Published in final edited form as:
*J Am Dent Assoc*. 2013 July ; 144(7): 828–836.

# Racial/Ethnic Variations in Emergency Department Wait Times for Nontraumatic Dental Condition Visits in the United States

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## Abstract

**Background—**Studies have documented an association between wait times in emergency departments (EDs) and quality of care for medical conditions, but little is known about trends and factors associated with wait times for nontraumatic dental condition (NTDC) visits in EDs. We examined trends in wait time and associated factors for NTDC visits in EDs in the United States.

**Methods—**We analyzed data from the National Hospital Ambulatory Medical Care survey for 1997 to 2007, with 2001-2002 excluded due to lack of wait time information. We used survey-weighted linear regression of log-transformed waiting time model for the wait time for NTDC visits.

**Results—**The geometric mean wait time for NTDC and non-NTDC visits was 29±1 and 25±0.6 minutes, respectively ($p<0.0001$). The geometric mean wait time for NTDC visits increased by 6% annually and from 20 minutes in 1997 to 37 minutes in 2007. Compared to Whites, Hispanics and Blacks had significantly longer wait times for NTDC visits (adjusted fold-difference [R] =1.2, 95% confidence interval [CI] = 1.13-1.31) and [R] = 1.3, [CI] = 1.29-1.38). Age, payer type, reason for visit and triaged category were significant predictors of wait time (R=2.3 and 2.4 for NTDC visits in triage category of 1-2 hours and >2-24hours respectively).

**Conclusion—**Nationally, wait times in EDs for NTDC visits increased over time. Hispanics (aged ≤ 33years old) and Blacks waited longer to receive care for NTDCs in EDs than Whites.

**Practice Implication—**Prolonged wait times for NTDC visits in emergency departments could adversely impact quality of care and patient outcomes.

### Keywords

Emergency service; Dental service utilization; dental care

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**Prior Presentation:** An abstract from this study was presented as an oral presentation for the American Association for Dental Research meeting on March 24th 2012 in Tampa, Florida.

The authors report that there are no known conflicts of interest.

## Introduction

Most studies on emergency department wait times have described their association with different medical conditions, [1-3] but none have specifically provided national trend information on wait times as they relate to dental condition visits, specifically nontraumatic dental condition (NTDC) visits to emergency departments (EDs) in the United States. Nationally, nontraumatic dental condition visits to emergency departments increased at an average annual rate of 4%, and by 54% between 1997 and 2007.[4] This increase is of concern to healthcare advocates given that most nontraumatic dental conditions are best managed by dental providers and are preventable with early intervention, sustainable home care and the availability of appropriate access to dental care. Additionally, the non-availability of wait time information for NTDC visits in EDs impedes the understanding of their implications on the health care system, cost of care and practice.

Furthermore, assessment of wait times for nontraumatic dental conditions is important for a number of other reasons. First, it serves to highlight any disparate experiences in wait times of racial and ethnic minorities in hospital emergency departments for nontraumatic dental conditions if they exist. Second, prolonged wait times for patients in emergency departments are suboptimal and their identification even in NTDC visits could serve as a window into other types of emergency care disparities. Given that studies already document that racial/ethnic minorities are more likely to use EDs for NTDC visits,[4-5] one wonders whether these groups among others might also experience disparities in wait times in EDs. Finally, this study will highlight another general issue of patient displacements into hospital emergency room settings for care that might otherwise be provided elsewhere in a ‘traditional’ dental care environment.

