0.2% | 0.1% | 0.1% |
| Missing | 409,024 | 12,793 | 141,103 | 3.1% | 11.0 | 0.4 | 41.2% | 23.8% | 15.3% |
| White, non-Hispanic | 375,859 | 29,315 | 602,694 | 7.8% | 20.6 | 1.8 | 37.9% | 54.6% | 65.4% |
| **DC** | **271,006** | **23,566** | **441,520** | **8.7%** | **18.7** | **1.8** | **100.0%** | **100.0%** | **100.0%** |
| American Indian and Alaska Native (AIAN), non-Hispanic | 69 | 14 | 157 | 20.3% | 11.2 | 2.5 | 0.0% | 0.1% | 0.0% |
| Asian, non-Hispanic | 1,783 | 75 | 1,037 | 4.2% | 13.8 | 0.6 | 0.7% | 0.3% | 0.2% |
| Black, non-Hispanic | 182,419 | 18,594 | 364,501 | 10.2% | 19.6 | 2.2 | 67.3% | 78.9% | 82.6% |
| Hispanic, all races | 7,093 | 242 | 1,566 | 3.4% | 6.5 | 0.3 | 2.6% | 1.0% | 0.4% |
| Missing | 77,155 | 4,381 | 64,401 | 5.7% | 14.7 | 0.9 | 28.5% | 18.6% | 14.6% |
| White, non-Hispanic | 2,487 | 260 | 9,858 | 10.5% | 37.9 | 4.5 | 0.9% | 1.1% | 2.2% |



**Source:** NORC and MTAC analysis of 2019 Transformed Medicaid Statistical Information System (T-MSIS) Analytic File (TAF) Data.

| Row Labels | Total Enrollees | Total Riders | Total Ride-Days | Riders as a Share of Enrollees | Ride-Days per Rider | Ride-Days per FYE | Share of enrollees (in state) | Share of Riders (in state) | Share of Ride-Days (in state) |
|---|---|---|---|---|---|---|---|---|---|
| **DE** | **265,558** | **11,730** | **203,503** | **4.4%** | **17.3** | **0.9** | **100.0%** | **100.0%** | **100.0%** |
| American Indian and Alaska Native (AIAN), non-Hispanic | 465 | 25 | 375 | 5.4% | 15.0 | 1.0 | 0.2% | 0.2% | 0.2% |
| Asian, non-Hispanic | 6,267 | 80 | 1,375 | 1.3% | 17.2 | 0.3 | 2.4% | 0.7% | 0.7% |
| Black, non-Hispanic | 104,715 | 5,413 | 63,165 | 5.2% | 11.7 | 0.7 | 39.4% | 46.1% | 31.0% |
| Hawaiian/Pacific Islander | 636 | 76 | 790 | 11.9% | 10.4 | 1.5 | 0.2% | 0.6% | 0.4% |
| Hispanic, all races | 41,047 | 707 | 9,868 | 1.7% | 14.0 | 0.3 | 15.5% | 6.0% | 4.8% |
| Missing | 19 | | | - | - | - | 0.0% | - | - |
| White, non-Hispanic | 112,409 | 5,429 | 127,930 | 4.8% | 23.6 | 1.4 | 42.3% | 46.3% | 62.9% |
| **GA** | **2,254,662** | **104,788** | **1,597,324** | **4.6%** | **15.2** | **0.8** | **100.0%** | **100.0%** | **100.0%** |
| American Indian and Alaska Native (AIAN), non-Hispanic | 3,578 | 113 | 1,410 | 3.2% | 12.5 | 0.5 | 0.2% | 0.1% | 0.1% |
| Asian, non-Hispanic | 48,947 | 1,070 | 58,180 | 2.2% | 54.4 | 1.4 | 2.2% | 1.0% | 3.6% |



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| Row Labels | Total Enrollees | Total Riders | Total Ride-Days | Riders as a Share of Enrollees | Ride-Days per Rider | Ride-Days per FYE | Share of enrollees (in state) | Share of Riders (in state) | Share of Ride-Days (in state) |
|---|---|---|---|---|---|---|---|---|---|
| Black, non-Hispanic | 989,925 | 51,643 | 772,075 | 5.2% | 15.0 | 0.9 | 43.9% | 49.3% | 48.3% |
| Hawaiian/Pacific Islander | 1,691 | 20 | 85 | 1.2% | 4.3 | 0.1 | 0.1% | 0.0% | 0.0% |
| Hispanic, all races | 42,127 | 748 | 6,262 | 1.8% | 8.4 | 0.2 | 1.9% | 0.7% | 0.4% |
| Missing | 318,278 | 25,555 | 466,907 | 8.0% | 18.3 | 1.7 | 14.1% | 24.4% | 29.2% |
| White, non-Hispanic | 850,116 | 25,639 | 292,405 | 3.0% | 11.4 | 0.4 | 37.7% | 24.5% | 18.3% |
| **HI** | **395,546** | **17,999** | **201,478** | **4.6%** | **11.2** | **0.6** | **100.0%** | **100.0%** | **100.0%** |
| American Indian and Alaska Native (AIAN), non-Hispanic | 5,326 | 260 | 2,402 | 4.9% | 9.2 | 0.6 | 1.3% | 1.4% | 1.2% |
| Asian, non-Hispanic | 116,266 | 4,262 | 60,646 | 3.7% | 14.2 | 0.6 | 29.4% | 23.7% | 30.1% |
| Black, non-Hispanic | 6,028 | 348 | 3,240 | 5.8% | 9.3 | 0.6 | 1.5% | 1.9% | 1.6% |
| Hawaiian/Pacific Islander | 85,577 | 4,288 | 59,350 | 5.0% | 13.8 | 0.8 | 21.6% | 23.8% | 29.5% |
| Hispanic, all races | 15,702 | 534 | 5,099 | 3.4% | 9.5 | 0.4 | 4.0% | 3.0% | 2.5% |
| Missing | 99,443 | 3,314 | 24,987 | 3.3% | 7.5 | 0.3 | 25.1% | 18.4% | 12.4% |



