The Oral Health of Rhode Island's Children

Rhode Island Department of Health
Oral Health Program

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SUMMARY

In collaboration with the Centers for Disease Control and Prevention (CDC) and Rhode Island elementary schools, the Rhode Island Department of Health's (RIDOH) Oral Health Program[1] coordinated data collection and analysis of the statewide oral health basic screening survey (BSS) of children conducted by dentists and dental hygienists. The dental data collected through brief, open-mouth screenings help inform immediate public health actions, program planning and evaluation, and research to improve oral health and reduce disparities among Rhode Island children.[2] During the 2019-2020 and 2021-2022 school years, the Oral Health Program conducted a statewide oral health survey of kindergarten and third-grade children enrolled in Rhode Island's public elementary schools. Screenings were completed at 61 systematically selected elementary schools; a total of 4,456 children were screened. It should be noted that during the 2019-2020 academic school year, the BSS was suspended in compliance with the COVID-19 pandemic restrictions. The BSS survey resumed during the 2021-2022 academic school year. Resulting estimates describe the oral health status of the State's school children with high statistical power and accuracy.

Key Findings

- Although Rhode Island numbers are better than national averages, dental decay affects one in three kindergartners and almost half of third graders in Rhode Island.
  - 32% of Rhode Island's kindergarteners have at least one tooth with treated or untreated decay, lower than the national average of 42%.[8]
  - 45% of Rhode Island's third graders have at least one tooth with treated or untreated decay, lower than the national average of 60%.[8]
- Many children in Rhode Island do not get the dental care they need.
  - 21% of Rhode Island's kindergarteners have untreated tooth decay, higher than the national average of 15%.[8]
  - 24% of Rhode Island's third graders have untreated tooth decay, higher than the national average of 20%.[8]
- Dental sealants are a well-accepted, evidence-based clinical intervention to prevent tooth decay on permanent molar teeth[3]. However, only 32% of Rhode Island's third graders have protective dental sealants, lower than the national average of 42%.[8]
- There are significant oral health disparities in Rhode Island by race/ethnicity and socioeconomic status.
  - Compared to children attending schools with less than 25% of students eligible for free and reduced-price school meals (FRSM), children attending schools with more than 75% of students eligible for FRSM program are twice as likely to have untreated decay.
  - Hispanic children, compared to non-Hispanic White children, have a significantly higher prevalence of decay experience.
- There is no noticeable difference in the receipt of dental sealants between children of different racial/ethnic groups or socioeconomic status. Additionally, there is no statistically significant difference in the prevalence of untreated decay by racial/ethnic groups.
  - RIDOH has supported school-based/school-linked dental programs that provide or facilitate the delivery of sealants, with particular focus on serving high-risk children in underserved communities. The lack of a disparity in sealant prevalence among minority children or children from schools with higher FRSM eligibility suggests that the programs can reduce gaps in children's receipt of preventive oral health services.

INTRODUCTION

Tooth decay is a serious public health problem that can affect a child's overall health and well-being. It can lead to pain and disfigurement, low self-esteem, nutritional problems, and lost school days. Children with oral health problems are three times more likely to miss school due to dental pain and absences caused by pain are associated with poorer school performance.[4] Even though tooth decay can be prevented, many children in Rhode Island still get cavities.

While tooth decay's prevalence and severity have declined in recent years among US school-aged children, it remains a significant problem–particularly for certain racial and ethnic groups and low-income children. Three prior RIDOH reports documented disparities in the prevalence of tooth decay among these children.[5,6,7] To continue its surveillance efforts, the Oral Health Program conducted a statewide survey of kindergarten and third grade school children during the 2019-2020 and 2021-2022 academic school years. The Program will use the data collected to facilitate collaborative efforts of decision makers and stakeholders to improve oral health and reduce disparities among Rhode Island children.

METHODS

School Sampling

The Rhode Island survey screened children in kindergarten and third grade from a representative sample of Rhode Island's non-virtual public schools. The sampling frame consisted of all non-virtual public schools with 20 or more children in third grade. Some communities have kindergarten and third grade in different schools. If both the kindergarten and third grade schools are included in the sampling frame, children from those communities would have a higher probability of being selected.

To assure representation by geographic region and socioeconomic status, the sampling frame was stratified by county urbanicity (non-urban/urban) then ordered within each stratum by percent of the school's students eligible for FRSM program. If a school with only third grade was selected, the appropriate kindergarten feeder school was added to the sample. A systematic probability proportional to size sampling scheme was used to select a sample of 60 third grade schools. Six of the selected third grade schools did not have kindergarten students, so the appropriate kindergarten feeder schools were added to the sample for a total of 66 schools representing 60 sampling intervals. If a school refused to participate, a replacement school from the same sampling interval was randomly selected. Children were screened at 61 schools representing 58 of the 60 sampling intervals. Data are missing for two sampling intervals (non-urban with 56% eligible for FRSM and urban with 83% eligible for FRSM). Of the 7,540 kindergarten and third grade children enrolled in the 61 participating schools, 4,456 were screened for an overall response rate of 59%.

