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RESEARCH BRIEF
June 2017

Factors Affecting Oral Health Care Utilization in Hospital Emergency Departments Among Medicaid-Insured Adults in New York

Highlights

- **Approximately 1 in 5 New Yorkers was enrolled in the state Medicaid program during the 2-year study period, 2012 to 2013.**
- **Men (18.3%), adults aged 55 to 64 years (18.5%), and Non-Hispanic Whites (12.1%) had the lowest enrollment rates.**
- **Eight per 1,000 (8.0‰) Medicaid enrollees used emergency departments for oral health services.**
- **Men (8.3‰), young adults (19.0‰), Non-Hispanic Blacks or African Americans (14.5‰), and adults of multiple races (11.9‰) had significantly higher utilization rates* for oral health services in emergency departments compared with women, older adults, and Non-Hispanic Whites.**
- **Adult Medicaid enrollees residing in rural (7.9 to 9.8‰) and mixed urban-rural (9.7‰) counties had significantly higher utilization rates* for oral health care in emergency departments compared with those residing in urban counties.**
- **Adult Medicaid enrollees residing in counties with low ratios of dentists serving Medicaid enrollees (9.6‰) had higher utilization rates* for oral health care in hospital emergency departments compared to those residing in counties with high ratios of dentists.**

Background

Emergency department visits for non-traumatic dental problems are on the rise in the US.[1,2] It is widely recognized that the provision of dental services in medical settings, including hospital emergency departments, tends to be costlier and less effective than services provided by oral health providers in private dental offices or dental clinics.[3,4,5] Populations most likely to have emergency department dental visits include adults who are either insured by Medicaid or are uninsured.[1,2,5,6]

It is also important to recognize the wide state-to-state variation in adult Medicaid dental benefit coverage and its impact on where Medicaid patients receive oral health services.[3,7] Adult Medicaid beneficiaries in New York have an extensive dental benefit that includes preventive services, restorative services, periodontal services, dentures, and oral surgery services.[7,8] This coverage has the potential to reduce the need for dental services in medical settings including hospital emergency departments. Along with an adequate adult dental benefit in Medicaid, the supply of dentists participating in state Medicaid programs has been identified as a predictor of lower use of emergency departments for dental conditions.[6,9]

However, more than 25,000 adult Medicaid beneficiaries in New York received care for oral health problems in hospital emergency departments from 2012 to 2013. The objectives of this study are to: (1) assess oral health care service utilization in hospital emergency departments by adult Medicaid beneficiaries in New York; and (2) evaluate the effects of patient demographics and county characteristics on this usage.

* All utilization rates were adjusted for gender, age, race/ethnicity, and rurality.

Data and Methods

This research brief is based on an analysis of Medicaid enrollment and dental claims data for the period between January 1, 2012 and December 31, 2013 for adult New Yorkers 21 years of age and older.* This research work is part of a comparative analysis of Medicaid dental claims over the 2-year period in New York and Oklahoma.[10]

The Medicaid data contained demographic information for all enrollees during the study period, including age, sex, race, ethnicity, and county of residence. In addition to this information, the claims data included the settings in which services were received. Adult Medicaid enrollees who could not be linked to a specific county were excluded (<1%).

The average number of adult Medicaid enrollees was estimated at the midpoint of the time period under study (January 2013). Enrollment rates were calculated using the demographic distribution of all New Yorkers 21 years of age and older. The source of New York population data was the American Community Survey.[11]

Multivariable Poisson regression models with robust variance estimation were used to determine utilization rate ratios (RR) and 95% confidence intervals (CI) for associations between utilization rates and patients' gender, age, race/ethnicity, rural status of county of residence, ratio of dentists providing services to Medicaid enrollees, accounting for clustering by county. Statistical significance was defined as $P<.05$ using 2-tailed tests. Analyses were conducted using SAS v9.4 (SAS Institute Inc., Cary, North Carolina).

Each of the 62 New York counties was classified as urban, rural, or mixed urban-rural based on the percentage of the population living in urban census tracts in the county, according to the Rural-Urban Commuting Area (RUCA) definition.[12]

Findings

During the study period, among the 14,328,088 adults aged 21 years and older residing in New York, more than one-fifth were enrolled in the state Medicaid program (Table 1). Men (18.3%), adults aged 55 to 64 years (18.5%), and Non-Hispanic Whites (12.1%) had the lowest enrollment rates.