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| Row Labels | Total Enrollees | Total Riders | Total Ride-Days | Riders as a Share of Enrollees | Ride-Days per Rider | Ride-Days per FYE | Share of enrollees (in state) | Share of Riders (in state) | Share of Ride-Days (in state) |
|---|---|---|---|---|---|---|---|---|---|
| White, non-Hispanic | 67,204 | 4,993 | 45,754 | 7.4% | 9.2 | 0.8 | 17.0% | 27.7% | 22.7% |
| **IA** | **793,055** | **43,368** | **921,302** | **5.5%** | **21.2** | **1.4** | **100.0%** | **100.0%** | **100.0%** |
| American Indian and Alaska Native (AIAN), non-Hispanic | 6,354 | 337 | 5,376 | 5.3% | 16.0 | 1.0 | 0.8% | 0.8% | 0.6% |
| Asian, non-Hispanic | 17,557 | 417 | 8,048 | 2.4% | 19.3 | 0.5 | 2.2% | 1.0% | 0.9% |
| Black, non-Hispanic | 65,673 | 4,363 | 70,524 | 6.6% | 16.2 | 1.3 | 8.3% | 10.1% | 7.7% |
| Hawaiian/Pacific Islander | 5,165 | 96 | 2,214 | 1.9% | 23.1 | 0.5 | 0.7% | 0.2% | 0.2% |
| Hispanic, all races | 80,243 | 3,114 | 60,823 | 3.9% | 19.5 | 0.9 | 10.1% | 7.2% | 6.6% |
| Missing | 218,922 | 10,946 | 253,073 | 5.0% | 23.1 | 1.4 | 27.6% | 25.2% | 27.5% |
| Multiracial, non-Hispanic | 14,211 | 413 | 8,183 | 2.9% | 19.8 | 0.6 | 1.8% | 1.0% | 0.9% |
| White, non-Hispanic | 384,930 | 23,682 | 513,061 | 6.2% | 21.7 | 1.5 | 48.5% | 54.6% | 55.7% |
| **ID** | **323,879** | **16,026** | **583,811** | **4.9%** | **36.4** | **2.2** | **100.0%** | **100.0%** | **100.0%** |



**Source:** NORC and MTAC analysis of 2019 Transformed Medicaid Statistical Information System (T-MSIS) Analytic File (TAF) Data.

| Row Labels | Total Enrollees | Total Riders | Total Ride-Days | Riders as a Share of Enrollees | Ride-Days per Rider | Ride-Days per FYE | Share of enrollees (in state) | Share of Riders (in state) | Share of Ride-Days (in state) |
|---|---|---|---|---|---|---|---|---|---|
| American Indian and Alaska Native (AIAN), non-Hispanic | 6,928 | 319 | 7,494 | 4.6% | 23.5 | 1.3 | 2.1% | 2.0% | 1.3% |
| Asian, non-Hispanic | | | | - | - | - | - | - | - |
| Asian, non-Hispanic | | | | - | - | - | - | - | - |
| Hispanic, all races | 54 | | | - | - | - | - | - | - |
| Missing | 1,347 | | | - | - | - | - | - | - |
| White, non-Hispanic | 315,550 | 15,707 | 576,317 | 5.0% | 36.7 | 2.2 | 97.4% | 98.0% | 98.7% |
| **IL** | **3,382,948** | **145,773** | **1,936,151** | **4.3%** | **13.3** | **0.7** | **100.0%** | **100.0%** | **100.0%** |
| American Indian and Alaska Native (AIAN), non-Hispanic | 14,474 | 317 | 3,352 | 2.2% | 10.6 | 0.3 | 0.4% | 0.2% | 0.2% |
| Asian, non-Hispanic | 121,796 | 3,701 | 61,405 | 3.0% | 16.6 | 0.6 | 3.6% | 2.5% | 3.2% |
| Asian, non-Hispanic | 1,011,550 | 59,802 | 746,454 | 5.9% | 12.5 | 0.9 | 29.9% | 41.0% | 38.6% |
| Hawaiian/Pacific Islander | 2,947 | 102 | 1,999 | 3.5% | 19.6 | 0.8 | 0.1% | 0.1% | 0.1% |



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|---|---|---|---|---|---|---|---|---|---|
| Hispanic, all races | 514,922 | 13,690 | 235,692 | 2.7% | 17.2 | 0.5 | 15.2% | 9.4% | 12.2% |
| Missing | 189,860 | 5,562 | 62,328 | 2.9% | 11.2 | 0.4 | 5.6% | 3.8% | 3.2% |
| Multiracial, non-Hispanic | 3,025 | 24 | 120 | 0.8% | 5.0 | 0.1 | 0.1% | 0.0% | 0.0% |
| White, non-Hispanic | 1,524,374 | 62,575 | 824,801 | 4.1% | 13.2 | 0.6 | 45.1% | 42.9% | 42.6% |
| **IN** | **1,666,235** | **70,766** | **488,100** | **4.2%** | **6.9** | **0.4** | **100.0%** | **100.0%** | **100.0%** |
| American Indian and Alaska Native (AIAN), non-Hispanic | 2,616 | 146 | 1,254 | 5.6% | 8.6 | 0.6 | 0.2% | 0.2% | 0.3% |
| Asian, non-Hispanic | 13 | | | - | - | - | 0.0% | - | - |
| Black, non-Hispanic | 327,938 | 16,744 | 125,887 | 5.1% | 7.5 | 0.5 | 19.7% | 23.7% | 25.8% |
| Hawaiian/Pacific Islander | 36,656 | 448 | 1,965 | 1.2% | 4.4 | 0.1 | 2.2% | 0.6% | 0.4% |
| Hispanic, all races | 95,186 | 1,062 | 7,677 | 1.1% | 7.2 | 0.1 | 5.7% | 1.5% | 1.6% |
| Missing | 180,005 | 10,659 | 80,528 | 5.9% | 7.6 | 0.6 | 10.8% | 15.1% | 16.5% |
| White, non-Hispanic | 1,023,821 | 41,707 | 270,789 | 4.1% | 6.5 | 0.3 | 61.4% | 58.9% | 55.5% |



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|---|---|---|---|---|---|---|---|---|---|
| **KY** | **1,591,740** | **67,752** | **1,738,351** | **4.3%** | **25.7** | **1.2** | **100.0%** | **100.0%** | **100.0%** |
| American Indian and Alaska Native (AIAN), non-Hispanic | 875 | 17 | 200 | 1.9% | 11.8 | 0.3 | 0.1% | 0.0% | 0.0% |
| Asian, non-Hispanic | 16,255 | 246 | 11,667 | 1.5% | 47.4 | 0.8 | 1.0% | 0.4% | 0.7% |
| Black, non-Hispanic | 180,663 | 7,442 | 205,788 | 4.1% | 27.7 | 1.2 | 11.4% | 11.0% | 11.8% |
| Hawaiian/Pacific Islander | 837 | | | - | - | - | 0.1% | - | - |
| Hispanic, all races | 52,995 | 655 | 17,782 | 1.2% | 27.1 | 0.4 | 3.3% | 1.0% | 1.0% |
| Missing | 264,368 | 13,754 | 514,540 | 5.2% | 37.4 | 2.2 | 16.6% | 20.3% | 29.6% |
| White, non-Hispanic | 1,075,747 | 45,638 | 988,374 | 4.2% | 21.7 | 1.0 | 67.6% | 67.4% | 56.9% |
| **MA** | **1,916,098** | **168,418** | **7,670,060** | **8.8%** | **45.5** | **4.7** | **100.0%** | **100.0%** | **100.0%** |
| American Indian and Alaska Native (AIAN), non-Hispanic | 4,135 | 428 | 13,811 | 10.4% | 32.3 | 3.8 | 0.2% | 0.3% | 0.2% |
| Asian, non-Hispanic | 71,402 | 4,321 | 237,717 | 6.1% | 55.0 | 3.9 | 3.7% | 2.6% | 3.1% |



