



Center for State Health Policy

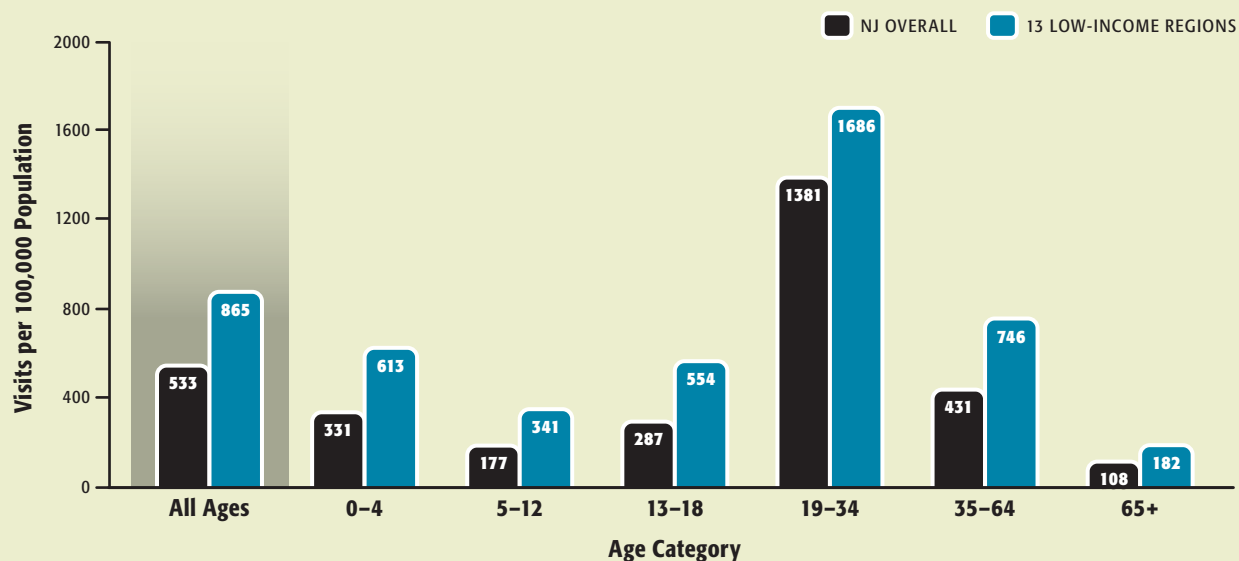
Facts & Findings March 2014Use of Emergency Departments for
Non-traumatic Oral Care in New Jersey**Key findings**

- *By a large margin, young adults (ages 19-34) have the highest rate of visits to emergency departments (EDs) for non-traumatic oral care and are the most likely to be high users of the ED for oral care.*
- *There is great variation in the age-sex adjusted costs and ED visit rates for oral care across 13 selected low-income regions in New Jersey. This variation suggests large differences in the prevalence of unmet need for oral care services and room for improvement in access to community-based dental care.*
- *Non-Hispanic blacks have the highest oral care ED visit rate in every age category, statewide and in the 13 low-income regions.*
- *Users of EDs for oral care are disproportionately uninsured (self-pay or charity care); high users, while still nearly half uninsured, are disproportionately covered by Medicaid.*
- *One-third of high users of the ED for oral care have a co-occurring diagnosis of tobacco use disorder.*

Emergency departments (EDs) are poorly equipped to deal definitively with dental and oral health needs. Still, many people seek care in the ED for non-traumatic dental and dental-related conditions, possibly indicating inadequate access to dental care in the community. Affordability and lack of dental coverage are known to be persistent barriers to regular and comprehensive oral care, especially for low-income and minority populations.¹⁻⁴ This Facts & Findings examines variations in ED use for oral care to identify the regions and populations where improvement in access to dental services has the potential to reduce costs and prevent not only dental diseases, but all the long-term sequelae of poor oral health (e.g., nutritional deficiencies, elevated cancer risk, and adverse psychosocial outcomes).⁵

Our analysis focuses on treat-and-release visits to EDs for oral care in New Jersey and in 13 selected low-income NJ regions⁶ from 2008 to 2010. We defined visits for oral care as any visit having a non-traumatic oral condition as the primary diagnosis (ICD-9-CM codes 520-529.9). This analysis also investigates characteristics of high users of the ED for oral care. High users were defined as individuals with four or more visits to the ED for oral care during the three-year study period (equivalent to the 96th percentile and above). All findings are derived from uniform billing (UB) records for all New Jersey hospitals. Through a special arrangement with the NJ Department of Health, our UB database includes encrypted patient identifiers that allow us to identify multiple visits made by the same individual patient over time.