Recently, the Government Accountability Office report: *Hospital Emergency Departments. Crowding Continues to Occur, and Some Patients Wait Longer than Recommended Time Frames* indicated that overall wait times for some medical conditions in emergency departments have increased and in fact exceeded recommended time frames based on ED triage category.[6] However, information on this issue has hitherto been scare, and the extent to which increased wait times occur for NTDC visits to EDs has so far been unexplored. Wait times have been suggested as an indication of overcrowding in emergency departments,[6] and ED overcrowding is an emerging threat to patient safety and public health.[6] The Institute of Medicine's report: *Hospital-Based Emergency Care: At the Breaking Point* indicates a growing concern about the timeliness of care in EDs, since patients could experience protracted pain and suffering from delays in diagnosis and treatment[7] due to prolonged wait times. From a public health perspective, documenting and understanding wait times related to NTDC visits in EDs is important for policy and program development as well as for setting priorities and goals for performance improvement.

Our study is critical to policymakers, healthcare providers, researchers and health advocates since it improves an understanding of how NTDCs are managed in emergency departments with regard to quality of care. Herring et al. reported that prolonged wait times in EDs have an adverse impact on quality of care and patient outcomes.[8] The American College of Emergency Physicians has indicated that prolonged wait times can affect patient outcomes for any condition,[9,10] including NTDCs. The National Quality forum has reiterated the importance of providing quality care to patients in EDs within a reasonable time irrespective of their presenting conditions.[11] Despite the importance of providing care to ED patients in a timely manner, there is a dearth of studies that address the issue of wait times for NTDC visits in EDs.

In our study, we used a nationally representative database, the National Hospital Ambulatory Medical Care Survey (NHAMCS) for 1997-2007, to examine changes in wait times, and we identified factors associated with wait times for NTDC visits to EDs. In addition, we examined whether there were variations in wait times along the lines of a patient's race and/or ethnicity. In particular, we examined whether racial/ethnic minorities with NTDCs were more likely to wait longer for care in emergency departments in the United States. This question is particularly important given the abundance of literature documenting the existence of racial/ethnic disparities in access to dental care and the dental disease burden. We hypothesized that there would be an increase in wait times for NTDC visits over time given the nature of dental conditions, and that increased wait times would be associated with racial and ethnic minority groups due to their increased used of EDs.

## Methods

### Study Design, Settings and Selection of Participants

We conducted a retrospective secondary data analysis of the National Hospital Ambulatory Medical Care Survey for 1997 to 2007, with 2001-2002 excluded due to lack of waiting time information. This database was tailored towards understanding the use of ambulatory care in hospital emergency and outpatient departments. The data is based on a national sample of visits to the emergency departments and outpatient departments of non-institutional general and short-stay hospitals within the fifty states and the District of Columbia.[12] A four-stage probability sampling design was used with samples of primary sampling units (PSUs), hospitals within PSUs, clinics and emergency services areas.[12] Included in the NHAMCS data were sections pertinent to socioeconomic status, race/ethnicity, financing of care, information regarding clinical presentation, diagnosis and treatment, as well as the times and dates when the sampled patients presented in the emergency facilities. The Marquette University Institutional Review Board approved the study as exempt.

### Dependent and Independent Variables

The outcome measure chosen for this study was wait time. We operationalized our outcome variable using a similar approach to that published in Horwitz and colleagues.[13] Wait time is defined as the amount of time a patient waits before they are seen by an emergency department physician for diagnosis and treatment. In this study, wait time was evaluated as a continuous variable, which was log-transformed for analysis to reduce skewness.[14] The resulting analyses can be interpreted as examining fold-changes in waiting time.

The main subgroup of interest in our study was patients with nontraumatic dental conditions. This included all patients with a nontraumatic dental condition in the primary diagnosis field as used in our previous study of NTDC visits and in other published studies [4, 5] which have analyzed dental visits to EDs and physicians' offices (POs). Specifically, the following ICD-9-CM codes were considered NTDCs: 521.0-521.9 (diseases of dental hard tissues of teeth), 522.0-522.9 (diseases of pulp and periapical tissues), 523.0-523.9 (gingival and periodontal diseases), 525.3 (retained dental root), 525.9 (unspecified disorder of the teeth and supporting structures), and 873.63 (internal structures of mouth, without broken tooth).[4,5] For context, we also report some results for other ED visits, which we term “non-NTDC” visits. These include traumatic dental conditions and all non-dental primary diagnoses. Other independent variables included in our analysis were age, gender, race/ethnicity (non-Hispanic White, non-Hispanic Black, Hispanic, others), payer type (self-pay, Medicare, Medicaid, Private insurance, other, unknown), patient-stated reason for visit (dental vs. non-dental), and triage categorization. Triage categorization was done by emergency department health care providers based on their assessment of a patient's condition, and occurred upon their arrival at the ED for care. It is recorded as a

