RESEARCH BRIEF
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CHWS
Center for Health Workforce Studies

# Pediatric Medicaid Patients' Utilization of Outpatient and Emergency Department Services in New York State

## Highlights

- **Black, non-Hispanic and Hispanic pediatric Medicaid recipients are more likely to receive services in an emergency department (ED) setting, while White and Asian pediatric Medicaid recipients are more likely to receive services in an outpatient setting.**
- **Pediatric Medicaid recipients ages 1–5 and ages 12–20 are more likely to be seen in EDs than Pediatric Medicaid recipients ages less than 1 or ages 6–11.**
- **Counties with high rates of pediatric avoidable ED visits include both rural and urban counties and are in many different geographic areas of the state.**

## Background

Medicaid and the Children's Health Insurance Program (CHIP) provide coverage to more than 43 million children in the United States, including over 2.5 million children in New York State. Children may be eligible for Medicaid for a number of reasons, including: being born to a woman covered by Medicaid, being in foster care or an adoption assistance program, having a disability, and the most familiar reason, residing in a low-income family.[1] Although New York's Medicaid program is designed to increase access to health care services for low-income residents, there may be a number of barriers limiting appropriate health care utilization, including physician maldistribution, lack of providers who accept Medicaid, and unreasonable distance to closest available health provider. This research brief reports on an analysis of pediatric Medicaid patients' use of outpatient and emergency department services in New York State.

## Data and Methods

Medicaid claims data were extracted using Salient Medicaid Solutions Data, Version 6.4, a database that contains claims from the New York Medicaid Data Warehouse (Source: Salient NYS Medicaid System: includes payment cycles through 1974, access date: 7/8/2015). The research data sets contained aggregate unique counts by county. The county of the pediatric patient was used to identify whether s/he was located in a rural or urban county based on Ebert's Typology.[2] The location of provider billing for Medicaid services delivered to pediatric patients was used to identify the county of service.

The research assessed pediatric patients between the ages of 0 and 20 years with at least one Medicaid visit to or encounter in an emergency department (ED) that did not result in an inpatient stay, or to an outpatient setting (private physician office, free-standing clinic, or hospital outpatient department) during the 2014 calendar year (January 1, 2014-December 31, 2014). After excluding 11,929 unique pediatric Medicaid recipients who could not be linked to a specific county, 1,941,138 unique pediatric Medicaid recipients with at least one outpatient visit were included in the analysis.

After removing 3,684 unique ED pediatric patients who could not be linked to a county, 614,249 unique ED pediatric patients with at least one ED visit were left for data analysis. Avoidable ED visits in this analysis were defined based

an algorithm developed by the New York University (NYU) Center for Health and Public Service Research[3] that categorized ED visits using ICD-9 codes as:

- non-emergent;
- emergent/primary care treatable;
- emergent – ED care needed – preventable/avoidable; and
- emergent – ED care needed – not preventable/avoidable.

For purposes of this research, ED visits based on ICD-9 codes with a probability of 75% or more were assigned as either "emergent/primary care treatable" or "emergent-ED care needed - preventable/avoidable" were considered avoidable. Using this criterion, 127 ICD-9 codes were determined to be avoidable ED visits, but only 122 of them had pediatric Medicaid claims associated with them. After applying the 122 codes to the study population, 151,306 ED visits were identified as avoidable.

## Findings

**Black, non-Hispanic and Hispanic pediatric Medicaid recipients are more likely to receive services in an emergency department setting, while White and Asian pediatric Medicaid recipients are more likely to receive services in an outpatient setting.**

Pediatric Medicaid patients who are Black, non-Hispanic (Rate Ratio (RR) = 1.56) or who are Hispanic/Latino (RR=1.19) had higher utilization rates of services in ED settings, while pediatric Medicaid patients who are White, non-Hispanic (RR=0.70) or Asian, non-Hispanic (RR=0.44) had lower utilization rates of services in ED settings compared to outpatient settings (Table 1). These differences were minimal in rural areas, except for Asians, but they were much more pronounced in urban areas. The highest ratio of percent utilization of care in ED settings versus outpatient settings was for pediatric Medicaid patients who were Black, non-Hispanic residing outside New York City (RR=1.70) or in New York City (RR=1.55), followed by Hispanics residing in New York City (RR=1.28).