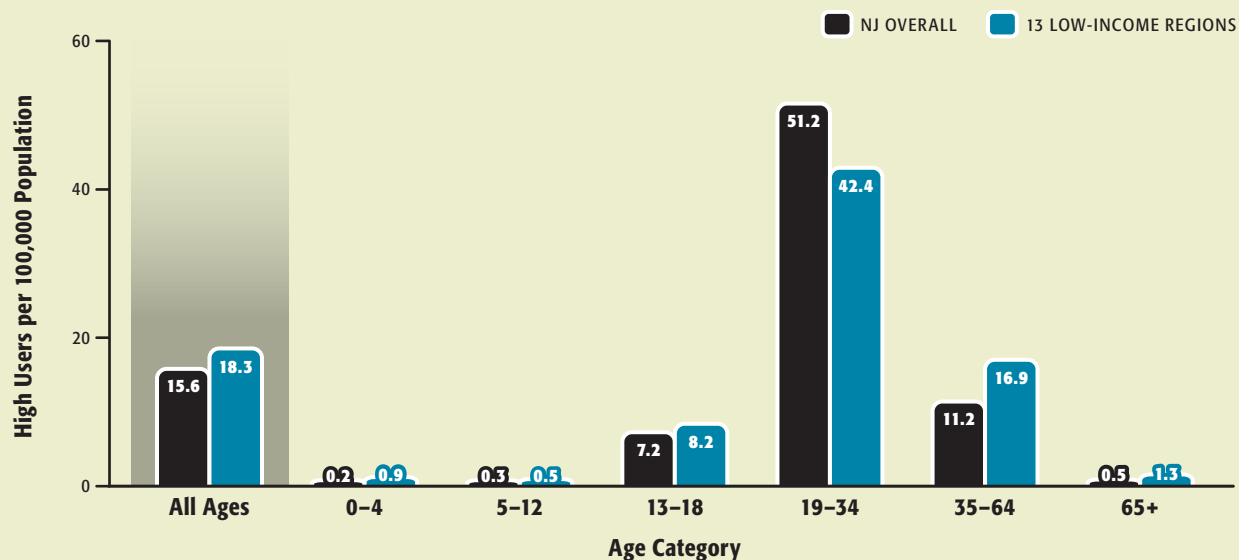
Figure 1 | Rates of ED Visits for Non-traumatic Oral Care by Age Category



Compared with NJ overall, ED visit rates for oral care are substantially higher in the low-income regions. There is a strong relationship between age and use of the ED for oral care, with young adults (ages 19–34) being the most

likely, by a large margin, to do so (Figure 1). Use patterns by age are not very different for the low-income regions versus NJ overall.

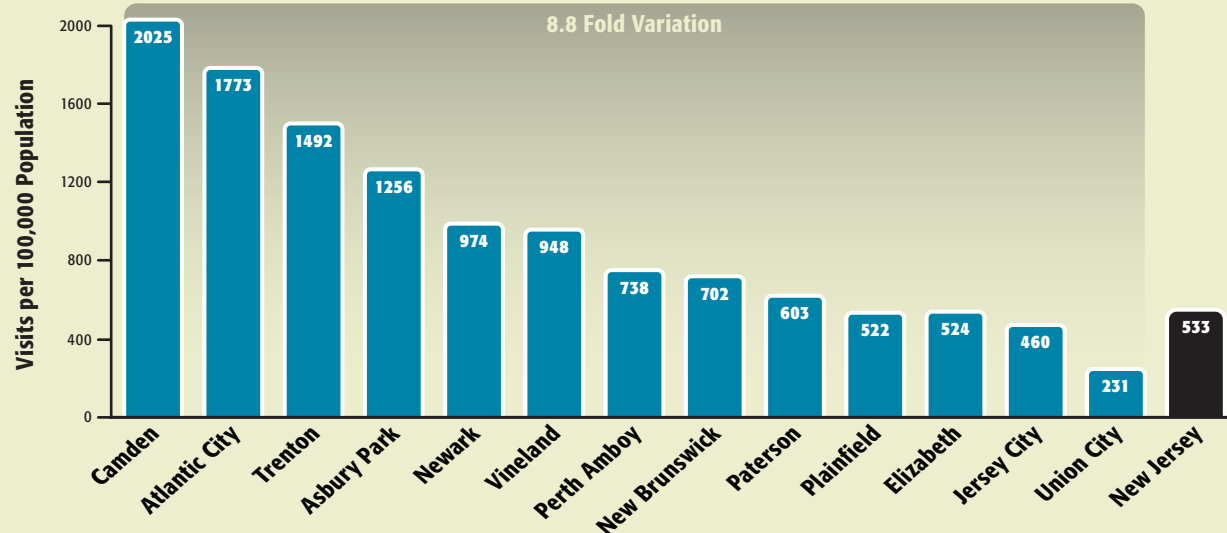
Figure 2 | Rates of High Users of the ED for Non-traumatic Oral Care by Age Category



Compared to the corresponding statewide rate, the 13 low-income regions have a higher rate of high users per 100,000 population. Although young adults (ages 19–34) are by far the most likely to be high users of the ED for oral care in the low-income regions and NJ overall, the high use rate for this group is clearly lower in the low-income regions (Figure 2). In contrast, the high user rate is at least modestly higher in the 13 low-income regions for all other age groups.