Data Management and Analysis

The following information was collected for each child: grade, age, race/ethnicity, presence of untreated decay, presence of treated decay, urgency of need for dental care, presence of dental sealants in the permanent first molar teeth, presence of rampant decay (seven or more teeth with decay experience) and need for dental sealants. We used the Basic Screening Survey clinical indicator definitions and data collection protocols[2].

All statistical analyses were performed using the complex survey procedures within SAS (Version 9.4; SAS Institute Inc., Cary, NC). Sample weights were used to produce population estimates based on selection probabilities. It should be noted that the National Health and Nutrition Examination Survey (NHANES) data for five-year-olds and third graders are from 2011-2016 which, as of July 2022, is the most current data available.[8] ***Number with data*** in each table represent the number of screenings that had the information correctly filled in the survey form.

Screening Methods

The 2019-2022 Kindergarten and Third Grade Oral Health Screening Form was adapted from the Basic Screening Survey developed by the Association of State and Territorial Dental Directors (Appendix). The primary purpose of the Basic Screening Survey is to provide a framework for obtaining oral health data that is inexpensive and easy to implement, yet always consistent. By collecting data in a consistent manner, communities and states can compare their data over time and with data collected by other organizations. Surveys are 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).

An oral health screening is not a thorough clinical examination and does not involve making a clinical diagnosis resulting in a treatment plan. A screening is intended to identify obvious dental or oral lesions and is conducted by dentists, dental hygienists, or other appropriate healthcare workers, in accordance with an applicable State law. To ensure consistency, the examiners (school dentists) reviewed the diagnostic criteria outlined in *Basic Screening Surveys: An Approach to Monitoring Community Oral Health* before the screenings.[7]

To measure the prevalence and severity of tooth decay among children, examiners assessed treated decay (presence of fillings or crowns), untreated (unrestored) decay, and rampant decay (presence of more than seven teeth with treated and/or untreated decay), and treatment urgency. They also looked for a dental sealant on at least one permanent molar tooth, an indicator of a child's access to preventive services. These indicators are consistent with the *Rhode Island Rules and Regulations for School Health Programs*[8], and the National Oral Health Surveillance System standards.

Screenings were conducted anonymously; no identifying information, such as name or date of birth, was obtained. The child provided his or her age, while examiners or recorders determined gender and race/ethnicity (Non-Hispanic White, Hispanic, Black/African American, or Other/Multiracial). A passive consent process was used; all kindergarteners and third graders in the participating schools were screened unless the parent/guardian returned a form indicating that the child has an established dental home and requesting that the child not participate.

RESULTS

Screening Participation

Of the 3,487 kindergarteners and 4,053 third graders enrolled in the participating schools (based on 2019-2020 enrollment data), a total of 4,456 kindergarteners and third graders from 61 schools were screened from October 2019 to May 2022. The overall screening rate per participating school was 59% (2,018 kindergarteners out of 3,487 and 2,438 third graders out of the 4,053 enrolled children participated in the survey). Outcome data in this report have been adjusted for these response rates by sampling scheme.

Demographic Characteristics of Children

Table 1 compares the distribution of screened children with all Rhode Island kindergarteners and third graders by grade, gender, age, race/ethnicity, urbanicity and free or reduced price school meal (FRSM) eligibility of school. As in the general population, slightly more than one half of screened children were male. The children screened ranged in age from four to eight for kindergarteners and five to 11 for third graders.

TABLE 1:

Characteristics of Rhode Island's Kindergarteners and Third Graders Who Received an Oral Health Screening, 2019-2022 (n=4,456)

CHARACTERISTIC	NUMBER OF CHILDREN (Unweighted)	WEIGHTED PERCENT (95% CI)
GRADE		
Kindergarten	2,018	48.3 (46.7-50.0)
Third Grade	2,438	51.7 (50.0-53.4)
AGE		
4	2	0.0 (0.0-0.1)
5	1,074	27.1 (23.8-30.4)
6	813	18.8 (16.1-21.5)
7	53	1.3 (0.3-2.4)
8	1,334	28.6 (25.2-32.0)
9	968	21.0 (18.0-24.1)
10	52	1.0 (0.2-1.9)
11	1	0.0 (0.0-0.0)
Missing/Unknown	159	2.1 (0.0-6.0)
GENDER		
Male	2,336	53.3 (51.4-55.2)
Female	2,079	45.6 (44.0-47.3)
Missing/Unknown	41	1.1 (0.3-1.8)
RACE/ETHNICITY		
White (non-Hispanic)	1,954	53.8 (48.1-59.6)
Asian/Pacific Islander (non-Hispanic)	157	3.8 (2.2-5.5)
Hispanic/Latinx (any race)	1,373	22.6 (17.8-27.3)
American Indian/Alaska Native (non-Hispanic)	42	0.9 (0.4-1.3)
Black/African American (non-Hispanic)	576	10.6 (6.9-14.2)
Other/Multiracial	173	3.8 (2.4-5.3)
Missing/Unknown	181	4.5 (0.3-8.7)
FRSM ELIGIBILITY OF SCHOOL		
Less than 25% FRSM	837	26.9 (15.7-38.1)
25%-49% FRSM	823	27.9 (16.7-39.0)
50%-74% FRSM	870	17.5 (7.3-27.8)
75% or more of FRSM	1,926	27.7 (21.3-34.1)

