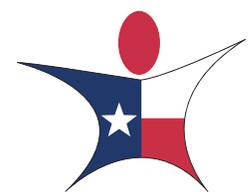


# ORAL HEALTH IN TEXAS

## Emergency Department and Inpatient Hospitalization for Non-Traumatic Dental Conditions in Texas



Texas  
Health  
Institute

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# Executive Summary

Dental care provided in emergency departments is non-definitive and palliative in nature. It is expensive and often the result of conditions that, if treated earlier in the disease course, would not result in an emergency visit. As the treatment is non-specific, patients often return for further care in the future. When left untreated, these needs result in much more severe and complex conditions. The severity of disease can be so detrimental that the patient requires an inpatient admission which exponentially increases costs, negatively impacts patient outcomes, and can even be a precursor to patient death.

Treating dental conditions in the emergency department is often the treatment location of last resort for both patients and providers. It is not an ideal setting and the visit rarely results in definitive care and the cost of care is significantly more compared to care provided in the dental office. The American Dental Association estimates the average cost of a regular, preventive dental visit is between \$180 and \$211 and the average cost of restorative dental care is between \$300 and \$591<sup>1</sup>. They further estimate the annual cost of providing dental coverage in Medicaid is between \$822 and \$856 per member. In 2016, the average charge for an emergency department visit for non-traumatic dental conditions (NTDC's) in Texas was \$1,853 while an inpatient hospital admission was \$46,198. This describes significant differences in costs based upon the treatment setting.



Average annual cost of preventive dental visit

**\$180-\$211**



Average annual cost of restorative care

**\$300-\$591**



Average annual charges for NTDC's related ED visits in Texas

**\$1,853**



Average annual charges for inpatient admissions for NTDC's in Texas

**\$46,198**

Patients between ages 18 and 44 years visited the emergency department more than any other age group with Medicaid-enrolled, non-Hispanic Black patients visiting more frequently than others. White, non-Hispanic patients had more inpatient admissions than any other racial group. Finally, rural counties experienced the highest rates of emergency department visits and inpatient admissions for non-traumatic dental conditions in Texas.

The treatment of dental conditions in the emergency department is not an ideal situation for patient, provider or payer. As a treatable condition, non-traumatic dental care should not occur within an emergency department or inpatient setting, and more importantly mortality reports should be non-existent. However, alarmingly, in 2016, 10 Texas hospital patients died with a primary diagnosis of a NTDC.

# Introduction

Treatment in the hospital setting represents one of the most expensive care modalities available for treatment of dental conditions. Care provided within emergency departments (ED) for NTDC's is non-definitive and those seeking care receive only antibiotics and pain medicine, frequently an opioid<sup>2</sup>. This treatment is palliative in nature and, as it is not comprehensive, often leads to revisits. Worse, if left untreated, conditions become so severe that the dental diagnosis necessitates an inpatient (IP) admission to ensure appropriate and timely medical treatment.

Increasingly, state Medicaid programs are becoming aware of the way that services are rendered, accessed, and utilized. The mechanisms driving emergency department utilization is identified as an area that warrants additional research. As a result, Texas Health Institute (THI) conducted an analysis of emergency department utilization and inpatient admissions for non-traumatic dental conditions in Texas. Emergency department<sup>3</sup> and inpatient<sup>4</sup> data used in this report was requested from the Texas Department of State Health Services and includes calendar year 2016.

Texas has the highest uninsured rate in the country at 16.6%<sup>5</sup> and offers no comprehensive dental benefits for adults; it is one of 14 states that offer only emergency dental benefits through its Medicaid program<sup>6</sup>. This covers dental treatment only in very specific, pre-defined emergency situations. Lack of comprehensive dental coverage leads to higher rates of ED utilization for non-traumatic dental conditions<sup>7</sup>. Lack of access to dental providers<sup>8</sup>, due to either geography or socio-demographic or socioeconomic factors, is also associated with increased rates of emergency department utilization<sup>9-10</sup>.