High users of the ED for non-traumatic oral care are also high users of the ED for other diagnoses. Specifically, 64% of individuals with four or more ED visits for non-traumatic oral care also had six or more ED visits for other kinds of care during the three-year study period. (The six-visit threshold for other ED care is based on the 95th percentile of such visits derived in a previous report.)⁶

Figure 3 | **Age-Sex Adjusted Rates of ED Visits for Non-traumatic Oral Care in Selected Low-Income Regions**



Note: Please see the Methods section for details on the constituent municipalities included in each of the study regions.

After adjustment for differences in the age and sex distribution of the populations, Figure 3 shows wide variation in the rates of visits to the ED for oral care across the low-income study regions. The rate of oral care ED visits by residents of the Camden region (the worst-performing

region) is over eight times greater than the rate by residents of the Union City region (the best-performing region). Although most of the low-income study regions have greater use of the ED for oral care than New Jersey as a whole, a few regions have similar to or lower rates than the state average.

Figure 4 | **Age-Sex Adjusted Average Annual Costs of ED Visits for Non-traumatic Oral Care in Selected Low-Income Regions**

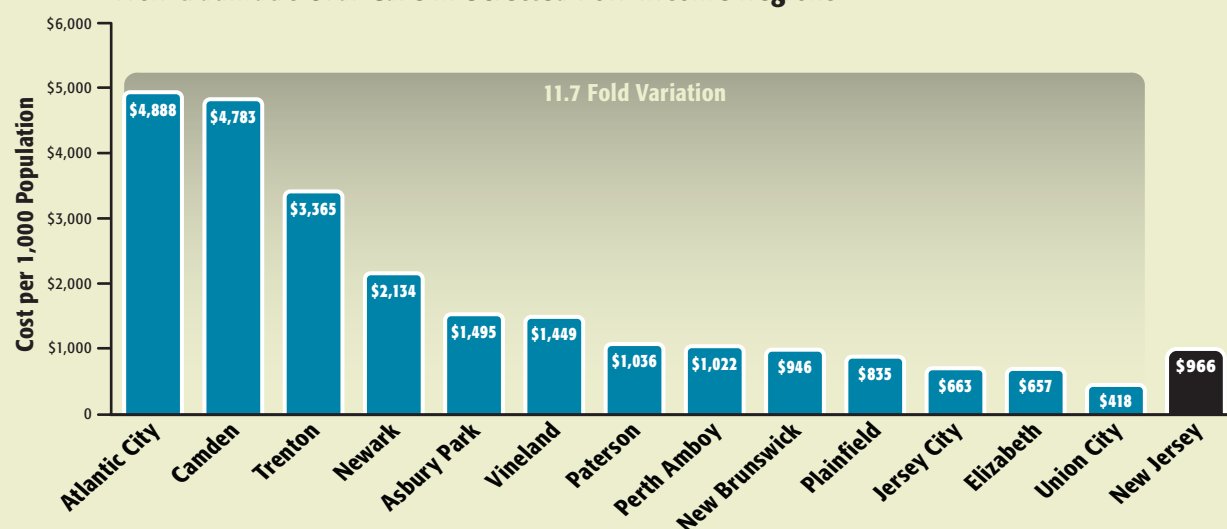
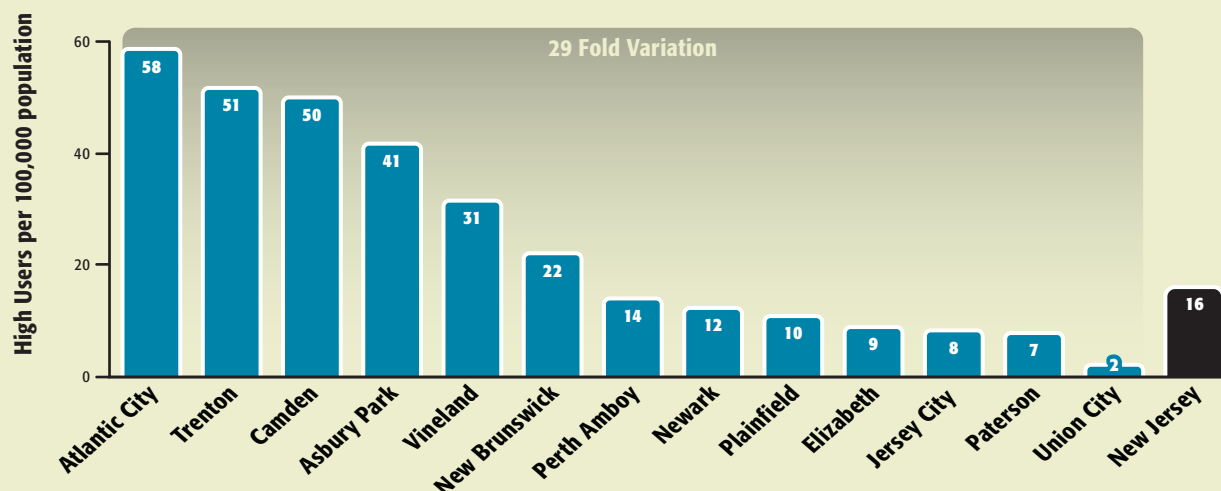