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|---|---|---|---|---|---|---|---|---|---|
| Black, non-Hispanic | 182,316 | 13,664 | 499,986 | 7.5% | 36.6 | 3.2 | 9.5% | 8.1% | 6.5% |
| Hispanic, all races | 106,363 | 3,774 | 122,303 | 3.5% | 32.4 | 1.3 | 5.6% | 2.2% | 1.6% |
| Missing | 897,650 | 83,501 | 3,786,397 | 9.3% | 45.3 | 4.9 | 46.8% | 49.6% | 49.4% |
| Multiracial, non-Hispanic | | | | - | - | - | - | - | - |
| White, non-Hispanic | 654,232 | 62,730 | 3,009,846 | 9.6% | 48.0 | 5.3 | 34.1% | 37.2% | 39.2% |
| **MD** | **1,511,029** | **13,817** | **71,489** | **0.9%** | **5.2** | **0.1** | **100.0%** | **100.0%** | **100.0%** |
| American Indian and Alaska Native (AIAN), non-Hispanic | 6,182 | 55 | 169 | 0.9% | 3.1 | 0.0 | 0.4% | 0.4% | 0.2% |
| Asian, non-Hispanic | 76,169 | 618 | 2,499 | 0.8% | 4.0 | 0.0 | 5.0% | 4.5% | 3.5% |
| Black, non-Hispanic | 547,538 | 5,862 | 25,824 | 1.1% | 4.4 | 0.1 | 36.2% | 42.4% | 36.1% |
| Hawaiian/Pacific Islander | 2,231 | 15 | 66 | 0.7% | 4.4 | 0.0 | 0.1% | 0.1% | 0.1% |
| Hispanic, all races | 202,822 | 676 | 5,472 | 0.3% | 8.1 | 0.0 | 13.4% | 4.9% | 7.7% |
| Missing | 320,791 | 1,488 | 9,253 | 0.5% | 6.2 | 0.0 | 21.2% | 10.8% | 12.9% |



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|---|---|---|---|---|---|---|---|---|---|
| White, non-Hispanic | 355,296 | 5,103 | 28,206 | 1.4% | 5.5 | 0.1 | 23.5% | 36.9% | 39.5% |
| **MI** | **2,865,205** | **134,464** | **1,442,629** | **4.7%** | **10.7** | **0.6** | **100.0%** | **100.0%** | **100.0%** |
| American Indian and Alaska Native (AIAN), non-Hispanic | 30,300 | 1,100 | 10,649 | 3.6% | 9.7 | 0.4 | 1.1% | 0.8% | 0.7% |
| Asian, non-Hispanic | 15,860 | 294 | 2,814 | 1.9% | 9.6 | 0.2 | 0.6% | 0.2% | 0.2% |
| Black, non-Hispanic | 791,487 | 61,372 | 690,035 | 7.8% | 11.2 | 1.0 | 27.6% | 45.6% | 47.8% |
| Hawaiian/Pacific Islander | 2,817 | 122 | 1,509 | 4.3% | 12.4 | 0.6 | 0.1% | 0.1% | 0.1% |
| Hispanic, all races | 184,335 | 3,662 | 30,562 | 2.0% | 8.3 | 0.2 | 6.4% | 2.7% | 2.1% |
| Missing | 233,624 | 6,660 | 55,987 | 2.9% | 8.4 | 0.3 | 8.2% | 5.0% | 3.9% |
| White, non-Hispanic | 1,606,782 | 61,254 | 651,073 | 3.8% | 10.6 | 0.5 | 56.1% | 45.6% | 45.1% |
| **MN** | **1,282,082** | **147,648** | **3,262,771** | **11.5%** | **22.1** | **3.2** | **100.0%** | **100.0%** | **100.0%** |
| American Indian and Alaska Native (AIAN), non-Hispanic | 51,412 | 6,842 | 105,831 | 13.3% | 15.5 | 2.5 | 4.0% | 4.6% | 3.2% |



**Source:** NORC and MTAC analysis of 2019 Transformed Medicaid Statistical Information System (T-MSIS) Analytic File (TAF) Data.

| Row Labels | Total Enrollees | Total Riders | Total Ride-Days | Riders as a Share of Enrollees | Ride-Days per Rider | Ride-Days per FYE | Share of enrollees (in state) | Share of Riders (in state) | Share of Ride-Days (in state) |
|---|---|---|---|---|---|---|---|---|---|
| Asian, non-Hispanic | 91,864 | 10,898 | 399,874 | 11.9% | 36.7 | 5.2 | 7.2% | 7.4% | 12.3% |
| Black, non-Hispanic | 270,051 | 44,432 | 879,712 | 16.5% | 19.8 | 3.9 | 21.1% | 30.1% | 27.0% |
| Hawaiian/Pacific Islander | 3,276 | 177 | 3,146 | 5.4% | 17.8 | 1.3 | 0.3% | 0.1% | 0.1% |
| Hispanic, all races | 97,047 | 6,205 | 105,033 | 6.4% | 16.9 | 1.4 | 7.6% | 4.2% | 3.2% |
| Missing | 131,695 | 6,031 | 54,194 | 4.6% | 9.0 | 0.7 | 10.3% | 4.1% | 1.7% |
| Multiracial, non-Hispanic | 17 | | | - | - | - | 0.0% | - | - |
| White, non-Hispanic | 636,720 | 73,063 | 1,714,981 | 11.5% | 23.5 | 3.3 | 49.7% | 49.5% | 52.6% |
| **MO** | **1,133,415** | **86,643** | **790,309** | **7.6%** | **9.1** | **0.9** | **100.0%** | **100.0%** | **100.0%** |
| American Indian and Alaska Native (AIAN), non-Hispanic | 2,108 | 132 | 1,169 | 6.3% | 8.9 | 0.7 | 0.2% | 0.2% | 0.1% |
| Asian, non-Hispanic | 9,155 | 291 | 2,660 | 3.2% | 9.1 | 0.3 | 0.8% | 0.3% | 0.3% |
| Black, non-Hispanic | 187,785 | 18,673 | 217,328 | 9.9% | 11.6 | 1.4 | 16.6% | 21.6% | 27.5% |
| Hawaiian/Pacific Islander | 1,525 | 41 | 405 | 2.7% | 9.9 | 0.3 | 0.1% | 0.0% | 0.1% |



**Source:** NORC and MTAC analysis of 2019 Transformed Medicaid Statistical Information System (T-MSIS) Analytic File (TAF) Data.