Routine dental care, when utilized by patients, makes ED visits for the treatment of NTDC's unnecessary and has positive outcomes for patients' overall physical health and well-being. Reductions in risks for stroke<sup>11</sup>, heart disease, and oral cancers are all associated with regular oral health care and timely dental visits are associated with lower HgA1C levels in diabetic patients<sup>12</sup> and other positive systemic effects<sup>13</sup>.

## Background

At the end of 2017, there were 28,797,290 individuals living in Texas and that is expected to continue to increase by 2.0% each year through 2020<sup>14</sup>. 3,061,090 live in a region classified as rural<sup>15</sup>. According to the Kaiser Family Foundation, sixteen percent of these individuals receive either Medicaid or CHIP benefits; Medicaid covers almost half (49%) of all children with special health care needs the state<sup>16</sup>.

The state of Texas has 407 hospital systems serving 254 counties. The Texas Department of Health and Human Services reports that in 2016, the last full year in which overall statewide data was available, there were 10,647,047 emergency department visits in Texas; this represents an increase of 1.5 percent over 2015. Just under 14% (n=1,471,871) were admitted to the hospital for more comprehensive treatment<sup>17</sup>.

The information is presented above to place into context the burden of dental care delivery in the hospital setting. Costs incurred for NTDC's, when treated in an emergency department, ambulatory surgery or inpatient hospital, are paid for by medical insurance, public insurance programs or remain unpaid as charity care.

## Methods

Consistent with past research, this report defines non-traumatic dental conditions as having a primary diagnosis in the diagnostic code list as defined by the Association of State and Territorial Dental Directors (ASTDD)<sup>18</sup>. In addition, those patients admitted to the hospital with a principal diagnosis of cellulitis of the face or neck (L03211-L03212, L03221-L03222) secondary to NTDC's are also included.

Emergency department visits were classified as any visit that had a discharge status indicating the patient was not admitted at the same or transferred to another hospital and are typically stays of 23 hours or less. Inpatient admissions were classified as those visits where the patient was admitted as an inpatient to the hospital and whose stays were longer than 24 hours.

Rates per 100,000 of the Medicaid-enrolled population were calculated using 2016 Medicaid enrollment information from Texas Health and Human Services.

## Key Findings

There were 122,096 emergency department visits for NTDC's in 2016 with an average charge of \$1,853 for all payers. There were 4,692 patients admitted primarily from the emergency department or from a physician referral. Due to the complex nature of the condition and required treatment, these admissions were significantly more expensive and carried an average charge of \$46,198 for all payers.