Figure 4 shows the average annual age- and sex-adjusted costs associated with visits to the ED for non-traumatic oral care, which reflect both the volume and resource intensity of visits across regions. The figure shows a pattern across regions similar to the one for visit rates (Figure 3). The costs of non-traumatic oral care ED visits for residents of

the Atlantic City, Camden, and Trenton regions are three to five times higher than the corresponding per person costs for NJ overall. The variation in per person costs due to oral care visits to the ED over 2008–2010 varies nearly 12-fold across the 13 low-income study regions.

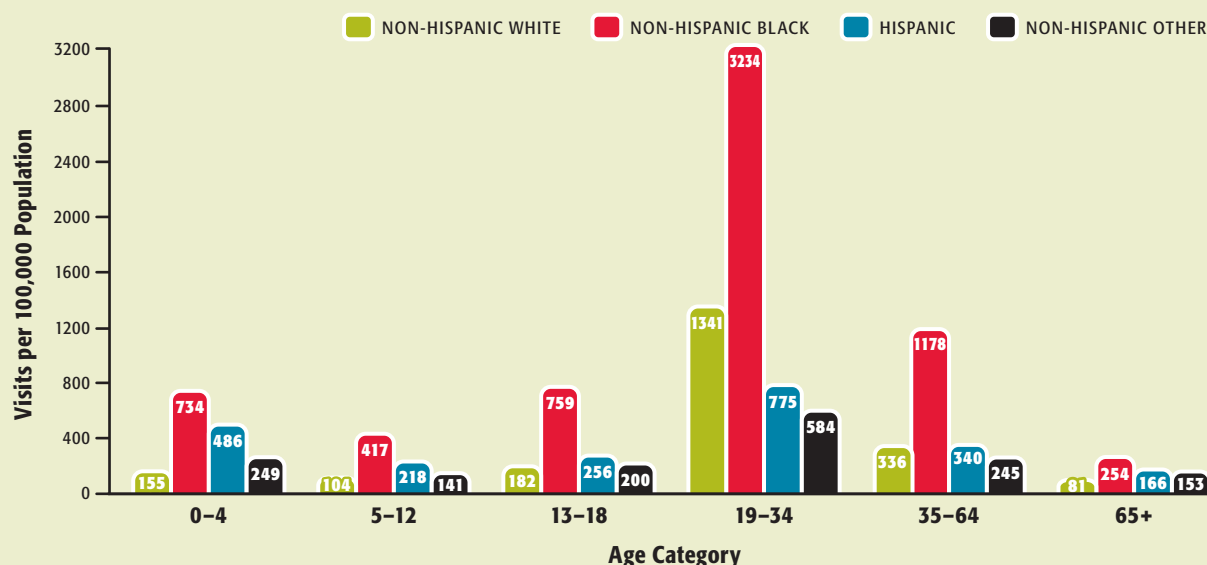
Figure 5 | **Age-Sex Adjusted Rates of ED High Users for Non-traumatic Oral Care in Selected Low-Income Regions**



The rate of high users in each study region per 100,000 population is much higher in most of the 13 low-income regions than in New Jersey overall (Figure 5). Still, some low-income regions have rates that are much lower than statewide. The difference between the Atlantic City region, with the highest rate of high users, and the Union City region, with the lowest, reveals enormous variation (29-fold) in the population prevalence of ED oral care high users.

As with visit rates (Figure 3), the high user rates in these regions have been adjusted for differences in the age and sex distribution of the populations. Therefore, the higher rates of visits and high users in the Atlantic City, Trenton, and Camden City regions, for example, are not the result of having a larger population of young adults in those regions. Instead, these rates suggest greater unmet need for community-based oral care in these regions.

Figure 6 | **Rates of ED Visits for Non-traumatic Oral Care by Age Category and Race/Ethnicity – NJ Overall**



