



# **Oral Health Status of Florida's Third Grade Children 2016-2017**



## Acknowledgements:

### Authors:

Louiza Saint-Hillien, MPH  
Abigail Holicky, MPH

### Screening Planning and Design:

Jennifer Wahby, MPH

### Technical Assistance:

Association of State and Territorial Dental Directors (ASTDD)  
Christine Wood, RDH, BS  
Executive Director

Dr. Michael C. Manz, DDS, MPH, DrPH  
Epidemiologist and Consultant

Florida Dental Hygienists' Association (FDHA)  
Tami Miller, BS, CRDH  
Executive Director

### Implementation and Screening:

Lori Brusoki, CRDH, BS  
Joleyn Carriveau, RDH, BS  
Danielle Driscoll, RDH, MHL  
Karen Hodge, RDH, MS  
Betty Kabel, RDH, BS  
Beryl Sue Kassoff-Correia, CRDH, BS  
Melissa Kincaid, RDH  
Patricia McGrath, RDH  
Monica Meyer, RDH  
Debbie Nastelli, MS, CRDH  
Kim Poon, RDH  
Beth Rucker, RDH  
Michele Ryan, CRDH, MEd  
Paula Schad, RDH  
Becky Smith, CRDH, EdD  
Lisa Swisher, RDH  
Cindy Wampler, CRDH, MS

A special thanks to volunteer dental hygiene students from the following schools: Eastern Florida State College, Florida State College of Jacksonville, Hillsborough Community College, Miami Dade College, St. Petersburg College, State College of Florida Manatee-Sarasota, and Valencia College.

This project is supported in part by Florida's Title V Maternal and Child Block Grant.

Suggested Citation: Florida Department of Health Public Health Dental Program. (2018). *The Oral Health Status of Florida's Third Grade Children 2016-2017*.

The Public Health Dental Program: [www.flhealth.gov/dental](http://www.flhealth.gov/dental) or 850-245-4333



# Table of Contents

<b>Executive Summary</b> .....	1
Key Findings.....	1
<b>Introduction</b> .....	2
<b>Methodology</b> .....	3
Basic Screening Survey .....	3
Sampling Procedure.....	3
Screening Methods.....	4
Data Analysis .....	5
<b>Results</b> .....	6
Demographic Characteristics of Participating Children .....	6
Oral Health Indicators.....	7
<b>National Status</b> .....	12
<b>Limitations</b> .....	14
<b>Recommendations</b> .....	14
<b>References</b> .....	15
<b>Appendices</b> .....	17
Appendix A: Consent and Questionnaire Form for Parents.....	17
Appendix B: Third Grade Oral Health Screening Form .....	19
Appendix C: Screening Results Letter Sent to Parents.....	20
Appendix D: Other Indicators from Parent Questionnaire .....	21
Chronic Conditions and/or Developmental Delays .....	21
Children’s Grades in School.....	22
Last Dental Visit.....	22
Toothache.....	23
Reason for Last Dental Visit.....	23
Emergency Room Visit.....	24
Reason for Not Seeking Care .....	24
Days of School Missed.....	25
Days of Work Missed .....	25

## Executive Summary

During the 2016-2017 school year, the Florida Department of Health's Public Health Dental Program (PHDP) completed its second statewide oral health surveillance of Florida's third grade children. The "Florida 2016-2017 Third Grade Oral Health Screening Project" was conducted in 42 selected public elementary schools across 19 Florida counties and had an overall participation rate of 28.4%. Dental screenings were provided by contracted Florida Dental Hygienists' Association Registered Dental Hygienists (RDHs) following the Association of State and Territorial Dental Directors' Basic Screening Survey (BSS) protocols.

### Key Findings:

- Approximately one in four children (25.1%) had untreated decay.
  - The prevalence of untreated decay was highest for non-Hispanic Black children (34.6%) and for children without any dental insurance (32.8%).
- Nearly half of children (45.5%) had dental caries (treated or untreated decay).
  - More than half of children from schools with the highest percent of students enrolled in free/reduced lunch had caries experience (52.2%).
  - Children reporting toothaches had the highest rate of dental caries experience (68.1%).
- Over a third of children (40.1%) had at least one dental sealant.
  - The prevalence of dental sealants was highest for children from schools with less than 25% of students enrolled in free/reduced lunch (52.5%).
- Early dental treatment need among Florida's third grade population was 20.6%.
- Urgent dental treatment need among Florida's third grade population was 3.0%.
- Children covered with private dental insurance had the lowest rate of each oral indicator of need and the highest rate of dental sealants compared to children who had Medicaid or no dental insurance.

Florida's overall third grade population estimates are in alignment with the Healthy People 2020 goals related to the prevalence of untreated decay, dental caries, and dental sealants among 6-9 year old children (Table 1).

<b>Table 1. Oral Health Status of Florida's Third Grade Population compared to National Healthy People 2020 Goals</b>		
<b>Oral Health Indicator</b>	<b>Florida's Status 2016-2017</b>	<b>National Target for 6-9 Year Olds based on Healthy People 2020 Goals<sup>1</sup></b>
<b>Dental Caries Experience</b>	45.5%	49.0%
<b>Untreated Dental Decay</b>	25.1%	25.9%
<b>Dental Sealants</b>	40.5%	28.1%

<sup>1</sup> U.S. Department of Health and Human Services, 2015

## Introduction

Oral health is essential to general health and well-being. There is a strong correlation between poor oral health status and other systemic diseases, such as diabetes, heart disease, respiratory disease, stroke, and preterm and low-weight births.<sup>2</sup> Tooth decay (dental caries) is a transmissible, infectious oral disease resulting from an imbalance of multiple risk factors and protective factors over time.<sup>3</sup> Though the prevalence and severity of tooth decay has declined among school-aged children in recent years, it remains a significant problem in some populations, particularly among certain racial and ethnic groups and low-income children.<sup>4</sup>

Dental caries (tooth decay) remain the most common preventable chronic infectious disease among young children and adolescents in the United States; dental caries are five times more common than asthma.<sup>4</sup> Nationally in 2015-2016, approximately 43.1% of youth aged 2-19 years had dental caries (untreated and treated decay) in their primary or permanent teeth.<sup>5</sup> Among children aged 6-11 years, 45.2% had dental caries and 15.3% had untreated decay, with rates for Black and Hispanic children being higher than for White and Asian children.<sup>5</sup> If dental decay is left untreated, it can cause pain and infection leading to problems with chewing, swallowing, speaking, and learning. These problems jeopardize children's physical growth, self-esteem, and capacity to socialize.<sup>2</sup>

Poor oral health is also associated with missing school and poor school performance. It is estimated that U.S. children miss more than 51 million school hours annually due to dental problems.<sup>6</sup> Children with poor oral health are three times more likely to miss school and four times more likely to perform poorly when compared to their healthy counterparts.<sup>7</sup> Additionally, parents miss on average 2.5 days from work per year due to their children's dental problems.<sup>8</sup>

A cost-effective way of preventing tooth decay are dental sealants. Dental sealants are thin protective coatings that adhere to the chewing surfaces of the back teeth (molars) and prevent the acid of leftover food particles from creating holes, or cavities, in the teeth.<sup>9</sup> Dental sealants can prevent up to 80% of cavities and protect teeth for several years.<sup>10</sup> While children with dental sealants have increased over time, low income children are 20% less likely to have them and are twice more likely to have untreated decay than high-income children.<sup>10</sup> Barriers from receiving dental sealants or other dental care include the lack of access to dental services, dental care costs, and inadequate oral health literacy.<sup>2</sup>

Oral health data are needed for ongoing surveillance, establishing the burden of oral health disease, and informing statewide programmatic planning efforts. To address the need for state level oral health surveillance data, the Florida Department of Health's Public Health Dental Program (PHDP) has established a surveillance system for monitoring oral health status, risk factors, and access to dental services among various populations. The PHDP has completed surveillance projects on third grade children (2013-2014), Early Head Start and Head Start children (2014-2015) and older adults in congregate meal sites (2015-2016). This is Florida's second statewide oral health surveillance of Florida's third grade children. The following

---

<sup>2</sup> U.S. Department of Health and Human Services Oral Health Coordinating Committee, 2016

<sup>3</sup> Heymann, H.O., 2014

<sup>4</sup> Benjamin, R.M., 2010

<sup>5</sup> Fleming E., Afful J., 2018

<sup>6</sup> U.S. Department of Health and Human Services, 2000

<sup>7</sup> Jackson, S., 2011

<sup>8</sup> Seirawan, H., 2012

<sup>9</sup> Mark, A., 2016

<sup>10</sup> Centers for Disease Control and Prevention, "Dental Sealants Prevent Cavities," 2016



sections of this report detail project specifics including the methodology, results, limitations, and recommendations.

## Methodology

### Basic Screening Survey

The Florida 2016-2017 Third Grade Oral Health Screening Project was based on the Basic Screening Survey (BSS) tool supported by the Association of State and Territorial Dental Directors (ASTDD). The primary purpose of the BSS tool is to provide state and local health jurisdictions with a consistent model for monitoring oral disease in a timely manner, at the lowest possible cost, with minimum burden on survey participants, and that will support comparisons within and between states.<sup>11</sup> The goal of the BSS is to obtain regional and statewide estimates of the oral health status in children.

The BSS is designed to capture information on the following dental indicators that are directly related to oral health status in children.<sup>12</sup>

1. Untreated Decay: screener can readily observe breakdown of the enamel surface
2. Treated Decay: screener can observe previous treatment of decay such as amalgam and/or composite restorations, temporary restorations, crowns, teeth missing due to decay
3. Caries Experience: prevalence of untreated or treated decay
4. Dental Sealants on permanent molars: presence of partially and fully retained dental sealants
5. Urgency of Need for Dental Care: early dental care (needs to see a dentist within the next several weeks because of untreated decay or broken restorations) or urgent care (needs dental care within 24 to 48 hours because of signs and symptoms that include pain, infection, or swelling)

### Sampling Procedure

A representative statewide sample of Florida's public elementary schools was used to identify third grade children. Enrollment data by school for the 2016-2017 academic year was provided by the Florida Department of Education (DOE). A Stratified Probability Proportional to Size sample (PPS) design was used to select the representative statewide sample of schools, with the enrollment data from DOE used to construct the sample frame. The list of schools was sorted by region and then by school free/reduced lunch percentage (the percentage of students in each school who receive free or reduced lunch) within each region to achieve geographic and socio-economic status (SES) stratification.

With a random start, a systematic sampling was used to select a school in each sampling interval by means of a calculated sampling interval used through the cumulative enrollment of the sorted list, for a total of 42 selections. Schools were contacted and consented to participate in the survey. Schools that refused to participate were replaced with a random PPS school selection from the same sampling interval as the refusing school.