| Row Labels | Total Enrollees | Total Riders | Total Ride-Days | Riders as a Share of Enrollees | Ride-Days per Rider | Ride-Days per FYE | Share of enrollees (in state) | Share of Riders (in state) | Share of Ride-Days (in state) |
|---|---|---|---|---|---|---|---|---|---|
| Hispanic, all races | 89,337 | 2,674 | 21,508 | 3.0% | 8.0 | 0.3 | 7.9% | 3.1% | 2.7% |
| Missing | 302,455 | 17,789 | 142,406 | 5.9% | 8.0 | 0.6 | 26.7% | 20.5% | 18.0% |
| White, non-Hispanic | 541,050 | 47,043 | 404,833 | 8.7% | 8.6 | 0.9 | 47.7% | 54.3% | 51.2% |
| **MT** | **231,782** | **5,427** | **97,165** | **2.3%** | **17.9** | **0.5** | **100.0%** | **100.0%** | **100.0%** |
| American Indian and Alaska Native (AIAN), non-Hispanic | 35,913 | 683 | 9,822 | 1.9% | 14.4 | 0.3 | 15.5% | 12.6% | 10.1% |
| Asian, non-Hispanic | 895 | | | - | - | - | 0.4% | - | - |
| Black, non-Hispanic | 1,828 | 40 | 971 | 2.2% | 24.3 | 0.7 | 0.8% | 0.7% | 1.0% |
| Hawaiian/Pacific Islander | 244 | | | - | - | - | 0.1% | - | - |
| Hispanic, all races | 8,585 | 113 | 2,478 | 1.3% | 21.9 | 0.3 | 3.7% | 2.1% | 2.6% |
| Missing | 55,168 | 287 | 4,281 | 0.5% | 14.9 | 0.1 | 23.8% | 5.3% | 4.4% |
| Multiracial, non-Hispanic | 1,446 | | | - | - | - | 0.6% | - | - |
| White, non-Hispanic | 127,703 | 4,304 | 79,613 | 3.4% | 18.5 | 0.7 | 55.1% | 79.3% | 81.9% |



**Source:** NORC and MTAC analysis of 2019 Transformed Medicaid Statistical Information System (T-MSIS) Analytic File (TAF) Data.

| Row Labels | Total Enrollees | Total Riders | Total Ride-Days | Riders as a Share of Enrollees | Ride-Days per Rider | Ride-Days per FYE | Share of enrollees (in state) | Share of Riders (in state) | Share of Ride-Days (in state) |
|---|---|---|---|---|---|---|---|---|---|
| **NC** | **2,134,357** | **82,283** | **1,191,293** | **3.9%** | **14.5** | **0.6** | **100.0%** | **100.0%** | **100.0%** |
| American Indian and Alaska Native (AIAN), non-Hispanic | 29,212 | 970 | 9,174 | 3.3% | 9.5 | 0.4 | 1.4% | 1.2% | 0.8% |
| Asian, non-Hispanic | 36,912 | 438 | 8,200 | 1.2% | 18.7 | 0.3 | 1.7% | 0.5% | 0.7% |
| Black, non-Hispanic | 768,932 | 40,552 | 676,656 | 5.3% | 16.7 | 1.0 | 36.0% | 49.3% | 56.8% |
| Hawaiian/Pacific Islander | 1,473 | 18 | 19 | 1.2% | 1.1 | 0.0 | 0.1% | 0.0% | 0.0% |
| Hispanic, all races | 316,463 | 3,405 | 34,874 | 1.1% | 10.2 | 0.1 | 14.8% | 4.1% | 2.9% |
| Missing | 16,959 | 379 | 4,183 | 2.2% | 11.0 | 0.4 | 0.8% | 0.5% | 0.4% |
| Multiracial, non-Hispanic | 74,780 | 2,434 | 31,704 | 3.3% | 13.0 | 0.5 | 3.5% | 3.0% | 2.7% |
| White, non-Hispanic | 889,626 | 34,087 | 426,483 | 3.8% | 12.5 | 0.6 | 41.7% | 41.4% | 35.8% |
| **NH** | **187,634** | **1,871** | **34,351** | **1.0%** | **18.4** | **0.2** | **100.0%** | **100.0%** | **100.0%** |
| American Indian and Alaska Native (AIAN), non-Hispanic | 867 | | | - | - | - | 0.5% | - | - |



**Source:** NORC and MTAC analysis of 2019 Transformed Medicaid Statistical Information System (T-MSIS) Analytic File (TAF) Data.

| Row Labels | Total Enrollees | Total Riders | Total Ride-Days | Riders as a Share of Enrollees | Ride-Days per Rider | Ride-Days per FYE | Share of enrollees (in state) | Share of Riders (in state) | Share of Ride-Days (in state) |
|---|---|---|---|---|---|---|---|---|---|
| Asian, non-Hispanic | 2,718 | 34 | 2,189 | 1.3% | 64.4 | 1.1 | 1.4% | 1.8% | 6.4% |
| Black, non-Hispanic | 4,451 | 34 | 402 | 0.8% | 11.8 | 0.1 | 2.4% | 1.8% | 1.2% |
| Hawaiian/Pacific Islander | 143 | | | - | - | - | 0.1% | - | - |
| Hispanic, all races | 11,630 | 57 | 1,309 | 0.5% | 23.0 | 0.1 | 6.2% | 3.0% | 3.8% |
| Missing | 22,632 | 141 | 2,293 | 0.6% | 16.3 | 0.1 | 12.1% | 7.5% | 6.7% |
| Multiracial, non-Hispanic | 1,845 | | | - | - | - | 1.0% | - | - |
| White, non-Hispanic | 143,348 | 1,605 | 28,158 | 1.1% | 17.5 | 0.2 | 76.4% | 85.8% | 82.0% |
| **NJ** | **1,895,163** | **118,406** | **2,904,564** | **6.2%** | **24.5** | **1.9** | **100.0%** | **100.0%** | **100.0%** |
| American Indian and Alaska Native (AIAN), non-Hispanic | 5,806 | 320 | 6,476 | 5.5% | 20.2 | 1.3 | 0.3% | 0.3% | 0.2% |
| Asian, non-Hispanic | 87,065 | 2,327 | 36,771 | 2.7% | 15.8 | 0.5 | 4.6% | 2.0% | 1.3% |
| Black, non-Hispanic | 422,591 | 38,087 | 1,145,582 | 9.0% | 30.1 | 3.3 | 22.3% | 32.2% | 39.4% |
| Hispanic, all races | 487,420 | 16,325 | 299,437 | 3.3% | 18.3 | 0.7 | 25.7% | 13.8% | 10.3% |



**Source:** NORC and MTAC analysis of 2019 Transformed Medicaid Statistical Information System (T-MSIS) Analytic File (TAF) Data.