***Table 1. Utilization Rates of Health Care Services among Pediatric Medicaid Patients by Race/Ethnicity and Rural/Urban Residence in New York, 2014***

| County of Residence and Type of Settings | Race/Ethnicity[a] | | | | |
|---|---|---|---|---|---|
| | White | Black | Hispanic | Asian | Other |
| **Rural** | | | | | |
| Outpatient Settings | 79.6% | 4.3% | 8.8% | 0.9% | 6.4% |
| Emergency Departments | 79.7% | 4.6% | 9.2% | 0.3% | 6.2% |
| **Utilization RRs of EDs[b]** | **1.00** | **1.07** | **1.05** | **0.33** | **0.97** |
| **Urban (outside NYC)** | | | | | |
| Outpatient Settings | 40.0% | 15.9% | 33.3% | 3.5% | 7.3% |
| Emergency Departments | 27.7% | 27.1% | 34.5% | 2.6% | 8.2% |
| **Utilization RRs of EDs[b]** | **0.69** | **1.70** | **1.04** | **0.74** | **1.12** |
| **New York City** | | | | | |
| Outpatient Settings | 17.5% | 15.7% | 40.1% | 15.3% | 11.4% |
| Emergency Departments | 5.9% | 24.4% | 51.4% | 6.4% | 11.9% |
| **Utilization RR of EDs[b]** | **0.34** | **1.55** | **1.28** | **0.42** | **1.04** |
| **Statewide** | | | | | |
| Outpatient Settings | 31.2% | 14.4% | 34.4% | 10.3% | 9.7% |
| Emergency Departments | 21.9% | 22.5% | 41.0% | 4.5% | 10.1% |
| **Utilization RRs of EDs[b]** | **0.70** | **1.56** | **1.19** | **0.44** | **1.04** |

[a] White, non-Hispanic is referred to as White; Black/African American, non-Hispanic is referred to as Black; Asian, non-Hispanic includes Pacific Islander, non-Hispanic and is referred to as Asian; and Hispanic/Latino is referred to as Hispanic. Other includes Medicaid recipients identified as non-Hispanic American Indian, Multiple Races, and Unknown.

[b] Utilization Rate Ratios (RRs) were calculated between the rate of patients who received at least one health care service in an emergency department (ED) setting and the rate of patients who received at least one health care service in an outpatient setting.

**Pediatric Medicaid recipients ages 1 to 5 and ages 12 to 20 are more likely to be seen in ED settings, while pediatric Medicaid recipients ages less than 1 or ages 6 to 11 are more likely to access services in outpatient settings.**

Statewide, pediatric Medicaid patients ages 12 to 20 (RR=1.22) or ages 1 to 5 (RR=1.05) had higher utilization rates of care services in ED settings, while pediatric Medicaid patients ages less than 1 (RR=0.72) or ages 6 to 11 (RR=0.85) had lower utilization rates of services in ED settings compared to outpatient settings (Table 2). The pattern was similar across all geographies for pediatric Medicaid patients ages 12 to 20, the highest rates of receiving health services in EDs being found among those residing in rural areas (RR=1.43). Medicaid pediatric patients ages 1 to 5 had the highest rate of services in ED settings in New York City (RR=1.10), but that trend did not hold for patients residing in urban areas outside of New York City (RR=0.98) or in rural areas (RR=0.97).

*Table 2. Adjusted Utilization Rate of Oral Health Services in Hospital Emergency Departments Among Adult Medicaid Enrollees in New York*