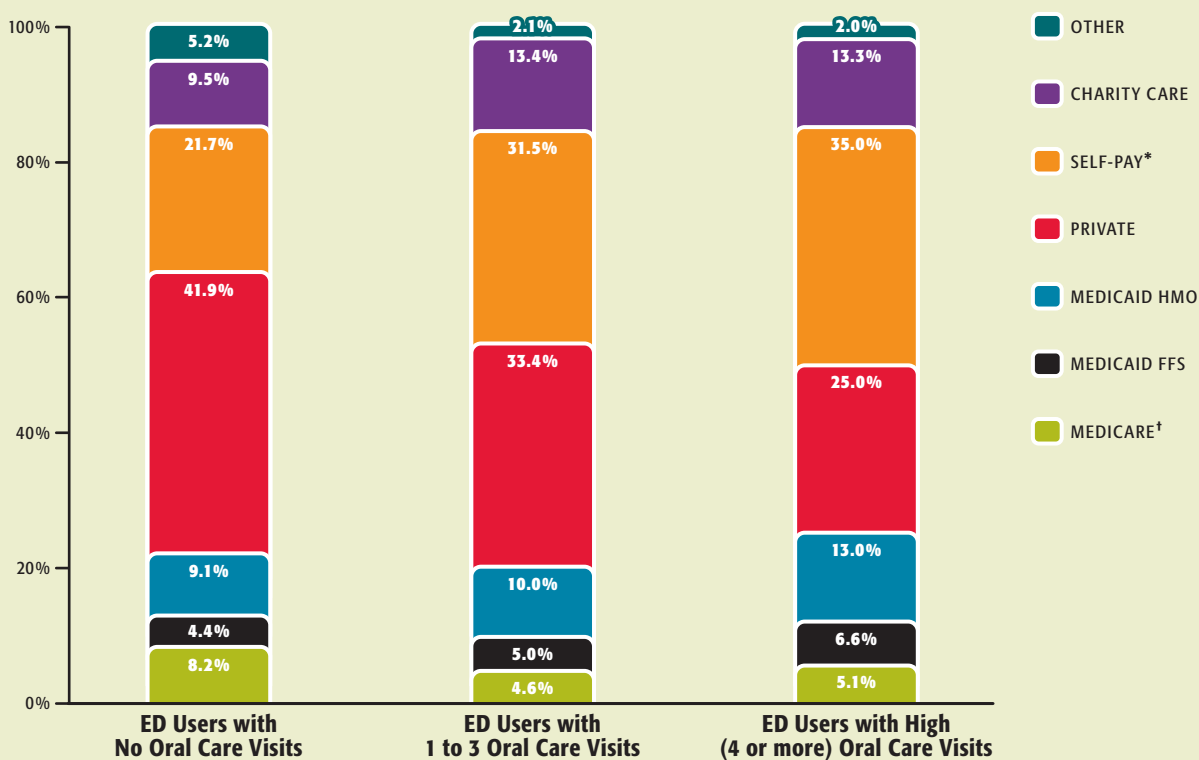
In every age category, non-Hispanic blacks have a higher rate of visits to the ED for oral care (Figure 6). This is especially pronounced among young adults (ages 19–34) where the visit rate for non-Hispanic blacks is over two times higher than the rate among any other racial/ethnic group. The second highest visit rate in the state is among non-Hispanic white young adults (19–34), and the third highest visit rate is among non-Hispanic black adults ages 35 to 64.

This pattern of visit rates is nearly the same in the 13 low-income regions combined. The one consistent difference

compared to the state overall is that individuals of non-Hispanic other race/ethnicity have higher visit rates in every age category than those of Hispanic ethnicity in the low-income study regions (data not shown). These statewide data on visit rates (Figure 6) also reflect the age and racial/ethnic population groups with the three highest rates of high users of the ED for oral care in New Jersey and in the 13 low-income regions (data not shown).

Visit rates by sex show no notable differences in use of the ED for oral care (data not shown).

Figure 7 | **Health Insurance Payer Type among ED Users by Non-traumatic Oral Care Visit Status – NJ Overall**



Note: FFS=Fee-For Service; HMO = Health Maintenance Organization.

* Self-pay category includes patients classified as self-pay and uninsured.

† Medicare category includes the dual eligible population, those with both Medicare and Medicaid. The percentages of the Medicare total that are attributable to dual eligibles are: 2.3% of patients with no oral care ED visits, 1.8% of patients with 1–3 oral care ED visits, and 2.8% of patients with high ED use for oral care.

Patients having oral care visits to the ED are more likely to be classified as charity care or self-pay than those users of the ED without any oral care visits over the study period (Figure 7). Although charity care patients usually have very limited if any out-of-pocket expenses for hospital care, individuals classified as self-pay might face substantial out-of-pocket payments for the care they have received. Patients who are

high users of the ED for oral conditions are more likely to be covered under Medicaid (HMO or fee for service) than patients who have used the ED for oral conditions less frequently. Appendix Table 1 shows the comparable data for some of the 13 low-income regions where this pattern is sometimes different.

Table 1 | **Top Five Oral Primary Diagnoses for Non-traumatic Oral Care ED Visits**

Primary ICD-9-CM Diagnosis Code and Description		Percent of Oral Care Visits
1	525.9: Unspecified Dental Disorder	46.4
2	522.5: Periapical Abscess	14.9
3	521.00: Unspecified Dental Caries	11.5
4	528.9: Other And Unspecified Diseases of the Oral Soft Tissues	2.8
5	525.8: Other Specified Dental Disorders	2.2

Table 1 shows the five most frequent primary diagnoses for oral care visits to the ED over the study period and the percent of all oral care visits with each primary diagnosis. These same top five primary diagnoses are evident on visits by high users of the ED for oral care (data not shown).

