

ORIGINAL RESEARCH

Trends in Non-Emergency Medical Transportation During Medicaid Transformation in North Carolina

Evan Iacobucci, PhD, MUP, MA[†], Noreen McDonald, PhD, MCP, MS^{2†}

¹ School of Earth, Environment, and Sustainability, Missouri State University, ² Department of City and Regional Planning, University of North Carolina at Chapel Hill

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BACKGROUND

In 2021, North Carolina implemented Medicaid transformation, shifting from fee-for-service (FFS) to Managed Care,¹ radically changing non-emergency medical transportation (NEMT) services. Research has examined experiences of beneficiaries and providers in navigating this new system, but there has not been a systematic analysis of trends in NEMT usage during the transformation.

METHODS

We analyzed North Carolina NEMT Medicaid claims data between 2019 and 2023. We examined trends in service provision and cost 1) overall, 2) by travel mode, 3) by public versus private provider, and 4) by urban versus rural geography. The database infrastructure used for this project was supported by the Cecil G. Sheps Center for Health Services Research and the CER Strategic Initiative of the University of North Carolina's Clinical and Translational Science Award (5-UL1-TR002489-05).

RESULTS

There were increased NEMT claims through both recovery from the COVID-19 pandemic and Medicaid expansion, but these were unevenly distributed across providers and geographies. We found faster growth among private providers, especially those serving Managed Care Organization (MCO) claims rather than fee-for-service claims. We also found disparities between urban versus rural geographies.

LIMITATIONS

Our unit of analysis is the Medicaid claim, not NEMT trip or beneficiary. We were limited to broad beneficiary geographic information, which we matched to Department of Health and Human Services (DHHS) county classifications. Medicaid transformation and pandemic recovery occurred simultaneously, complicating separation of their effects.

[†] Joint first authors

CONCLUSION

Concentrated growth among urban and private claims highlights difficulty in providing expedient, cost-effective rural NEMT. Increases in cost per claim suggest the new system should be monitored as it pursues its goal of increasing efficiency through transformation.

Introduction

In 2021, North Carolina began the implementation of its Medicaid transformation, in which Medicaid beneficiaries shifted from a fee-for-service (FFS) system to Managed Care.¹ Under the FFS system, providers directly billed the state for each service rendered, whereas the state is now shifting to contracting with Managed Care Organizations (MCO), i.e., “... health plan[s] that contract with a Medicaid program to deliver care to beneficiaries”.^{1(p1)} Some of the goals of this transformation are to 1) improve access to care and resources that affect health, and 2) reduce the cost of provision of such access through increased efficiency and predictability.²

Non-emergency medical transportation (NEMT) services—a key benefit that many Medicaid beneficiaries rely on to reach care—were radically changed as part of this process. Where FFS NEMT services and claims were arranged and processed through local Departments of Social Services (DSS), MCO-supported rides and claims are arranged through and billed by private transportation brokerages.³ Early research identified difficulties and frustrations under the new system both for beneficiaries and community transportation organizations (CTOs), which had historically provided much of the NEMT transportation, especially in rural areas.^{3,4} These findings align with research about perceptions of Medicaid transformation as a whole, suggesting that beneficiaries found transformation to be confusing and had difficulty accessing services through their new plans.⁵

While there has been some examination of beneficiary and provider perspectives on Medicaid transformation, there has not been a systematic analysis of trends in NEMT usage during the transformation. This paper examines trends in NEMT service provision and cost 1) overall, 2) by travel mode, 3) by public versus private provider, and 4) by urban versus rural geography. Understanding patterns in both service provision and cost through the transformation is crucial to supporting equitable access to medical services for Medicaid beneficiaries, as well as cost efficiency in providing those services.

Methods

To examine NEMT trends, we used NC Medicaid claims data maintained by the North Carolina Department of Health and Human Services (NCDHHS) Division of Health Benefits through an agreement with the Cecil G. Sheps Center for Health Services Research at the University of North Carolina.