*Table 1. Hospital Visits for NTDC's in Texas, 2016.*

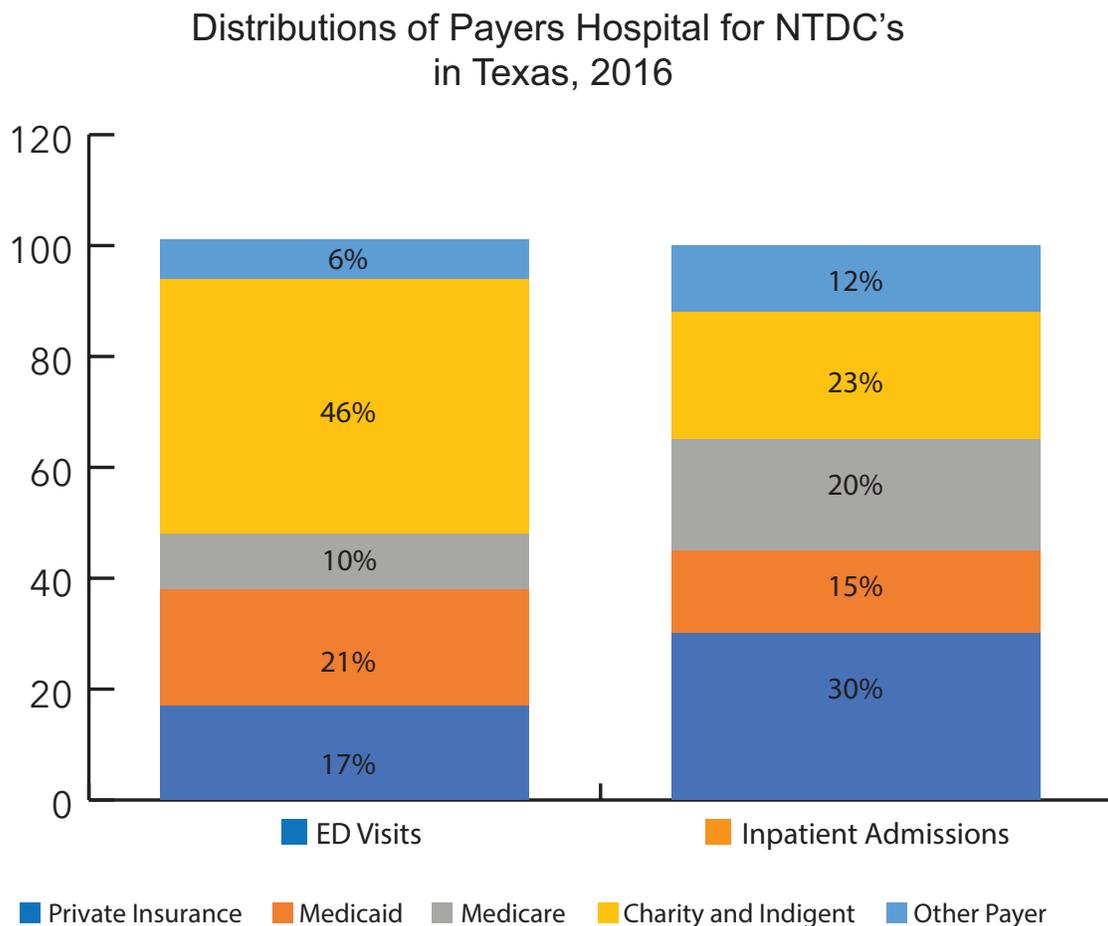
Hospital Visits for NTDC's among Adults in Texas, 2016									
	2016								
	Total				Medicaid Enrollees				
	# of Visits	Rate Per 1000,00 of Polulation	Average Charge	Total Charge	# of Visits	% of Total Visits	Rate Per 1000,00 of Polulation	Average Charge	Total Charge
Ed Visits for NTDC's	122,096	437.54	\$1,853	\$226,283,179	25,647	21%	631.61	\$1,692	\$43,401,217
Inpatient Admissions for NTDC's	4,692	16.81	\$46,198	\$216,761,003	700	15%	17.24	\$42,726	\$29,908,388

Twenty-one percent of the ED visits were by patients with Medicaid and cost, on average, \$1,692 per visit. 15% (n=700) of inpatient admissions for NTDC's were by patients with Medicaid, at an average cost of \$42,726 per stay. In total, 10 patients died as a result of the NTDC's.

## Payers

More than \$226 million was incurred in charges for emergency department visits for non-traumatic dental conditions in Texas in 2016. Another \$216 million was incurred in charges on inpatient admissions during the same year. Medicare and Medicaid paid for a combined 31% (\$72,572,486) of visits to the ED and 35% (\$75,213,281) of inpatient admissions. Charity care and other payers paid for an additional 46% and 6% of emergency visits and 23% and 12% of inpatient admissions, respectively. See figure 2 below for more information.

Figure 2. Payer Distribution of ED Visits and IP Admissions for NTDC's in Texas, 2016.



# Diagnoses

Diagnosis patterns were similar for patients with any insurance as for those patients with Medicaid. 24% of all visits, and 20% of Medicaid enrolled ED visits were treated for periapical abscess without sinus; 26% of all visits and 23% of Medicaid enrolled visits were treated for other specific disorder of the teeth and supporting structures. Whereas 48% of all admissions and 50% of Medicaid enrolled admissions were for periapical abscess without sinus, cellulitis of the face, and cellulitis and abscess of mouth. Figure 3.a and 3.b below illustrates key emergency department visits and inpatient admission diagnoses for 2016.