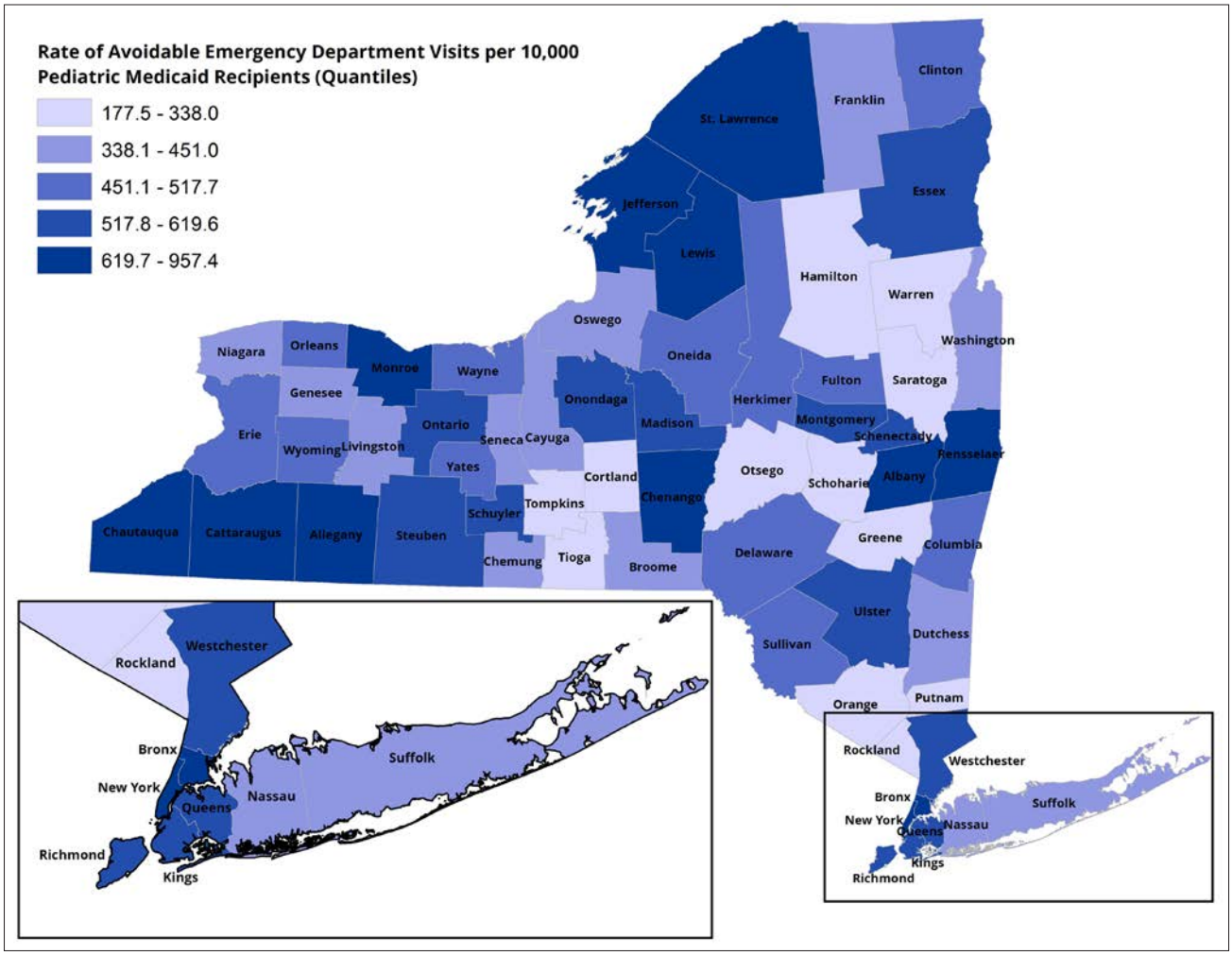
| County of Residence and Type of Settings | Age Groups (Years) | | | |
|---|---|---|---|---|
| | less than 1 | 1 to 5 | 6 to 11 | 12 to 20 |
| **Rural** | | | | |
| Outpatient Settings | 16.6% | 31.7% | 23.7% | 28.0% |
| Emergency Departments | 9.8% | 30.9% | 19.4% | 39.9% |
| **Utilization RRs of EDs[a]** | **0.59** | **0.97** | **0.82** | **1.43** |
| **Urban (outside NYC)** | | | | |
| Outpatient Settings | 16.6% | 34.4% | 23.6% | 26.3% |
| Emergency Departments | 10.8% | 33.7% | 19.5% | 35.9% |
| **Utilization RRs of EDs[a]** | **0.65** | **0.98** | **0.83** | **1.37** |
| **New York City** | | | | |
| Outpatient Settings | 13.8% | 33.9% | 24.8% | 27.5% |
| Emergency Departments | 11.0% | 37.2% | 21.4% | 30.4% |
| **Utilization RRs of EDs[a]** | **0.80** | **1.10** | **0.86** | **1.11** |
| **Statewide** | | | | |
| Outpatient Settings | 14.9% | 33.6% | 24.3% | 27.2% |
| Emergency Departments | 10.8% | 35.4% | 20.6% | 33.2% |
| **Utilization RRs of EDs[a]** | **0.72** | **1.05** | **0.85** | **1.22** |

[a] Utilization Rate Ratios (RRs) were calculated between the rate of patients who received at least one health care service in an emergency department (ED) setting and the rate of patients who received at least one health care service in an outpatient setting.