recommendation for the patient to be seen in less than 15 minutes, 15 minutes to 1 hour, 1 to 2 hours, or more than 2 hours.

### Statistical Analysis

We performed descriptive statistics and used a multivariate linear model to assess the effect of the predictors on waiting time. Waiting time was treated as a continuous variable for the analysis, but descriptive statistics are also reported for a categorized version with cutoffs at 15 minutes, 1 hour, and 2 hours to match the triage categorization. Age was categorized into 6 groups, with cut-offs chosen to approximate the lower and upper $10^{th}$ and $25^{th}$ percentiles, and the median in the entire population. Based on findings from the descriptive statistics, calendar year was treated as a linear continuous predictor in the multivariate analyses. Observations with missing outcome variable were not included in the analyses, while independent variables were coded to include a separate category for missing values. We also examined potential interactions between race/ethnicity and triage categorization and the other covariates. All statistical analyses were performed using SAS© software Version 9.2 (SAS Institute Inc, Cary, NC), with the primary model fitted using Proc Surveyreg. All analyses were adjusted for the survey design. Sample estimates were weighted to provide national estimates, and standard errors were adjusted to reflect the complex sampling scheme of NHAMCS. An alpha level of 0.05 was used throughout to denote statistical significance.

## Results

During the study period there were 2,773 NTDC and 202,992 non-NTDC visits in the database. Wait time and triage category information were missing in 26% and 19% of visits, respectively. Among observations with available wait times, the geometric means for NTDC and non-NTDC visits were 29±1 and 25±0.6 minutes, respectively.

Table 1 represents descriptive statistics comparing NTDC and non-NTDC wait times and triage category. Triage category for both NTDC and non-NTDC visits at 15-60 minutes (26% and 34%, respectively) were the most common. The proportion of patients that waited for 15-60 minutes was 36% for NTDC and 32% for non-NTDC visits. The lowest percentages were recorded for > 2 hours of wait time and triage category for non-NTDC visits (7%, 11%) and for wait times for NTDC visit (6%). Few NTDC visits were triaged for <15 minutes (8%). The figure shows that the geometric mean wait time for NTDC visits increased on average by 6% annually from 20.2 minutes in 1997 to 36.6 minutes in 2007.

The geometric mean of wait times for NTDC visits by study population characteristics are shown in Table 2. In this analysis, triage category, payer type, race/ethnicity, age group, and year were the only significant predictors of wait times for NTDC visits. Non-Hispanic Whites had the shortest geometric mean wait time of 27 minutes, while Blacks (35 minutes) and Hispanics (32 minutes) had a higher geometric mean wait times. The age group with the highest geometric mean wait time was 73+ (33minutes). Medicare enrollees and self- pay patients had significantly higher geometric mean wait times of 31 minutes and 30 minutes respectively. As expected, the triage categories: 1-2 hours and >2 hours had significantly longer geometric mean wait times at 35 minutes and 36 minutes respectively for NTDC visits compared to those triaged for shorter periods.