Figure 3a. Common Diagnoses among Patients with ED Visits for NTDC's in 2016

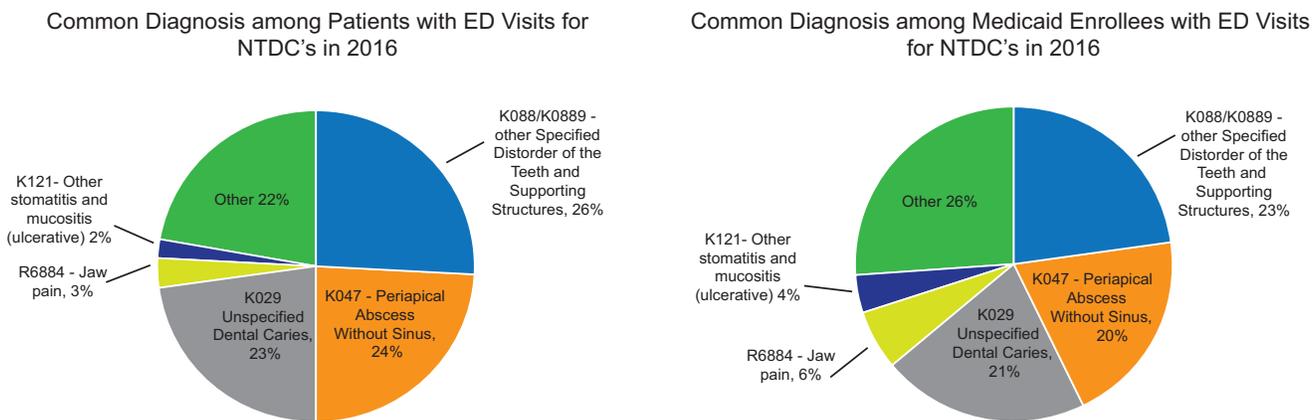
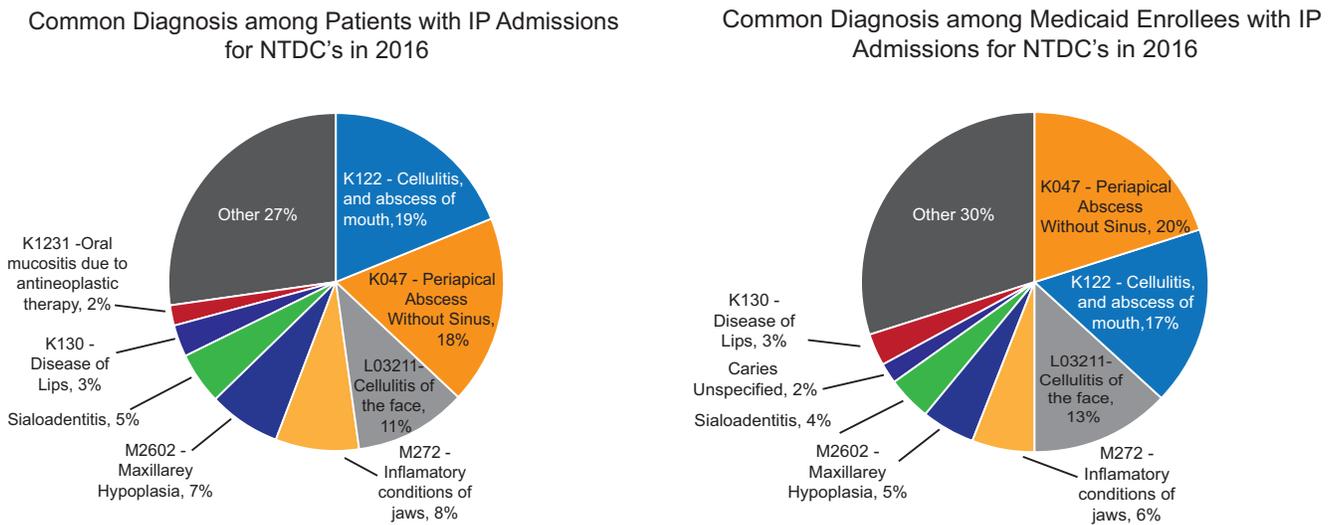