Table 1. Medicaid Enrollment Rates of Adults 21 Years and Older by Demographic Factors in New York

Demographic Characteristics	Adults 21 Years and Older[a]	Medicaid Enrollees 21 Years and Older	
	Average Estimate (2009-2013)	Average Estimate (2012-2013)	Enrollment Rate
Sex			
Female	7,523,155	1,887,077	25.1%
Male	6,804,933	1,245,972	18.3%
Age			
21-24 years	1,114,395	312,917	28.1%
25-29 years	1,400,843	354,799	25.3%
30-34 years	1,311,271	313,860	23.9%
35-44 years	2,584,838	552,972	21.4%
45-54 years	2,857,187	568,933	19.9%
55-64 years	2,365,359	437,986	18.5%
65+ years	2,694,195	591,582	22.0%
Race/ethnicity			
American Indian[b]	32,411	9409	29.0%
Black or African American[b]	1,982,396	610,729	30.8%
Hispanic	2,320,176	843,927	36.4%
Other[b,c] or unknown	1,341,191	624,530	46.6%
White[b]	8,651,914	1,044,454	12.1%
All	14,328,088	3,133,049	21.9%

[a] Source: US Census Bureau, *2009-2013 American Community Survey 5-Year Estimates.*
[b] Non-Hispanic ethnicity.
[c] Asian, Native Hawaiian and other Pacific Islander, some other race, and 2 or more races.

* Source: Salient NYS Medicaid System. Includes payment cycles through 2011; access dates: March 15-22, 2016.

On average, among the 3,133,049 Medicaid-enrolled adults in New York, 8.0 (95% CI=6.8-9.4) per 1,000 used hospital emergency departments for oral health services (Table 2).

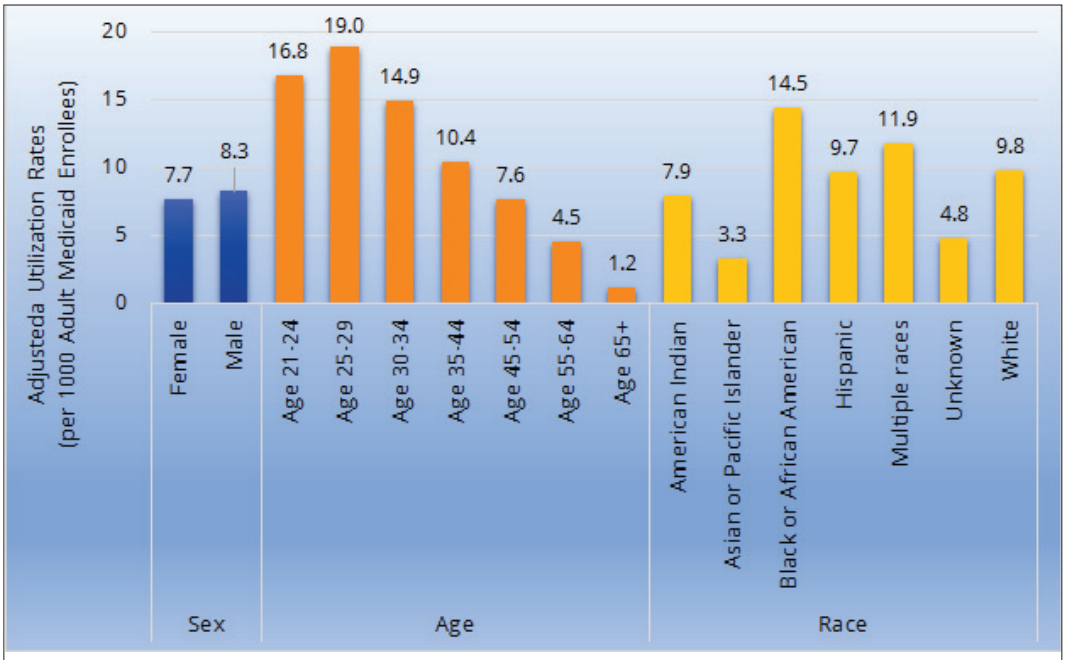
Table 2. Adjusted Utilization Rate of Oral Health Services in Hospital Emergency Departments Among Adult Medicaid Enrollees in New York