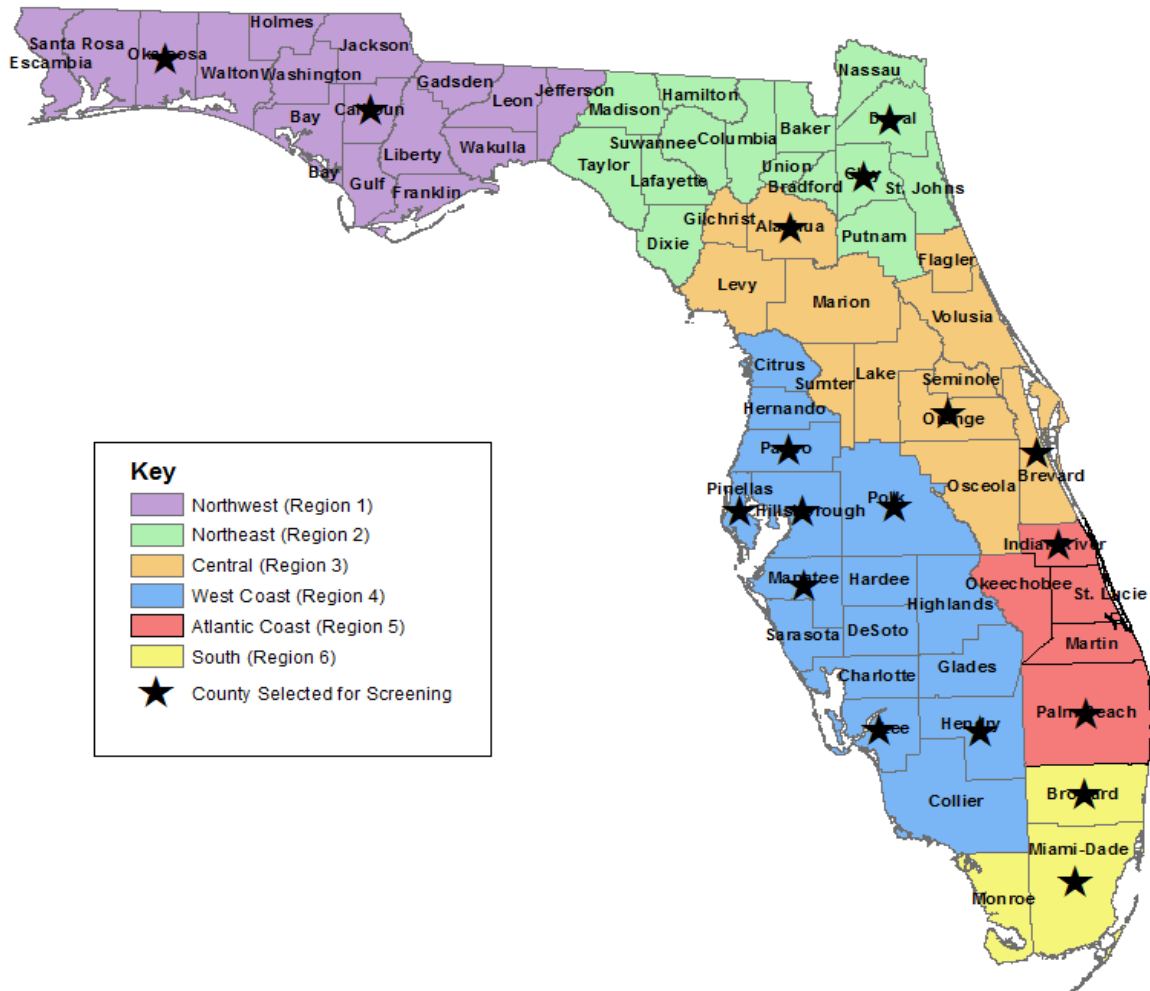
---

<sup>11</sup> ASTDD, 2011

<sup>12</sup> ASTDD, 2008

The regional designations used for the Florida 2016-2017 Third Grade Oral Health Screening Project and the counties selected to participate are shown in Figure 1.

**Figure 1. Florida 2016-2017 Third Grade Oral Health Surveillance Region Map and Selected Counties**



The number of public elementary schools selected for each region are listed below:

- Northwest: 2
- Northeast: 5
- Central: 9
- West Coast: 12
- Atlantic Coast: 4
- South: 10

### Screening Methods

After obtaining permission from the selected schools, parents of third grade children were given the opportunity for individual participation in the project. Consent forms (Appendix A), data collection forms (Appendix B), and screening results letters (Appendix C) were created based

on BSS guidelines.<sup>13</sup> Consent forms were sent to the participating schools and distributed to the children. Parents were encouraged to complete and return the consent form questionnaire even if they did not want their child to participate in the screening. Only those children returning a positive parental consent form with a parental or guardian signature were screened.

Florida licensed dental hygienists were trained in BSS guidelines and provided screenings to participating children following procedures to prevent the spread of disease as set by the Centers for Disease Control and Prevention (CDC) for this type of oral health screening. Dental gloves and masks were worn, and the dental hygienists used a disposable mirror for each child, which was thrown away after each screening. The screening was not intended to take the place of a regular dental checkup or an exam by a dentist. There were 17 hygienists who collected information on the presence of untreated decay, caries experience, dental sealants, and treatment urgency. The screenings and data were collected at the child level in accordance with BSS guidance, not the tooth level.

Maintaining screening and data collection consistency across calibrated screeners was the foundation of the project. The BSS provided a framework to collect data in a consistent manner. Data were collected in accordance with all the guidelines and policies defined in the BSS for the third grade population. This was a cross-sectional (looking at a population at a point in time) and descriptive (intended to determine estimates of oral health status for a defined population) survey. Data that were collected on screening day (via paper records) were entered into the CDC program “Epi-Info” which provides data exports into Microsoft Excel. The PHDP staff validated 100% of the screening data by comparing the paper records to the electronic data.

## Data Analysis

Data analysis was completed utilizing Statistical Analysis Software (SAS) version 9.3, a high-level data analysis tool. Outcome data were weighted and adjusted for stratification and cluster sampling effects of the sample design, probability of selection, and non-response based upon the Stratified Probability Proportional to Size sample design with a 95% Confidence Interval (CI).

Demographic indicators including age, race/ethnicity, gender, and dental insurance status of the participating children were obtained from the survey questions on the parental consent form. Participation in the free or reduced school lunch program, as reported on the consent form, was used to determine the child’s family income status. Due to low participation of children among American Indian/Alaska Native, Native Hawaiian/Pacific Islander, and multi-racial groups, their responses were combined with those of unknown race/ethnicity into an “Other” category for analysis and reporting.

---

<sup>13</sup> ASTDD, 2008



## Results

A total of 4,427 children were enrolled in third grade at the 42 participating schools. Of the enrolled third grade children, 1,685 (38.1%) returned their consent forms. Of the returned consent forms, 1,331 (79.0%) children positively consented but ultimately 1,259 (74.7%) children participated and were screened. The project had an overall participation rate of 28.4% (1,259 of 4,427) and a positive consent rate of 79.0% (1,331 of 1,685).

### Demographic Characteristics of Participating Children

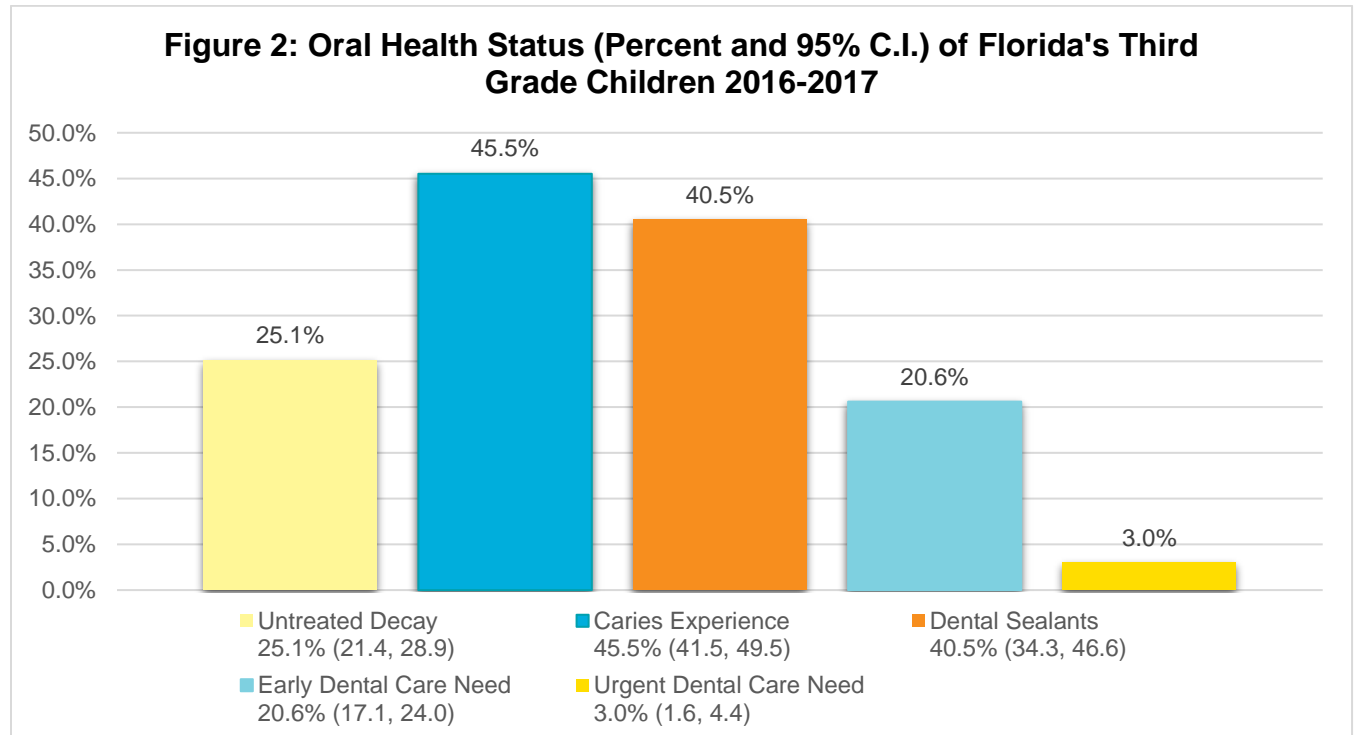
The breakdown of demographic characteristics counts of the participating children is shown in Table 2. Note: these percentages are not weighted.

<b>Characteristic</b>	<b>N (%)</b>
<b>Total Participants</b>	1,259
<b>Age (Years)</b>	
7	2 (0.2%)
8	395 (31.4%)
9	762 (60.5%)
10/11	99 (7.9%)
Missing	1 (0.1%)
<b>Gender</b>	
Male	587 (46.6%)
Female	667 (53.0%)
Missing	5 (0.4%)
<b>Race/Ethnicity</b>	
Non-Hispanic White	427 (33.9%)
Non-Hispanic Black	276 (21.9%)
Hispanic	372 (29.5%)
Asian	51 (4.1%)
Other	108 (8.6%)
Missing	25 (2.0%)
<b>Eligible for Free/Reduced Lunch</b>	
Yes	746 (59.3%)
No	347 (27.6%)
Don't Know/Don't Remember	100 (7.9%)
Missing	66 (5.2%)
<b>Dental Insurance Coverage</b>	
Private Insurance	362 (28.8%)
Medicaid	489 (38.8%)
No Insurance	173 (13.7%)
Other	11 (0.9%)
Don't Know/Don't Remember	26 (2.1%)
Missing	198 (15.7%)

The majority of the participating children were 9 years old (60.5%), female (53.0%), non-Hispanic White (33.9%), eligible for free/reduced lunch (59.3%), and had Medicaid coverage (38.8%). The average age of participating children was 8.77 years (SD: ± 0.61).