Figure 3b. Common Diagnoses among Patients with IP Admissions for NTDC's in 2016



## Socio-demographics

Patients aged 18 to 44 years visited the emergency department more than any other age group. Texas, again, does not offer dental benefits for adults so once the recipient reaches the age of 21, they are no longer eligible for coverage under the federal Medicaid Children’s Health Insurance Program (CHIP). Non-Hispanic black patients enrolled in Medicaid have the highest rate of visits to the emergency department for NTDC’s and Medicaid-enrolled, whereas, non-Hispanic white patients have the highest rate of inpatient utilization. Figures 4, 5 and 6 below, illustrate the age, payer and racial/ethnic distributions in Texas in 2016.

Figure 4. Rate of ED visits and IP Admissions for NTDC’s, by age group, in Texas, 2016.

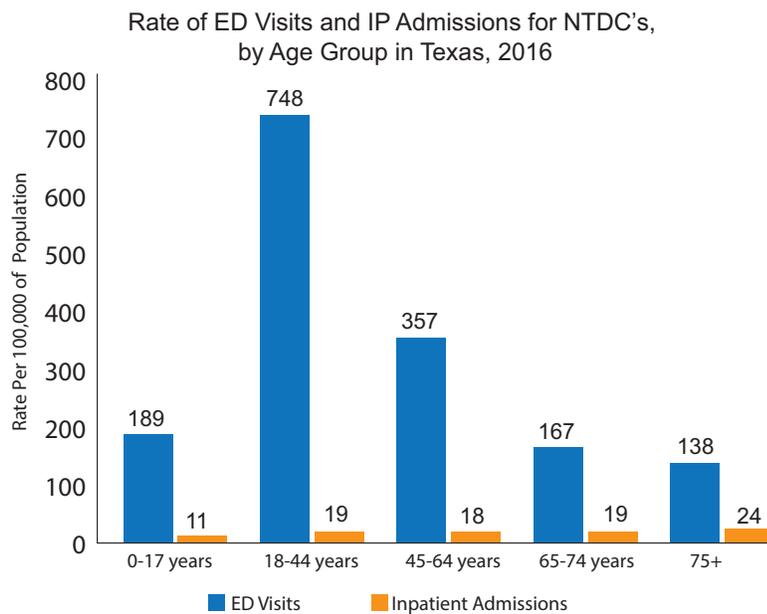


Figure 5. Rate of ED visits and IP Admissions for NTDC’s, by Age Group, Among Medicaid Recipients in Texas, 2016

