



Use of Ohio Hospital Emergency Departments for Oral Health Problems, 2016-2019

Ohio | Department of Health

Summary

Oral diseases are most effectively prevented and treated in dental care settings where comprehensive services can be provided. Yet, there are challenges in obtaining care in these settings for some, such as cost, lack of private or public dental insurance coverage, and difficulty in taking time off from work to go to dental appointments.¹ These challenges may lead individuals to visit an emergency department (ED) to seek relief from dental pain and related conditions. The use of a hospital ED for an oral health problem may not result in definitive oral health care that eliminates the problem; rather, short-term measures may be offered such as the prescription of antibiotics to slow infection or pain medications to provide short-term relief. Repeated visits to the ED for the same problems may occur.

The Ohio Department of Health's Oral Health Program used hospital emergency department data from 2016-2019 to assess the use of EDs for oral health problems in Ohio. Key findings from this analysis indicate that:

- Ohio's rate of hospital visits for non-traumatic dental conditions (NTDC) decreased significantly from 998.7 per 100,000 Ohio residents in 2016 to 734.1 per 100,000 residents in 2019. Reasons for this decline are not clear but are consistent with recent national data.² Despite the overall decline in the rate of hospital visits for NTDCs in Ohio, disparities persist.
- The NTDC hospital visit rate for non-Hispanic Black Ohioans is more than twice that of non-Hispanic White Ohioans (1,512 per 100,000 residents vs. 637 per 100,000 residents, respectively).
- 85% of hospital visits for dental care in Ohio were for Caries (tooth decay), Periodontal or Associated Preventive Procedures (CPP) diagnoses. Besides diagnoses of dental caries and gingival and periodontal diseases (diseases of the gums and bone surrounding the teeth), other diagnoses in this category include loss of teeth (not due to trauma), endodontic care (treatment of the dental pulp inside a tooth), and preventive procedures such as a dental prophylaxis (cleaning) or an examination. These diagnoses represent procedures or treatment commonly provided in non-emergent dental care settings and are largely preventable with routine dental care.
- More than one half of all NTDC-related hospital visits were by Medicaid-insured patients.

Rates of ED visits for Oral Health Problems

Between 2016 and 2019, there were a total of 391,223 hospital encounters in Ohio with a primary diagnosis for a NTDC -- an overall rate of 838.0 hospital visits per 100,000 residents during this period (a primary diagnosis is the main reason why the person went to the ED). As seen in Figure 1, the annual rate of hospital visits for a NTDC decreased significantly from 2016 to 2019.

¹ Disparities in Oral Health. Centers for Disease Control and Prevention. https://www.cdc.gov/oralhealth/oral_health_disparities/index.htm. Accessed 4.10.23.

² Recent Trends in Hospital Emergency Department Visits for Non-Traumatic Dental Conditions. CareQuest Institute for Oral Health. <https://www.carequest.org/resource-library/recent-trends-hospital-emergency-department-visits-non-traumatic-dental-conditions>. Accessed 4.10.23.

