



# Trends in non-traumatic dental emergency department use in New York and New Jersey: a look at Medicaid expansion from both sides of the Hudson River

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## Abstract

**Objective:** The aim of this study was to examine the effect of Medicaid expansion on non-traumatic dental condition (NTDC) emergency department visits in New York (NY) and New Jersey (NJ).

**Methods:** The 2010–2014 State Emergency Department Databases for NY and NJ were analyzed. NTDCs were defined as ICD-9-CM codes 520.0–529.9. Primary payers for ED discharges and patient's race were considered.

**Results:** In NY, from 2010 to 2011, there was a 51 percent decrease in private insurance and a 91 percent increase in Medicaid for NTDCs. In NJ, with the 2014 expansion, NTDCs fell 35 percent for uninsured and rose 57 percent for Medicaid. Black individuals have by far the highest population rates of NTDC ED visits, particularly in NJ.

**Conclusions:** The experiences in NY and NJ suggest that the timing of expansion had significant effects on payer distribution for NTDCs. Racial disparities continue exist with black individuals disproportionately accessing EDs for NTDCs.

## Introduction

The use of hospital emergency departments (EDs) for the treatment of preventable and non-traumatic dental complaints (NTDCs) has long been a public health concern and is now especially relevant given the opioid crisis in the United States.<sup>1</sup> Hospital EDs are not equipped to diagnose or treat dental complaints, so individuals presenting with dental symptoms are often provided only an antibiotic and an analgesic, which frequently is an opioid, and told to seek definitive care elsewhere.<sup>2</sup> This pattern of palliative care has served to perpetuate the use of EDs as a safety net for thousands of low-income and minority individuals unable to access care through conventional dental settings.<sup>3–5</sup>

Most individuals presenting to EDs for dental complaints are either uninsured or receive Medicaid benefits.<sup>6,7</sup> The passage of the Patient Protection and Affordable Care Act (ACA) in 2010 offered states the opportunity to voluntarily expand Medicaid programs. In 2014, Medicaid became the largest payer for dental ED visits nationally

and this utilization trend continues on a state-by-state basis.<sup>5,8</sup> New York and New Jersey both opted to expand, meaning that adult Medicaid recipients were now eligible for “extensive” dental benefits, defined as a comprehensive mix of services including diagnostic, preventive, and minor and major restorative procedures approved by the American Dental Association.<sup>9</sup>

New York has a very robust state-run marketplace and expanded Medicaid eligibility to parents with incomes up to 150 percent of federal poverty level (FPL) and childless adults up to 100 percent of FPL beginning in 2000, much earlier than other states.<sup>10</sup> New Jersey, on the other hand, utilizes a federally run marketplace, begun in January 2014, whereby adults with incomes up to 138 percent of FPL could enroll in exchange plans through Healthcare.gov. The Kaiser Family Foundation reports that from 2010 to 2014 there was an increase in Medicaid recipients of 34 percent in NJ (400,000 individuals) and 40 percent in NY (950,000 individuals).<sup>11,12</sup>

Given that NY expanded Medicaid benefits much earlier than NJ and utilized a different information and enrollment mechanism, we believe that a comparison between NTDC ED visits in both states will be fruitful. This study examined NTDC ED visits in both states by comparing trends over 5 years from 2010 to 2014. These findings can prove useful to policymakers at the state and federal level and to local, grassroots providers and policymakers involved in designing and targeting interventions to improve access to dental care.

### Methods

This is a retrospective analysis of the NY and NJ 2010–2014 State Emergency Department Database (SEDD) of the Healthcare Cost and Utilization Project (HCUP) collected and maintained by the Agency for Healthcare Research and Quality (AHRQ).<sup>13</sup> The analysis focuses on all discharges from the ED for NTDCs. As is consistent with previous research, these are defined as discharge diagnoses of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) codes 520.0 through 529.9 in one of the first five listed diagnosis variables.<sup>8,14</sup> These include diseases of hard tissues of teeth (521–521.9), diseases of pulp and periapical tissues (522–522.9), gingival and periodontal diseases (523–523.9), retained dental root (525.3), and unspecified disorder of the teeth and supporting structures (525.9).