ORAL HEALTH OUTCOMES

Decay Experience

Tooth decay is a serious public health problem that can affect a child's overall health and well-being. It can lead to pain and disfigurement, low self-esteem, nutritional problems, and lost school days. Children with oral health problems are three times more likely to miss school due to dental pain and absences caused by pain are associated with poorer school performance.[1] Even though tooth decay can be prevented, many children in Rhode Island still get cavities.

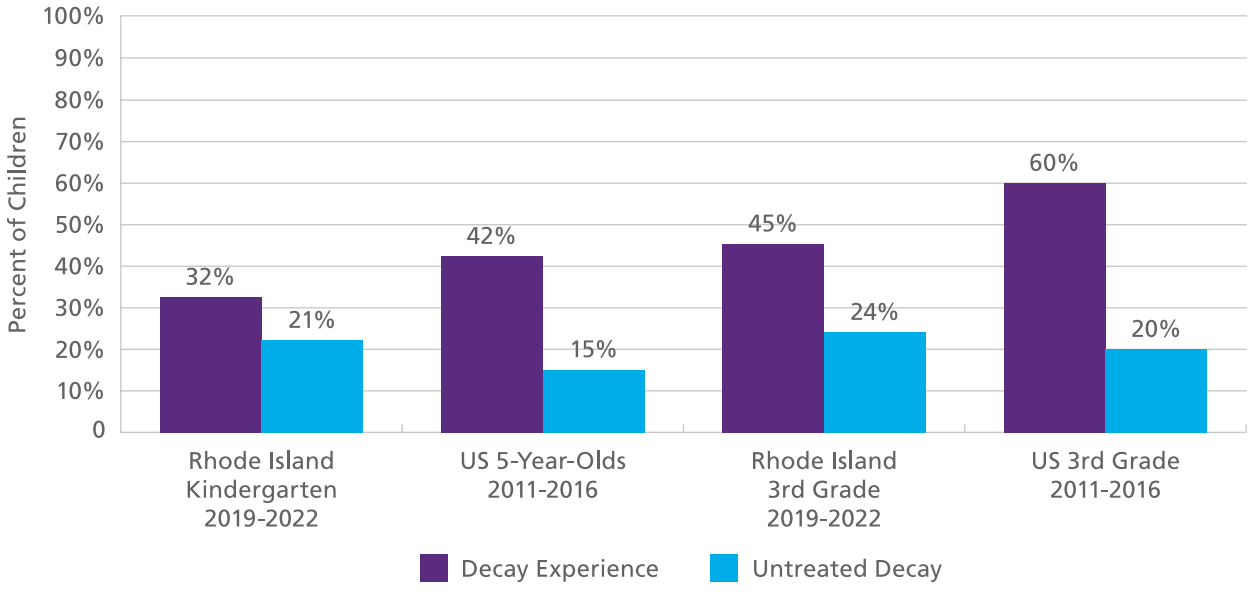
Decay experience means that a child has had tooth decay in the primary (baby) and/or permanent (adult) teeth in their lifetime. Decay experience can be past (fillings, crowns, or teeth that have been extracted because of decay) or present (untreated tooth decay or cavities). In 2019-2022, about a third of Rhode Island's kindergarteners (32%) and more than 40% third graders (45%) had decay experience; compared to 42% of five-year-olds and 60% of third graders in the general US population (NHANES, 2011-2016). Refer to Figure 1 and Tables 2-3.

Untreated Tooth Decay

Left untreated, tooth decay can have serious consequences, including needless pain and suffering, difficulty chewing (which compromises children's nutrition and can slow their development), difficulty speaking and lost days in school. About 21% of Rhode Island's kindergarteners and 24% of Rhode Island's third graders had untreated tooth decay; higher than the national average of 15% and 20% for five-year-olds and third graders in the general US population, respectively (NHANES, 2011-2016). Refer to Figure 1 and Tables 2-3.