The database infrastructure used for this project was supported by the Cecil G. Sheps Center for Health Services Research and the CER Strategic Initiative of University of North Carolina's Clinical and Translational Science Award (5-UL1-TR002489-05). Plans and procedures were reviewed by the appropriate Institutional Review Board (IRB) and determined to be exempt from further review.

We analyzed NEMT claims between 2019 and 2023, using as selection criteria the Current Procedural Terminology (CPT) procedure codes for non-emergency medical transportation: A0100, A0110, A0120, A0130, A0426, A0428, A0999, or T2003 (N = 15,033,122). We excluded claims with missing data on service providers (n = 103,400), claims for out-of-state travel (n = 8358), and institutional claims (n = 240,797), since the latter are only used in a limited set of circumstances that differ from typical NEMT usage, resulting in our final dataset of 14,680,567 claims.

We created a simplified mode variable that recoded the list of modes given by the CPT codes⁶ into 1 of 5 categories: Ambulance, Mini-Bus, Taxi, Wheelchair Van, and Other. Service providers were coded as a public (e.g., transit system) or private (e.g., dedicated NEMT service, taxi) entity by performing a web search for each listed entity. Finally, we designated each claim as serving a rural or urban beneficiary based on the designation of the member's home county by the Department of Health and Human Services (DHHS) and MCOs.⁷⁻⁹ The results for urban versus rural geography presented below reflect the exclusion of additional entries for which member data were missing (n = 206,422).

For each year in the study period, we calculated the number and percentage of claims by Medicaid Plan type (i.e., Medicaid Direct or Managed Care), whether the NEMT provider was a public or private entity, what travel mode was used, and whether the beneficiary was from an urban or rural county. Additionally, we calculated both the total dollar value reimbursed by Medicaid for these NEMT trips each year, as well as the average reimbursed per claim. Subsequently, to further assess the transition from FFS to MCO providers, we again calculated the proportions and average claim values per year for public/private entities, travel modes, and urban/rural geographies, but we cross-tabulated them by whether the claims were serviced under Medicaid Direct or Managed Care plans. These findings are presented in the subsequent section.

The Arsenal package for the R programming language was used to generate all presented results and statistical tests.¹⁰ In each table, we ran appropriate statistical tests to ensure the year-over-year differences were significant. For categorical variables with count outcomes, we employed chi-square tests, while for continuous outcomes (i.e., amounts paid by Medicaid), we employed linear model ANOVA tests. Specifically, these procedures test the hypothesis that the distribution of each variable differs across the given years.

Given the large counts in our dataset, all results shown in the following text and tables had values of $P < .001$ unless otherwise indicated. In other words, these tests provide grounds to reject the alternative hypothesis for each variable that the observed values did not change across the study period.

Results

Overall Trends

Total NEMT claims increased from 2019 to 2023, apart from a decline in 2021 in the wake of the pandemic, with an increasing share for Managed Care members as the transition occurred ([Table 1](#)). There was a shift from public to private transport providers, with the proportion of claims served by private providers increasing in every year, from 61.8% in 2019 to 71.5% by 2023.

The proportion of trips served by Mini-Bus—heavily used by transit agencies—decreased over the period, while the share using Ambulance and Taxi increased. The overall split between urban and rural trips remained relatively consistent. Expenditures on professional NEMT claims increased every year except from 2020 to 2021, beginning at approximately \$130 million in 2019 and peaking at nearly \$207 million in 2023. Over the same period, the average paid per claim increased every year, from a mean of \$45.12 per claim in 2019 to \$60.90 per claim in 2023, an increase that exceeds the inflation rate.

Patterns by Mode, Plan Type, and Geography

Patterns in travel mode. The proportion of claims served by each mode remained relatively stable among Medicaid Direct claims during the study period ([Table 2](#)). Taxi and Ambulance were infrequently used to serve Medicaid Direct claims, with each accounting for fewer than 4% of claims in 2023. Meanwhile, these same categories account for a much more substantial percentage of Managed Care claims. By 2023, by which over a quarter of claims were serviced through MCOs, Ambulance and Taxi made up 20.1% and 16.0% of claims, respectively.