Primary payers of the ED discharges were considered. Rates of ED discharges per 100,000 of the population of each racial group were calculated using information from census population estimates. The census race/ethnicity data was collapsed and stratified into four categories

available in the SEDD: non-Hispanic White, non-Hispanic Black, Hispanic, and non-Hispanic Other. Cost-to-charge ratios were used to estimate the costs of ED discharges (although these ratios are usually for inpatient data they served as the best available tool for ED discharge cost estimation). All costs were adjusted for inflation to 2014 dollars. The descriptive analyses used chi-square tests with a significance level of 0.05. All data was analyzed using Stata 15 (StataCorp LLC, College Station, TX).

The study received an exemption determination by the Institutional Review Board of the Albert Einstein College of Medicine, Bronx, NY.

### Results

As shown in Figure 1, there were 60,055 NTDC ED visits in NJ in 2010, decreasing very slightly to 59,600 in 2014. There was a corresponding small decrease in NTDC visits in NY, from 135,761 in 2010 to 135,187 in 2014. The percentage of all ED discharges due to NTDCs decreased in both NY (2.2 percent to 2.0 percent) and NJ (2.1 percent to 1.9 percent) from 2010 to 2014 while the total number of non-dental ED visits increased slightly in each state during this same time period from approximately 2.8 million to 3.0 million (7.1 percent increase) in NJ and from 6.2 million to 6.7 million (8.1 percent increase) in NY.

In NJ, the distribution of payers and costs for NTDC discharges was consistent from 2010 to 2013, however in 2014, when ACA expansion took effect in that state, the percentage of uninsured dropped 35 percent (from 43 percent to 28 percent) and the percentage of Medicaid discharges rose 57 percent (from 21 percent to 33 percent).