FIGURE 1:

Prevalence of Decay Experience and Untreated Tooth Decay Among Rhode Island's Kindergarteners and Third Graders Compared to Children in the General US Population



Data Sources: Rhode Island Oral Health Survey, 2019-2022
National Health and Nutrition Examination Survey (NHANES), 2011-2016

TABLE 2:

Prevalence of Decay Experience and Untreated Tooth Decay in the Primary and Permanent Teeth Among Rhode Island's Kindergarteners by Selected Characteristics, 2019-2022

	WITH DECAY EXPERIENCE		WITH UNTREATED DECAY	
CHARACTERISTIC	NUMBER WITH DATA	WEIGHTED PERCENT (95% CI)	NUMBER WITH DATA	WEIGHTED PERCENT (95% CI)
All Kindergarteners	**2,013**	**31.5 (27.8-35.1)**	**2,015**	**20.8 (17.6-24.0)**
RACE/ETHNICITY				
Black/African American	266	39.0 (29.9-48.0)	266	31.1 (24.1-38.1)
Hispanic	614	38.2 (32.1-44.2)	615	27.2 (21.6-32.8)
White (non-Hispanic)	894	27.6 (23.3-31.8)	894	17.1 (13.3-20.9)
Another race or multiracial	167	33.2 (20.2-46.2)	168	20.2 (11.6-28.8)
FRSM ELIGIBILITY OF SCHOOL				
Less than 25% FRSM	400	23.6 (17.2-30.0)	399	13.5 (7.4-19.7)
25%-49% FRSM	367	28.1 (21.4-34.8)	368	19.3 (13.4-25.1)
50%-74% FRSM	424	34.1 (25.2-43.0)	424	22.3 (15.4-29.2)
75% or more of FRSM	822	41.5 (35.0-48.1)	824	29.2 (23.6-34.8)

Untreated decay: Dental cavities or tooth decay that have not received appropriate treatment.

Decay experience: Refers to having untreated decay or a dental filling, crown, or other type of restorative dental material. Also includes teeth that were extracted because of tooth decay.

Number with data: represent the number of screenings that had the information correctly filled in the survey form.

TABLE 3:

Prevalence of Decay Experience and Untreated Tooth Decay in the Primary and Permanent Teeth Among Rhode Island's Third Graders by Selected Characteristics, 2019-2022

	WITH DECAY EXPERIENCE		WITH UNTREATED DECAY	
CHARACTERISTIC	NUMBER WITH DATA	WEIGHTED PERCENT (95% CI)	NUMBER WITH DATA	WEIGHTED PERCENT (95% CI)
All Third-Graders	**2,437**	**45.2 (39.7-50.6)**	**2,431**	**24.0 (18.6-29.3)**
RACE/ETHNICITY				
Black/African American	310	44.5 (35.8-53.2)	310	21.4 (14.8-27.9)
Hispanic	758	53.7 (48.5-58.9)	756	28.3 (24.6-32.0)
White (non-Hispanic)	1,058	40.2 (32.2-48.3)	1,054	22.5 (13.6-31.4)
Another race or multiracial	203	52.7 (43.0-62.4)	203	30.8 (22.2-39.4)
FRSM ELIGIBILITY OF SCHOOL				
Less than 25% FRSM	437	36.8 (23.2-50.5)	437	19.8 (5.6-33.9)
25%-49% FRSM	455	41.9 (29.9-53.9)	451	22.9 (10.2-35.7)
50%-74% FRSM	446	49.9 (40.3-59.5)	444	25.0 (20.8-29.3)
75% or more of FRSM	1,099	53.0 (48.8-57.2)	1,099	28.1 (24.0-32.1)

Untreated decay: Dental cavities or tooth decay that have not received appropriate treatment.

Decay experience: Refers to having untreated decay or a dental filling, crown, or other type of restorative dental material. Also includes teeth that were extracted because of tooth decay.

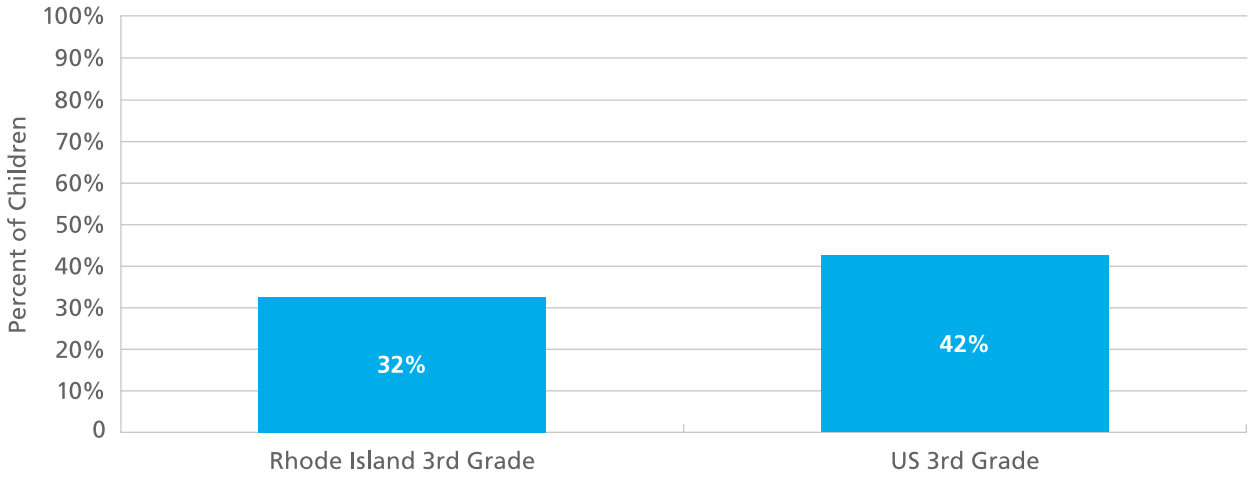
Number with data: represent the number of screenings that had the information correctly filled in the survey form.