| Row Labels | Total Enrollees | Total Riders | Total Ride-Days | Riders as a Share of Enrollees | Ride-Days per Rider | Ride-Days per FYE | Share of enrollees (in state) | Share of Riders (in state) | Share of Ride-Days (in state) |
|---|---|---|---|---|---|---|---|---|---|
| Missing | 214,732 | 13,416 | 287,725 | 6.2% | 21.4 | 1.7 | 11.3% | 11.3% | 9.9% |
| White, non-Hispanic | 677,549 | 47,931 | 1,128,573 | 7.1% | 23.5 | 2.0 | 35.8% | 40.5% | 38.9% |
| **NY** | **5,640,942** | **491,539** | **11,718,665** | **8.7%** | **23.8** | **2.6** | **100.0%** | **100.0%** | **100.0%** |
| American Indian and Alaska Native (AIAN), non-Hispanic | 29,948 | 4,199 | 95,093 | 14.0% | 22.6 | 3.8 | 0.5% | 0.9% | 0.8% |
| Asian, non-Hispanic | 463,146 | 33,063 | 1,266,909 | 7.1% | 38.3 | 3.3 | 8.2% | 6.7% | 10.8% |
| Black, non-Hispanic | 982,458 | 123,314 | 3,055,838 | 12.6% | 24.8 | 3.8 | 17.4% | 25.1% | 26.1% |
| Hawaiian/Pacific Islander | 71,109 | 1,366 | 37,272 | 1.9% | 27.3 | 0.7 | 1.3% | 0.3% | 0.3% |
| Hispanic, all races | 667,361 | 100,956 | 2,624,131 | 15.1% | 26.0 | 4.4 | 11.8% | 20.5% | 22.4% |
| Missing | 1,795,694 | 34,429 | 448,490 | 1.9% | 13.0 | 0.3 | 31.8% | 7.0% | 3.8% |
| Multiracial, non-Hispanic | 256 | | | - | - | - | 0.0% | - | - |
| White, non-Hispanic | 1,630,970 | 194,212 | 4,190,932 | 11.9% | 21.6 | 3.1 | 28.9% | 39.5% | 35.8% |
| **OH** | **3,169,541** | **149,901** | **1,055,440** | **4.7%** | **7.0** | **0.4** | **100.0%** | **100.0%** | **100.0%** |



**Source:** NORC and MTAC analysis of 2019 Transformed Medicaid Statistical Information System (T-MSIS) Analytic File (TAF) Data.

| Row Labels | Total Enrollees | Total Riders | Total Ride-Days | Riders as a Share of Enrollees | Ride-Days per Rider | Ride-Days per FYE | Share of enrollees (in state) | Share of Riders (in state) | Share of Ride-Days (in state) |
|---|---|---|---|---|---|---|---|---|---|
| American Indian and Alaska Native (AIAN), non-Hispanic | 12,903 | 530 | 2,661 | 4.1% | 5.0 | 0.3 | 0.4% | 0.4% | 0.3% |
| Black, non-Hispanic | 885,793 | 44,376 | 390,513 | 5.0% | 8.8 | 0.5 | 27.9% | 29.6% | 37.0% |
| Hawaiian/Pacific Islander | 67,693 | 1,629 | 10,883 | 2.4% | 6.7 | 0.2 | 2.1% | 1.1% | 1.0% |
| Hispanic, all races | 142,717 | 3,470 | 19,513 | 2.4% | 5.6 | 0.2 | 4.5% | 2.3% | 1.8% |
| Missing | 255,141 | 8,018 | 41,389 | 3.1% | 5.2 | 0.2 | 8.0% | 5.3% | 3.9% |
| White, non-Hispanic | 1,805,294 | 91,878 | 590,481 | 5.1% | 6.4 | 0.4 | 57.0% | 61.3% | 55.9% |
| **PA** | **3,401,130** | **52,605** | **308,429** | **1.5%** | **5.9** | **0.1** | **100.0%** | **100.0%** | **100.0%** |
| American Indian and Alaska Native (AIAN), non-Hispanic | 6,942 | 110 | 788 | 1.6% | 7.2 | 0.1 | 0.2% | 0.2% | 0.3% |
| Asian, non-Hispanic | 114,129 | 695 | 3,387 | 0.6% | 4.9 | 0.0 | 3.4% | 1.3% | 1.1% |
| Black, non-Hispanic | 808,633 | 13,654 | 43,224 | 1.7% | 3.2 | 0.1 | 23.8% | 26.0% | 14.0% |
| Hawaiian/Pacific Islander | 3,266 | 22 | 24 | 0.7% | 1.1 | 0.0 | 0.1% | 0.0% | 0.0% |



**Source:** NORC and MTAC analysis of 2019 Transformed Medicaid Statistical Information System (T-MSIS) Analytic File (TAF) Data.

| Row Labels | Total Enrollees | Total Riders | Total Ride-Days | Riders as a Share of Enrollees | Ride-Days per Rider | Ride-Days per FYE | Share of enrollees (in state) | Share of Riders (in state) | Share of Ride-Days (in state) |
|---|---|---|---|---|---|---|---|---|---|
| Hispanic, all races | 469,381 | 5,579 | 15,416 | 1.2% | 2.8 | 0.0 | 13.8% | 10.6% | 5.0% |
| Missing | 212,520 | 2,177 | 10,437 | 1.0% | 4.8 | 0.1 | 6.2% | 4.1% | 3.4% |
| Multiracial, non-Hispanic | 713 | | | - | - | - | 0.0% | | |
| White, non-Hispanic | 1,785,546 | 30,368 | 235,153 | 1.7% | 7.7 | 0.2 | 52.5% | 57.7% | 76.2% |
| **PR** | **1,492,080** | **18,277** | **139,496** | **1.2%** | **7.6** | **0.1** | **100.0%** | **100.0%** | **100.0%** |
| American Indian and Alaska Native (AIAN), non-Hispanic | 13 | | | - | - | - | 0.0% | - | - |
| Asian, non-Hispanic | 79 | | | - | - | - | 0.0% | - | - |
| Black, non-Hispanic | 294 | | | - | - | - | 0.0% | - | - |
| Hawaiian/Pacific Islander | 25 | | | - | - | - | 0.0% | - | - |
| Hispanic, all races | 1,075,103 | 12,315 | 99,374 | 1.1% | 8.1 | 0.1 | 72.1% | 67.4% | 71.2% |
| Missing | 409,189 | 5,875 | 39,221 | 1.4% | 6.7 | 0.1 | 27.4% | 32.1% | 28.1% |
| White, non-Hispanic | 7,377 | 87 | 901 | 1.2% | 10.4 | 0.1 | 0.5% | 0.5% | 0.6% |



**Source:** NORC and MTAC analysis of 2019 Transformed Medicaid Statistical Information System (T-MSIS) Analytic File (TAF) Data.