Utilization of Oral Health Services by Medical Setting	Adjusted[a] Utilization Rate and 95% Confidence Interval (per 1000 Adult Medicaid Enrollees)		
	Mean	Standard Error	95% CI
Hospital emergency departments	8.0	0.6	6.8-9.4

[a] Rate and 95% confidence interval (CI) adjusted for patients' gender, age, race/ethnicity, rural status of county of residence, ratio of dentists providing services to Medicaid enrollees, and year of service, accounting for clustering by county.

During the 2-year study period, men (8.3 vs 7.7; RR=1.08), enrollees who were young adults 25 to 29 years of age (19.0 vs 4.5; RR=4.19), Non-Hispanic Blacks or African Americans (14.5 vs 9.8; RR=1.48), and adults of multiple races (11.9 vs 9.8; RR=1.21) had significantly higher (*P*<.0001) adjusted utilization rates (per 1,000 adult Medicaid enrollees) for oral health services in hospital emergency departments compared with women, adults 55 to 64 years of age, and Non-Hispanic Whites, respectively (Figure 1).

Figure 1. Adjusted Utilization Rates[a] for Oral Health Services in Hospital Emergency Departments Among Adult Medicaid Enrollees by Demographic Characteristics in New York



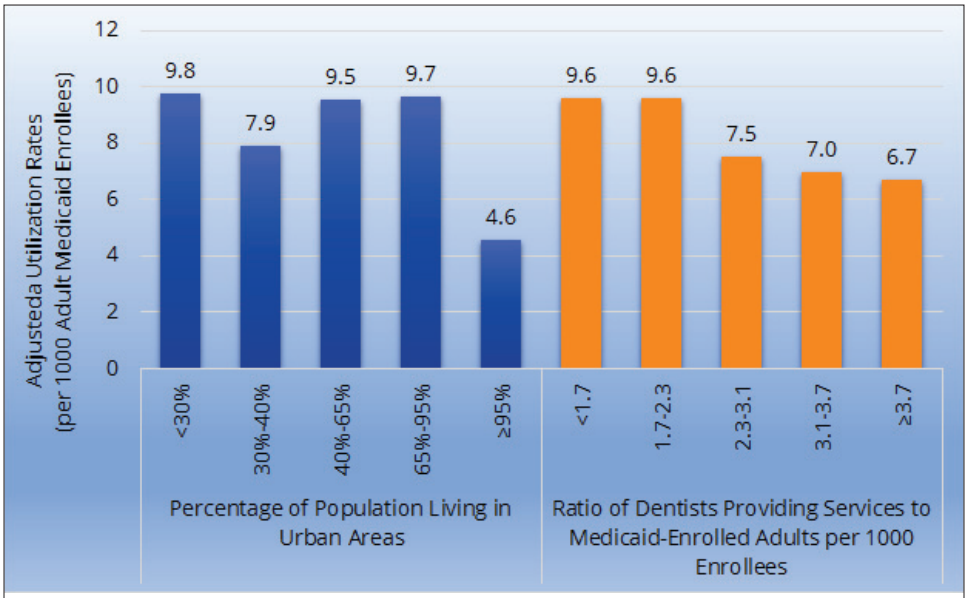
[a] Rates were adjusted for patients' gender, age, race/ethnicity, rural status of county of residence, ratio of dentists providing services to Medicaid enrollees, and year of service, accounting for clustering by county.

Adult Medicaid beneficiaries residing in rural counties (<65% of county population living in urban areas) and mixed urban-rural counties (65% to 95% of county population living in urban areas) had significantly higher (*P*<.05) adjusted utilization rates (per 1,000 adult Medicaid enrollees) for oral health services in hospital emergency departments compared with those residing in urban counties (≥95% of county population living in urban areas) (Figure 2).

Highly rural counties (<30% of county population living in urban areas) (9.8 vs 4.6; RR=2.14) and mixed urban-rural counties (9.7 vs 4.6; RR=2.12) had remarkably high adjusted utilization rates for oral health services in hospital emergency departments compared with those residing in urban counties during the 2-year study period (Figure 2).