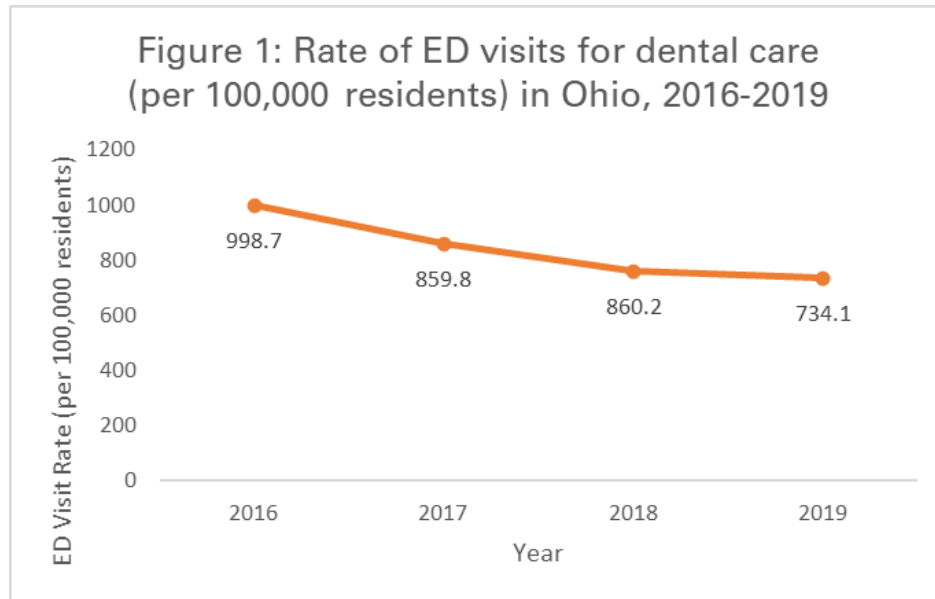


Figure 1. Rate of hospital visits for dental care (per 100,000 residents) in Ohio, 2016-2019. Rate calculated using total number of hospital encounters with a primary diagnosis for a NTDC and yearly population estimates.

Reason for Hospital Visits

Most hospital visits for NTDCs in Ohio were for CPP diagnoses. From 2016 to 2019, there were 332,597 hospital visits for CPPs based on the listed primary diagnosis, which corresponds to 85% of all NTDC-related hospital encounters. An additional 9,787 hospital visits had a non-primary CPP diagnosis for a total of 342,384 CPP-related visits, or 88% of all NTDC-related hospital encounters with any listed diagnosis for a CPP. Nearly 98% of all NTDC-related hospital encounters were treated in outpatient settings, with 2% requiring inpatient care.

ED Visits by Race and Ethnicity

Hospital ED visit rates for NTDCs varied widely by race and ethnicity. The NTDC hospital visit rate for non-Hispanic Black Ohioans was more than twice that of non-Hispanic White Ohioans. Non-Hispanic Black individuals utilized the hospital ED for oral health care most often, with a hospital ED visit rate of 1,511.5 visits per 100,000 population, followed by Hispanic individuals (756.1 per 100,000 population), non-Hispanic individuals of another race (667.6 per 100,000 population), and non-Hispanic White individuals (636.9 per 100,000 population) (Figure 2).

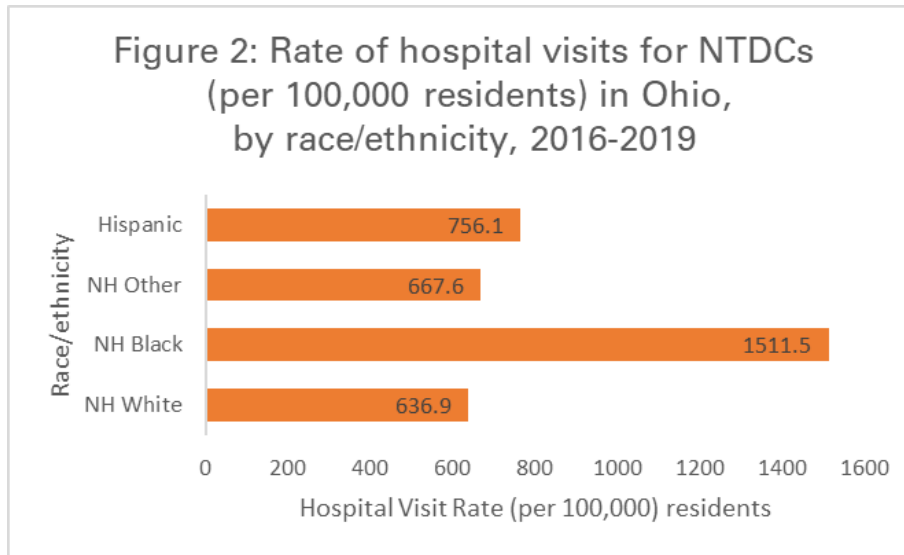


Figure 2. Rate of hospital visits for dental care (per 100,000 residents) in Ohio, 2016-2019, by race/ethnicity. Rate calculated using total number of hospital encounters with a primary diagnosis for a non-traumatic dental condition and yearly population estimates.

ED Visits by Age

Adults ages 20 to 44 years were by far most likely to visit the hospital for a NTDC, while those 65 or older were least likely. Dental visits to the ED were more common among children (<19 years) than older adults (Figure 3).