Table 3 shows the results of the multivariate linear regression model. We ran two separate analyses: one that did not include triage category and one that adjusted for triage category. The results of the two models were very similar, with the exception of the effect of gender where the difference was statistically significant in the first model and that of patient-stated reason for dental visit in the second model. However, the estimated effect sizes were similar

for those two variables as well. Compared to non-Hispanic Whites and averaged across all ages, Blacks had 1.3-fold longer wait times with or without the triage category included in the model. Also, Hispanics had significantly longer wait times for NTDC visits (data not shown). Patients in the triage categories of 15-60 minutes, 1-2 hours and > 2 hours had 2-2.4 times longer geometric mean wait times than those patients in the triage category for <15 minutes. Compared to private insurance enrollees, self-pay patients had significantly longer wait times for NTDC visits without the inclusion of triage category. Amongst Non-Hispanic Whites, the very young children (<4 years of age) had 23-25% shorter wait times, while those over aged 5 and over 73 year olds had 11-22% longer wait times when compared to young adults (19-33 years old) for NTDC visit in ED. Patient-stated reason for visit had significantly detectable effect on wait times for NTDC visits in EDs with the inclusion of triage category.

In the interaction screen, we found multiple statistically significant interactions. However, most of them explained much a smaller proportions of the total variance than the main effects, and the examination of the estimates showed the effects to be quantitative (i.e. changing the exact numeric value) rather than qualitative (i.e. changing the presence or direction of the effect). The only qualitative interaction was that between race/ethnicity and age, and so these results are presented. Compared with Non-Hispanic Whites, Non-Hispanic Blacks consistently had significantly prolonged wait times in most age groups which was most pronounced among the younger age group (0-4 years) in the analysis of with and without triage category. On the other hand, the results for Hispanics were slightly more variable and more difficult to interpret. Prolonged wait times were identified among the younger age group (0-33 years), and shorter wait times for those over 53 years old. Overall, Hispanic patients had prolonged wait times across most covariates, with self-pay (i.e. uninsured) Hispanic patients experiencing the largest disparity (data not shown).

## Discussion

This study is national in scope and provides estimates on trends in wait times in emergency departments (EDs) as related to visits for nontraumatic dental conditions (NTDCs). Although NTDCs are not life-threatening and rarely cause mortality, they have the potential to cause morbidity and to affect the oral health related quality of life of individuals. We found that the annual geometric mean wait times for NTDC visits in EDs increased by 6% between 1997 and 2007 from a mean wait time of twenty minutes in 1997 to thirty-seven minutes in 2007. Wilper et al. reported an average increase in wait times of 4.1% each year for all conditions examined in U.S. emergency rooms and an increase in wait time of 11% each year for patients with acute myocardial infarction.[15] Other prior research has documented an overall increase in wait times in EDs for non-urgent, semi-urgent and emergent medical conditions. [6, 13, 15-17] However, to the best of our knowledge, this is the first national study that has specifically examined wait times for NTDC visits.

Despite the controversy surrounding the definition of ED overcrowding among researchers and policy makers, Derlet and colleague have indicated that overall increases in ED patient volume is a potential cause of ED overcrowding, and some effects of this include longer wait times and dissatisfaction of patients.[18] The prolonged wait times identified in this study as well as in a recent publication by Okunseri et al.[4] which shows an increase in NTDC visits over time might be a contributing factor to ED overcrowding in the United States. Additionally, our study shows that the geometric mean wait times for NTDC and non-NTDC visits were 29±1 and 25±0.6 minutes, respectively ($p<0.0001$). Another interesting finding was that approximately 8% of NTDC and 16% of non-NTDC patients were in the triage category to be seen in <15 minutes. Since triage category speaks to the urgency of a condition, this brings into question the appropriateness of the evaluation of dental conditions

as conducted in EDs, where there are no life threatening conditions associated with such visits.