While there are fewer clear patterns in terms of average claim amounts, [Table 2](#) does show that in most years, Ambulance and Taxi had higher average claim amounts than the other modes, with the exception of Wheelchair Van under Managed Care, which had the highest average claim amount in 2021 and 2022, and Other, which accounted for a vanishingly small proportion of claims.

Public versus private providers. The proportion of claims served by public versus private providers among Medicaid Direct claims changed relatively little over the study period ([Table 3](#)). By contrast, Managed Care members

Table 1. NEMT Claim Characteristics by Year

-	-	Number of Claims (%)				
-	-	2019	2020	2021	2022	2023
Medicaid plan	Managed Care	0 (0.0%)	0 (0.0%)	230,435 (9.3%)	696,144 (23.0%)	885,051 (26.1%)
	Medicaid Direct	2,884,596 (100.0%)	2,895,520 (100.0%)	2,245,554 (90.7%)	2,336,142 (77.0%)	2,507,125 (73.9%)
Public / Private	Private	1,782,985 (61.8%)	1,802,244 (62.2%)	1,582,857 (63.9%)	2,082,663 (68.7%)	2,426,382 (71.5%)
	Public	1,101,611 (38.2%)	1,093,276 (37.8%)	893,132 (36.1%)	949,623 (31.3%)	965,794 (28.5%)
Mode	Ambulance	159,016 (5.5%)	163,595 (5.6%)	197,320 (8.0%)	361,909 (11.9%)	266,087 (7.8%)
	Mini-Bus	2,254,707 (78.2%)	2,180,299 (75.3%)	1,775,172 (71.7%)	2,058,675 (67.9%)	2,429,939 (71.6%)
	Other	4235 (0.1%)	2139 (0.1%)	2199 (0.1%)	3662 (0.1%)	2389 (0.1%)
	Taxi	97,493 (3.4%)	98,823 (3.4%)	79,859 (3.2%)	139,029 (4.6%)	202,937 (6.0%)
	Wheelchair Van	369,145 (12.8%)	450,664 (15.6%)	421,439 (17.0%)	469,011 (15.5%)	490,824 (14.5%)
Urban / Rural	Urban	820,645 (29.2%)	832,784 (30.1%)	781,916 (31.6%)	922,347 (30.4%)	995,054 (29.4%)
	Rural	1,993,685 (70.8%)	1,933,694 (69.9%)	1,691,836 (68.4%)	2,107,644 (69.6%)	2,394,540 (70.6%)
Total	-	2,884,596	2,895,520	2,475,989	3,032,286	3,392,176
Amount paid by Medicaid	Total \$ reimbursed	\$130,157,958.78	\$134,660,096.05	\$121,326,407.38	\$176,444,329.11	\$206,573,175.83
	Average per claim	\$45.12	\$46.51	\$49.00	\$58.19	\$60.90