**Counties with high rates of pediatric avoidable ED visits include both rural and urban counties and are in many different geographic areas of the state.**

Counties with high rates of avoidable ED visits per 10,000 pediatric Medicaid recipients (619.7 to 957.4) can be seen throughout the state, especially in rural areas (Figure 1). Both southwest New York (Allegany, Cattaraugus, and Chautauqua) and the Tug Hill region (Jefferson, Lewis, and St. Lawrence) included counties with high rates of avoidable ED visits. Most counties reporting the highest rates of avoidable ED visits can be generally seen along the borders with other states. Counties with low rates of avoidable ED visits per 10,000 pediatric Medicaid recipients (177.5 to 338.0) include the rural counties of Cortland, Tioga, and Tompkins in the Southern Tier; the rural counties of Greene, Otsego, and Schoharie in Eastern New York; and the rural counties of Hamilton and Warren in the Adirondacks.

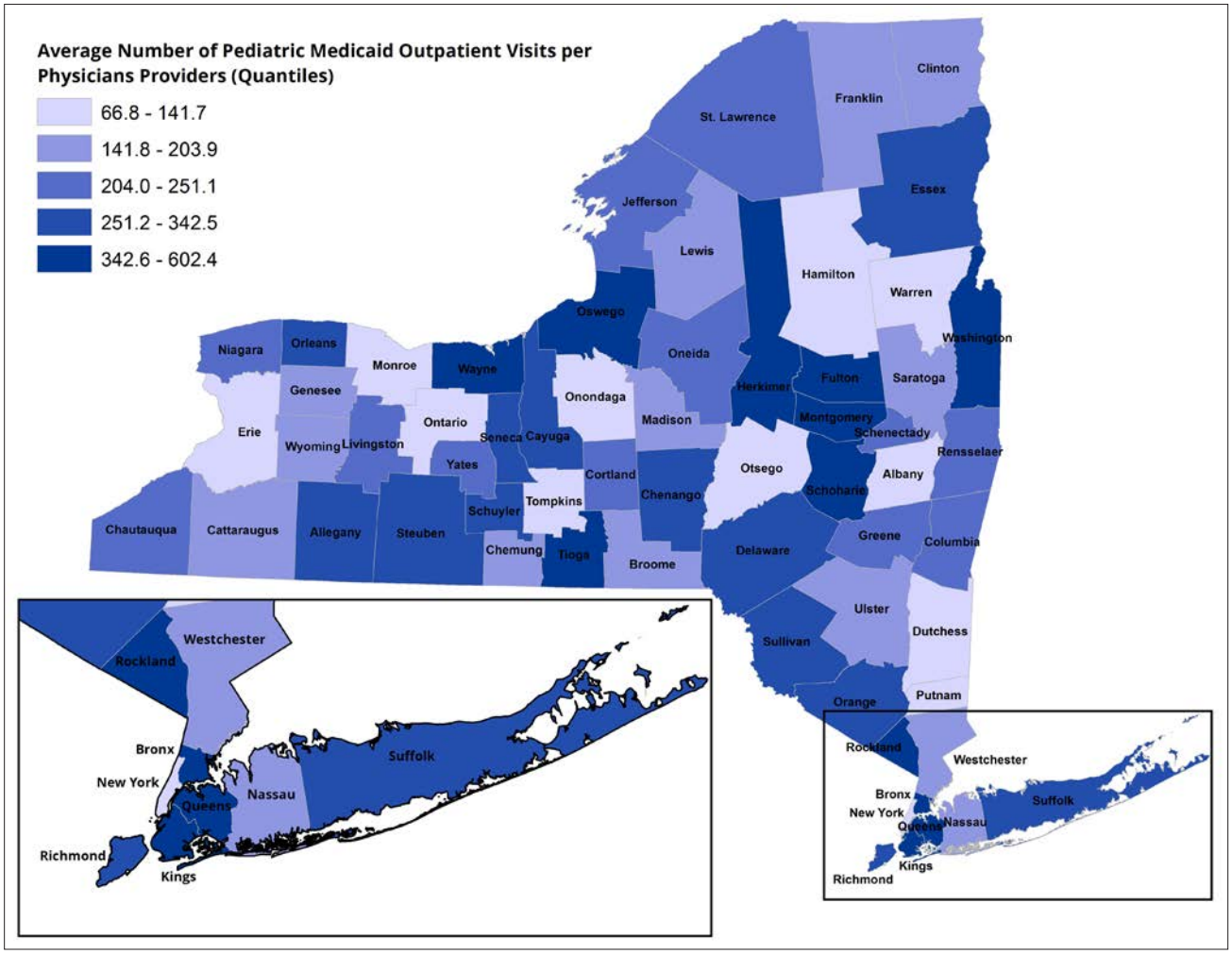
*Figure 1. Rate of Avoidable Emergency Department Visits per 10,000 Pediatric Medicaid Recipients by County in New York, 2014*