The frequent use of diagnosis code 525.9, indicating unspecified dental disorders, may be a result of the limited time and equipment that the ED provides for precise diagnosis of oral health problems.

Table 2 | **Top Five Co-occurring Diagnoses among Users of the ED for Non-traumatic Oral Care**

Co-occurring ICD-9-CM Diagnosis Code and Description	Percent of All Oral Care ED Users
None	53.4
Only Other Non-Traumatic Oral Care Diagnoses	11.9
1 305.1: Tobacco Use Disorder	9.0
2 401.9: Unspecified Essential Hypertension	7.3
3 493.90: Asthma Unspecified	3.9
4 250.00: Diabetes Type II Without Complication	2.9
5 784.2: Swelling In Head & Neck	2.7

The majority of patients who visit the ED for oral care have either no co-occurring diagnoses (53.4%) or only diagnoses related to additional non-traumatic oral conditions (11.9%). However, when non-oral-related diagnoses do co-occur on the visit record, tobacco use disorder is the most prevalent diagnosis (Table 2). Nine percent of individuals who visit the ED for oral care had a tobacco use disorder coded on at least one of their oral care visit records.

Table 3 | **Top Five Co-occurring Diagnoses among High Users of the ED for Non-traumatic Oral Care**

Co-occurring ICD-9-CM Diagnosis Code and Description	Percent of Oral Care ED High Users
1 305.1: Tobacco Use Disorder	34.1
2 401.9: Unspecified Essential Hypertension	11.4
3 873.63: Broken Tooth - Uncomplicated	10.4
4 493.90: Asthma Unspecified	9.2
5 784.2: Swelling in Head & Neck	8.2
Only Other Non-Traumatic Oral Care Diagnoses	4.1
None	3.0

When looking at co-occurring diagnoses among high users of the ED for oral care, several of the same health conditions are coded but are more prevalent among this population (Table 3). Of particular note is that approximately one-third of high users have tobacco use disorder coded on at least one of their oral care visit records. Only 7% of high users have none or only oral-related co-occurring diagnoses.

Consistent with findings in national data⁷⁻⁹ use of EDs for oral care in New Jersey is overwhelmingly an issue among younger adults (19–34), and even more so for younger adults living in low-income regions. Accordingly, adults in this age group are the most likely to be high users of the ED for oral care, defined as seeking oral care in EDs more than once per year on average. Visit rates among children (ages 0–12) and elderly adults (ages 65 and over) are markedly lower than among young adults, and there are nearly no high users in these other age categories. The health insurance coverage profile of individuals seeking oral care in the ED reflects this pattern of usage by age. The population seeking oral care in the ED is more likely to be uninsured than users of the ED for other conditions, and the subset of this population exhibiting high use of the ED for oral conditions, while still nearly 50% uninsured, is disproportionately covered by Medicaid or, in some regions, charity care.

The socio-demographic patterns in use of EDs for oral care noted in this Facts & Findings suggest a striking gap in community-based oral care access for non-Hispanic blacks, particularly non-Hispanic black young adults. This population generates the most visits per person to EDs for oral care in the state overall and in the 13 low-income study regions. They are also the most likely to be high users of the ED for oral care. The over-representation of non-Hispanic black young adults in EDs seeking oral care indicates not only barriers to access for community-based dental care in this population, but a potentially disproportionate burden of poor oral health.

Increases in dental insurance coverage could potentially improve access to dental care, but there is no organized effort as of yet for such an expansion. NJ FamilyCare provides comprehensive coverage of dental services for children in low and moderate-income families through the Early and Periodic Screening, Diagnostic and Treatment services program, but that coverage drops off once children age out, around 19 years of age. This gap leaves low-income young adults, except for those who can qualify for Medicaid or afford private plans, without any coverage for dental services. The most promising increase in dental coverage is the decision of New Jersey to expand its Medicaid program under the Affordable Care Act (ACA) and the state's intention to continue to provide comprehensive dental benefits to these newly eligible adults.¹⁰ However, oral care is not an essential health benefit for adults under the ACA, so lack of dental coverage will continue to prevent access to private dental care for large segments of the population. Meanwhile, expansions in medical coverage could make it financially easier for newly-insured individuals to access medical settings, such as the ED, for minimal oral care services.

There is great variation across selected low-income regions of the state in the age-sex adjusted rates of ED use for oral care, the associated costs, and in the prevalence of ED oral care high users. While this analysis does not explain the causes of this variation, it does suggest there is room for improvement in the lower-performing areas, which are roughly similar to the higher performing regions in their socioeconomic composition. An expansion of off-hours access to dental care in community settings may help reduce use of EDs for oral care. While information on time and day of visit was not available in the data for this analysis, there is evidence in national data that ED oral care visits happen more often on weekends.⁸ Increasing the number of providers serving the low-income and uninsured populations would be another strategy for strengthening the community-based dental safety net. This could involve establishing new dental clinics in regions seeing high use of the ED for oral care or increasing the availability of dental services in existing clinics and community health centers. Another component of improving access to care for vulnerable populations involves increased Medicaid reimbursement rates for dental professionals to encourage more of these providers to treat Medicaid patients. Implementing an ED diversion strategy and strengthening the relationships between doctors in medical settings (like the ED or primary care) and new clinics or existing safety net providers could help direct patients to more appropriate and less expensive sites of care for dental and oral health problems.