Dental Sealants Amongst Third Graders

Dental sealants are thin plastic coatings that are applied to the grooves on the chewing surfaces of the back adult teeth to protect them from tooth decay. Most tooth decay in children occurs on these surfaces. Sealants protect the chewing surfaces from tooth decay by keeping germs and food particles out of these grooves. Less than one-third (32%) of Rhode Island's third graders had at least one protective dental sealant; compared to 42% of the general US population of third graders (NHANES, 2011-2016). Most kindergarteners do not have adult molars, so this information is only presented for third graders – permanent molars generally appear in the mouth at age six. Refer to Figure 2 and Table 4.

FIGURE 2:

Prevalence of Dental Sealants in the Permanent Molar Teeth of Rhode Island's Third Graders Compared to the General US Population of Third Graders



Data Sources: Rhode Island Oral Health Survey, 2019-2022
National Health and Nutrition Examination Survey (NHANES), 2011-2016

TABLE 4:

Prevalence of Dental Sealants on Permanent Molar Teeth Among Rhode Island's Third Graders by Selected Characteristics, 2019-2022

DENTAL SEALANTS		
CHARACTERISTIC	**NUMBER WITH DATA**	**WEIGHTED PERCENT (95% CI)**
All Third-Graders	2,429	31.6 (26.3-36.8)
RACE/ETHNICITY		
Black/African American	309	29.4 (20.4-38.4)
Hispanic	756	28.1 (22.9-33.3)
White (non-Hispanic)	1,055	33.3 (25.2-41.3)
Another race or multiracial	201	27.2 (16.8-37.7)
FRSM ELIGIBILITY OF SCHOOL		
Less than 25% FRSM	437	38.9 (25.0-52.8)
25%-49% FRSM	451	26.0 (16.1-35.9)
50%-74% FRSM	444	32.7 (23.1-42.2)
75% or more of FRSM	1,097	29.7 (24.4-35.0)

Dental sealants: Plastic-like coatings applied to the chewing surfaces of back teeth. The applied sealant resin bonds into the grooves of teeth to form a protective physical barrier.

Number with data: represent the number of screenings that had the information correctly filled in the survey form.

Rampant Decay (Seven or more teeth with decay experience)

Rampant decay, or rampant dental caries, is defined as having seven or more teeth with either treated or untreated tooth decay. Children who experience dental caries as infants or toddlers have a higher chance of subsequent caries in both the primary and permanent dentitions. Rampant decay is preventable through early examination and treatment along with consistent oral health practices such as toothbrushing, use of fluorides, a healthy diet, and frequent dental visits.

TABLE 5:

Prevalence of Rampant Decay in the Primary and Permanent Teeth Among Rhode Island's Kindergarteners and Third Graders by Selected Characteristics, 2019-2022

	KINDERGARTEN		THIRD GRADE	
CHARACTERISTIC	NUMBER WITH DATA	WEIGHTED PERCENT (95% CI)	NUMBER WITH DATA	WEIGHTED PERCENT (95% CI)
All Children	**1,992**	**3.0 (2.0-4.0)**	**2,405**	**2.8 (1.9-3.7)**
RACE/ETHNICITY				
Black/African American	260	6.4 (2.2-10.7)	299	3.6 (1.4-5.8)
Hispanic	606	6.6 (4.0-9.2)	754	5.3 (3.4-7.2)
White (non-Hispanic)	893	0.8 (0.3-1.4)	1,044	1.5 (0.7-2.3)
Another race or multiracial	165	4.3 (1.3-7.3)	202	2.9 (-0.5-6.4)
FRSM ELIGIBILITY OF SCHOOL				
Less than 25% FRSM	398	0.5 (-0.2-1.2)	437	0.6 (-0.2-1.3)
25%-49% FRSM	367	0.7 (-0.2-1.6)	445	1.2 (-0.2-2.5)
50%-74% FRSM	423	3.0 (1.2-4.7)	443	2.6 (1.1-4.2)
75% or more of FRSM	804	8.2 (5.4-11.0)	1,080	6.5 (4.4-8.6)

Rampant decay: Having seven or more teeth with either treated or untreated tooth decay.

Number with data: represent the number of screenings that had the information correctly filled in the survey form.