Table 2. Mode by Year and by Plan Type

-	-	% of Claims					Average Claim Amount (\$)				
-	-	2019	2020	2021	2022	2023	2019	2020	2021	2022	2023
Medicaid Direct (FFS)	n	2,884,596	2,895,520	2,245,554	2,336,142	2,507,125	2,884,596	2,895,520	2,245,554	2,336,142	2,507,125
-	Ambulance	5.51%	5.65%	4.40%	3.53%	3.51%	77.99	71.93	85.24	87.57	88.06
-	Mini-Bus	78.16%	75.30%	74.15%	75.62%	77.25%	41.53	43.72	45.08	51.98	56.25
-	Taxi	3.38%	3.41%	3.50%	3.41%	2.46%	62.23	67.18	68.76	77.27	80.96
-	Wheelchair Van	12.80%	15.56%	17.86%	17.32%	16.69%	39.99	42.49	45.5	52.37	58.51
-	Other	0.15%	0.07%	0.09%	0.11%	0.09%	774.35	828.58	884.02	823.2	897.64
Managed Care (MCO)	n	-	-	230,435	696,144	885,051	-	-	230,435	696,144	885,051
-	Ambulance	-	-	42.79%	40.14%	20.12%	-	-	57.12	66.47	101.62
-	Mini-Bus	-	-	47.76%	41.94%	55.73%	-	-	45.62	62.7	50.18
-	Taxi	-	-	0.56%	8.53%	15.96%	-	-	43.46	60.59	65.43
-	Wheelchair Van	-	-	8.85%	9.24%	8.17%	-	-	79.39	114.77	88.25
-	Other*	-	-	0.04%	0.14%	0.03%	-	-	2.2	2.72	2.69
Total	N	2,884,596	2,895,520	2,475,989	3,032,286	3,392,176	2,884,596	2,895,520	2,475,989	3,032,286	3,392,176
-	Ambulance	5.51%	5.65%	7.97%	11.94%	7.84%	77.99	71.93	71.19	71.28	97.13
-	Mini-Bus	78.16%	75.30%	71.70%	67.89%	71.63%	41.53	43.72	45.11	53.5	55.02
-	Taxi	3.38%	3.41%	3.23%	4.58%	5.98%	62.23	67.18	68.35	70.14	70.15
-	Wheelchair Van	12.80%	15.56%	17.02%	15.47%	14.47%	39.99	42.49	47.14	60.92	62.89
-	Other	0.15%	0.07%	0.09%	0.12%	0.07%	774.35	828.58	850.33	597.36	806.98

*The P value for differences in claims over the study period for Other was $P = .850$ due to very low counts. As noted previously, all other displayed figures were significant, $P < .001$.

were less likely to receive NEMT from a public provider. This trend sharpened through the study period, and in 2023, less than 10% of Managed Care NEMT claims were for a public provider.

Across both Medicaid Direct and Managed Care claims, the average claim amount for private providers tended to be substantially higher than for public providers. Public provider claims under Medicaid Direct remained stable, ranging between \$39.95 per claim and \$42.51 per claim across the entire study period. Private provider claims, however, increased from \$48.32 per claim on average to \$68.82. While the average amount paid per public provider claim under Managed Care increased from \$40.25 to \$53.56, the average for private providers started higher and increased from \$56.12 in 2021 to \$67.36 in 2023, down from a high of \$71.25 in 2022.

Differences by geography. Across Medicaid Direct claims—as shown in [Table 4](#)—the proportion of urban versus rural claims remained consistent, with the proportion of urban claims hovering around 70% or so. By contrast, the proportions of Managed Care claims showed a higher share of urban claims, which increased year over year, from 70.3% in 2021 to 75.7% in 2023.

There were also notable disparities in average claim amount. Except for 2022, in which urban claims served through MCOs were around \$6.00 higher on average than FFS, average claim amount was somewhat comparable for urban claims. Rural claims, by contrast, were much higher when served through Managed Care providers than Medicaid Direct, with differences of approximately \$16.00, \$32.00, and \$33.00 on average in 2021, 2022, and 2023.

Discussion

This paper provides insight into the progress of the Medicaid transformation's impact on NEMT and serves as a point of reference at a crucial juncture for Medicaid and NEMT in North Carolina. As of 2023 (the most recent complete year of data at the time of this analysis), 26.1% of claims were through Managed Care. We expect this figure to increase in subsequent years, because once the transformation is complete, only a small percentage of people will stay in Medicaid Direct.¹¹ Therefore, this analysis a) describes the impact of the transformation's progress on NEMT so far, and b) offers a preview of the next stages of the transformation should the observed trends continue.

The transition of NEMT coordination out of the hands of county Departments of Social Services (DSS) under the fee-for-Service model and into the hands of private, for-profit transportation brokerages under MCOs is intended to contribute to cost savings and increased efficiency in a few major ways. These include, but are not limited to, a) the flexibility in developing their own networks of transportation providers beyond what county DSSs may have had available or been required to use; b) a requirement