Several factors were significant predictors of wait time in NTDC visits to EDs in the multivariate analysis (with and without the inclusion of triage category in the model). We found significant racial/ethnic disparities in wait times for NTDC visits to EDs Compared to Non-Hispanic Whites, Non-Hispanic Blacks had 1.2 – 2.4 times longer wait times for NTDC visits, only Hispanics aged 0-33years experienced prolonged wait times for NTDC visits. This finding is consistent with studies that have examined wait times in EDs in children and adults. For example, Wu et al. indicated that racial and ethnic minorities had prolonged wait times for acute pancreatitis, acute appendicitis and upper gastrointestinal hemorrhage in EDs.[19] Park et al. investigated variations in emergency department wait times for children and reported that Non-Hispanic Blacks and Hispanics had longer wait times than Whites when treated at the same hospital.[20] Wilper et al. reported that racial/ethnic minorities had higher median wait times, and that Whites had a median wait time of twenty-four minutes, compared to a median wait time of thirty-one minutes for Blacks and thirty-three minutes for Hispanics.[15] Notably, in our study the prolonged wait times for Non-Hispanic Blacks and Hispanics remained even in most of our subgroup analyses. It should be noted that we were not able to adjust for characteristics of individual facilities, so it is possible that longer wait times of racial and ethnic minorities are due to generally prolonged wait times in the facilities they are more likely to visit. Our findings add to the growing list of racial/ethnic disparities in the quality of care received by patients in EDs and specifically by those seeking care for NTDCs.

Many studies have attempted to postulate possible reasons for prolonged wait times associated with racial/ethnic disparities in EDs, but not all are applicable to NTDC visits. Barnato et al. suggested staffing shortages and capacity constraints, poor coordination of personnel, hospital culture, and other sociodemographic characteristics of the community [21] as potential sources of racial/ethnic disparities in EDs. Park et al. indicated that even when hospital type is held constant allowing for comparison of wait times of White and minority children in the same hospital, disparities in racial and ethnic minority wait times remained, with Hispanic children having a mean of 10 percent longer wait times than White children.[20] Furthermore, James and colleague suggested that the longer wait times observed for racial/ethnic minorities could be associated with the fact that racial/ethnic minorities are more likely to use EDs for nonurgent problems[22].

Triage category decisions are influenced by subjective factors like provider beliefs and completeness of information provided by patients. These factors have the potential to lead to variations in how ED visits are recorded based on triage category even for similar conditions.[22]. In this study, triage category was a strong predictor of actual wait time with 2.3 and 2.4-fold longer waits times for those in the triaged category of 15-60 minutes and over 1 hour, respectively. Our findings for non-NTDC visits are consistent with those reported by the US Government Accountability Office for the year 2006 regarding waiting times that exceeded the recommended ED triage time frame.[6] In addition, the proportion of NTDC visits scheduled as emergent (<15 minutes) in the triage category and the waiting time of < 15minutes were 10% and 25% respectively. While the reason for this finding is beyond the scope of our study, possible reasons could include physician bias in evaluating chief complaints,[23] inefficiency of the ED triage process,[24] and emergency providers' comfort level in managing NTDCs.

It is important to note that the recent economic down turns could in future exacerbate the situation in EDs and lead to longer wait times for NTDC visits for racial and ethnic minorities in the United States. Thus, there is a need to seek urgent and appropriate

intervention strategies to eliminate or reduce the racial/ethnic disparities identified in our study. Possible intervention strategies include improved access to dental care, improved training of emergency department physicians in the management of dental conditions in EDs, provision of urgent care clinics for dental care as an alternative to emergency departments, as well as provision of electronic medical records and case managers. In addition, by improving hospital efficiency and patient flow, EDs could eliminate bottlenecks in their triage systems and reduce overcrowding and wait times, thereby enhancing patient care while potentially reducing costs.

The interpretation of our study findings should be done bearing in mind the following limitations. Wait time was not available for a substantial portion of patients, which could have impacted the results. We acknowledge the possible influence of subjective factors on how triage categorization and codes for different hospitals were documented and the non-availability of data to examine the function of resources to meet healthcare needs. Nonetheless, our findings are important for understanding potential differences in service provision based on subjective evaluations.[20] There was also lack of data for potential covariates such as education, income and occupation that may vary by race/ethnicity. Nonetheless, we considered payer type as a proxy measure of the socio-economic context.[20] We recognize that information on race/ethnicity was collected based on the perception of hospital personnel, rather than on patient self-reports. Finally, we are unable to adjust for the frequency of ED visits for NTDCs and how much these facilities served as a resource for traumatic dental condition visits knowing that all these could potentially affect triage categorization and wait times.