| Row Labels | Total Enrollees | Total Riders | Total Ride-Days | Riders as a Share of Enrollees | Ride-Days per Rider | Ride-Days per FYE | Share of enrollees (in state) | Share of Riders (in state) | Share of Ride-Days (in state) |
|---|---|---|---|---|---|---|---|---|---|
| **RI** | **256,666** | **16,109** | **326,712** | **6.3%** | **20.3** | **1.7** | **100.0%** | **100.0%** | **100.0%** |
| Missing | 256,666 | 16,109 | 326,712 | 6.3% | 20.3 | 1.7 | 100.0% | 100.0% | 100.0% |
| **SC** | **1,241,080** | **68,180** | **1,476,379** | **5.5%** | **21.7** | **1.4** | **100.0%** | **100.0%** | **100.0%** |
| American Indian and Alaska Native (AIAN), non-Hispanic | 4,271 | 159 | 1,670 | 3.7% | 10.5 | 0.5 | 0.3% | 0.2% | 0.1% |
| Asian, non-Hispanic | 6,057 | 133 | 4,381 | 2.2% | 32.9 | 0.8 | 0.5% | 0.2% | 0.3% |
| Black, non-Hispanic | 369,576 | 28,453 | 714,629 | 7.7% | 25.1 | 2.1 | 29.8% | 41.7% | 48.4% |
| Hawaiian/Pacific Islander | 582 | 12 | 285 | 2.1% | 23.8 | 0.6 | 0.0% | 0.0% | 0.0% |
| Hispanic, all races | 41,149 | 656 | 12,769 | 1.6% | 19.5 | 0.3 | 3.3% | 1.0% | 0.9% |
| Missing | 475,441 | 24,618 | 467,716 | 5.2% | 19.0 | 1.2 | 38.3% | 36.1% | 31.7% |
| White, non-Hispanic | 344,004 | 14,149 | 274,929 | 4.1% | 19.4 | 0.9 | 27.7% | 20.8% | 18.6% |
| **TX** | **4,973,879** | **209,632** | **5,969,638** | **4.2%** | **28.5** | **1.5** | **100.0%** | **100.0%** | **100.0%** |
| American Indian and Alaska Native (AIAN), non-Hispanic | 9,454 | 279 | 7,409 | 3.0% | 26.6 | 1.0 | 0.2% | 0.1% | 0.1% |



**Source:** NORC and MTAC analysis of 2019 Transformed Medicaid Statistical Information System (T-MSIS) Analytic File (TAF) Data.

| Row Labels | Total Enrollees | Total Riders | Total Ride-Days | Riders as a Share of Enrollees | Ride-Days per Rider | Ride-Days per FYE | Share of enrollees (in state) | Share of Riders (in state) | Share of Ride-Days (in state) |
|---|---|---|---|---|---|---|---|---|---|
| Asian, non-Hispanic | 92,476 | 2,574 | 63,780 | 2.8% | 24.8 | 0.8 | 1.9% | 1.2% | 1.1% |
| Black, non-Hispanic | 701,069 | 44,414 | 861,887 | 6.3% | 19.4 | 1.5 | 14.1% | 21.2% | 14.4% |
| Hawaiian/Pacific Islander | 6,990 | 396 | 8,285 | 5.7% | 20.9 | 1.4 | 0.1% | 0.2% | 0.1% |
| Hispanic, all races | 2,473,515 | 71,829 | 2,444,743 | 2.9% | 34.0 | 1.2 | 49.7% | 34.3% | 41.0% |
| Missing | 801,589 | 47,619 | 1,632,222 | 5.9% | 34.3 | 2.5 | 16.1% | 22.7% | 27.3% |
| Multiracial, non-Hispanic | 26,933 | 614 | 11,975 | 2.3% | 19.5 | 0.6 | 0.5% | 0.3% | 0.2% |
| White, non-Hispanic | 861,853 | 41,907 | 939,337 | 4.9% | 22.4 | 1.4 | 17.3% | 20.0% | 15.7% |
| **VI** | **31,728** | **316** | **3,994** | **1.0%** | **12.6** | **0.1** | **100.0%** | **100.0%** | **100.0%** |
| American Indian and Alaska Native (AIAN), non-Hispanic | | | | - | - | - | - | - | - |
| Black, non-Hispanic | 24,056 | 225 | 3,029 | 0.9% | 13.5 | 0.1 | 75.8% | 71.2% | 75.8% |
| Hawaiian/Pacific Islander | 56 | | | - | - | - | 0.2% | - | - |
| Hispanic, all races | | | | - | - | - | - | - | - |



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| Row Labels | Total Enrollees | Total Riders | Total Ride-Days | Riders as a Share of Enrollees | Ride-Days per Rider | Ride-Days per FYE | Share of enrollees (in state) | Share of Riders (in state) | Share of Ride-Days (in state) |
|---|---|---|---|---|---|---|---|---|---|
| Missing | 6,720 | 79 | 804 | 1.2% | 10.2 | 0.1 | 21.2% | 25.0% | 20.1% |
| White, non-Hispanic | 896 | 12 | 161 | 1.3% | 13.4 | 0.2 | 2.8% | 3.8% | 4.0% |
| **WA** | **2,043,231** | **63,964** | **3,490,476** | **3.1%** | **54.6** | **2.0** | **100.0%** | **100.0%** | **100.0%** |
| American Indian and Alaska Native (AIAN), non-Hispanic | 67,685 | 1,737 | 41,608 | 2.6% | 24.0 | 0.7 | 3.3% | 2.7% | 1.2% |
| Asian, non-Hispanic | 95,318 | 5,350 | 449,508 | 5.6% | 84.0 | 5.6 | 4.7% | 8.4% | 12.9% |
| Black, non-Hispanic | 148,607 | 4,596 | 232,269 | 3.1% | 50.5 | 1.8 | 7.3% | 7.2% | 6.7% |
| Hawaiian/Pacific Islander | 60,338 | 1,774 | 118,113 | 2.9% | 66.6 | 2.4 | 3.0% | 2.8% | 3.4% |
| Hispanic, all races | 429,974 | 6,787 | 324,754 | 1.6% | 47.8 | 0.9 | 21.0% | 10.6% | 9.3% |
| Missing | 173,191 | 5,105 | 388,168 | 2.9% | 76.0 | 2.8 | 8.5% | 8.0% | 11.1% |
| Multiracial, non-Hispanic | 33,415 | 568 | 15,769 | 1.7% | 27.8 | 0.5 | 1.6% | 0.9% | 0.5% |
| White, non-Hispanic | 1,034,703 | 38,047 | 1,920,287 | 3.7% | 50.5 | 2.2 | 50.6% | 59.5% | 55.0% |
| **WI** | **1,254,873** | **126,603** | **3,254,758** | **10.1%** | **25.7** | **3.1** | **100.0%** | **100.0%** | **100.0%** |



**Source:** NORC and MTAC analysis of 2019 Transformed Medicaid Statistical Information System (T-MSIS) Analytic File (TAF) Data.