Adult Medicaid beneficiaries residing in counties with lower ratios of dentists serving adults on Medicaid (<3.7 dentists per 1,000 enrollees) had higher adjusted utilization rates for oral health care in hospital emergency departments compared with adults residing in counties with higher ratios of dentists serving the Medicaid population (≥3.7 dentists per 1,000 enrollees) (Figure 2). Adjusted rates of emergency department use for oral health conditions were particularly higher in counties with less than 2.3 dentists per 1,000 enrollees providing services to Medicaid patients compared to those with the highest ratio of dentists (9.6 vs 6.7; RR=1.43); however, the difference was not statistically significant.

Figure 2. Adjusted Utilization Rates[a] for Oral Health Services in Hospital Emergency Departments Among Adult Medicaid Enrollees by County Characteristics in New York

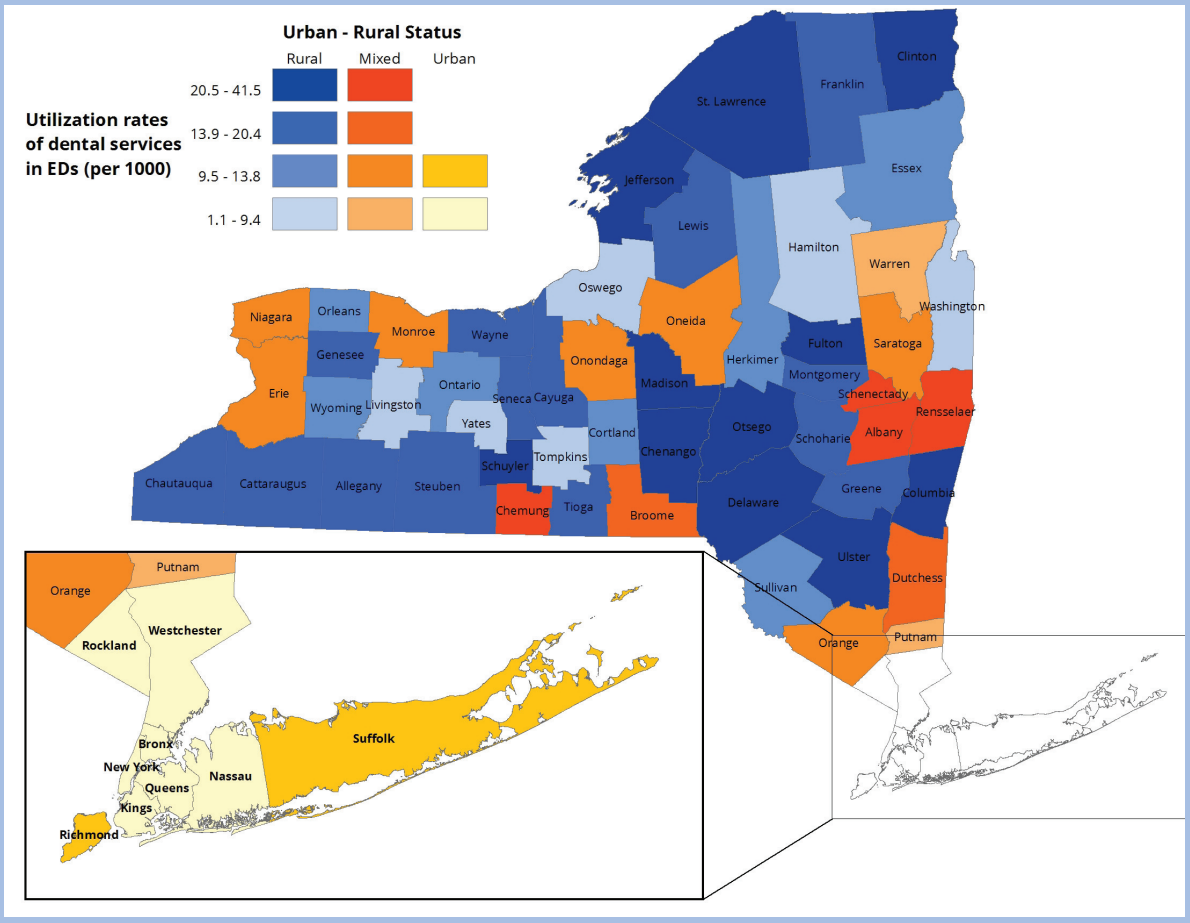


[a] Rates were adjusted for patients' gender, age, race/ethnicity, rural status of county of residence, ratio of dentists providing services to Medicaid enrollees, and year of service, accounting for clustering by county.