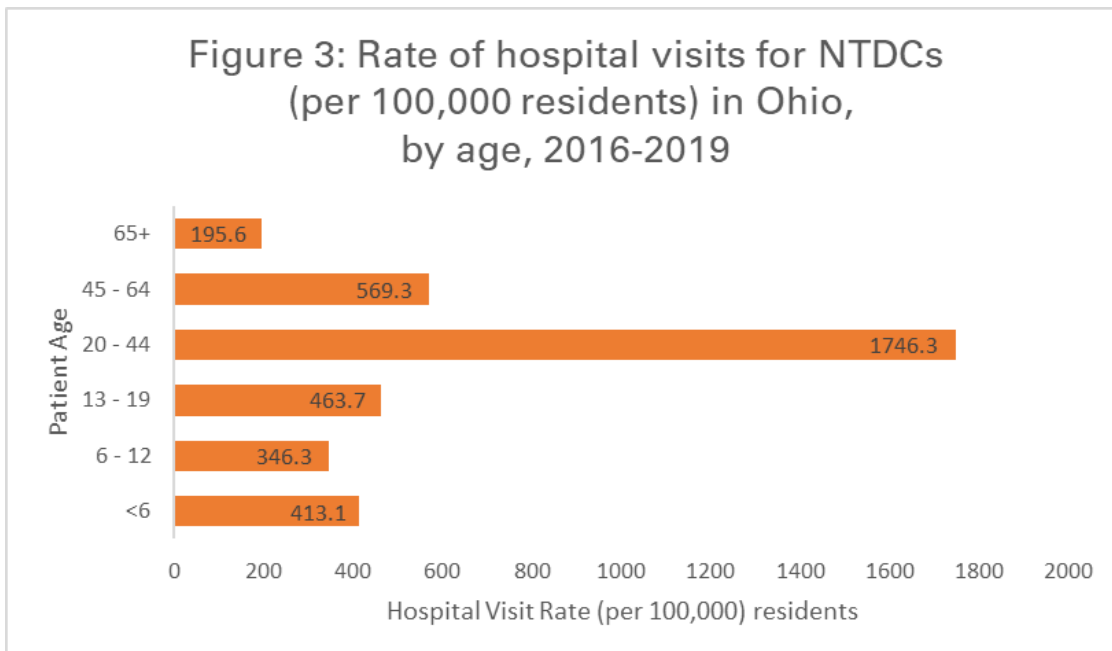
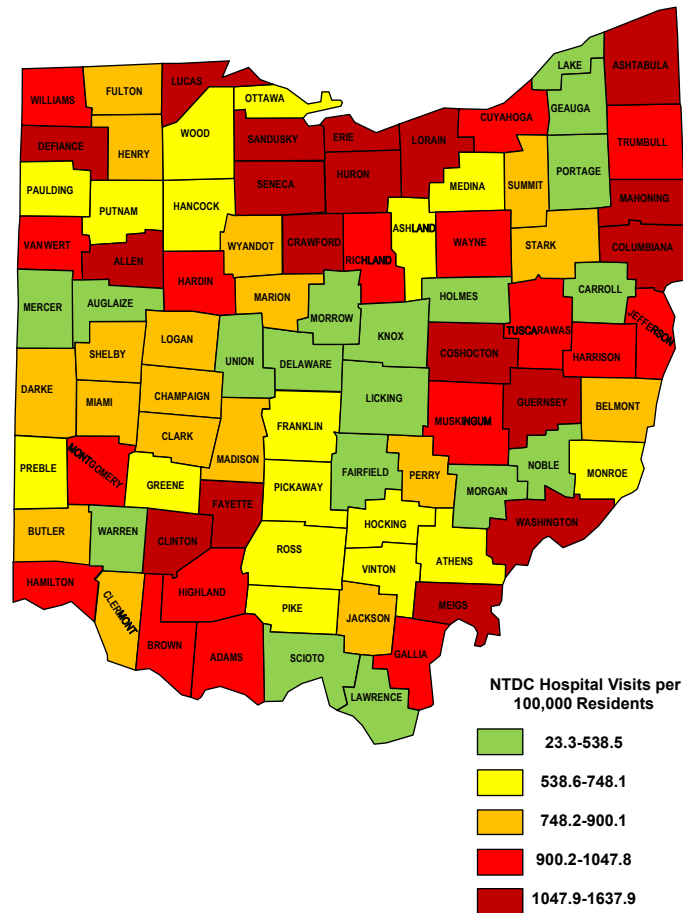


Figure 3. Rate of hospital visits for dental care (per 100,000 residents) in Ohio, 2016-2019, by age. Rate calculated using total number of hospital encounters with a primary diagnosis for a non-traumatic dental condition and yearly population estimates.