### Oral Health Indicators

The screening data were weighted to achieve regional and state-level estimates of the various indicators. The data shown in the rest of the report represent the entire third grade population attending public schools in Florida. Prevalence estimates are provided along with 95% Confidence Intervals (C.I.).



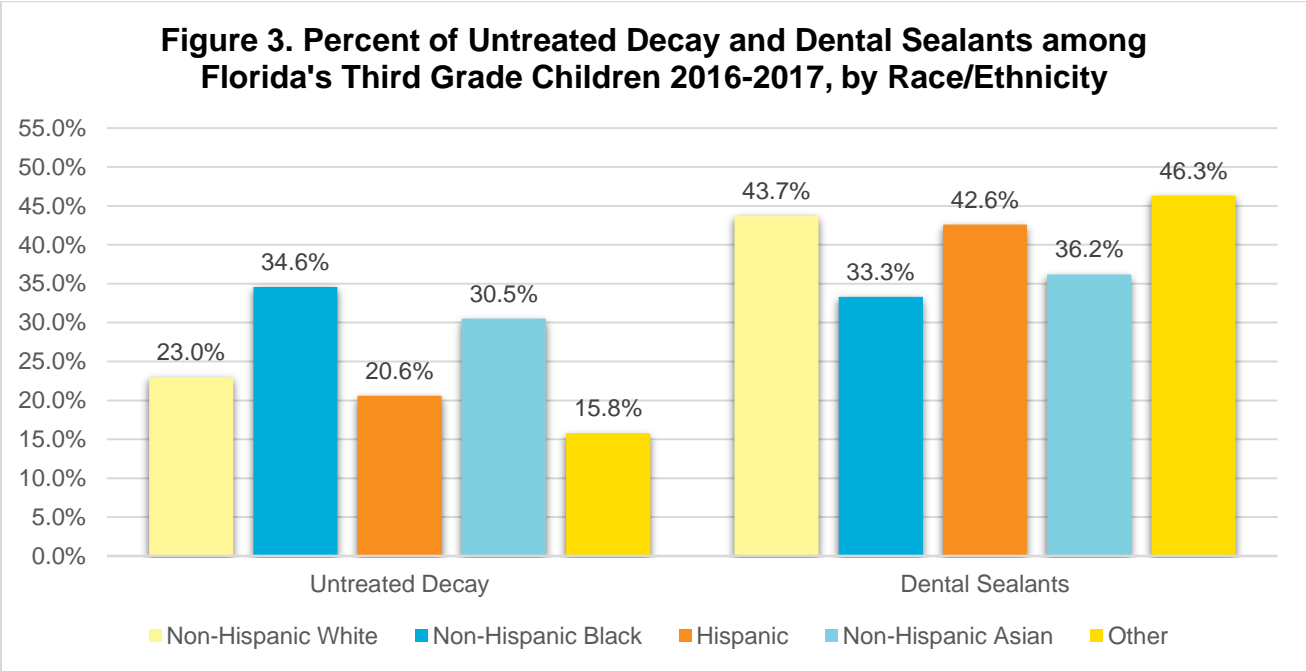
In Florida, 25.1% of third graders had untreated decay, 45.5% had caries experience, 40.5% had at least one dental sealant, 20.6% had an early dental care need, and 3.0% had an urgent dental care need (Figure 2). These oral health indicators did not vary by gender in Florida.

Among age groups, children aged 10 and 11 had the highest prevalence of untreated decay (31.7%) and the lowest prevalence of dental sealants (32.6%), however, the opposite was seen with children aged 9, who had the highest prevalence of dental sealants and the lowest prevalence of untreated decay (Table 3).

Prevalence estimates and 95% Confidence Intervals are provided for all oral health indicators by age in Table 3.

Age	Caries Experience	Untreated Decay	Dental Sealants	Early Need for Dental Care	Urgent Need for Dental Care
<b>7-8</b>	45.2% (38.6, 51.8)	27.6% (20.6, 34.6)	37.9% (30.0, 45.8)	22.3% (15.2, 29.4)	3.6% (1.3, 5.9)
<b>9</b>	45.6% (40.6, 50.6)	22.8% (19.1, 26.5)	43.0% (36.0, 50.0)	18.9% (15.9, 21.8)	2.7% (1.2, 4.1)
<b>10-11</b>	45.7% (34.9, 56.6)	31.7% (22.5, 40.8)	32.6% (23.5, 41.7)	25.4% (17.1, 33.7)	2.9% (0.0, 6.4)

There were differences observed by race/ethnicity among Florida’s third grade population, most notably among untreated decay and dental sealant prevalence estimates.



Non-Hispanic Black children had the highest percentage of untreated decay, with 34.6%, when compared to children of other racial and ethnic groups. This group also had the lowest percentage of dental sealants (Figure 3).

Prevalence estimates and 95% Confidence Intervals are provided for all oral health indicators by race/ethnicity in Table 4.

<b>Race/Ethnicity</b>	<b>Caries Experience</b>	<b>Untreated Decay</b>	<b>Dental Sealants</b>	<b>Early Need for Dental Care</b>	<b>Urgent Need for Dental Care</b>
<b>Non-Hispanic White</b>	44.2% (36.5, 51.9)	23.0% (15.2, 30.8)	43.7% (36.4, 51.0)	18.5% (11.5, 25.6)	1.5% (0.0, 3.1)
<b>Non-Hispanic Black</b>	48.6% (40.0, 57.4)	34.6% (24.7, 44.5)	33.3% (25.2, 41.5)	28.3% (17.9, 38.7)	4.4% (2.1, 6.7)
<b>Hispanic</b>	44.6% (36.5, 52.7)	20.6% (14.3, 26.8)	42.6% (32.1, 53.1)	17.3% (12.2, 22.4)	3.3% (0.6, 6.0)
<b>Non-Hispanic Asian</b>	47.7% (30.1, 65.4)	30.5% (15.7, 45.4)	36.2% (21.8, 50.7)	22.5% (5.2, 39.9)	3.9% (0.0, 8.1)
<b>Other</b>	39.5% (28.6, 49.5)	15.8% (7.7, 23.9)	46.3% (34.0, 58.6)	12.7% (7.0, 18.4)	3.7% (0.0, 7.5)

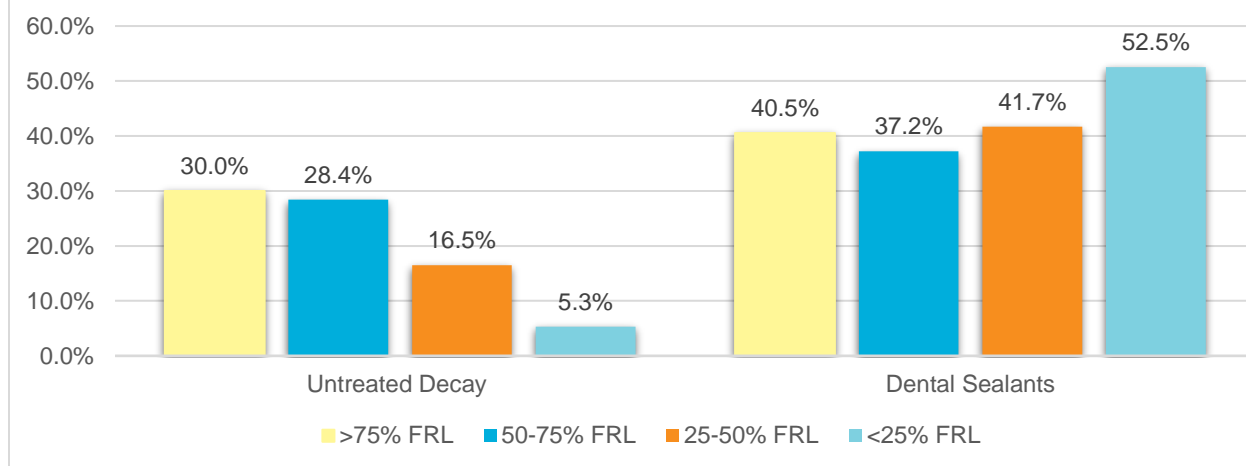
In order to observe regional estimates and assess if geographic disparities exist, the survey sample was stratified by the Florida Department of Health into six regions (Table 5). The Northwest region had the highest rates of untreated decay (53.3%), caries experience (66.1%), and early need for dental care (38.6%) in the state, but also had the highest rate of dental sealants (57.4%). The Northeast region had the lowest rate of caries experience (32.8%) and the Atlantic Coast region had the lowest rate of untreated decay (19.0%).

Prevalence estimates and 95% Confidence Intervals are provided for all oral health indicators by region in Table 5.

<b>Region</b>	<b>Caries Experience</b>	<b>Untreated Decay</b>	<b>Dental Sealants</b>	<b>Early Need for Dental Care</b>	<b>Urgent Need for Dental Care</b>
<b>Atlantic Coast</b>	41.5% (30.0, 53.0)	19.0% (9.4, 28.5)	44.0% (27.6, 60.5)	16.0% (10.5, 20.9)	4.5% (0.0, 10.6)
<b>Central</b>	43.0% (34.3, 51.8)	25.2% (15.8, 34.6)	23.9% (12.1, 35.7)	16.2% (4.9, 27.4)	0.9% (0.0, 2.0)
<b>Northeast</b>	32.8% (23.6, 42.0)	19.9% (9.3, 30.5)	46.0% (24.6, 67.5)	16.1% (8.2, 24.1)	3.8% (0.0, 9.0)
<b>Northwest</b>	66.1% (49.3, 82.9)	53.3% (31.2, 75.5)	57.4% (33.2, 81.7)	38.6% (7.7, 69.5)	8.8% (7.5, 10.0)
<b>South</b>	36.3% (28.1, 44.5)	23.3% (17.3, 29.3)	44.5% (32.5, 56.5)	19.8% (16.3, 23.4)	3.8% (0.1, 7.5)
<b>West Coast</b>	58.3% (50.1, 66.5)	26.2% (19.4, 32.9)	43.2% (30.8, 55.6)	25.0% (20.3, 29.7)	2.0% (0.0, 4.1)

The percentage of students receiving free and/or reduced lunch (displayed as FRL percentage in Table 6) at the selected schools was used as a proxy for individual student income and poverty status. These variables are highly correlated with poor oral health outcomes.

**Figure 4. Percent of Untreated Decay and Dental Sealants among Florida's Third Grade Children 2016-2017, by FRL Status**



There was a direct relationship observed between untreated decay and FRL percentage (Figure 4); as the FRL percentage increased, so did the percentage of untreated decay and other oral health indicators of need. The opposite relationship was seen for dental sealants; the percentage of dental sealants was highest in the FRL <25% category (52.5%) and lowest in the FRL 50-75% category (37.2%).