County utilization rates (per 1,000 Medicaid enrollees) for oral health services in hospital emergency departments by adult New York Medicaid enrollees ranged from 1.1 in the highly rural county of Hamilton to 41.5 in the mixed urban-rural county of Rensselaer (Figure 3).

Adult Medicaid enrollees in 4 rural counties (Chenango, Schuyler, Clinton, and Ulster) and in 2 mixed urban-rural counties (Albany and Schenectady) had utilization rates of 25.8 or above (90th percentile) for dental services in hospital emergency departments (Figure 3). The utilization rates were 4.1 or below (10th percentile) in 2 rural counties (Washington and Livingston), in 1 mixed urban-rural county (Warren), and in 2 urban counties (Kings and Bronx).

Figure 3. Utilization Rates for Oral Health Services in Hospital Emergency Departments Among Adult Medicaid Enrollees by County in New York



Above county hospital emergency department utilization rates for oral health services are presented by county rurality. The darker the color hue for each type of county (rural, urban, or mixed), the higher the utilization of emergency departments for oral health services.

Limitations

The use of administrative Medicaid claims data for research has several limitations. Because a claim is filed primarily to gain reimbursement for services provided, there is the possibility of misclassification within the various fields on the claim, including location of service and patient's county of residence. The utilization rates by county are proxy estimates, as Medicaid beneficiaries can cross the border of their county of residence to seek oral health care in a neighboring county. Additionally, research findings are generalizable only to people with Medicaid insurance and do not necessarily apply to people who are commercially insured or those without insurance.

Discussion

Literature on the impact of adult Medicaid dental benefits on oral health service utilization suggests that more comprehensive dental coverage reduces the likelihood of seeking care in emergency departments or other medical settings for treatment of dental problems.[8,13] This is likely true in New York, which has an extensive dental benefit. However, 8 adults per 1,000 adult Medicaid enrollees still sought treatment for oral health problems in hospital emergency departments during the 2-year study period. In states that only covered emergency dental benefits for adults, the emergency department utilization rate per 1,000 adult Medicaid enrollees for Medicaid enrollees age 21 years and older was 26 in Maryland[14] and 18 in Oklahoma.[15] The utilization rates for oral health services in emergency departments were the highest for men, young adults, Non-Hispanic Blacks or African Americans, and those living in rural or mixed urban-rural counties and in counties with fewer dentists serving Medicaid patients. The results of this study are consistent with previous studies, which also found that these population groups were more likely to use non-dental settings for oral health care.[1,6,16]

Conclusions

Medical providers in hospital emergency departments are not generally well-equipped to address the causes of dental pain and infection and usually provide palliative care for oral health problems. This suggests the need to expand the capacity of oral health safety-net providers and dentists willing to treat Medicaid patients especially in rural areas and for underserved populations. The findings of this study also suggest the importance of a more comprehensive dental coverage for adult Medicaid enrollees and a need for improved oral health literacy in the population about the value of preventive services and suitable sources for dental treatment services. Further research is needed to better document differences in oral health outcomes between Medicaid adults receiving dental services in medical settings and those receiving dental care from oral health providers.

References

1. Wall T, Nasseh K. Dental-related emergency department visits on the increase in the United States. Health Policy Resources Center Research Brief. American Dental Association. May 2013. http://www.ada.org/~/media/ADA/Science%20and%20Research/HPI/Files/HPIBrief_0513_1.pdf.

2. Okunseri C, Okunseri E, Thorpe J, Xiang Q, Szabo A. Patient characteristics and trends in nontraumatic dental condition visits to emergency departments in the United States. *Clin Cosmetic Investigational Dentistry*. 2012;4:1-7.