County of Residence

Rates of hospital ED visits for NTDCs varied significantly by county of residence (Figure 4). Of the 18 counties with the highest rates, 17 were in rural or partially rural counties, and seven of them were in Appalachia. Higher ED visit rates also occurred in a pocket of counties in the north central area of the state, and four urban counties (Cuyahoga, Hamilton, Lucas and Montgomery) had an ED visit rate that exceeded the state rate. Appendix A provides a list of all counties in Ohio and their rate of ED visits for NTDCs.

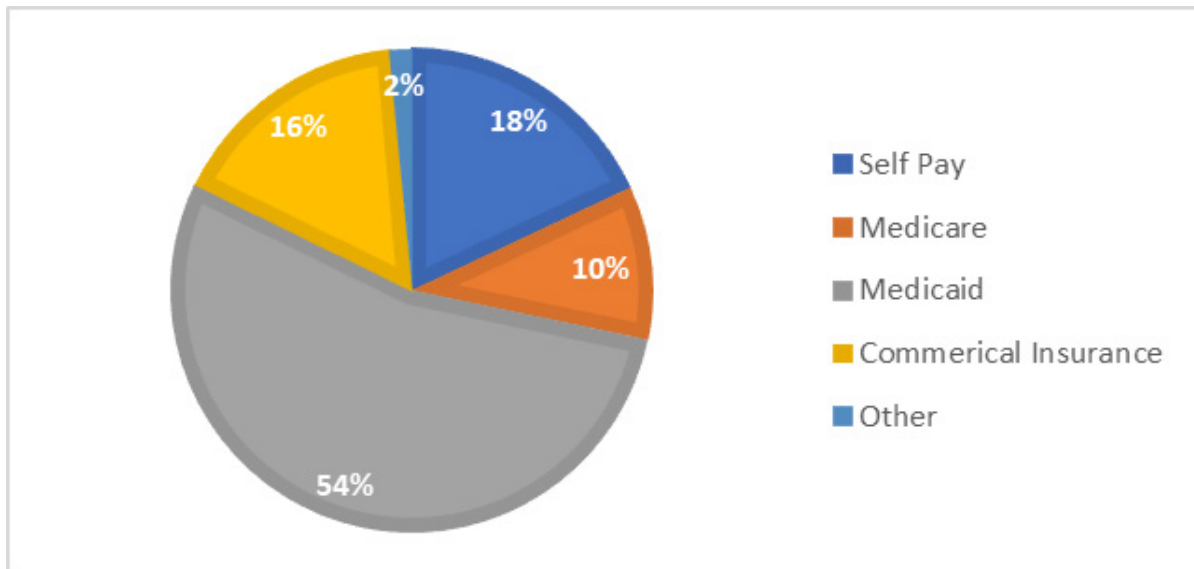
Figure 4: Rate of ED Visits by County , 2016-2019



ED Visits by Insurance

More than one half of all NTDC-related hospital visits were by Medicaid-insured patients during this period. Of the 391,223 hospital visits with a primary diagnosis for a NTDC between 2016 and 2019, the largest percentage were paid for by Medicaid (54%), followed by persons who were uninsured and paid out-of-pocket (18%); together these sources of payment covered seven in 10 persons who visited the ED for a NTDC. Coverage by private insurance (16%), Medicare (10%) and other coverage (2%) accounted for the remaining sources of insurance coverage (Figure 5).