**There is wide variation in the number of pediatric outpatient Medicaid visits per physician by county, though counties with the greatest number of pediatric outpatient Medicaid visits were among the highest number per physician.**

The average number of pediatric outpatient Medicaid visits per physician varied greatly by county, ranging from 66.8 in Albany County to 602.4 in Kings County (Figure 2). Other counties with a low average number of outpatient Medicaid visits per physician included Otsego (78.2), Warren (94.1), and Hamilton (108.4) counties. The highest average number of pediatric outpatient Medicaid visits per physician was in Kings County (602.4), followed by Herkimer (556.1), Rockland (535.1), Washington (531.1), Tioga (507.7), and Queens (503.1) counties. In New York City, Kings and Queens counties had the highest average number of pediatric outpatient Medicaid visits followed by Bronx County that had 426.8 pediatric outpatient Medicaid visits per physician.

*Figure 2. Average Number of Pediatric Medicaid Outpatient Visits per Physician Provider by County in New York, 2014*



## Limitations

The use of Medicaid claims data for workforce research has several limitations. Because the intent of a claim is to be reimbursed for services provided, there is likely to be a certain level of misclassification in a number of fields, including location of service, patient's county of residence, and provider specialty. Additionally, these findings are generalizable only to children with Medicaid insurance and do not necessarily apply to children commercially insured or without insurance.

## Discussion

County population size may explain utilization by racial/ethnic categories. Larger urban counties have both larger numbers of racial/ethnic minorities and a higher percentage of racial/ethnic minorities compared to the total population. Access to pediatric care in these urban counties for racial/ethnic minorities may be related to both access to providers accepting Medicaid as well as other personal factors such as job status and access to transportation.

Children ages 1 to 5 and ages 12 to 20 who received Medicaid benefits were more likely to use ED services statewide than children of other ages. This also held true in New York City. In Upstate New York, however, children 1 to 5 were treated in outpatient settings slightly more than in ED settings. Children less than 1 and those 6 to 11 who received Medicaid benefits were much more likely to be seen in outpatient settings than in ED settings. Parental involvement in care as well as older children being more likely to use EDs for injuries may influence these patterns.

In the 4 upstate counties with major cities (Albany, Erie, Monroe, and Onondaga), there is an indirect relationship between the average number of pediatric outpatient Medicaid visits per physician and the rates of avoidable ED visits. Each of these counties was in the lowest quintile for the average number of pediatric outpatient Medicaid visits per physician but in the highest or next to highest quintile for rates of avoidable ED visits. One could conclude that there is not enough access to outpatient services for the number of Medicaid pediatric beneficiaries in these counties.

In contrast, Rockland, Schoharie, and Tioga Counties reported the lowest rates avoidable ED visits but were in the highest quintile for the average number of outpatient visits per physician, compared to other New York counties, indicating appropriate use of outpatient services. Tompkins, Otsego, Hamilton, and Warren Counties reported both low rates of avoidable ED visits as well as low average number of outpatient visits per physician. These results could stem from a combination of insignificant number of children enrolled in Medicaid, and these Medicaid beneficiaries using outpatient services appropriately.

These findings are influenced by the availability of providers in general, the availability of providers who accept Medicaid, and the number of pediatric Medicaid recipients. Highly populated counties such as Kings and Queens may not fit any discernable pattern due to the large number of pediatric Medicaid recipients, as well as a large number of providers accepting Medicaid. Likewise, the small number of pediatric Medicaid recipients in small, rural counties may influence the findings more than the availability of providers or providers accepting Medicaid.

## Conclusions

This analysis reveals that there may not be a sufficient number of health care providers in New York State, especially in urban areas, who participate in the Medicaid program. Additionally, we conclude that there is a problem with accessibility of primary care physicians in urban areas counties. Hospitals (emergency departments) usually lie along bus routes making them easily accessible to those who rely on public transportation. Parents whose children receive Medicaid may have limited income and therefore, may be more likely to be working multiple jobs and/or are single parents. Perhaps by extending office hours of primary care physicians, parents would have a better opportunity to bring their child/children in to their primary care provider rather than the emergency department. Furthermore, populations are drastically larger in urban counties compared to rural, which require many more health providers in general, and these counties specifically need more of Medicaid-participating providers. If only 41% of the New York County physicians accept Medicaid patients, these patients are far less likely to be able to make an appointment to see their family physician.[4]

## References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4. Bruce C, Martiniano R, Moore J. *Chartbook of Physicians in Ambulatory Settings in New York*. Rensselaer, NY: Center for Health Workforce Studies, School of Public Health, SUNY Albany; August 2015.



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