3. Wall T, Nasseh K, Vujicic M. Majority of dental-related emergency department visits lack urgency and can be diverted to dental offices. Health Policy Institute Research Brief. American Dental Association. August 2014. http://www.ada.org/~/media/ADA/Science%20and%20Research/HPI/Files/HPIBrief_0814_1.ashx.

4. Nasseh K, Romaine D, Vujici M. Diverting Emergency Department Dental Visits Could Save Maryland's Medicaid Program $4 Million per Year. Health Policy Institute Research Brief. American Dental Association. November 2014. http://www.ada.org/~/media/ADA/Science%20and%20Research/HPI/Files/HPIBrief_1114_2.ashx.

5. Allareddy V, Rampa S, Lee MK, Allareddy V, Nalliah RP. Hospital-based emergency department visits involving dental conditions: profile and predictors of poor outcomes and resource utilization. *JADA*. 2014;145(4):331-7.

6. DeLia D, Lloyd K, Feldman CA, Cantor JC. Patterns of emergency department use for dental and oral health care: implications for dental and medical care coordination. *J Pub Health Dentistry*. 2016;1-8.

7. Medicaid and CHIP Payment and Access Commission (MACPAC). Report to Congress on Medicaid and CHIP: Coverage of Medicaid Dental Benefits for Adults. June 2015. https://www.macpac.gov/wp-content/uploads/2015/06/Medicaid-Coverage-of-Dental-Benefits-for-Adults.pdf.

8. Hinton E, Paradise J. Access to dental care in Medicaid: Spotlight on nonelderly adults. Kaiser Commission on Medicaid and the Uninsured, Issue Brief. March 2016. http://files.kff.org/attachment/issue-brief-access-to-dental-care-in-medicaid-spotlight-on-nonelderly-adults.

9. Okunseri C, Pajewski NM, Brousseau DC, Tomany-Korman S, Snyder A, Flores G. Racial and ethnic disparities in nontraumatic dental-condition visits to emergency departments and physician offices. *JADA*. 2008;139:1657-1666.

10. Surdu S, Langelier M, Moore J. A Comparison of Medicaid Dental Claims Data in 2 States With Diff erent Adult Dental Benefi ts, 2012-2013. Rensselaer, NY: Oral Health Workforce Research Center, Center for Health Workforce Studies, School of Public Health, SUNY Albany; December 2016. http://www.oralhealthworkforce.org/wp-content/uploads/2016/12/OK_NY_Comparison_Medicaid_Dental_Benefit_2016.pdf.

11. US Census Bureau. 2009-2013 5-Year American Community Survey. http://www.census.gov/programs-surveys/acs/.

12. US Department of Agriculture (USDA). Rural-Urban Commuting Area Codes. USDA, Economic Research Service. https://www.ers.usda.gov/data-products/rural-urban-commuting-area-codes/.

13. Singhal A, Caplan DJ, Jones MP, Momany ET, Kuthy RA, Buresh CT, Isman R, Damiano PC. Eliminating Medicaid adult dental coverage in California led to increased dental emergency visits and associated costs. *Health Affairs*. 2015;34(5):749-56.

14. Betley C, Idala D, James P, Mueller C, Smirnow A, Tan B. Adult dental coverage in Maryland Medicaid. Baltimore, MD: The Hilltop Institute, UMBC. February 2016. http://www.mdac.us/pdf/Hilltop%20Report.pdf.

15. Surdu S, Langelier M, Moore J. Utilization of Oral Health Services by Medicaid-Insured Adults in Oklahoma, 2012-2013. Rensselaer, NY: Oral Health Workforce Research Center, Center for Health Workforce Studies, School of Public Health, SUNY Albany. December 2015. http://www.chwsny.org/wp-content/uploads/2016/06/OK_Medicaid_2015.pdf.

16. Lewis CW, McKinney CM, Lee HH, Melbye ML, Rue TC. Visits to US emergency departments by 20- to 29-year-olds with toothache during 2001-2010. *JADA*. 2015;146(5):295-302.

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Established in 1996, CHWS is an academic research center based at the School of Public Health, University at Albany, State University of New York (SUNY). The mission of CHWS is to provide timely, accurate data and conduct policy relevant research about the health workforce. The research conducted by CHWS supports and promotes health workforce planning and policymaking at local, regional, state, and national levels.