Table 3. Entity Type by Year and by Plan Type

-	-	% of Claims					Average Claim Amount (\$)				
-	-	2019	2020	2021	2022	2023	2019	2020	2021	2022	2023
Medicaid Direct	n	2,884,596	2,895,520	2,245,554	2,336,142	2,507,125	2,884,596	2,895,520	2,245,554	2,336,142	2,507,125
-	Public	38.19%	37.76%	38.08%	37.01%	35.19%	39.95	42.51	42.45	41.01	41.13
-	Private	61.81%	62.24%	61.92%	62.99%	64.81%	48.32	48.93	52.28	63.28	68.82
Managed Care	n	-	-	230,435	696,144	885,051	-	-	230,435	696,144	885,051
-	Public	-	-	16.53%	12.20%	9.44%	-	-	40.25	47.23	53.56
-	Private	-	-	83.47%	87.80%	90.56%	-	-	56.12	71.75	67.36
Total	N	2,884,596	2,895,520	2,475,989	3,032,286	3,392,176	2,884,596	2,895,520	2,475,989	3,032,286	3,392,176
-	Public	38.19%	37.76%	36.07%	31.32%	28.47%	39.95	42.51	42.36	41.57	42.2
-	Private	61.81%	62.24%	63.93%	68.68%	71.53%	48.32	48.93	52.75	65.77	68.34

Table 4. Urban / Rural by Year and by Plan Type

-	-	% of Claims					Average Claim Amount				
-	-	2019	2020	2021	2022	2023	2019	2020	2021	2022	2023
Medicaid Direct	n	2,814,330	2,766,478	2,243,501	2,334,499	2,505,278	2,814,330	2,766,478	2,243,501	2,334,499	2,505,278
-	Urban	70.84%	69.90%	68.20%	68.53%	68.85%	42.13	44.82	47.71	55.98	60.63
-	Rural	29.16%	30.10%	31.80%	31.47%	31.15%	52.21	50.22	50.28	52.97	55.63
Managed Care	n	-	-	230,251	695,492	884,316	-	-	230,251	695,492	884,316
-	Urban	-	-	70.31%	73.02%	75.72%	-	-	47.87	62.5	58.71
-	Rural	-	-	29.69%	26.98%	24.28%	-	-	66.63	85.34	88.42
Total	N	2,814,330	2,766,478	2,473,752	3,029,991	3,389,594	2,884,596	2,895,520	2,475,989	3,032,286	3,392,176
-	Urban	70.84%	69.90%	68.39%	69.56%	70.64%	42.13	44.82	47.73	57.55	60.09
-	Rural	29.16%	30.10%	31.61%	30.44%	29.36%	52.21	50.22	51.71	59.55	62.70

to arrange NEMT through the least expensive available and appropriate travel mode; c) negotiating contracts directly with providers; and d) incentives and techniques to reduce waste, fraud, and abuse.^{3,6,12} Beyond the expectation that the transportation brokerage system should be more cost effective than the system it is replacing, NEMT services also may support the overall goal of making Medicaid more cost effective by providing transportation to preventive services, which are also emphasized as cost-saving measures insofar as they prevent more costly and/or frequent services later on.¹³

Trends in Usage and Cost

We find that NEMT usage, as measured by claim volume, has experienced steady growth. In every year but 2021, we saw an increase in claims, with the figure of 3,392,716 claims in 2023 being substantially higher than any other year in the study period. This concords with the post-pandemic recovery and increased Medicaid enrollment. Specifically, during the study period, Medicaid enrollment increased from 2,071,525 beneficiaries at the end of calendar year 2019 to 2,851,292 beneficiaries by the end of calendar year 2023.¹⁴ We anticipate that this growth has only accelerated since our study period, as it is reported that over 600,000 new Medicaid enrollments have taken place in the year since Medicaid Expansion began on December 31, 2023.¹⁵

While it is not possible to disentangle the impacts of pandemic recovery from impacts of the transition to Managed Care when looking at recent growth in claims data, the growth we did observe was not distributed equally between public and private providers. We observed that private providers accounted for a larger share of claims each year, from 61.8% to 71.5% through the study period. This trend was especially pronounced within Managed Care claims, where 90.6% of the claims were served by private providers by 2023. Moreover, while growth has been consistent across geographies, we also saw that Managed Care claims in all years since the transformation had a much higher proportion of urban claims than did Medicaid Direct.