Early or Urgent Dental Care

Early or urgent dental care is defined as a child who needs restorative dental care. Urgent dental care is defined as a child who needs restorative dental care within the next 24-48 hours due to pain or infection. Children attending schools with more than 75% of students eligible for FRSM program were significantly more likely to need urgent dental care compared to schools with less than 75% of students eligible for FRSM.

TABLE 6:

Prevalence of Children Needing Early or Urgent Dental Care Among Rhode Island's Kindergarteners and Third Graders by Selected Characteristics, 2019-2022

	KINDERGARTEN		THIRD GRADE	
CHARACTERISTIC	NUMBER WITH DATA	WEIGHTED PERCENT (95% CI)	NUMBER WITH DATA	WEIGHTED PERCENT (95% CI)
All Children	**2,012**	**23.2 (19.5-26.8)**	**2,431**	**31.4 (25.0-37.8)**
RACE/ETHNICITY				
Black/African American	266	38.8 (27.9-49.8)	310	32.5 (21.1-43.9)
Hispanic	613	28.1 (22.7-33.6)	757	38.3 (30.1-46.5)
White (non-Hispanic)	892	19.0 (14.8-23.1)	1,053	28.9 (19.6-38.2)
Another race or multiracial	168	24.7 (14.5-34.8)	204	34.7 (26.7-42.7)
FRSM ELIGIBILITY OF SCHOOL				
Less than 25% FRSM	397	15.4 (8.6-22.3)	433	23.8 (9.4-38.2)
25%-49% FRSM	368	18.9 (12.6-25.2)	454	29.9 (14.8-45.0)
50%-74% FRSM	424	25.3 (15.4-35.1)	446	35.9 (25.2-46.5)
75% or more of FRSM	823	34.3 (27.8-40.9)	1,098	36.9 (28.7-45.0)

Early or urgent dental care: A child who needs restorative dental care.

Number with data: represent the number of screenings that had the information correctly filled in the survey form.

TABLE 7:

Prevalence of Children Needing Urgent Dental Care Among Rhode Island's Kindergarteners and Third Graders by Selected Characteristics, 2019-2022

	KINDERGARTEN		THIRD GRADE	
CHARACTERISTIC	NUMBER WITH DATA	WEIGHTED PERCENT (95% CI)	NUMBER WITH DATA	WEIGHTED PERCENT (95% CI)
All Children	**2,012**	**2.3 (1.3-3.2)**	**2,431**	**2.4 (1.6-3.3)**
RACE/ETHNICITY				
Black/African American	266	5.7 (2.7-8.6)	310	3.2 (1.0-5.4)
Hispanic	613	5.5 (3.1-8.0)	757	5.3 (3.6-7.0)
White (non-Hispanic)	892	0.2 (0.0-0.4)	1,053	0.8 (0.1-1.4)
Another race or multiracial	168	3.5 (0.5-6.5)	204	3.5 (0.4-6.7)
FRSM ELIGIBILITY OF SCHOOL				
Less than 25% FRSM	397	0.0 (0.0-0.0)	433	0.0 (0.0-0.0)
25%-49% FRSM	368	0.9 (-0.4-2.2)	454	0.8 (-0.3-1.9)
50%-74% FRSM	424	2.0 (0.2-3.8)	446	1.7 (-0.5-3.9)
75% or more of FRSM	823	6.3 (3.5-9.0)	1,098	6.5 (4.4-8.7)

Urgent dental care: A child who needs restorative dental care or other management within the next 24-48 hours because of pain or infection.