In summary, this study demonstrates that nationally, wait times in EDs for NTDC visits have increased substantially over time. Hispanics (aged 0-33 years old) and Non-Hispanic Blacks are more likely to wait longer for care in EDs for NTDC visits. ED wait time information is an important measure for understanding timeliness, efficiency and patient-centeredness of emergency care.[25] Prolonged wait times and triage categorization for NTDCs are also indicative of a lingering problem regarding access to dental care in the United States. Finally, this study will increase the awareness of ED providers regarding wait times associated with NTDCs, with the goal of contributing to the development of guidelines for improved management of these conditions.

## Acknowledgments

This study was supported by the National Institute of Dental and Craniofacial Research grant #1R15DE021196-01.

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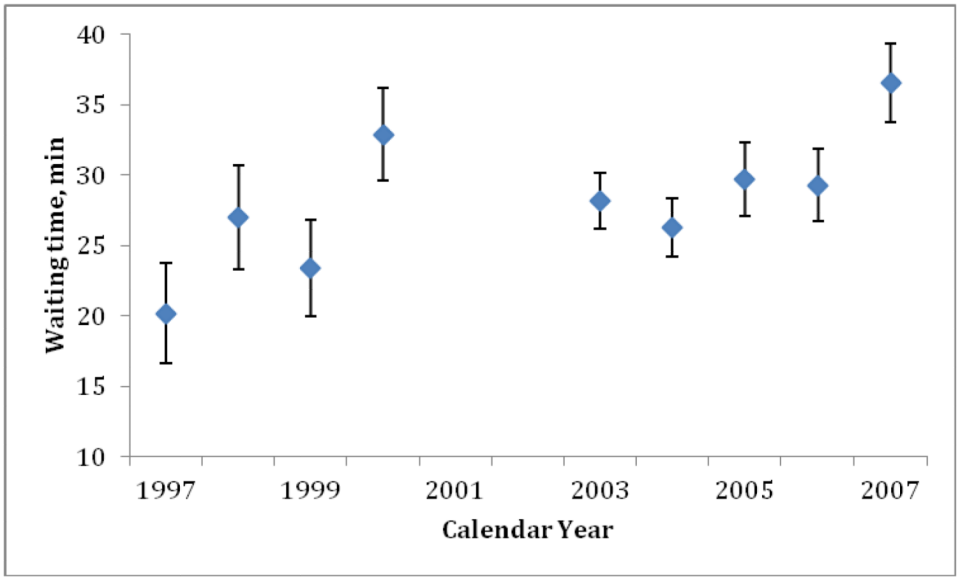


**Figure.**
Relationship between calendar year and waiting time. Geometric mean with standard Error Bars.

## Table 1
### Distribution of NTDC and Non-NTDC Visits by Wait Time and Triage Category

| Predictor | NTDC % (SE) | Non-NTDC % (SE) | *P*-value |
|---|---|---|---|
| **Triage Category (urgency)** | | | <. 0001 |
| <15 minutes (emergent) | 9.5 (0.9) | 20.5 (0.7) | |
| 15-60 minutes (urgent) | 32.3 (1.7) | 42.7 (0.8) | |
| 1 -2 hours (semi-urgent) | 30.1 (1.6) | 23.4 (0.8) | |
| >2 hours (non-urgent) | 28.1 (1.6) | 13.4 (0.6) | |
| **Waiting time** | | | <. 0001 |
| <15 minutes | 25.1 (1.4) | 31.4 (0.9) | |
| 15-60 minutes | 48.6 (1.3) | 43.9 (0.5)z | |
| 1 hour-2 hours | 17.8 (1) | 15.4 (0.4) | |
| >2 hours | 8.4 (0.8) | 9.3 (0.4) | |

*J Am Dent Assoc*. Author manuscript; available in PMC 2013 November 05.