Claim volume reached an all-time high through the study period in 2023, and total expenditures increased as well. By 2022, total expenditures had reached \$176,444,329, which is ~\$42,000,000 more than the previous high of \$134,660,096 in 2020, the year before transformation began. In the following year, total expenditures climbed again, exceeding \$200 million. While it is true that more trips are likely being served as these figures increase, it is also true that the average cost per claim has gone up each year. Increases in the proportion of claims served by more costly modes, like Ambulance and Taxi, could be a contributing factor to rising costs, as could an increased reliance on private providers, which consistently had higher per-claim costs.

Public versus Private and Urban versus Rural Claims

The NEMT claims that have shifted to MCOs were more likely to be provided by private firms. These findings complement earlier qualitative reports in which public Community Transit Organizations (CTOs) reported challenges working with MCOs and brokers, contending also that trips they used to serve were potentially going to private providers instead.³ We also observed that claims served by Mini-Bus—a mainstay of Community Transit Organizations³—exhibited lower rates among MCO-provided service than Medicaid Direct, though those rates went up across our study period. Moreover, average claim amounts in the study period for private providers were higher than public providers like transit agencies. Nevertheless, the data make it impossible to know if there were public options available for specific trips and, if available, which transport option was faster for the beneficiary.

These expenses are especially highlighted when considering geography; rural trips served under Managed Care, which exhibited a much higher share of private providers than rural trips under Medicaid Direct, were on average nearly \$30.00 more per claim than their Medicaid Direct counterparts in 2022 and 2023. The comparatively lower proportion of rural claims serviced through Managed Care compared to Medicaid Direct—a gap which only widened through the study period—is worth future scrutiny. It could be the case that rural beneficiaries are not transitioning over as quickly as their urban counterparts, but it is also possible that some rural beneficiaries that have transitioned to MCOs are having a harder time arranging and/or are foregoing or deferring NEMT trips. Those claims that are being served under MCOs appear to be substantially more expensive on average, but this could also be an artifact of the types of claims being served by MCOs so far, as opposed to an intrinsic attribute of MCOs.

While we cannot draw explicit links to causes of these disparities, our results are consistent with earlier qualitative research that highlighted issues with MCOs providing adequate NEMT services in rural areas, including challenges with contracting transportation vendors in these areas.⁴ These challenges could lead to deferred or forgone care, especially when receiving care would require travel to specialized facilities, which are both further and more difficult to access from rural areas.³ For the part of providers, it is difficult to make these trips in a cost-effective manner, and this issue may be compounded for private providers who may need to make such trips not just cost effective, but profitable.³ Our findings emphasize the intrinsic challenge in providing rural transportation that is both expedient and cost effective.¹⁶

Limitations

This study is subject to several limitations, many of which relate to the data employed. The chief limitation is that our unit of analysis is the Medicaid claim, rather than each NEMT trip or beneficiary. It may often be the

case that a billed claim represents a trip, but it is not clear if these are legs of a trip, round trips, or some combination of both. Additionally, to preserve anonymity, we were limited to broad geographic information about beneficiaries, which we were able to match to the current county classifications used by NCDHHS ([Appendix A](#)). Nevertheless, the degree of rurality can vary substantially within counties, so the distinction we use is not perfect.¹ Finally, we are not able to parse out the effects of Medicaid transformation on trip volume and cost versus the impacts of pandemic recovery on those figures. Some of the trends we observe are likely attributable to both.

Conclusion

Our analysis does not control for several contextual factors, such as inflation, Medicaid Direct contract limitations on reimbursements, and alternative funding mechanisms that supported public transit during the study period (e.g., the Rural Operating Assistance Program helped rural Community Transit Organizations to continue operations³). We cannot therefore conclude that Medicaid transformation is not moving toward goals of reduced cost and increased efficiency. Nevertheless, the observed increase in average cost per claim every year, combined with rising overall expenditures, does not show a clear trend toward increased efficiency or lower costs at this point in the transformation.