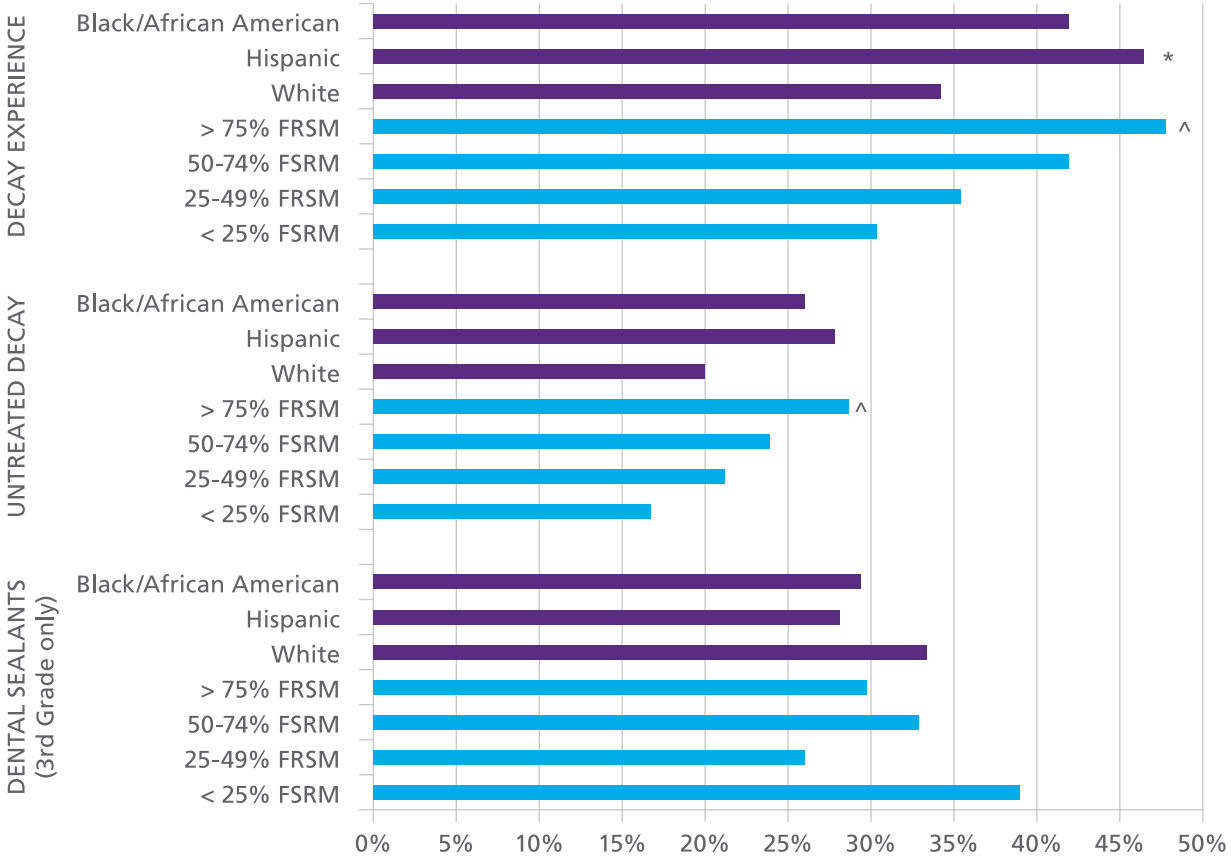
Number with data: represent the number of screenings that had the information correctly filled in the survey form.

IMPACT OF RACE/ETHNICITY AND SOCIOECONOMIC STATUS

Influential sociodemographic indicators for oral health disparities in the United States include poverty status, race, and ethnicity. In Rhode Island, children attending the lowest income schools (schools with 75% or more of children eligible for FRSM program) have a significantly higher prevalence of decay experience and untreated tooth decay compared to children attending the highest income schools (schools with less than 25% of children eligible for FRSM program). Hispanic children, compared to non-Hispanic White children, have a significantly higher prevalence of decay experience. There are no statistically significant differences in the prevalence of untreated decay by race/ethnicity. Among third graders, there are no significant differences in the prevalence of dental sealants by race/ethnicity or socioeconomic status. Refer to Figure 3 and Tables 4 and 8.

FIGURE 3:

Prevalence of Decay, Untreated Tooth Decay and Dental Sealants Among Rhode Island's Kindergarteners and Third Graders by Race/Ethnicity and Percentage of Students Eligible for FRSM Program, 2019-2022



* Significantly higher than Non-Hispanic White children ($p<0.05$)
^ Significantly higher than children attending schools with < 25% eligible for FRSM ($p<0.05$)

TABLE 8:

Prevalence of Decay Experience and Untreated Tooth Decay in the Primary and Permanent Teeth Among Rhode Island's Kindergarteners and Third Graders Combined by Selected Characteristics, 2019-2022

	DECAY EXPERIENCE		UNTREATED DECAY	
CHARACTERISTIC	NUMBER WITH DATA	WEIGHTED PERCENT (95% CI)	NUMBER WITH DATA	WEIGHTED PERCENT (95% CI)
All Children	**4,450**	**38.6 (35.2-41.9)**	**4,446**	**22.4 (19.3-25.5)**
RACE/ETHNICITY				
Black/African American	576	41.9 (35.5-48.4)	576	25.9 (20.6-31.1)
Hispanic	1,372	46.3 (41.8-50.7)	1,371	27.8 (24.1-31.5)
White (non-Hispanic)	1,952	34.1 (29.4-38.9)	1,948	19.9 (15.1-24.8)
Another race or multiracial	370	42.7 (35.3-50.2)	371	25.4 (20.5-30.3)
FRSM ELIGIBILITY OF SCHOOL				
Less than 25% FRSM	837	30.2 (23.5-36.9)	836	16.6 (9.6-23.7)
25%-49% FRSM	822	35.3 (29.1-41.4)	819	21.1 (14.5-27.8)
50%-74% FRSM	870	42.0 (33.1-50.9)	868	23.7 (18.8-28.5)
75% or more of FRSM	1,921	47.8 (43.7-51.8)	1,923	28.6 (24.9-32.3)

Untreated decay: Dental cavities or tooth decay that have not received appropriate treatment.

Decay experience: Having untreated decay or a dental filling, crown, or other type of restorative dental material. Also includes teeth that were extracted because of tooth decay.