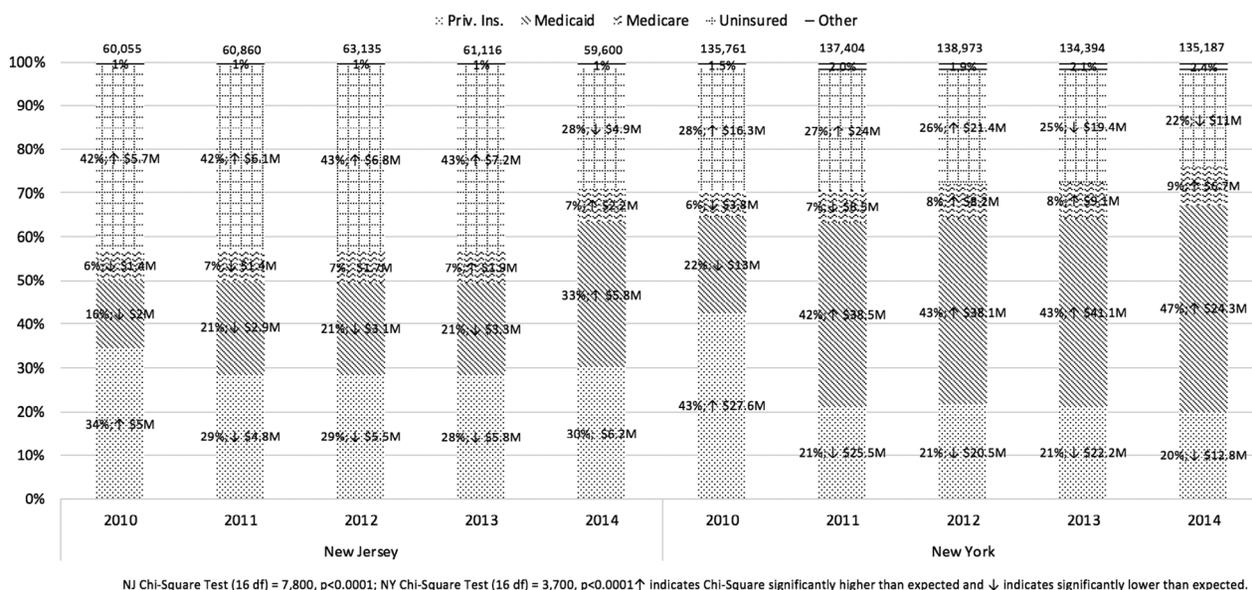
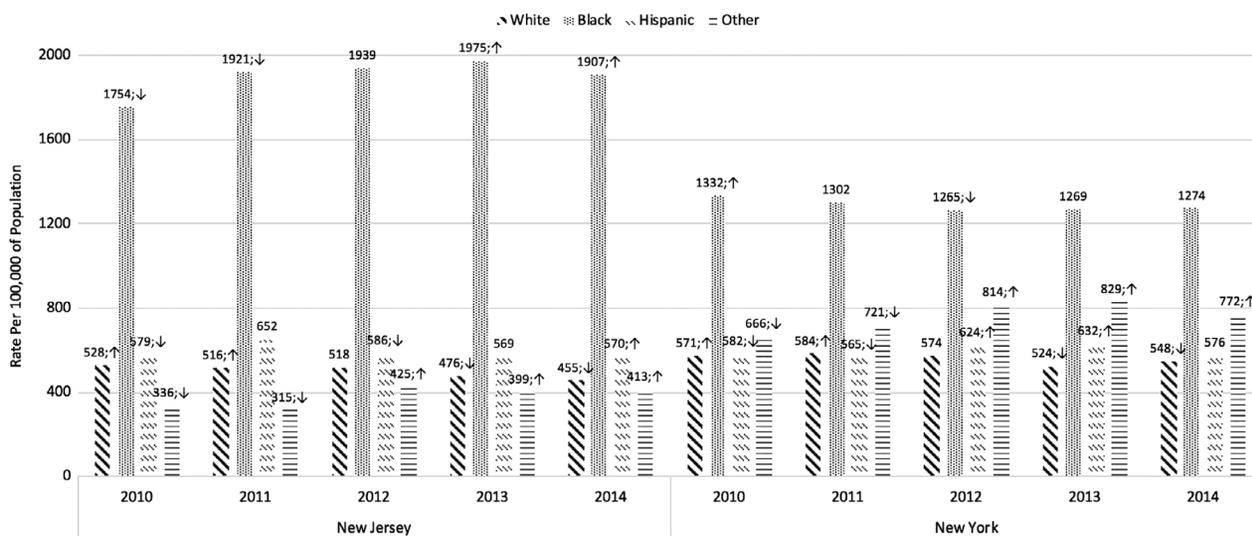


Figure 1 Distribution of payers and costs for ED discharges due to NTDCs in New York and New Jersey from 2010 to 2014



**Figure 2** Rates of ED discharges for NTDC by race, per 100 000 of population, in New Jersey and New York from 2010 to 2014

This corresponded to an increase of \$2.5 million in Medicaid charges and a decrease of \$2.3 million for the uninsured. The rates of Medicare and private insurance discharges remained steady from 2010 to 2014 (Figure 1).

In NY, by contrast, the greatest change in distribution of payers and costs for NTDC discharges occurred from 2010 to 2011, when early expansion took effect. In 2010, the number of private insurance payers fell from 43 percent to 21 percent, a 51 percent decrease. This was associated with a decrease in costs of \$2.1 million. At the same time, between 2010 and 2011, the number of Medicaid discharges rose by 91 percent from 22 percent to 42 percent and was associated with a net increase of \$25.5 million. The percentage of uninsured discharges decreased steadily from 2010 to 2014 from 28 percent to 22 percent. Medicare discharges remained relatively steady between 2010 and 2014.