| Row Labels | Total Enrollees | Total Riders | Total Ride-Days | Riders as a Share of Enrollees | Ride-Days per Rider | Ride-Days per FYE | Share of enrollees (in state) | Share of Riders (in state) | Share of Ride-Days (in state) |
|---|---|---|---|---|---|---|---|---|---|
| American Indian and Alaska Native (AIAN), non-Hispanic | 21,707 | 2,009 | 57,211 | 9.3% | 28.5 | 3.2 | 1.7% | 1.6% | 1.8% |
| Asian, non-Hispanic | 40,920 | 1,262 | 44,606 | 3.1% | 35.3 | 1.3 | 3.3% | 1.0% | 1.4% |
| Black, non-Hispanic | 214,243 | 26,965 | 566,273 | 12.6% | 21.0 | 3.2 | 17.1% | 21.3% | 17.4% |
| Hawaiian/Pacific Islander | 941 | 71 | 2,041 | 7.5% | 28.7 | 2.7 | 0.1% | 0.1% | 0.1% |
| Hispanic, all races | 149,377 | 6,693 | 182,479 | 4.5% | 27.3 | 1.5 | 11.9% | 5.3% | 5.6% |
| Missing | 209,740 | 23,334 | 642,588 | 11.1% | 27.5 | 3.6 | 16.7% | 18.4% | 19.7% |
| Multiracial, non-Hispanic | 82 | | | - | - | - | 0.0% | - | - |
| White, non-Hispanic | 617,863 | 66,269 | 1,759,560 | 10.7% | 26.6 | 3.5 | 49.2% | 52.3% | 54.1% |
| **WY** | **78,783** | **1,410** | **6,962** | **1.8%** | **4.9** | **0.1** | **100.0%** | **100.0%** | **100.0%** |
| American Indian and Alaska Native (AIAN), non-Hispanic | 6,429 | 109 | 347 | 1.7% | 3.2 | 0.1 | 8.2% | 7.7% | 5.0% |
| Asian, non-Hispanic | 143 | | | - | - | - | 0.2% | - | - |



**Source:** NORC and MTAC analysis of 2019 Transformed Medicaid Statistical Information System (T-MSIS) Analytic File (TAF) Data.

| Row Labels | Total Enrollees | Total Riders | Total Ride-Days | Riders as a Share of Enrollees | Ride-Days per Rider | Ride-Days per FYE | Share of enrollees (in state) | Share of Riders (in state) | Share of Ride-Days (in state) |
|---|---|---|---|---|---|---|---|---|---|
| Black, non-Hispanic | 1,493 | 29 | 715 | 1.9% | 24.7 | 0.8 | 1.9% | 2.1% | 10.3% |
| Hawaiian/Pacific Islander | 151 | | | - | - | - | 0.2% | - | - |
| Hispanic, all races | 7,725 | 67 | 297 | 0.9% | 4.4 | 0.0 | 9.8% | 4.8% | 4.3% |
| Missing | 17,356 | 324 | 1,170 | 1.9% | 3.6 | 0.1 | 22.0% | 23.0% | 16.8% |
| White, non-Hispanic | 45,486 | 881 | 4,433 | 1.9% | 5.0 | 0.1 | 57.7% | 62.5% | 63.7% |



**Source:** NORC and MTAC analysis of 2019 Transformed Medicaid Statistical Information System (T-MSIS) Analytic File (TAF) Data.

## Appendix Table 2.3 - NEMT Use by Race and Ethnicity, Enrollees with End-Stage Renal Disease, FY 2019

| | Total Enrollees | | | NEMT Riders | | | Riders as a Share of Enrollees | | Ride-Days per FYE | | Ride-Days per Rider | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ESRD | No ESRD | ESRD Share | ESRD | No ESRD | ESRD Share | ESRD | No ESRD | ESRD | No ESRD | ESRD | No ESRD |
| **Total** | **269,741** | **65,330,737** | **0.4%** | **137,845** | **3,016,388** | **4.4%** | **51.1%** | **4.6%** | **40.12** | **1.02** | **67.59** | **18.79** |
| Missing | 31,781 | 11,040,908 | 0.3% | 15,951 | 470,660 | 3.3% | 50.2% | 4.3% | 39.00 | 1.26 | 64.89 | 23.45 |
| White, non-Hispanic | 70,854 | 23,672,126 | 0.3% | 35,522 | 1,269,947 | 2.7% | 50.1% | 5.4% | 31.32 | 1.18 | 52.38 | 18.73 |
| Black, non-Hispanic | 79,167 | 11,692,295 | 0.7% | 43,824 | 718,659 | 5.7% | 55.4% | 6.1% | 44.63 | 1.07 | 69.83 | 14.88 |
| Asian, non-Hispanic | 17,461 | 3,111,084 | 0.6% | 8,600 | 95,116 | 8.3% | 49.3% | 3.1% | 46.36 | 1.00 | 83.33 | 28.16 |
| American Indian and Alaska Native (AIAN), non-Hispanic | 3,747 | 718,127 | 0.5% | 2,359 | 93,669 | 2.5% | 63.0% | 13.0% | 50.23 | 2.48 | 68.64 | 16.34 |
| Hawaiian/Pacific Islander | 2,479 | 443,177 | 0.6% | 1,146 | 11,658 | 9.0% | 46.2% | 2.6% | 41.37 | 0.56 | 78.34 | 17.93 |
| Multiracial, non-Hispanic | 316 | 170,896 | 0.2% | 125 | 4,975 | 2.5% | 39.6% | 2.9% | 27.28 | 0.46 | 58.06 | 13.56 |
| Hispanic, all races | 63,936 | 14,482,124 | 0.4% | 30,318 | 351,704 | 7.9% | 47.4% | 2.4% | 42.16 | 0.53 | 78.67 | 18.94 |



**Source:** NORC and MTAC analysis of 2019 Transformed Medicaid Statistical Information System (T-MSIS) Analytic File (TAF) Data.

