

# Use of Syndromic Data to Determine Oral Health Visit Burden on Emergency Departments

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## Objective

The objective was to use syndromic surveillance data from the North Carolina Disease Event Tracking and Epidemiologic Collection Tool NCDETECT and from BioSense to quantify the burden on North Carolina (NC) emergency departments of oral health-related visits more appropriate for care in a dental office (ED). Calculations were sought in terms of the Medicaid-covered visit rate relative to the Medicaid-eligible population by age group and by county.

## Introduction

Concern over oral health-related ED visits stems from the increasing number of unemployed and uninsured, the cost burden of these visits, and the unavailability of indicated dental care in EDs [1]. Of particular interest to NC state public health planners are Medicaid-covered visits. Syndromic data in biosurveillance systems offer a means to quantify these visits overall and by county and age group.

## Methods

Using BioSense data received from NCDETECT, 60.8 million records from 12.9 million ED visits were collected, covering all NC visits for state fiscal years (SFY) 2008-2010. Roughly 4% of visits were dropped because of patient residence zip codes missing or outside NC. A careful multi-step procedure involving both dentist consultants and data analysis was used to derive classification criteria for visits whose main reason was a nontraumatic oral health problem [2]. This procedure yielded 243,970 visits by ~174,600 patients based on hospital-specific patient identifiers. Nontraumatic oral health-related visits were collected in a study set with added fields for method of payment, patient residence county, and age group. Based on previous studies, consultant preferences, and NC Medicaid eligibility guidelines, selected age groups were 0-14, 15-19, 20-29, 30-49, 50+ years. Stratified counts of Medicaid-eligibles were obtained from the NC Dental Director by study year. Using these tables and the ED visit study set, rates of nontraumatic oral health-related Medicaid visits per 10,000 eligibles were tabulated by county and age group for each study year. Demographics of multiple-visit patients were also studied.

## Results

Rates of ED oral health-related visits were substantially higher for young adults than for other age groups. From statewide rates in Table 1, this age factor was consistent across study years.

County-level rates showed the same age pattern to varying degrees. Detailed analysis showed problem areas, with rates in 21 of 100 counties exceeding 60 per 10,000 eligibles for the 20-29 year age group. Plots and tables complemented understanding of the ED oral health visit burden by age and county. The state total ED burden for oral health problems was ~2% (0.2% - 9.7% by county).

## Conclusions

Judicious use of syndromic data with external information, such as the detailed Medicaid denominators and the Method of Payment codes for each visit above, can give quantified estimates for policy-related public health issues. In the current study, the derived oral health visit rates gave numerical detail to concerns about the use of NC EDs for nontraumatic oral health problems by low-income persons affected by the economic recession. Results also show rate variation by county and can be combined with access-to-care data to inform planning of effective local measures to improve access to dental services and thus reduce the ED visit burden.

Table 1. NC Statewide Oral Health Medicaid Visits to Emergency Departments per 10,000 Eligibles

Visits per 10,000 Eligibles	SFY 2008	SFY 2009	SFY 2010
All Age	9.5	9.9	9.2
0-14 yrs	1.9	1.8	1.8
15-19 yrs	8.4	9.0	7.9
20-29 yrs	42.6	43.4	39.6
30-49 yrs	22.9	24.2	22.5
50+ yrs	9.5	2.5	2.4

## Keywords

emergency department; chief complaint; BioSense; oral health; NCDETECT

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## References

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