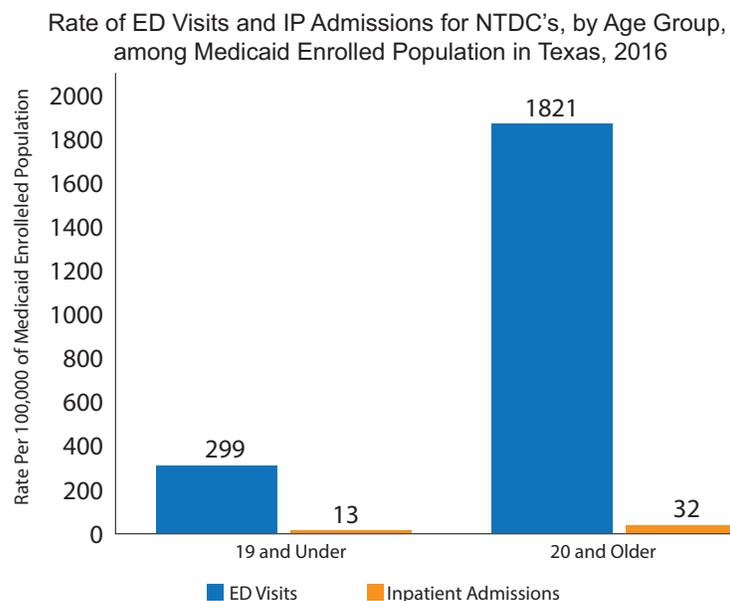
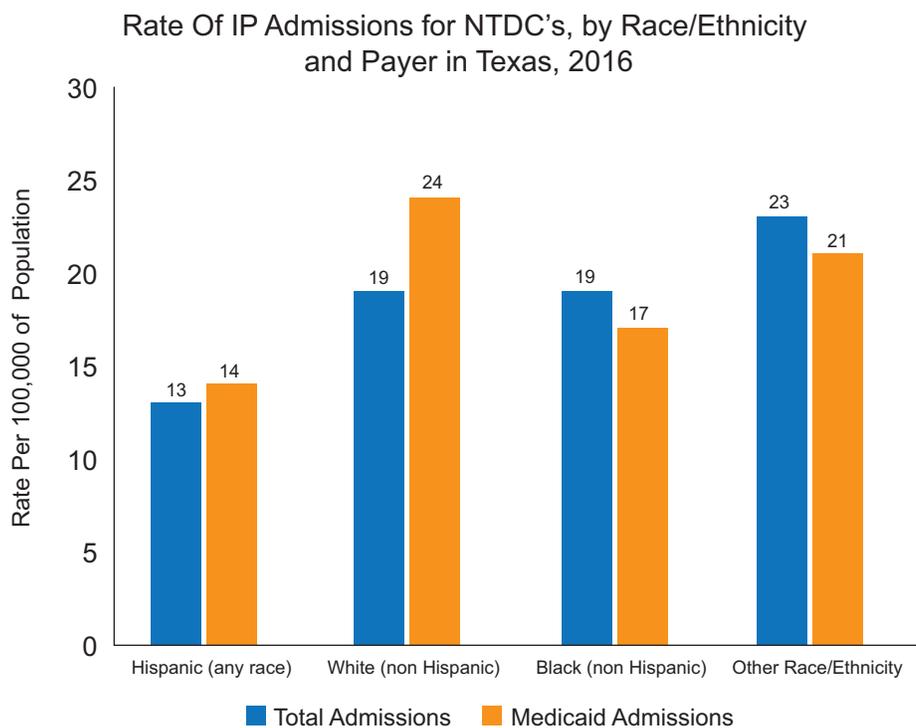
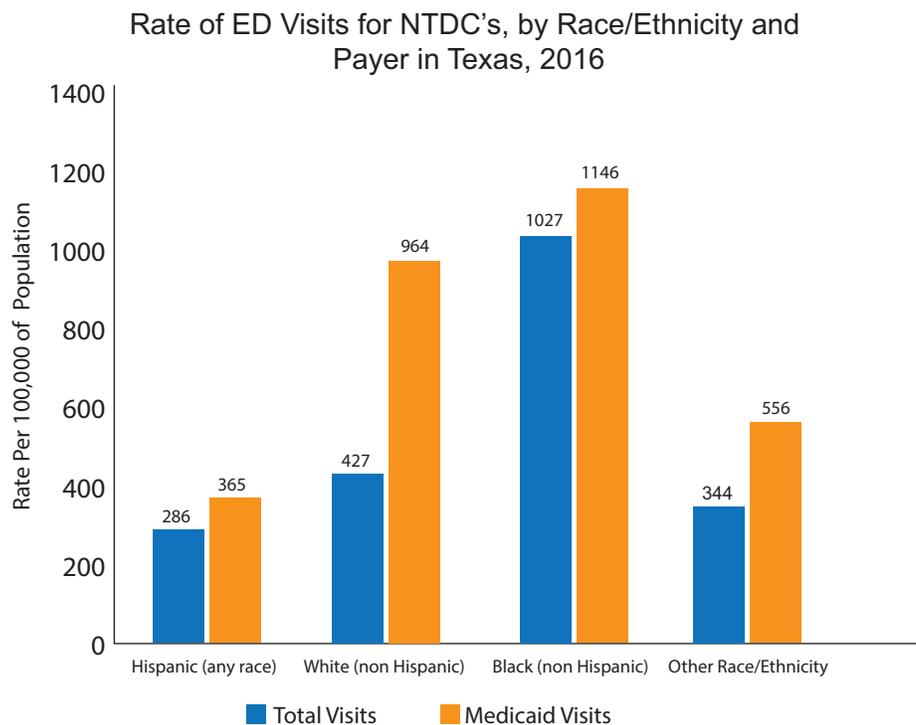