Figure 5: Distribution of ED Visits by Insurance Coverage



Discussion

Hospital emergency department data from 2016-2019 indicate that ED visits for oral health problems, particularly for problems that could most often be taken care of in a dental office or clinic, continue to burden hospital EDs. Overall rates of ED usage for NTDCs are on the decline; however, disparities in ED usage continue to exist. Rates of ED use are highest among persons 20-44 years of age, those who are non-Hispanic Black, and those covered by Medicaid or who are uninsured. In addition, ED usage appears to be common in Appalachia and many rural counties.

Data from the Ohio Behavioral Risk Factor Surveillance System (BRFSS)³ from 2016 to 2020 (corresponding closely to the time period for the ED data presented in this report), indicate that among adults ages 25-44 years, up to 39% had not seen a dentist in the previous year. This may be for various reasons, including unemployment, working in jobs that do not offer dental insurance, and not having resources to pay for dental care out-of-pocket.⁴ These factors may be contributing to the high usage of the ED for oral health problems among the 20-44 age group.

³ Behavioral Risk Factor Surveillance System. Centers for Disease Control and Prevention. <https://www.cdc.gov/brfss/brfssprevalence/index.html>. Accessed 2.3.23.

⁴ 4 Reasons Why People Don't Go to the Dentist. Ameritas. <https://www.ameritas.com/insights/4-reasons-why-people-dont-go-to-the-dentist/#:~:text=People%20may%20put%20off%20going,as%20caregivers%20or%20are%20retired>. Accessed 4.10.23.

Although the rate of ED usage for oral health issues among children younger than six years was relatively low compared to other age groups, the rate of ED visits in this population was higher than for school-aged children and for adults older than 65 years. Findings from the most recent oral health survey of Ohio preschool-aged children⁵ revealed that 18% of parents of children ages three to five years said their child had never been to the dentist, and 23% had already experienced tooth decay by age five. Fourteen percent had tooth decay that had not been treated. Lack of a dental home⁶ for young children, coupled with the prevalence of tooth decay in this age group, may be contributing to the frequent use of the ED by children under six years of age.

Access to regular dental care remains a challenge for persons with lower incomes. BRFSS data indicates that among adults with the lowest annual incomes (<\$15,000), more than 54% had not seen a dentist in the previous year.¹ The 2019 Ohio Medicaid Assessment Survey⁷ indicates that 14% of adults had unmet dental needs, and this figure increased to 23% for low-income adults and to 26% for low-income adults with special healthcare needs. Unmet dental needs were higher among persons residing in Appalachian counties; ED visits for dental problems were also found to be more common in several Appalachian counties.

Safety net dental programs, such as public dental clinics, school-based dental care, and mobile/portable dental care programs, can be a source of dental care for persons with lower incomes and those who face challenges in accessing dental providers such as in rural counties. Safety net dental programs provide dental care to patients covered by Medicaid, and offer sliding-fees, reduced fees, or free care to patients who cannot afford to pay a private dentist. They serve an extremely important role in serving patients who often have no other source of care.