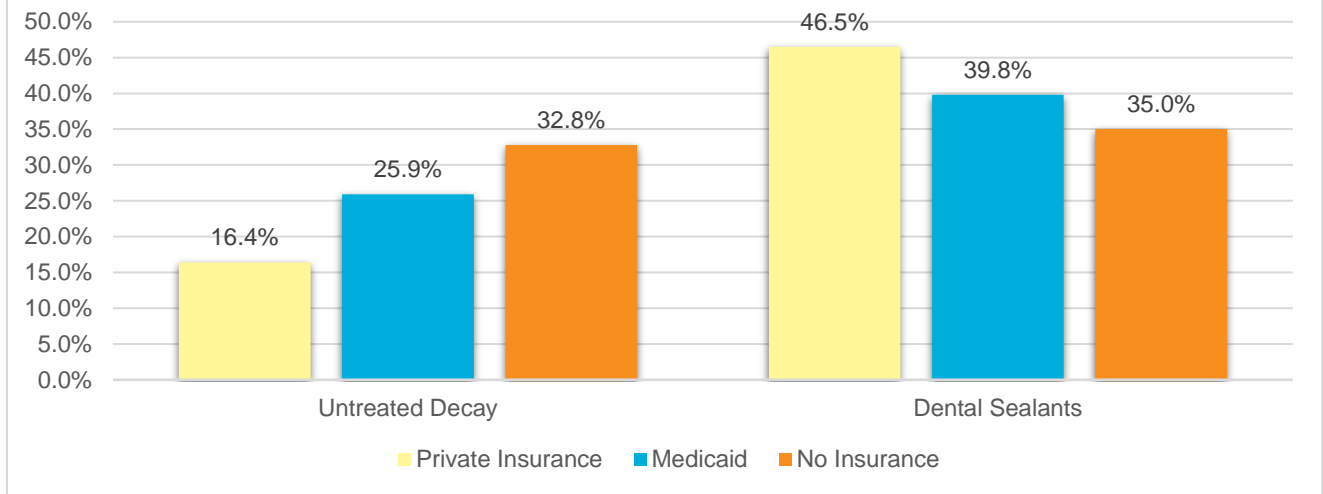
Prevalence estimates and 95% Confidence Intervals for all of the oral health indicators by the percentage of students receiving free/reduced lunch are provided in Table 6.

**Table 6. Prevalence (95% Confidence Interval) of the Oral Health Indicators, by Free/Reduced Lunch Percentage of School**

Free/Reduced Lunch (FRL) Percentage	Caries Experience	Untreated Decay	Dental Sealants	Early Need for Dental Care	Urgent Need for Dental Care
<b>FRL &gt;75%</b> <i>Lowest income</i>	52.2% (46.3, 58.0)	30.0% (24.5, 35.5)	40.5% (31.9, 49.0)	23.8% (20.2, 27.4)	4.4% (1.2, 7.6)
<b>FRL 50-75%</b>	45.6% (36.7, 54.5)	28.4% (19.5, 37.3)	37.2% (24.0, 50.5)	24.9% (16.0, 33.9)	2.8% (1.4, 4.2)
<b>FRL 25-50%</b>	39.3% (28.2, 50.5)	16.5% (13.3, 19.7)	41.7% (35.9, 47.4)	12.9% (9.8, 16.1)	1.3% (0.2, 2.4)
<b>FRL &lt;25%</b> <i>Highest income</i>	24.2% (15.6, 32.8)	5.3% (0.8, 9.9)	52.5% (18.9, 86.0)	2.4% (0.0, 6.5)	No data due to small sample

Dental insurance status can affect access to care and overall oral health (Figure 5). Children whose dental services were covered by private dental insurance had the lowest rate of untreated decay and dental caries experience, and the highest rate of dental sealants (Table 7). Children who had no insurance had the highest rate of untreated decay (32.8%) and the lowest rate of dental sealants (35.0%).

**Figure 5. Percent of Untreated Decay and Dental Sealants among Florida's Third Grade Children 2016-2017, by Dental Insurance Status**



Prevalence estimates and 95% Confidence Intervals for all of the oral health indicators by health insurance status are provided in Table 7.

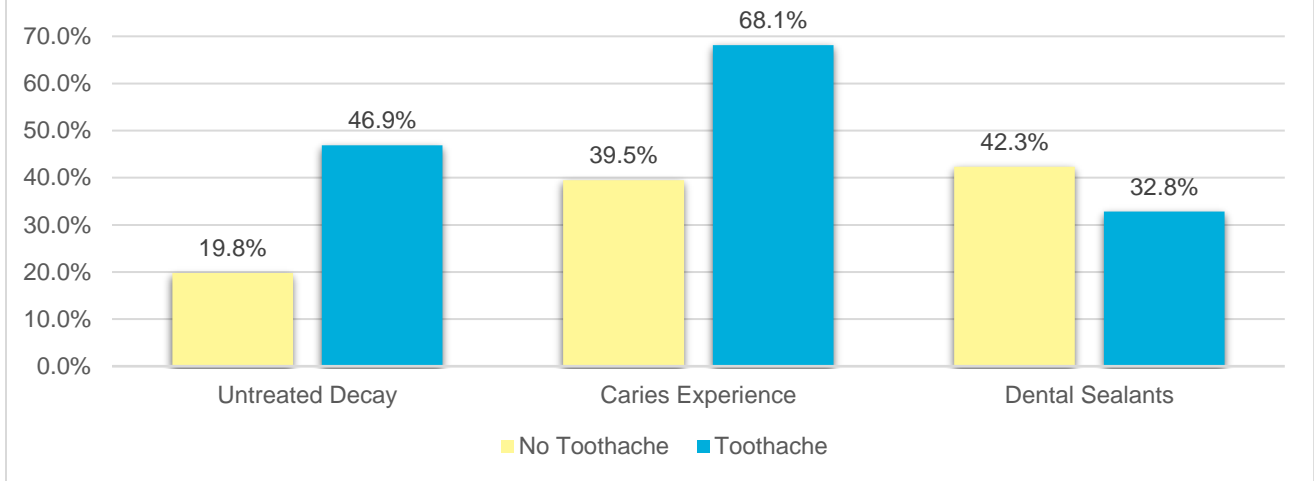
**Table 7. Prevalence (95% Confidence Interval) of the Oral Health Indicators, by Dental Insurance status**

Dental Insurance Status	Caries Experience	Untreated Decay	Dental Sealants	Early Need for Dental Care	Urgent Need for Dental Care
<b>Private Insurance</b>	34.8% (27.8, 41.7)	16.4% (12.0, 20.8)	46.5% (36.2, 56.8)	13.1% (8.6, 17.6)	2.4% (0.8, 4.0)
<b>Medicaid</b>	49.3% (43.5, 55.2)	25.9% (20.0, 31.8)	39.8% (32.6, 46.9)	22.3% (15.7, 28.9)	2.2% (0.6, 3.8)
<b>No Insurance</b>	47.0% (37.4, 56.7)	32.8% (22.0, 43.5)	35.0% (25.7, 44.4)	24.5% (15.0, 34.0)	5.6% (2.1, 9.0)

The presence of toothaches, another oral health condition collected on the consent form, was shown to exacerbate each oral health indicator (Figure 6). Children who experienced toothaches had a much higher prevalence of untreated decay (46.9%) and caries experience (68.1%) compared to children who did not experience toothaches. They also had a lower rate of dental sealants (32.8%) than their peers who did not experience toothaches (42.3%).



**Figure 6. Percent of Untreated Decay, Caries Experience, and Dental Sealants among Florida's Third Grade Children 2016-2017, by Toothaches**



Prevalence estimates and 95% Confidence Intervals for all of the oral health indicators by the toothaches are provided in Table 8.

Toothache Status	Caries Experience	Untreated Decay	Dental Sealants	Early Need for Dental Care	Urgent Need for Dental Care
<b>No Toothache</b>	39.5% (34.8, 44.3)	19.8% (16.5, 23.2)	42.3% (36.0, 48.5)	17.1% (13.6, 20.6)	2.1% (0.7, 3.4)
<b>Toothache</b>	68.1% (55.8, 80.3)	46.9% (32.8, 60.9)	32.8% (21.7, 43.9)	34.6% (17.9, 51.4)	6.7% (3.2, 10.2)

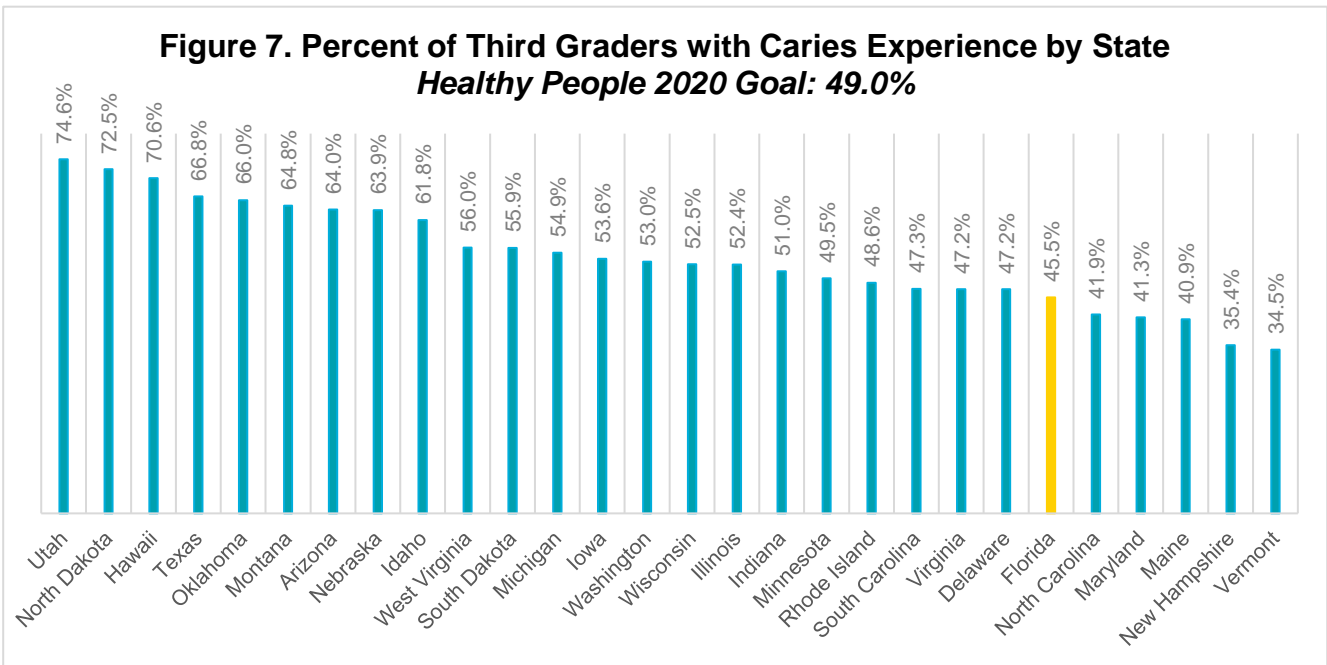
## National Status

Other states across the nation have utilized the BSS methodology to assess the oral health status of their third grade children. CDC collects this information via the State Oral Health Survey (OHS).<sup>14</sup>