**Table 2**

**Wait Time by Patient Characteristics for NTDC Visits**

| Category | Frequency | Geometric mean wait time, min | SE | p-value |
|---|---|---|---|---|
| **Payer Type** | | | | <. 0001 |
| Self-pay | 882 | 28.2 | 1.7 | |
| Medicaid | 801 | 30.8 | 3.6 | |
| Private insurance | 667 | 25.4 | 5.2 | |
| Medicare | 144 | 27.6 | 1.6 | |
| Other | 100 | 30.4 | 1.9 | |
| Unknown | 179 | 28.6 | 2.9 | |
| **Sex** | | | | 0.55 |
| Female | 1463 | 28.7 | 1.3 | |
| Male | 1310 | 29.0 | 1.5 | |
| **Triage category (urgency)** | | | | <. 0001 |
| <15 min | 226 | 14.9 | 1.9 | |
| 15-60 min | 845 | 26.8 | 1.4 | |
| 1 hour-2 hours | 706 | 35.0 | 2.2 | |
| >2 hours-24 hours | 643 | 36.4 | 2.0 | |
| Unknown/no triage | 353 | 23.7 | 2.5 | |
| **Age Group (years)** | | | | <. 0001 |
| 0-4 | 142 | 26.9 | 4.1 | |
| 5-18 | 255 | 28.8 | 2.2 | |
| 19-33 | 1322 | 28.9 | 1.4 | |
| 34-52 | 853 | 29.3 | 1.7 | |
| 53-72 | 157 | 27.0 | 3.6 | |
| 73 and over | 44 | 32.6 | 6.6 | |
| **Race/Ethnicity** | | | | <. 0001 |
| Hispanic | 285 | 32.1 | 3.5 | |
| Non-Hispanic Black | 683 | 35.3 | 2.3 | |

| Category | Frequency | Geometric mean wait time, min | SE | p-value |
|---|---|---|---|---|
| Non-Hispanic White | 1710 | 26.5 | 1.1 | |
| Other | 95 | 26.1 | 3.7 | |
| **Patient Stated Reason for Visit** | | | | 0.56 |
| Dental reason | 1717 | 29.0 | 1.2 | |
| Non-dental reason | 1056 | 28.7 | 1.7 | |

## Table 3

Multiplicative effects of independent variables on waiting times for NTDC visits: Results of survey-adjusted regression models with and without adjusting for triaged category (urgency).

| Comparison | Without Triage | | With Triage | |
|---|---|---|---|---|
| | Ratio (95% CI) | P-value | Ratio (95% CI) | P-value |
| **Payer Type** | | <.0001 | | <.0001 |
| Private insurance | 1.00 | | 1.00 | |
| Medicaid | 0.98 (0.94 - 1.01) | | 0.96 (0.92 - 1.00) | |
| Medicare | 1.08 (0.99 - 1.19) | | 1.07 (0.98 - 1.16) | |
| Self-pay | 1.06 (1.01 - 1.10) | | 1.03 (0.99 - 1.08) | |
| Unknown | 1.01 (0.95 - 1.08) | | 1.06 (1.00 - 1.13) | |
| Other | 0.86 (0.79 - 0.94) | | 0.94 (0.86 - 1.02) | |
| **Gender** | | 0.0382 | | 0.2664 |
| Male | 1.00 | | 1.00 | |
| Female | 0.97 (0.94 - 1.00) | | 0.98 (0.96 - 1.01) | |
| **Triage Category** | | | | <.0001 |
| <15 min | Not included | | 1.00 | |
| 15-60 min | | | 1.82 (1.70 - 1.94) | |
| 1-2 hours | | | 2.32 (2.16 - 2.49) | |
| >2 hours-24 hours | | | 2.39 (2.22 - 2.57) | |
| Unknown/no triage | | | 1.60 (1.48 - 1.73) | |
| **Patient-stated reason for Visit** | | 0.2380 | | 0.0012 |
| Dental vs. non-dental reason | 0.98 (0.95 - 1.01) | | 0.95 (0.92 - 0.98) | |
| **Year** | 1.03 (1.02 - 1.03) | <.0001 | 1.02 (1.02 - 1.03) | <.0001 |
| **Age group within Non-Hispanic White** | | <.0001 | | <.0001 |
| 0 – 4 years old | 0.75 (0.72 - 0.78) | | 0.77 (0.74 - 0.80) | |
| 5 – 18 years old | 1.10 (1.04 - 1.16) | | 1.12 (1.07 - 1.17) | |
| 19 – 33 years old | 1.00 | | 1.00 | |