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- ⁷ Lee HL, CW Lewis, B Saltzman, and H Starks. "Visiting the Emergency Department for Dental Problems: Trends in Utilization, 2001 to 2008." *American Journal of Public Health* 102, no. 11 (2012): e77–83.
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- ¹⁰ Chazin S, V Guerra, and S McMahon. [Strategies to Improve Dental Benefits for the Medicaid Expansion Population](#). Hamilton, NJ: Center for Health Care Strategies, 2013.
- ¹¹ U.S. Census Bureau. ["2010 Census Summary File 1, Tables PCT12 \(H-O\): Sex by Age \(by Race and Ethnicity\)"](#). U.S. Census Bureau, 2013.
- ¹² Agency for Healthcare Research and Quality. ["Cost-to-Charge Ratio Files"](#). Healthcare Cost and Utilization Project. Last modified August 16, 2013.
- ¹³ U.S. Bureau of Labor Statistics, Division of Consumer Prices and Price Indexes. ["Table 1A: Consumer Price Index for All Urban Consumers \(CPI-U\): US City Average, by Expenditure Category and Commodity Service Group."](#) U.S. Department of Labor, 2014.

Appendix Table A1 | **Health Insurance Payer Distribution of ED Users
by Oral Care Visit Status in Selected Low-Income Regions**

Region	Oral Care Visit Status of ED User	% Medicare	% Duals	% Medicaid FFS	% Medicaid HMO	% Private	% Self-Pay	% Charity Care	% Other
Camden	No oral care visits	4.5	3.0	4.9	15.0	37.1	24.8	5.9	4.7
	1–3 oral care visits	2.2	1.6	4.8	12.7	40.3	29.9	6.1	2.5
	4 or more oral care visits (high use)	2.5	2.5	6.6	12.3	36.1	30.3	8.2	1.6
Newark	No oral care visits	4.4	2.6	4.5	9.3	40.0	26.3	8.4	4.5
	1–3 oral care visits	2.4	1.6	4.7	7.2	34.0	36.6	11.2	2.2
	4 or more oral care visits (high use)	1.2	3.0	8.3	3.6	32.0	40.2	8.9	3.0
Trenton	No oral care visits	6.8	2.2	3.4	17.2	32.6	23.6	9.6	4.6
	1–3 oral care visits	3.2	2.3	4.5	20.4	23.9	31.9	12.1	1.8
	4 or more oral care visits (high use)	3.5	3.5	6.5	27.1	20.6	26.1	11.1	1.5
Asbury Park	No oral care visits	10.4	2.6	2.2	18.3	36.7	17.6	5.4	6.7
	1–3 oral care visits	4.1	3.3	3.3	24.4	18.5	34.1	10.4	1.8
	4 or more oral care visits (high use)	2.2	2.2	5.4	30.1	7.5	39.8	11.8	1.1
Atlantic City	No oral care visits	6.7	3.0	3.2	2.9	44.8	25.4	10.9	3.2
	1–3 oral care visits	3.3	2.8	4.4	2.8	35.3	31.6	19.1	0.9
	4 or more oral care visits (high use)	2.9	6.7	3.8	1.0	27.9	27.9	29.8	0.0
Jersey City	No oral care visits	7.0	1.7	4.1	11.2	43.9	16.2	12.0	3.8
	1–3 oral care visits	3.7	1.0	5.1	13.4	28.4	25.4	21.6	1.3
	4 or more oral care visits (high use)	1.1	1.1	5.7	13.8	16.1	42.5	18.4	1.1
New Brunswick	No oral care visits	5.2	1.3	3.1	0.2	52.9	26.8	6.9	3.6
	1–3 oral care visits	2.1	1.5	4.2	0.3	43.7	37.1	9.7	1.4
	4 or more oral care visits (high use)	2.4	2.4	13.3	0.0	33.7	39.8	6.0	2.4
Paterson	No oral care visits	4.8	2.7	6.0	1.6	48.9	18.5	12.9	4.6
	1–3 oral care visits	2.2	2.1	7.0	1.1	40.7	23.8	21.2	2.0
	4 or more oral care visits (high use)	1.4	1.4	5.6	4.2	30.6	29.2	27.8	0.0
Vineland	No oral care visits	11.4	2.4	2.2	19.9	37.7	16.0	3.3	7.1
	1–3 oral care visits	2.7	2.2	4.3	25.7	23.1	33.8	5.7	2.4
	4 or more oral care visits (high use)	3.3	2.2	2.2	22.8	18.5	41.3	6.5	3.3
13 Low-Income Regions*	No oral care visits	10.6	1.6	2.4	5.7	54.0	14.0	5.1	6.6
	1–3 oral care visits	4.3	1.7	4.1	8.7	38.1	30.2	10.1	2.9
	4 or more oral care visits (high use)	2.6	2.5	5.4	10.2	26.4	39.1	11.3	2.5
NJ Overall	No oral care visits	5.9	2.3	4.3	9.1	41.9	21.7	9.5	5.2
	1–3 oral care visits	2.9	1.8	4.9	10.0	33.4	31.5	13.4	2.1
	4 or more oral care visits (high use)	2.4	2.8	6.5	13.0	25.0	35.0	13.3	2.0