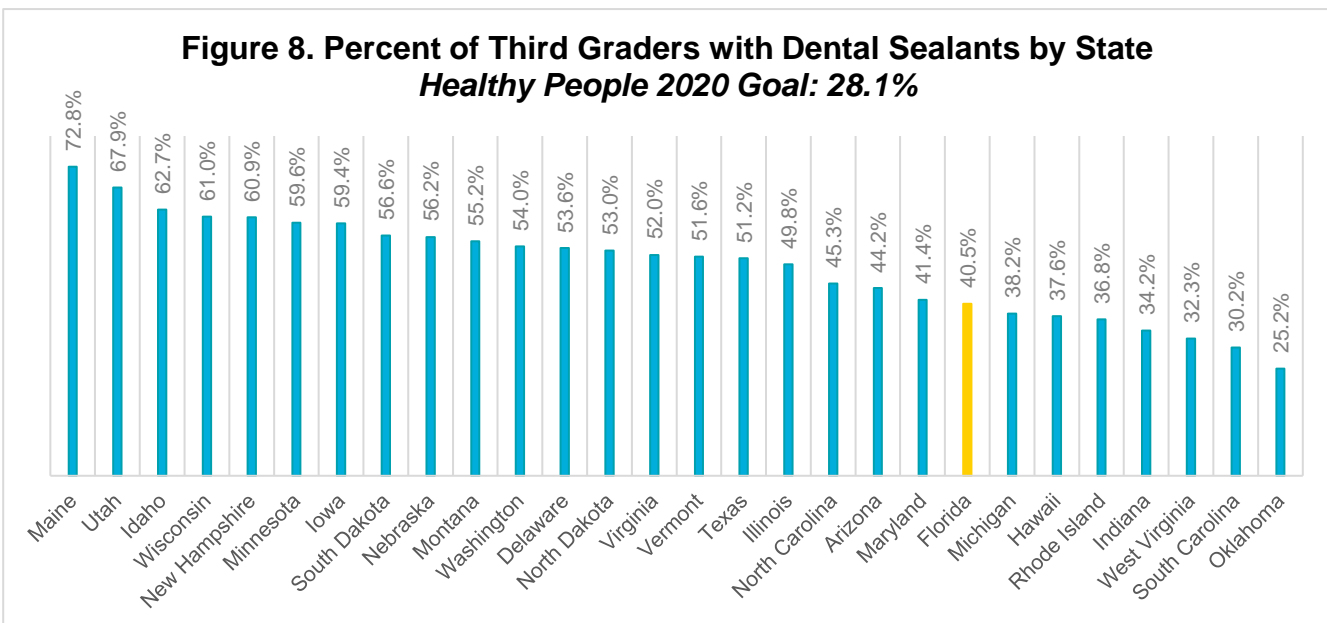
State-level estimates of various oral health status indicators are provided in Figures 7 through 9. It is important to note that not all states have completed a BSS of their third grade population and thus national estimates using the BSS methodology are not available. In order to enhance comparability between states, results from the individual state BSS were only included if they were conducted within the past six years (from 2012 forward). Florida's 2013-2014 estimates were updated to reflect data from the most current 2016-2017 project.

<sup>14</sup> CDC, "Oral Health Data," 2015

Overall, Florida ranked 6<sup>th</sup> for the lowest percent of third graders with caries experience among the 28 participating states (Figure 7). A lower percentage of caries experience translates to a better oral health status. The Healthy People 2020 goal is that only 49.0% of children aged 6-9 years old have caries experience; Florida is meeting this goal with 45.5% of Florida's third graders having caries experience.

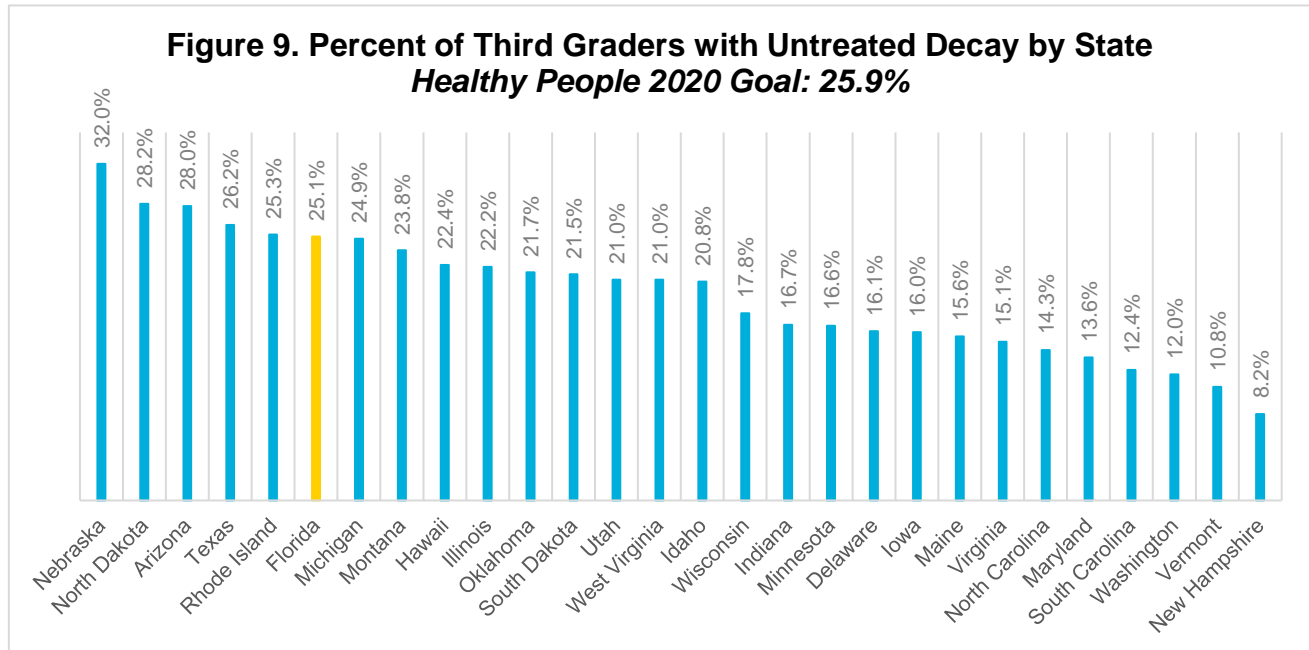


Overall, Florida ranked 8<sup>th</sup> lowest for the percent of third graders with at least one dental sealant among the 28 participating states (Figure 8). Dental sealants are a preventive service proven to reduce decay, thus the goal is to increase this percentage. Only 40.5% of Florida third graders



had a dental sealant; however, Florida is still meeting the Healthy People 2020 goal of 28.1% of children aged 6-9 years old with at least one dental sealant.

Lastly, Florida is ranked the 6<sup>th</sup> highest state for the percentage of third graders with untreated decay (25.1%) among the 28 participating states (Figure 9). As untreated decay can cause pain, swelling, and infection, the goal is to reduce this oral health condition. Florida is just meeting the Healthy People 2020 Goal of 25.9% of children aged 6-9 years with untreated decay.



## Limitations

There are several limitations to the information presented from this survey. First, these screenings were conducted without the use of radiographs (x-rays), therefore, the findings may differ from those observed and diagnosed by clinicians. Second, this survey was conducted only on public school children and may not be representative of all third grade children in Florida. Lastly, the screeners are encouraged to be conservative, thus, the results represented here may be an underrepresentation of the true oral health status of Florida's third grade children.

## Recommendations

The state of Florida works to make continued progress to improve access to preventive dental care for children in Florida. Continued collaborative partnerships with school-based dental programs to share information on evidence-based prevention and early intervention practices facilitates the promotion of oral disease prevention efforts (dental sealants) starting in school-aged children.

Additional opportunities for improving the oral health status of Florida's third grade children include:

- Evaluate, address, and overcome barriers that exist in promoting dental sealant services for school age children, specifically for children from minority race/ethnic groups and low-income families.
- Increase the dental workforce providing school-based dental services, including cost effective dental sealants.
- Encourage schoolteacher and parent involvement in developing a culturally and linguistically appropriate oral health literacy campaign for school age children.
- Increase the dissemination of proper oral care information and resources to children and parents.
- Promote the benefits of fluoride and the consumption of fluoridated tap water to reduce tooth decay and strengthen teeth.
- Continue oral health surveillance activities for school-age children and track progress in the reduction of oral health disparities.

## References

Association of State and Territorial Dental Directors (ASTDD). (2008). Basic Screening Surveys: An Approach to Monitoring Community Oral Health: Preschool and School Children.

Association of State and Territorial Dental Directors (ASTDD). (2011). The Basic Screening Survey: A Tool for Oral Health Surveillance not Research. Retrieved from: <http://www.astdd.org/docs/bss-what-is-oral-health-surveillance-4-26-2011.pdf>

Benjamin, R. M. (2010). Oral Health: The Silent Epidemic. *Public Health Reports*, 125(2): 158-159.

Centers for Disease Control and Prevention. (2015). Oral Health Data. Retrieved from: <http://www.cdc.gov/oralhealthdata/index.html>

Centers for Disease Control and Prevention. (2016, October 18). Dental Sealants Prevent Cavities. Retrieved from <https://www.cdc.gov/vitalsigns/dental-sealants/index.html>

Fleming, E., & Afful, J. (2018). Prevalence of Total and Untreated Dental Caries Among Youth: United States, 2015–2016. *NCHS, National Health and Nutrition Examination Survey, 2015–2016*, no 307.

Gift HC, R. S. (1992). The social impact of dental problems and visits. *American Journal of Public Health*, 82(12):1663-1668.

Heymann, H. O. (2014). *Sturdevant's art & science of operative dentistry*. Elsevier health Sciences.

Jackson SL, V. W. (2011). Impact of poor oral health on children's school attendance and performance. *American Journal of Public Health*, 101(10): 1900-1906.

Mark, A. (2016). Dental sealants. *The Journal of the American Dental Association*, 147(8), 692.

Seirawan H, F. S. (2012). The impact of oral health on the academic performance of disadvantaged children. *American Journal of Public Health*, 102(9): 1729-34.

US Department of Health and Human Services. (2000). *Oral Health in America: A Report of the Surgeon General-- Executive Summary*. Rockville, MD: US Department of Health and Human Services, National Institute of Dental and Craniofacial Research, National Institutes of Health.

US Department of Health and Human Services. (2015, November). *Healthy People 2020: Oral Health*. Retrieved from: <http://www.healthypeople.gov/2020/topics-objectives/topic/oral-health/objectives>

U.S. Department of Health and Human Services Oral Health Coordinating Committee. (2016). *U.S. Department of Health and Human Services Oral Health Strategic Framework, 2014–2017*. *Public Health Reports*, 131(2), 242–257.