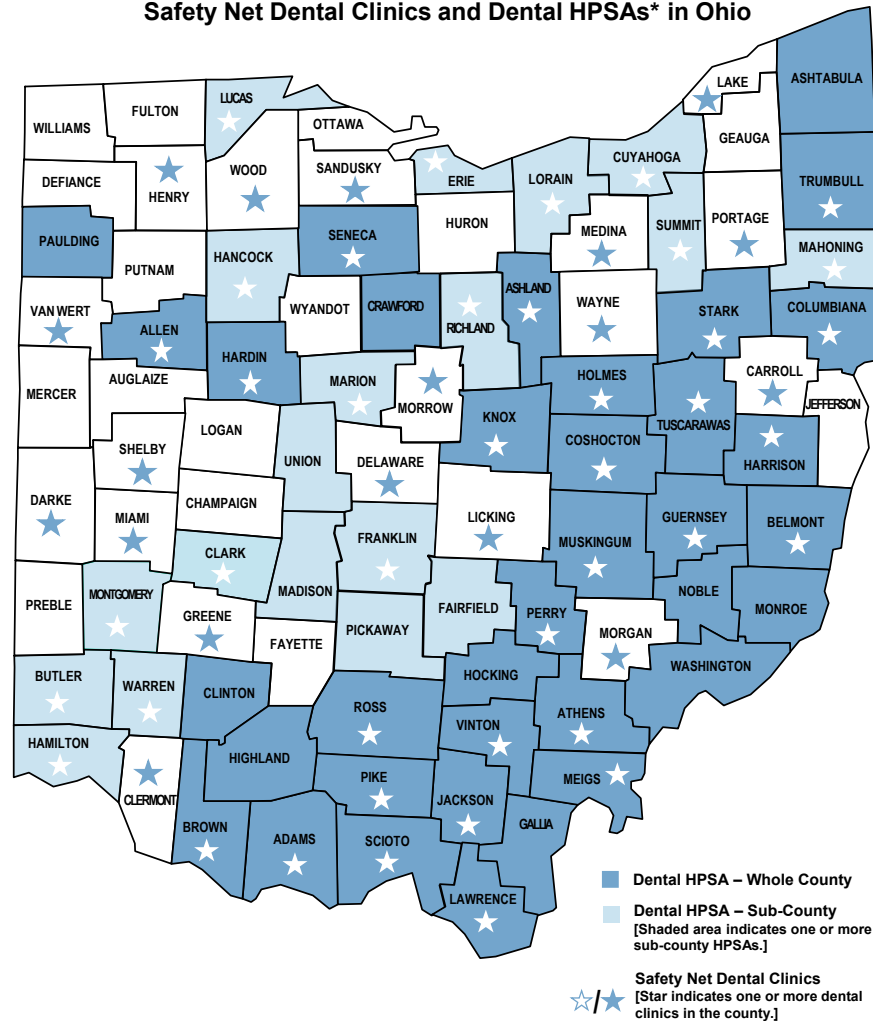
Many safety net dental programs are in areas that have been designated as Dental Health Professional Shortage Areas (DHPSAs), areas where there are too few dentists to meet the needs of residents. As seen in the map below of safety net dental programs and DHPSAs in Ohio, safety net providers are distributed unevenly across the state, with some counties not having one safety net program. Fourteen counties in Ohio currently designated as DHPSAs do not have a safety net program. Six of these counties have higher rates of ED usage for NTDCs than the state rate.

⁵ Oral Health Screening Survey of Preschool-Age Children, 2016-17. Ohio Department of Health. <https://odh.ohio.gov/know-our-programs/oral-health-program/media/oral-health-screening-survey-of-preschool-age-children-in-ohio>. Accessed 2.3.23.

⁶ A dental home is defined as “the ongoing relationship between the dentist and the patient, inclusive of all aspects of oral health care delivered in a comprehensive, continuously accessible, coordinated, and family-centered way.” <https://www.aapd.org/research/oral-health-policies--recommendations/Dental-Home/>. Accessed 12.5.22.

⁷ Ohio Medicaid Assessment Survey. Ohio Colleges of Medicine Government Resource Center. <https://grcapps.osu.edu/app/omas>. Accessed 2.2.23.

Safety Net Dental Clinics and Dental HPSAs* in Ohio



*A dental HPSA (health professional shortage area) is a federally designated geographic area, population or facility with a shortage of primary dental health care providers.

Map current as of June 2023

The OHA data indicates that persons covered by Medicaid make up the largest percentage of those who visit the ED for NTDCs. Finding a dentist who accepts Medicaid is a challenge in many areas of the state. In 2017 (most recent data available), only 14% of Ohio dentists saw more than 100 Medicaid patients in a year.⁸

Visits to the ED for NTDCs are expensive and may not provide long-term benefit in terms of improved oral health.⁹ At an average cost of \$1,887 per ED visit in the U.S.¹⁰, the total cost of visits for oral health problems in Ohio not associated with trauma from 2016-2019 are estimated to be \$738 million.

⁸ State Oral Health Plan. Oral Health Ohio. <https://www.oralhealthohio.org/sohp>. Accessed 2.2.23.

⁹ Policy Statement: Reducing Emergency Department Utilization for Non-Traumatic Dental Conditions Association of State and Territorial Dental Directors Adopted: January 22, 2020. Association of State and Territorial Dental Directors. <https://www.astdd.org/docs/reducing-emergency-department-utilization-for-non-traumatic-dental-conditions-january-2020.pdf>. Accessed 4.10.23.