*Includes Elizabeth, Perth Amboy, Plainfield, and Union City regions in addition to those regions shown in the table.

Appendix Table A2 | **Average Annual Counts of ED Users, High Users, and Associated Costs**

Region	Any ED Visit	ED High Users*	Any Oral Care ED Visit	Costs for All Oral Care ED Visits†	ED High Users for Oral Care‡	ED High Users for Non-oral-related Visits
Camden	21,558	3,731	1,211	\$ 399,138	41	3,616
Newark	89,532	8,591	3,607	\$ 986,790	56	8,349
Trenton	26,104	3,354	1,274	\$ 424,527	66	3,224
Asbury Park	13,424	1,264	587	\$ 112,033	31	1,208
Atlantic City	13,752	1,682	666	\$ 293,069	35	1,627
Elizabeth	30,252	2,102	759	\$ 116,696	16§	2,045
Jersey City	47,424	3,176	1,285	\$ 227,241	29	3,088
New Brunswick	19,049	1,566	650	\$ 119,749	28	1,516
Paterson	51,853	3,511	1,576	\$ 328,432	24	3,391
Perth Amboy	11,169	893	299	\$ 56,552	8§	871
Plainfield	12,133	909	316	\$ 64,435	8§	885
Union City	28,264	1,256	425	\$ 83,763	4§	1,236
Vineland	17,321	1,197	634	\$ 141,676	31	1,137
13 Low-Income Regions	381,834	33,232	13,290	\$3,354,099	376	32,192
New Jersey Overall	1,241,858	73,301	32,262	\$8,491,565	1374	70,791

* 6 or more visits for any reason over study period.⁶

† In 2010 dollars, not age-sex adjusted.

‡ 4 or more visits having a non-traumatic oral care primary diagnosis over study period.

§ Insufficient sample for examining characteristics of oral care high users in these regions (less than 50 high users for oral care over three year study period).

|| 6 or more visits having non-oral care primary diagnoses over study period.

Methods

The 13 low-income study regions were the focus of a previous report by the Rutgers Center for State Health Policy.⁶ The regions were selected from communities with at least 5,000 Medicaid beneficiaries, the minimum threshold for forming a Medicaid Accountable Care Organization. The regions (and the shortened name used to refer to them in this Facts & Findings) are: Atlantic City-Pleasantville City (Atlantic City), Asbury Park City-Neptune Township (Asbury Park), Camden City (Camden), Elizabeth City-Linden City-Winfield Township (Elizabeth), Jersey City-Bayonne City (Jersey City), Newark City-East Orange City-Irvington Township-City of Orange Township (Newark), New Brunswick City-Franklin Township (New Brunswick), Paterson City-Passaic City-Clifton City (Paterson), Perth Amboy City-Hopelawn (Perth Amboy), Plainfield City-North Plainfield Borough (Plainfield), Trenton City (Trenton), Union City-W. New York Town-Guttenberg Town-N. Bergen Township (Union City), and Vineland City-Millville City (Vineland). The constituent municipalities and zip codes included in each of the study regions can be found in Chakravarty et al.⁶

Denominators for population-based visit and high-user rates were derived from the 2010 Census Summary File 1.¹¹ These data were also the source for the weights needed to age- and sex-adjust rates in each study region based on the age-sex population distribution of New Jersey. Visit and high-user rates were calculated separately for each year in the study period, but no trends were observed. Therefore, data were pooled for the three study years and data presented represent average annual rates and costs. The cost of each ED visit was estimated by multiplying the total visit charge by the hospital and year-specific cost-to-charge ratio as calculated by the Agency for Healthcare Research and Quality.¹² All costs were inflation adjusted and expressed in year 2010 purchasing power using the Consumer Price Index for medical care.¹³ The age category, race/ethnicity, and payer type for high users was selected from the record of their first ED visit. Payer categories were derived from the primary and secondary payers listed on the hospital billing record along with information linked by the New Jersey Department of Health on visits paid for by charity care.

Other Resources

Kristen Lloyd, Jose Nova, and Dorothy Gaboda. [*Utilization and Insurance Coverage of Dental Services among New Jersey Adults: Facts & Findings*](#), August 2012.

Jose Nova, Dorothy Gaboda. [*New Jersey Children without Dental Services in 2001 and 2009: Facts & Findings*](#), September 2011.

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