# Appendices

## Appendix A: Consent and Questionnaire Form for Parents

**Mission:**

To protect, promote & improve the health of all people in Florida through integrated state, county & community efforts.



**Rick Scott**  
Governor

**Celeste Philip, MD, MPH**  
Surgeon General and Secretary

**Vision:** To be the Healthiest State in the Nation

### 2017 Third Grade Oral Health Screening Parent Consent Form and Questionnaire

Please complete this form and return it to your child's teacher tomorrow. Thank you.

Child's Name: \_\_\_\_\_ Child's Age: \_\_\_\_\_

Child's Gender: Male \_\_\_\_\_ Female \_\_\_\_\_ Unspecified \_\_\_\_\_

\_\_\_\_ Yes, I give permission for my child's mouth to be screened.

\_\_\_\_ No, I do not give permission for my child's mouth to be screened.

Signature of Parent or Guardian: \_\_\_\_\_ Date: \_\_\_\_\_

*The purpose of this screening is to collect data. You will receive a screening results form for use by a "dentist at a prompt subsequent examination." Please note: "diagnosis of caries, soft tissue disease, oral cancer, temporomandibular joint disease (TMJ), and dentofacial malocclusions can only be completed by a dentist in the context of delivering a comprehensive dental examination," in accordance with Section 466.0235, Florida Statutes.*

Please answer the following 12 questions to help us learn more about your child's dental care. Your answers will be reported in summary only; individual responses will not be shared. If you do not want to answer the questions, your child's mouth can still be screened. Please disregard the numbers next to the answer choices as they are for the screener's use only.

- Which of the following best describes your child? **Select all that apply.**  
 White  Black/African American  Hispanic/Latino  
 Asian  American Indian/Alaska Native  Native Hawaiian/Pacific Islander  
 Other \_\_\_\_\_
- Does your child have a history of any chronic conditions and/or developmental delays? **Select all that apply.**  
 Asthma  ADHD  Cancer  Diabetes  Obesity  Other: \_\_\_\_\_  
 Special Health Care Needs  None  Don't know/don't remember
- Is your child eligible for the free or reduced price lunch program? **Check one.**  
 No (1)  Yes (2)  Don't know/don't remember (3)
- During the past 12 months, how would you describe your child's grades in school? **Check one.**  
 Mostly A's (1)  Mostly B's (2)  Mostly C's (3)  Mostly D's (4)  Mostly F's (5)  
 None of these grades (6)  Don't know/don't remember (7)
- How long has it been since your child last visited a dentist? Please include dentists such as orthodontists, oral surgeons, and all other dental specialists, as well as dental hygienists. **Check one.**  
 6 months or less (1)  More than 6 months, but less than 1 year ago (2)  
 More than 1 year ago (3)  Never have been to the dentist (4)  
 Don't know/don't remember (5)

**Florida Department of Health**  
**Public Health Dental Program**  
4052 Bald Cypress Way, Bin A-14 • Tallahassee, FL 32399-1721  
PHONE: 850/245-4333 • FAX: 850/414-7552  
[www.flhealth.gov/dental](http://www.flhealth.gov/dental)  
<https://youtu.be/mbwTus8VSPQ>





**Mission:**  
To protect, promote & improve the health  
of all people in Florida through integrated  
state, county & community efforts.



**Rick Scott**  
Governor

**Celeste Philip, MD, MPH**  
Surgeon General and Secretary

**Vision:** To be the Healthiest State in the Nation

6. During the past 6 months, did your child have a toothache more than once when biting or chewing? **Check one.**  
 No (1)                       Yes (2)                       Don't know/don't remember (3)
7. What was the main reason that your child last visited a dentist? **Check one.**  
 Went in for checkup, examination, or cleaning (1)  
 Was called in by the dentist for checkup, examination, or cleaning (2)  
 Something was wrong, bothering or hurting (3)  
 Went for treatment of a condition that dentist discovered at earlier check-up or examination (4)  
 Don't know/don't remember (5)
8. During the past 12 months, did your child visit the emergency department (or emergency room) because of any oral or dental related issues? **Check one.**  
 No (1)                       Yes (2)                       Don't know/don't remember (3)
9. During the past 12 months, what was the main reason your child could not get dental care when he or she needed it? **Check one.**  
 Could not afford it (1)                       No insurance (2)  
 Dentist did not take Medicaid/insurance (3)                       Difficulty in getting appointment (4)  
 Not a serious enough problem (5)                       No way to get there (transportation) (6)  
 Didn't know where to go (7)                       Speak a different language than dentist (8)  
 Other (9)                       Don't know/don't remember (10)
10. During the past 12 months, how many days of school did **your child** miss for oral health related problems? Do not include days missed for routine oral health care (cleanings, checkups, etc.). **Check one.**  
 0 Days (1)     1 Day (2)     2 Days (3)     3 Days (4)     4 Days (5)     5 or More Days (6)  
 Don't Know/Don't Remember (7)
11. During the past 12 months, how many days of work did **you or a family member** miss for your child's oral health related problems? Do not include days missed for your child's routine oral health care (cleanings, checkups, etc.). **Check one.**  
 0 Days (1)     1 Day (2)     2 Days (3)     3 Days (4)     4 Days (5)     5 or More Days (6)  
 Not Applicable (does not work) (7)                       Don't Know/Don't Remember (8)
12. Do you have any kind of insurance that pays for some or all of your child's DENTAL CARE (not medical or surgical)? Include dental insurance obtained through employment or purchased directly, as well as government programs like Medicaid. **Select all that apply.**  
 No     Private Insurance     Medicaid     Don't know/don't remember

**THANK YOU FOR PARTICIPATING IN THE  
"2017 Third Grade Oral Health Screening Project!"**

**Florida Department of Health  
Public Health Dental Program**  
4052 Bald Cypress Way, Bin A-14 • Tallahassee, FL 32399-1721  
PHONE: 850/245-4333 • FAX: 850/414-7552  
[www.flhealth.gov/dental](http://www.flhealth.gov/dental)  
<https://youtu.be/mbwTus8VSPQ>



# Appendix B: Third Grade Oral Health Screening Form

**Mission:**  
To protect, promote & improve the health of all people in Florida through integrated state, county & community efforts.



**Rick Scott**  
Governor

**Celeste Philip, MD, MPH**  
Surgeon General and Secretary I

**Vision:** To be the Healthiest State in the Nation

## 2017 Third Grade Oral Health Screening Form

Screen Date: _/_/____	School Code:	Screener's Initials:	Age:																																																																								
<p><b>Primary Dentition</b></p> <table border="1"> <thead> <tr> <th>Upper</th> <th>Eruption</th> <th>Shedding</th> </tr> </thead> <tbody> <tr><td>Central incisor</td><td>7 1/2 mo.</td><td>7 1/2 yr.</td></tr> <tr><td>Lateral incisor</td><td>9 mo.</td><td>8 yr.</td></tr> <tr><td>Cuspid</td><td>18 mo.</td><td>11 1/2 yr.</td></tr> <tr><td>First molar</td><td>14 mo.</td><td>10 1/2 yr.</td></tr> <tr><td>Second molar</td><td>24 mo.</td><td>10 1/2 yr.</td></tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Lower</th> <th>Eruption</th> <th>Shedding</th> </tr> </thead> <tbody> <tr><td>Second molar</td><td>20 mo.</td><td>11 yr.</td></tr> <tr><td>First molar</td><td>12 mo.</td><td>10 yr.</td></tr> <tr><td>Cuspid</td><td>16 mo.</td><td>9 1/2 yr.</td></tr> <tr><td>Lateral incisor</td><td>7 mo.</td><td>7 yr.</td></tr> <tr><td>Central incisor</td><td>6 mo.</td><td>6 yr.</td></tr> </tbody> </table> <p><b>Permanent Dentition</b></p> <table border="1"> <thead> <tr> <th>Upper</th> <th>Eruption</th> </tr> </thead> <tbody> <tr><td>Central incisor</td><td>7-8 yr.</td></tr> <tr><td>Lateral incisor</td><td>8-9 yr.</td></tr> <tr><td>Cuspid</td><td>11-12 yr.</td></tr> <tr><td>First bicuspid</td><td>10-11 yr.</td></tr> <tr><td>Second bicuspid</td><td>10-12 yr.</td></tr> <tr><td>First molar</td><td>6-7 yr.</td></tr> <tr><td>Second molar</td><td>12-13 yr.</td></tr> <tr><td>Third molar</td><td>17-21 yr.</td></tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Lower</th> <th>Eruption</th> </tr> </thead> <tbody> <tr><td>Third molar</td><td>17-21 yr.</td></tr> <tr><td>Second molar</td><td>11-13 yr.</td></tr> <tr><td>First molar</td><td>6-7 yr.</td></tr> <tr><td>Second bicuspid</td><td>11-12 yr.</td></tr> <tr><td>First bicuspid</td><td>10-12 yr.</td></tr> <tr><td>Cuspid</td><td>9-10 yr.</td></tr> <tr><td>Lateral incisor</td><td>7-8 yr.</td></tr> <tr><td>Central incisor</td><td>6-7 yr.</td></tr> </tbody> </table>				Upper	Eruption	Shedding	Central incisor	7 1/2 mo.	7 1/2 yr.	Lateral incisor	9 mo.	8 yr.	Cuspid	18 mo.	11 1/2 yr.	First molar	14 mo.	10 1/2 yr.	Second molar	24 mo.	10 1/2 yr.	Lower	Eruption	Shedding	Second molar	20 mo.	11 yr.	First molar	12 mo.	10 yr.	Cuspid	16 mo.	9 1/2 yr.	Lateral incisor	7 mo.	7 yr.	Central incisor	6 mo.	6 yr.	Upper	Eruption	Central incisor	7-8 yr.	Lateral incisor	8-9 yr.	Cuspid	11-12 yr.	First bicuspid	10-11 yr.	Second bicuspid	10-12 yr.	First molar	6-7 yr.	Second molar	12-13 yr.	Third molar	17-21 yr.	Lower	Eruption	Third molar	17-21 yr.	Second molar	11-13 yr.	First molar	6-7 yr.	Second bicuspid	11-12 yr.	First bicuspid	10-12 yr.	Cuspid	9-10 yr.	Lateral incisor	7-8 yr.	Central incisor	6-7 yr.
Upper	Eruption	Shedding																																																																									
Central incisor	7 1/2 mo.	7 1/2 yr.																																																																									
Lateral incisor	9 mo.	8 yr.																																																																									
Cuspid	18 mo.	11 1/2 yr.																																																																									
First molar	14 mo.	10 1/2 yr.																																																																									
Second molar	24 mo.	10 1/2 yr.																																																																									
Lower	Eruption	Shedding																																																																									
Second molar	20 mo.	11 yr.																																																																									
First molar	12 mo.	10 yr.																																																																									
Cuspid	16 mo.	9 1/2 yr.																																																																									
Lateral incisor	7 mo.	7 yr.																																																																									
Central incisor	6 mo.	6 yr.																																																																									
Upper	Eruption																																																																										
Central incisor	7-8 yr.																																																																										
Lateral incisor	8-9 yr.																																																																										
Cuspid	11-12 yr.																																																																										
First bicuspid	10-11 yr.																																																																										
Second bicuspid	10-12 yr.																																																																										
First molar	6-7 yr.																																																																										
Second molar	12-13 yr.																																																																										
Third molar	17-21 yr.																																																																										
Lower	Eruption																																																																										
Third molar	17-21 yr.																																																																										
Second molar	11-13 yr.																																																																										
First molar	6-7 yr.																																																																										
Second bicuspid	11-12 yr.																																																																										
First bicuspid	10-12 yr.																																																																										
Cuspid	9-10 yr.																																																																										
Lateral incisor	7-8 yr.																																																																										
Central incisor	6-7 yr.																																																																										
Primary Untreated Decay: <input type="checkbox"/> 0=No untreated decay <input type="checkbox"/> 1=Yes untreated decay		Permanent Untreated Decay: <input type="checkbox"/> 0=No untreated decay <input type="checkbox"/> 1=Yes untreated decay																																																																									
Primary Treated Decay: <input type="checkbox"/> 0=No treated decay <input type="checkbox"/> 1=Yes treated decay		Permanent Treated Decay: <input type="checkbox"/> 0=No treated decay <input type="checkbox"/> 1=Yes treated decay																																																																									
Sealants on Permanent Molars: <input type="checkbox"/> 0=No sealants <input type="checkbox"/> 1=Yes sealants (at least one)		Treatment Urgency: <input type="checkbox"/> 0=No obvious problem <input type="checkbox"/> 1=Early dental care <input type="checkbox"/> 2=Urgent dental care																																																																									
Comments (if needed, not required):																																																																											