Of course, even if overall NEMT expenditures continue to rise, to the extent that these increased costs represent additional transportation to services—especially preventive services—it remains possible that these expenditures contribute to overall Medicaid cost efficiency, even if they are not increasing NEMT cost efficiency. After all, if preventive care precludes the need for more expensive and frequent care later, the investment in more NEMT may prove worth the cost overall.

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Disclosure of interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

¹ We have included a full list of the urban/rural county designations used here in [Appendix A](#). We reiterate that we used these designations because they are the same designations agreed upon and officially used by NCDHHS and MCOs.^{7,8}

Corresponding Author

Address correspondence to Dr. Evan Iacobucci, School of Earth, Environment, and Sustainability, Missouri State University, 901 S. National Ave, Springfield, MO 65897 (eiacobucci@missouristate.edu).

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Appendices

Appendix A. Rural / Urban County Designations

County Code	County Name	Designation
001	Alamance	Urban
002	Alexander	Urban
003	Alleghany	Rural
004	Anson	Rural
005	Ashe	Rural
006	Avery	Rural
007	Beaufort	Rural
008	Bertie	Rural
009	Bladen	Rural
010	Brunswick	Urban
011	Buncombe	Urban
012	Burke	Urban
013	Cabarrus	Urban
014	Caldwell	Urban
015	Camden	Rural
016	Carteret	Rural
017	Caswell	Rural
018	Catawba	Urban
019	Chatham	Urban
020	Cherokee	Rural
021	Chowan	Rural
022	Clay	Rural
023	Cleveland	Rural
024	Columbus	Rural
025	Craven	Urban
026	Cumberland	Urban
027	Currituck	Urban
028	Dare	Rural
029	Davidson	Urban
030	Davie	Urban
031	Duplin	Rural
032	Durham	Urban
033	Edgecombe	Urban
034	Forsyth	Urban
035	Franklin	Urban
036	Gaston	Urban
037	Gates	Urban
038	Graham	Rural
039	Granville	Rural
040	Greene	Rural
041	Guilford	Urban
042	Halifax	Rural
043	Harnett	Rural
044	Haywood	Urban
045	Henderson	Urban
046	Hertford	Rural
047	Hoke	Urban
048	Hyde	Rural
049	Iredell	Urban
050	Jackson	Rural
051	Johnston	Urban
052	Jones	Urban
053	Lee	Rural

County Code	County Name	Designation
054	Lenoir	Rural
055	Lincoln	Urban
056	McDowell	Rural
057	Macon	Rural
058	Madison	Urban
059	Martin	Rural
060	Mecklenburg	Urban
061	Mitchell	Rural
062	Montgomery	Rural
063	Moore	Rural
064	Nash	Urban
065	New Hanover	Urban
066	Northampton	Rural
067	Onslow	Urban
068	Orange	Urban
069	Pamlico	Urban
070	Pasquotank	Rural
071	Pender	Urban
072	Perquimans	Rural
073	Person	Urban
074	Pitt	Urban
075	Polk	Rural
076	Randolph	Urban
077	Richmond	Rural
078	Robeson	Rural
079	Rockingham	Urban
080	Rowan	Urban
081	Rutherford	Rural
082	Sampson	Rural
083	Scotland	Rural
084	Stanly	Rural
085	Stokes	Urban
086	Surry	Rural
087	Swain	Rural
088	Transylvania	Rural
089	Tyrrell	Rural
090	Union	Urban
091	Vance	Rural
092	Wake	Urban
093	Warren	Rural
094	Washington	Rural
095	Watauga	Rural
096	Wayne	Urban
097	Wilkes	Rural
098	Wilson	Rural
099	Yadkin	Urban
100	Yancey	Rural

Source. North Carolina Department of Health and Human Services Division of Health Benefits. 2021 Community Mental Health, Substance Use and Developmental Disabilities Services Network Adequacy and Accessibility Analysis Requirements for North Carolina LME/MCOs, Appendix D – Urban & Rural County Designation. Published online 2021. Accessed November 12, 2024. <https://www.ncdhhs.gov/documents/files/appendix-d-urban-rural-county-designation-0/download>