## Appendix Table 2.4 – Use by Race and Ethnicity, Enrollees with Opioid Use Disorder, FY 2019

| | Total Enrollees | | | NEMT Riders | | | Riders as a Share of Enrollees | | Ride-Days per FYE | | Ride-Days per Rider | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | OUD | No OUD | OUD Share | OUD | No OUD | OUD Share | OUD | No OUD | OUD | No OUD | OUD | No OUD |
| **Total** | **1,631,555** | **63,983,856** | **2.5%** | **311,277** | **2,843,066** | **9.9%** | **19.1%** | **4.4%** | **6.93** | **1.03** | **32.06** | **19.70** |
| Missing | 185,167 | 10,888,388 | 1.7% | 40,748 | 445,875 | 8.4% | 22.0% | 4.1% | 8.42 | 1.24 | 33.17 | 24.04 |
| White, non-Hispanic | 1,017,652 | 22,738,361 | 4.3% | 173,930 | 1,131,635 | 13.3% | 17.1% | 5.0% | 5.90 | 1.06 | 30.36 | 18.00 |
| Black, non-Hispanic | 243,403 | 11,528,895 | 2.1% | 60,151 | 702,337 | 7.9% | 24.7% | 6.1% | 8.95 | 1.20 | 32.72 | 16.78 |
| Asian, non-Hispanic | 12,177 | 3,116,363 | 0.4% | 1,986 | 101,730 | 1.9% | 16.3% | 3.3% | 5.32 | 1.24 | 28.74 | 32.81 |
| American Indian and Alaska Native (AIAN), non-Hispanic | 30,441 | 691,465 | 4.2% | 7,694 | 88,334 | 8.0% | 25.3% | 12.8% | 7.65 | 2.51 | 26.83 | 16.82 |
| Hawaiian/Pacific Islander | 3,876 | 441,784 | 0.9% | 644 | 12,160 | 5.0% | 16.6% | 2.8% | 4.72 | 0.77 | 25.18 | 23.24 |
| Multiracial, non-Hispanic | 3,334 | 167,878 | 1.9% | 423 | 4,677 | 8.3% | 12.7% | 2.8% | 2.34 | 0.47 | 16.57 | 14.48 |
| Hispanic, all races | 135,505 | 14,410,722 | 0.9% | 25,701 | 356,318 | 6.7% | 19.0% | 2.5% | 9.08 | 0.63 | 42.49 | 22.33 |



**Source:** NORC and MTAC analysis of 2019 Transformed Medicaid Statistical Information System (T-MSIS) Analytic File (TAF) Data.

## Appendix Table 2.5 – NEMT Use by Race and Ethnicity, Enrollees with Serious Mental Illness, FY 2019

| | Total Enrollees | | | NEMT Riders | | | Riders as a Share of Enrollees | | Ride-Days per FYE | | Ride-Days per Rider | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | SMI | No SMI | SMI Share | SMI | No SMI | SMI Share | SMI | No SMI | SMI | No SMI | SMI | No SMI |
| **Total** | **1,705,669** | **63,908,237** | **2.6%** | **440,404** | **2,713,944** | **14.0%** | **25.8%** | **4.2%** | **4.78** | **1.08** | **16.85** | **21.58** |
| Missing | 228,623 | 10,844,892 | 2.1% | 66,132 | 420,492 | 13.6% | 28.9% | 3.9% | 6.77 | 1.24 | 20.96 | 25.41 |
| White, non-Hispanic | 808,065 | 22,944,144 | 3.4% | 212,316 | 1,093,245 | 16.3% | 26.3% | 4.8% | 4.54 | 1.15 | 15.69 | 20.42 |
| Black, non-Hispanic | 345,603 | 11,427,194 | 2.9% | 98,889 | 663,604 | 13.0% | 28.6% | 5.8% | 4.97 | 1.25 | 15.92 | 18.35 |
| Asian, non-Hispanic | 39,066 | 3,089,501 | 1.2% | 7,772 | 95,944 | 7.5% | 19.9% | 3.1% | 4.04 | 1.22 | 18.71 | 33.87 |
| American Indian and Alaska Native (AIAN), non-Hispanic | 22,122 | 699,772 | 3.1% | 7,967 | 88,060 | 8.3% | 36.0% | 12.6% | 7.43 | 2.57 | 18.75 | 17.52 |
| Hawaiian/Pacific Islander | 6,352 | 439,304 | 1.4% | 1,337 | 11,467 | 10.4% | 21.0% | 2.6% | 3.23 | 0.76 | 13.90 | 24.44 |
| Multiracial, non-Hispanic | 3,620 | 167,592 | 2.1% | 663 | 4,437 | 13.0% | 18.3% | 2.6% | 2.61 | 0.46 | 13.08 | 14.89 |
| Hispanic, all races | 252,218 | 14,295,838 | 1.7% | 45,328 | 336,695 | 11.9% | 18.0% | 2.4% | 3.48 | 0.66 | 17.81 | 24.47 |



**Source:** NORC and MTAC analysis of 2019 Transformed Medicaid Statistical Information System (T-MSIS) Analytic File (TAF) Data.

## Appendix Table 2.6 - NEMT Use by Race and Ethnicity, Enrollees with Intellectual and Developmental Disabilities, FY 2019

| | Total Enrollees | | | NEMT Riders | | | Riders as a Share of Enrollees | | Ride-Days per FYE | | Ride-Days per Rider | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ID/DD | No ID/DD | ID/DD Share | ID/DD | No ID/DD | ID/DD Share | ID/DD | No ID/DD | ID/DD | No ID/DD | ID/DD | No ID/DD |
| **Total** | **1,001,466** | **64,607,379** | **1.5%** | **201,096** | **2,953,210** | **6.4%** | **20.1%** | **4.6%** | **10.69** | **1.02** | **51.19** | **18.86** |
| Missing | 158,128 | 10,914,961 | 1.4% | 45,022 | 441,599 | 9.3% | 28.5% | 4.0% | 21.84 | 1.01 | 73.27 | 19.87 |
| White, non-Hispanic | 502,911 | 23,246,632 | 2.1% | 96,052 | 1,209,481 | 7.4% | 19.1% | 5.2% | 10.08 | 1.05 | 50.80 | 17.17 |
| Black, non-Hispanic | 162,583 | 11,609,298 | 1.4% | 32,466 | 730,020 | 4.3% | 20.0% | 6.3% | 7.25 | 1.27 | 34.90 | 17.29 |
| Asian, non-Hispanic | 27,638 | 3,100,920 | 0.9% | 3,482 | 100,234 | 3.4% | 12.6% | 3.2% | 5.65 | 1.21 | 43.34 | 32.37 |
| American Indian and Alaska Native (AIAN), non-Hispanic | 8,670 | 713,212 | 1.2% | 2,554 | 93,473 | 2.7% | 29.5% | 13.1% | 11.92 | 2.61 | 38.81 | 17.05 |
| Hawaiian/Pacific Islander | 4,303 | 441,355 | 1.0% | 520 | 12,284 | 4.1% | 12.1% | 2.8% | 3.41 | 0.77 | 27.20 | 23.17 |
| Multiracial, non-Hispanic | 1,592 | 169,620 | 0.9% | 202 | 4,898 | 4.0% | 12.7% | 2.9% | 5.26 | 0.46 | 39.83 | 13.61 |
| Hispanic, all races | 135,641 | 14,411,381 | 0.9% | 20,798 | 361,221 | 5.4% | 15.3% | 2.5% | 5.42 | 0.66 | 34.18 | 23.08 |



**Source:** NORC and MTAC analysis of 2019 Transformed Medicaid Statistical Information System (T-MSIS) Analytic File (TAF) Data.