**Florida Department of Health**  
**Public Health Dental Program**  
 4052 Bald Cypress Way, Bin A-14 • Tallahassee, FL 32399-1701  
 PHONE: 850/245-4333 • FAX: 850/414-7552  
[www.flhealth.gov/dental](http://www.flhealth.gov/dental)  
<https://youtu.be/mbwTus8VSPQ>



## Appendix C: Screening Results Letter Sent to Parents

**Mission:**

To protect, promote & improve the health of all people in Florida through integrated state, county & community efforts.



**Rick Scott**  
Governor

**Celeste Philip, MD, MPH**  
Surgeon General and Secretary

**Vision:** To be the Healthiest State in the Nation

---

### Third Grade Oral Health Screening Results

#### FLORIDA DEPARTMENT OF HEALTH

Dear: \_\_\_\_\_

As part of the *Third Grade Oral Health Screening Project*, your child's teeth and mouth were screened today. No x-rays were taken and the screening does not replace an in-office dental examination by your child's dentist. The results of the screening indicate that:

\_\_\_\_\_ Your child appears to have no obvious dental problems but should continue to have routine examinations by their dentist.

\_\_\_\_\_ Your child has a tooth, or teeth, which should be evaluated by their dentist to determine if treatment is needed.

\_\_\_\_\_ Your child has a tooth, or teeth, which appear to need immediate care and you should contact their dentist as soon as possible for a complete evaluation.

If your child does not have a dentist or you need help with arranging dental care for your child, please visit <http://www.floridahealth.gov/dental/resources> to locate your county's dental resource list.

---

**Florida Department of Health**  
**Public Health Dental Program**  
4052 Bald Cypress Way, Bin A-14 • Tallahassee, FL 32399-1721  
PHONE: 850/245-4333 • FAX: 850/414-7552  
[www.flhealth.gov/dental](http://www.flhealth.gov/dental)  
<https://youtu.be/mbwTus8VSPQ>

 **Accredited Health Department**  
Public Health Accreditation Board

## Appendix D: Other Indicators from Parent Questionnaire

The following questions were asked on the parent questionnaire and consent form for the Florida Third Grade Oral Health Screening Project (Appendix A). While supplemental to the BSS, these questions provide additional information about the current oral health status and oral health history of the third grade population. These graphs include all submitted consent forms, regardless of a child's screening status. These data are weighted.

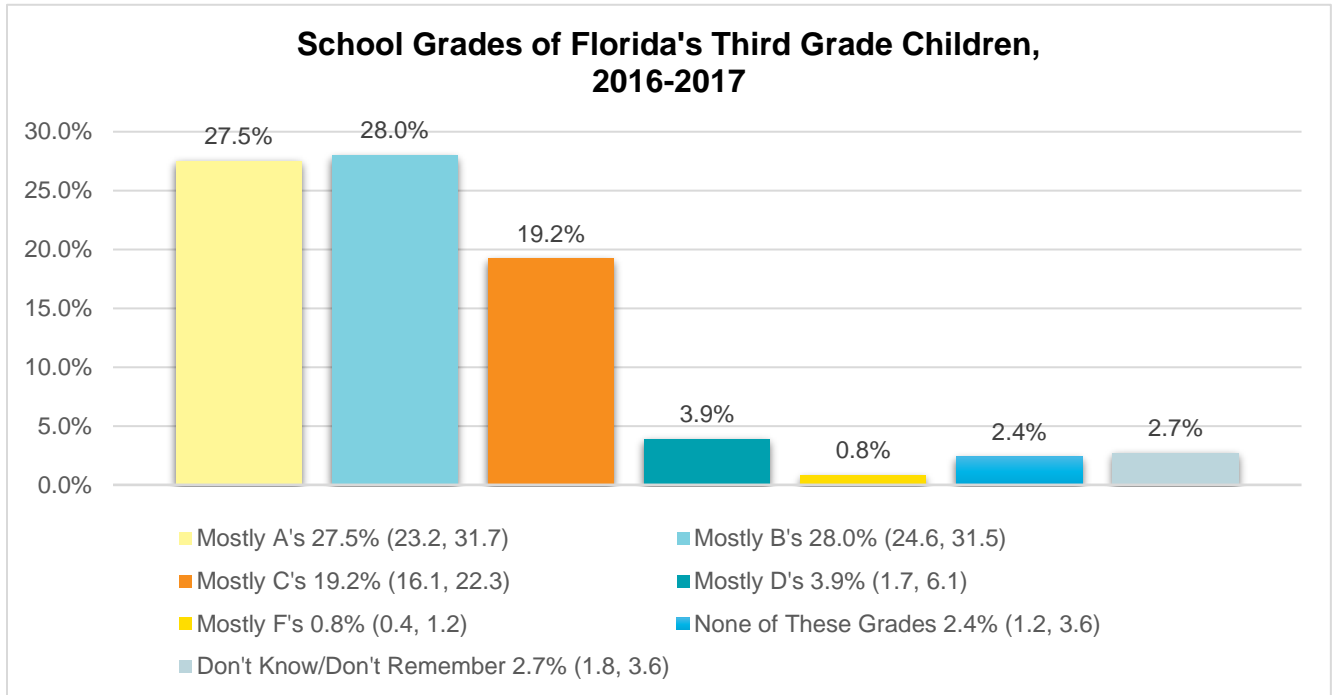
### Chronic Conditions and/or Developmental Delays

Question: Does your child have a history of any chronic conditions and/or developmental delays?

<b>Chronic Conditions and/or Developmental Delays among Florida's Third Grade Children, 2016-2017</b>	
<b>Condition</b>	<b>Percent (95% C.I.)</b>
Asthma	11.6% (7.0, 16.2)
Attention Deficit Hyperactivity Disorder (ADHD)	10.2% (7.5, 12.9)
Cancer	0.4% (0.1, 0.8)
Diabetes	0.4% (0.0, 0.8)
Obesity	0.6% (0.2, 1.1)
Special Health Care Needs	0.8% (0.3, 1.3)
Other Condition	4.3% (2.8, 5.8)
No Condition	55.7% (51.9, 59.6)
Don't Know/ Don't Remember	1.4% (0.8, 2.1)

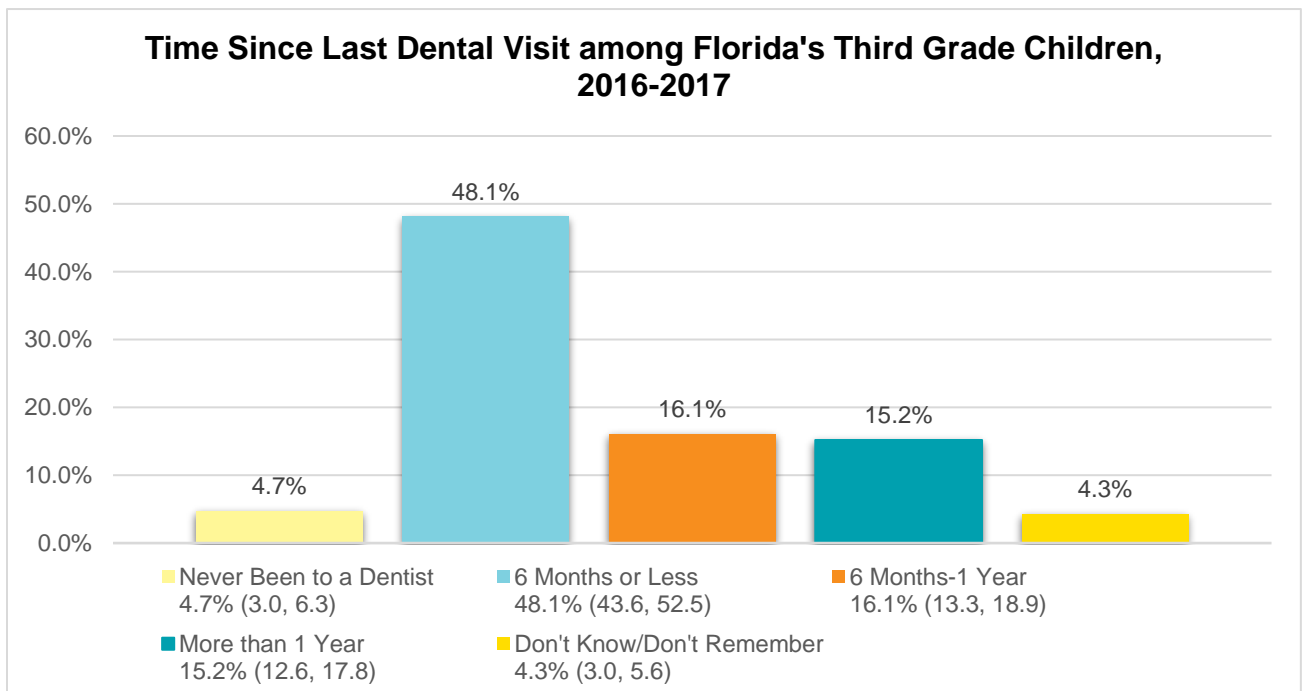
## Children's Grades in School

Question: During the past 12 months, how would you describe your child's grades in school?