| Comparison | | Without Triage | | With Triage | |
|---|---|---|---|---|---|
| | | Ratio (95% CI) | P-value | Ratio (95% CI) | P-value |
| 34 – 52 years old | | 1.11 (1.06 - 1.16) | | 1.09 (1.04 - 1.14) | |
| 53 – 72 years old | | 1.12 (1.02 - 1.22) | | 1.11 (1.03 - 1.21) | |
| Over 73 years old | | 1.22 (1.02 - 1.45) | | 1.43 (1.23 - 1.67) | |
| **Race/Ethnicity by age group** | | | <.0001 | | <.0001 |
| Hispanic | 0 – 4 years old | 1.30 (1.23 - 1.37) | | 1.18 (1.10 - 1.26) | |
| vs. Non-Hispanic White | 5 – 18 years old | 1.20 (1.01 - 1.42) | | 1.16 (1.00 - 1.35) | |
| | 19 – 33 years old | 1.74 (1.55 - 1.94) | | 1.75 (1.57 - 1.94) | |
| | 34 – 52 years old | 0.99 (0.85 - 1.15) | | 1.03 (0.88 - 1.20) | |
| | 53 – 72 years old | 0.45 (0.31 - 0.67) | | 0.46 (0.33 - 0.65) | |
| | over 73 years old | 0.14 (0.12 - 0.17) | | 0.09 (0.08 - 0.11) | |
| Non-Hispanic Black | 0 – 4 years old | 2.41 (2.15 - 2.69) | | 2.30 (2.16 - 2.46) | |
| vs. Non-Hispanic White | 5 – 18 years old | 1.17 (1.06 - 1.29) | | 1.16 (1.06 - 1.27) | |
| | 19 – 33 years old | 1.51 (1.43 - 1.59) | | 1.44 (1.37 - 1.53) | |
| | 34 – 52 years old | 1.13 (1.05 - 1.20) | | 1.14 (1.08 - 1.21) | |
| | 53 – 72 years old | 1.05 (0.91 - 1.22) | | 1.05 (0.92 - 1.20) | |
| | over 73 years old | 1.26 (1.07 - 1.49) | | 1.25 (1.07 - 1.45) | |
| Other vs. Non-Hispanic White | 0 – 4 years old | 2.98 (2.28 - 3.89) | | 2.60 (2.07 - 3.27) | |
| | 5 – 18 years old | 0.66 (0.61 - 0.70) | | 0.60 (0.54 - 0.68) | |
| | 19 – 33 years old | 0.74 (0.68 - 0.79) | | 0.76 (0.71 - 0.82) | |
| | 34 – 52 years old | 1.07 (1.00 - 1.16) | | 1.15 (1.10 - 1.21) | |
| | 53 – 72 years old | 1.61 (1.40 - 1.85) | | 1.66 (1.47 - 1.88) | |
| | over 73 years old | 1.90 (1.30 - 2.78) | | 1.71 (1.38 - 2.13) | |