¹⁰ Recent Trends in Hospital Emergency Department Visits for Non-Traumatic Dental Conditions. CareQuest Institute for Oral Health. https://www.carequest.org/system/files/CareQuest_Institute_Recent-Trends-in-Hospital-ED-Visits_6.7.22_FINAL.pdf. Accessed 12.16.22

Data Sources and Methods

This report contains data from the Ohio Statewide Clinical-Financial Data Base, provided by the Ohio Hospital Association. A limited dataset was provided to ODH for use in this analysis, containing data on all Ohio hospital encounters with any NTDC diagnosis between 2016 and 2019. This limited dataset includes data related to patient age, race and ethnicity, county of residence, sex, and details of the hospital encounter. Population estimates to calculate hospital visit rates were obtained from the CDC Wonder online database. For this analysis, bridged-race population estimates were used, produced by the U.S. Census Bureau in collaboration with the CDC National Center for Health Statistics.

Limitations

The Ohio Hospital Association database uses unique identifiers associated with each hospital encounter, not a specific person. It is impossible to determine which hospital encounters are repeat visits by the same person or the overall extent of repeat visits to hospitals for oral health care services.

Definitions

Non-traumatic Dental Condition (NTDC): Includes caries (tooth decay), periodontal disease, erosion, occlusal anomalies, cysts, impacted teeth, teething, and all other non-traumatic conditions associated with the oral cavity. Diagnoses that are deemed due to trauma are excluded from this definition.

Caries, Periodontal or Associated Preventive Procedures (CPP): Includes only those conditions directly associated with dental caries, periodontal disease, or preventive procedures associated with these diseases that are routinely provided in a dental clinic setting.

Hospital Visit Rate: Number of hospital encounters with a primary diagnosis for an NTDC per 100,000 population.

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Appendix

Appendix A.

Table 1. NTDC Hospital Visits per 100,000 Residents by County, Ohio, 2016-2019
(Overall rate for Ohio is 838.0 hospital visits per 100,000 residents.)

County	NTDC Hospital Visit Rate per 100,000 Residents
Adams County	904.5
Allen County	1412.2
Ashland County	652.8
Ashtabula County	1426.1
Athens County	605.1
Auglaize County	424.4
Belmont County	825.3
Brown County	928.8
Butler County	751.3
Carroll County	337.4
Champaign County	762.2
Clark County	896.6
Clermont County	771.7
Clinton County	1126.9
Columbiana County	1219.8
Coshocton County	1536.8
Crawford County	1366.1
Cuyahoga County	999.1
Darke County	843.8
Defiance County	1091.6
Delaware County	228.3
Erie County	1214.9
Fairfield County	533.2
Fayette County	1174.2
Franklin County	695.9
Fulton County	799.8
Gallia County	981.9
Geauga County	230.7
Greene County	604.1
Guernsey County	1124.8
Hamilton County	909.7
Hancock County	735.6
Hardin County	912.4
Harrison County	1035.6
Henry County	899.1
Highland County	1005.2

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Hocking County	583.6
Holmes County	488.7
Huron County	1306.9
Jackson County	874.3
Jefferson County	962.3
Knox County	501.5
Lake County	466.4
Lawrence County	23.3
Licking County	387.4
Logan County	826.5
Lorain County	1051.6
Lucas County	1469.9
Madison County	794.6
Mahoning County	1244.9
Marion County	859.9
Medina County	546.7
Meigs County	1183.4
Mercer County	376.5
Miami County	812.1
Monroe County	628.3
Montgomery County	944
Morgan County	501
Morrow County	503.8
Muskingum County	998.7
Noble County	421.3
Ottawa County	675.6
Paulding County	636.8
Perry County	754
Pickaway County	687.4
Pike County	642.7
Portage County	471.4
Preble County	715.3
Putnam County	616.1
Richland County	929.1
Ross County	670.2
Sandusky County	1099.9
Scioto County	466.6
Seneca County	1637.9
Shelby County	795.5
Stark County	787.7
Summit County	793

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Trumbull County	1025.8
Tuscarawas County	1042.4
Union County	403.3
Van Wert County	919.3
Vinton County	698.5
Warren County	399.9
Washington County	1094.3
Wayne County	960.4
Williams County	938.6
Wood County	574.7
Wyandot County	858.5