The rates of NTDC by race per 100,000 of the population, shown in Figure 2, highlight the persistent racial disparities in ED use among minority populations. Most significantly, in NJ in 2014, the rate of Black individuals who utilize EDs for NTDCs was almost four times that of White, Hispanic, and other races. In NY, Black individuals also had rates of NTDC visits (41 percent) three times that of Hispanic and white individuals. This disparity remains persistent over time and does not appear to change with expansion.

## Discussion

There is a growing body of state-specific research on NTDC ED visits.<sup>8,15,16</sup> To our knowledge, however, this is the first study to analyze the effect of Medicaid expansion on NTDC ED visits in the neighboring states of NY and

NJ. While both these states expanded Medicaid, each used markedly different approaches in both timeline and mode of expansion. Although these differences in approach did change the experience of low-income residents, it is unclear whether these differences alone accounted for the nuances seen here or whether these changes, as well as changes in Medicaid provider reimbursement policy in NY, also impacted residents.

Our results confirm a dramatic and sustained increase in NTDC visits paid for by Medicaid that occurred in NY between 2010 and 2011.<sup>4</sup> As NY had already expanded its Medicaid program prior to 2010, only about 9 percent of the state's Medicaid enrollees were newly eligible under the ACA. It is plausible therefore that this increase in Medicaid NTDCs was due to the significant decrease in Medicaid reimbursement rates for providers that occurred in May of 2011.<sup>4</sup> This explanation is consistent with other studies of state-specific policy changes that have shown that elimination and/or reduction of adult Medicaid reimbursement has led to increases in NTDC ED visits.<sup>17,18</sup> However, it is also plausible that this increase is due to an increased Medicaid population associated with a shift of low income adults from private insurance to Medicaid.

By contrast, in NJ, NTDC visits in 2014 are equally distributed between Medicaid, uninsured and private payers. Uninsured NTDC visits dropped significantly in NJ because of expansion in 2014, whereas continued expansion in NY has led to a gradual decrease in uninsured visits from 2010 to 2014. It seems likely that if NJ sustains its Medicaid expansion under the ACA, that over time NJ's payer mix will mature similarly to NY.

Consistent with previous research, our results confirm and highlight the racial disparities in NTDC visits.<sup>6,7,17,19–22</sup> Black

individuals continue to have the highest rates of NTDCs in the population in both states. Although the percentage of Black individuals is similar in both states (15 percent in NJ and 17.7 percent in NY), the relative proportion of Black individuals who utilize the EDs for NTDC is significantly higher in NJ. This may be a reflection of the distribution of Black individuals in rural versus urban areas, or may reflect behavioral utilization patterns that are ingrained in the community. Efforts to tailor and implement strategies to target African Americans and refer them to dental settings where they can obtain definitive and comprehensive, and not symptomatic, treatment for their dental concerns is therefore paramount.

This study has certain limitations. Our analysis was limited to the states of NY and NJ and only examined NTDC visits that did not result in admission to the hospital. We did not look at gender or age-specific visits, we did not identify high-users, nor did we know if patients with NTDCs had dental homes. This study also did not examine geographic factors such as differences in urban/rural areas or dental provider-to-resident ratios that play an important role in ED visit utilization. Additional analyses, using regression models to adjust for age, race, and urban/rural distribution of dentists and patients is the next step to further elucidate these findings.

Another limitation was our inability to explain the ongoing question of the fluctuation in costs for NY between 2010 and 2014. We do not have data available to investigate the cause of the fluctuation in expenditures. We know that charges and expenditures for all ED visits, regardless of reason, changed proportionally over this timespan, so this is a broader issue than just NTDCs and requires additional analysis.

In conclusion, as demonstrated in NY and NJ, each state's unique history, demographics, expansion eligibility, recipient notification efforts, and provider reimbursement rates have the ability to create unique circumstances for their low-income residents who rely on EDs for regular care and treatment. Oral health care for adults is still not an essential health benefit under the ACA and providing coverage alone does not guarantee access to care. Strengthening the community-based safety net, promulgating culturally sensitive oral health literacy campaigns, and increasing Medicaid provider reimbursement may help to address the persistent barriers to dental care within this population.

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