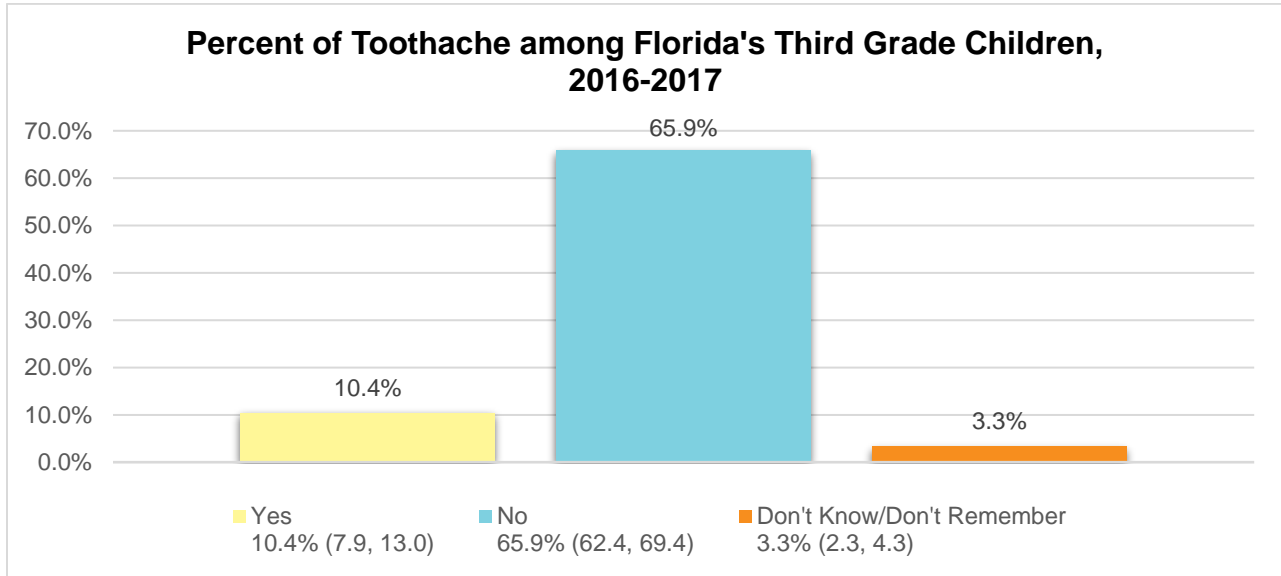
## Last Dental Visit

Question: How long has it been since your child last visited a dentist? Please include dentists such as orthodontists, oral surgeons, and all other dental specialists, as well as dental hygienists.



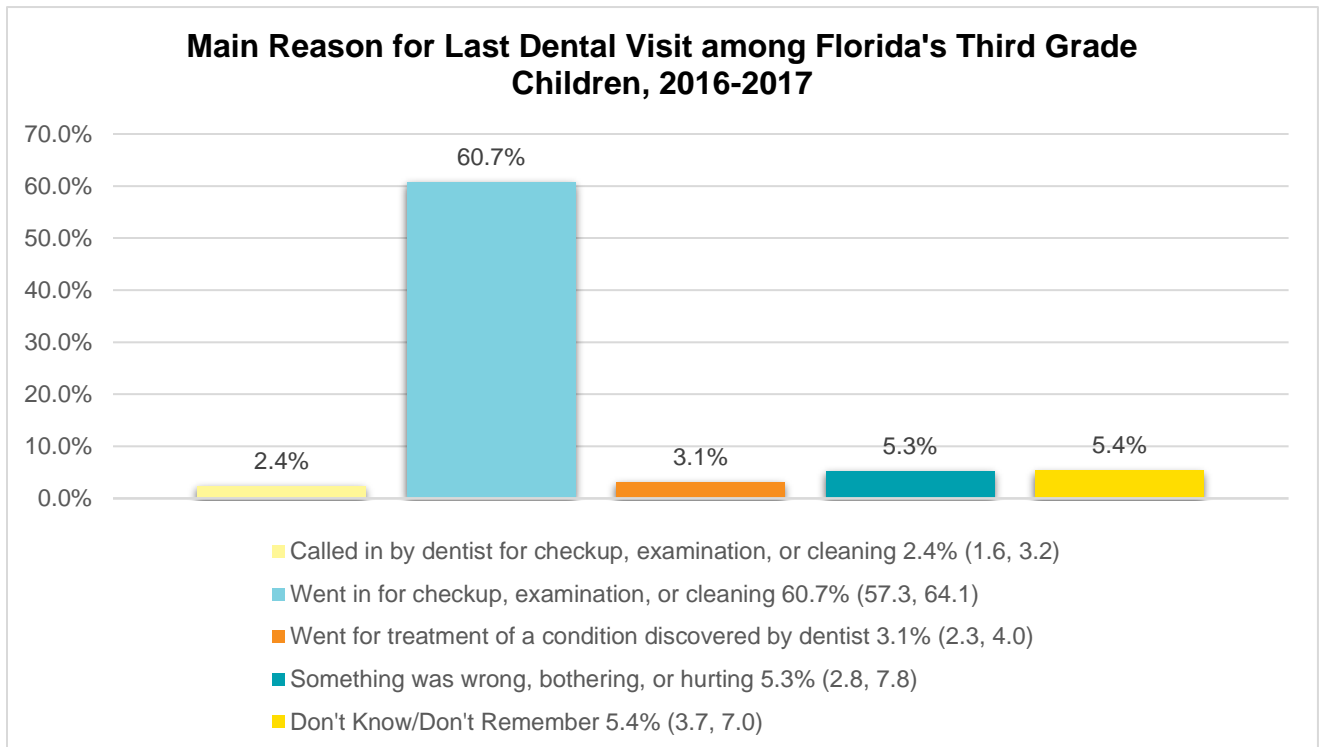
## Toothache

Question: During the past six months, did your child have a toothache more than once when biting or chewing?



## Reason for Last Dental Visit

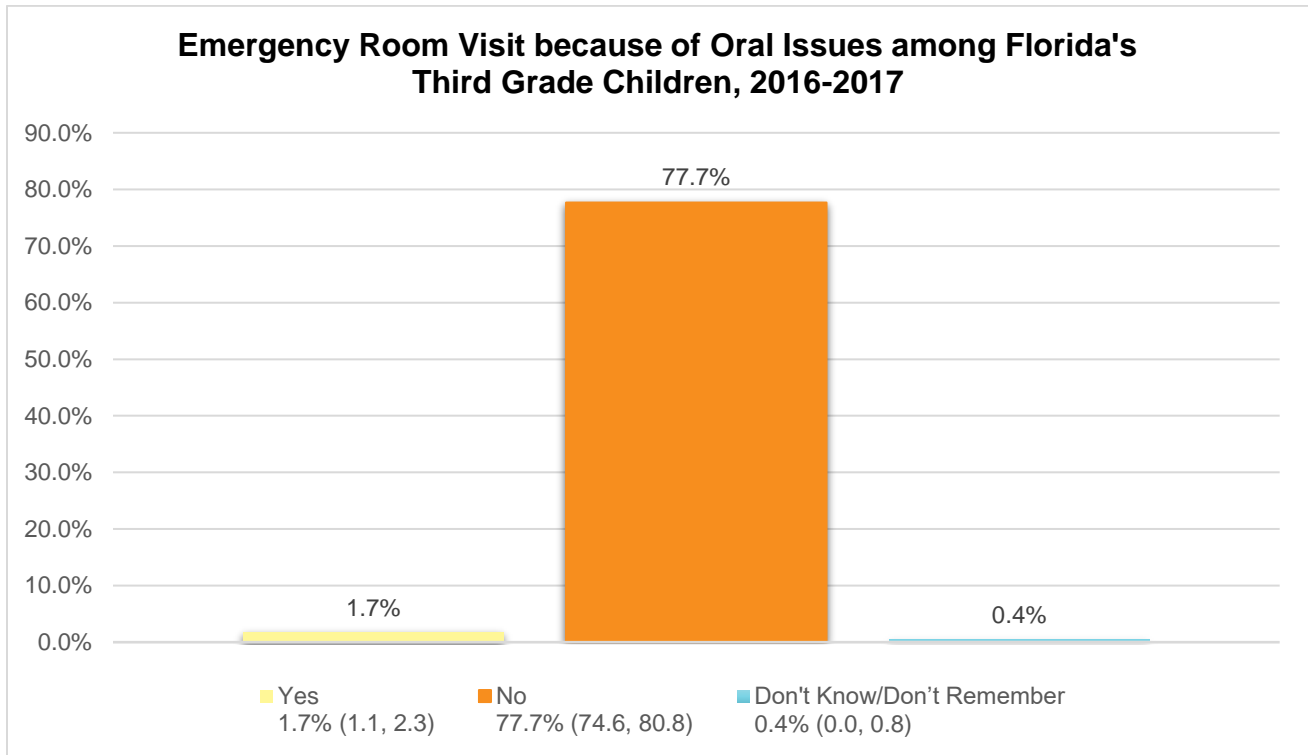
Question: What was the main reason that your child last visited a dentist?





## Emergency Room Visit

Question: During the past 12 months, did your child visit the emergency department (or emergency room) because of any oral or dental related issues?



## Reason for Not Seeking Care

Question: During the past 12 months, what was the main reason your child could not get dental care when he or she needed it?

<b>Main Reason for Not Seeking Care among Florida's Third Grade Children, 2016-2017</b>	
<b>Main Reason</b>	<b>Percent (95% C.I.)</b>
Could not afford it	4.7% (3.2, 6.1)
No insurance	5.1% (3.7, 6.5)
Dentist did not accept Medicaid/health insurance	4.3% (3.1, 5.5)
Difficulty in getting appointment	2.5% (1.6, 3.4)
Not a serious enough problem	5.0% (3.9, 6.1)
No way to get there (transportation)	1.0% (0.5, 1.4)
Didn't know where to go	2.1% (1.4, 2.9)
Speak a different language than dentist	0.1% (0.0, 0.2)
Other	15.8% (10.5, 21.0)
Don't know/Don't Remember	7.5% (6.0, 9.0)

### Days of School Missed

Question: During the past 12 months, how many days of school did your child miss for oral health related problems, not including days missed for routine oral health care (cleaning, checkup, etc.)?

<b>Days of School Missed among Florida's Third Grade Children, 2016-2017</b>	
<b>Days of School</b>	<b>Percent (95% C.I.)</b>
0 day	65.5% (62.1, 68.9)
1 or more days	7.9% (6.1, 9.7)
Don't Know/Don't Remember	5.5% (3.0, 8.0)

### Days of Work Missed

Question: During the past 12 months, how many days of work did you or a family member miss for your child's oral health related problems, not including days missed for your child's routine oral health care (cleanings, checkup, etc.)?

<b>Days of Work Missed by Family Member among Florida's Third Grade Children, 2016-2017</b>	
<b>Days of Work</b>	<b>Percent (95% C.I.)</b>
0 day	67.2% (63.7, 70.8)
1 or more days	5.7% (4.1, 7.3)
Don't Know/Don't Remember	3.2% (2.3, 4.1)