Figure 6. Rate of ED visits and IP Admissions by Race/Ethnicity and Payer, in Texas, 2016.



Seven of the ten counties with the highest rates of ED utilization among Medicaid recipients were classified as rural<sup>19</sup>. An almost identical pattern was observed among these emergency department visitors with any insurance, as shown in Figures 7 and 8 below. Figure 7 shows the rate of ED visits by Medicaid recipients in Texas for 2016, with the lightest counties showing the lowest utilization and increasing rates of utilization in darker blue while Figure 8 shows the same among all insurance types, in green.

Figure 7. Rate of ED Visits among Medicaid Enrolled Patients in Texas, by County, 2016

Rate of ED Visits Among Medicaid Enrolled Patients in Texas Counties, 2016

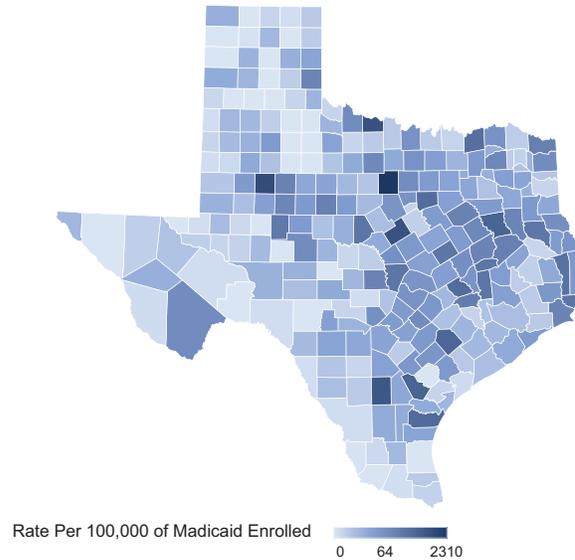
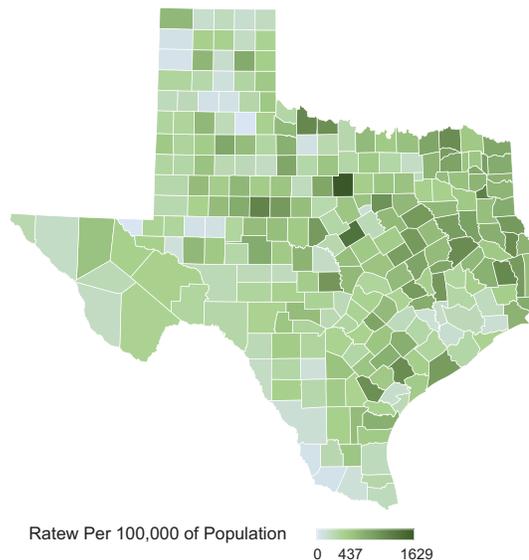


Figure 8. Rate of ED Visits in Texas for all Payers, by County, 2016

Rate of ED Visits in Texas Counties, 2016



# Conclusion

This data offers a unique look at a muddled landscape. Public insurance bears the brunt of the burden for more than a third of all charges for emergency and inpatient treatment for non-traumatic dental conditions in the state of Texas. It is important to understand that a majority of these conditions are entirely preventable with routine dental care and ought to be treated in the dental clinic instead of a hospital emergency department or inpatient facility. Shifting the focus from one of retrospective treatment to a perspective that encourages prospective, preventive disease management will not only reduce the inefficiencies in the way we utilize our healthcare resources but could positively impact the overall health and well-being of all Texans.

# Acknowledgements

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## Texas Health Institute

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