Number with data: represent the number of screenings that had the information correctly filled in the survey form.

COMPARISON TO 2013-2014 SURVEY AMONGST THIRD GRADE CHILDREN

Rhode Island conducted its first statewide third grade oral health survey during the 2007-2008 school year, followed by a second survey in 2013-2014. The same diagnostic criteria, screening indicators, and type of consent were used in the current survey. The previous oral health surveys only included third graders; however, the 2019-2022 oral health survey included kindergarteners and third graders.

Third graders surveyed in the 2019-2022 academic school years had a lower rate of decay experience and untreated decay compared to third graders surveyed in 2010-2011 and 2013-2014. Dental sealant prevalence continuously decreased from 39% (2010-2011), to 37% (2013-2014), to 32% (2019-2022). Need for urgent dental care decreased from 3% in 2010-2011 to 2% in 2013-2014 and 2019-2022. Refer to Figure 4 and Table 9.

FIGURE 4:

Trend Prevalence of Decay Experience, Untreated Decay, Dental Sealants, and Urgent Dental Care Need of Rhode Island's Third Graders

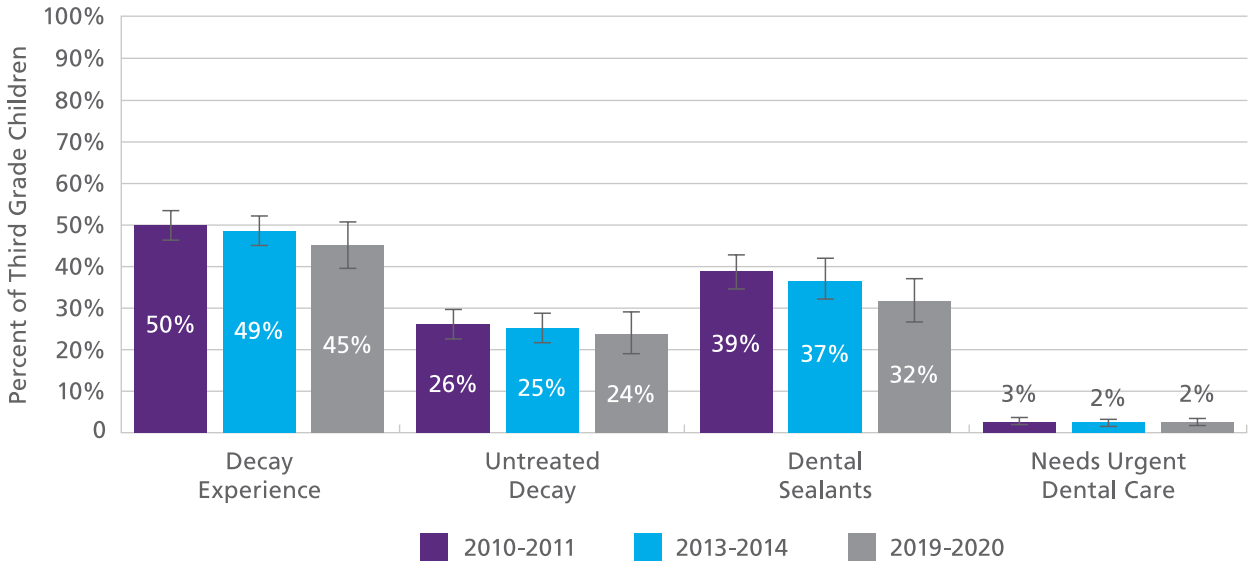


TABLE 9:

Trend of Prevalence of Dental Sealants on Permanent Molar Teeth Among Rhode Island Third Graders by Selected Characteristics, 2010-2022

CHARACTERISTIC	2010-2011	2013-2014	2019-2022
Number of schools in sample	107	74	60
Number of participating schools	79	60	58
Number of third graders screened	3,266	2,529	2,438
Response rate (within participating schools)	68%	59%	60%
Black/African American	9%	NA	14%
Hispanic/Latinx	21%	NA	27%
White	62%	56%	60%
Percentage with decay experience (95% CI)	50.0 (46.4–53.5)	48.6 (44.9–52.2)	45.2 (39.7–50.6)
Percentage with untreated decay (95% CI)	26.3 (23.2–29.3)	25.3 (21.7–28.9)	24.0 (18.6–29.3)
Percentage with dental sealants (95% CI)	39.1 (35.5–42.7)	36.8 (32.0–41.6)	31.6 (26.3–36.8)
Percentage with urgent treatment need (95% CI)	2.6 (1.7–3.5)	1.6 (1.0–2.2)	2.4 (1.6–3.3)

RECOMMENDATIONS

- Continue collaborating with statewide early childhood healthcare and educational programs and schools to promote oral health education and disease prevention efforts starting in early childhood. Early prevention is the best strategy to reduce the burden of oral disease for Rhode Island school-aged children.
- Continue to promote the regular preventive dental visit and age-appropriate preventive dental services (topical fluoride and dental sealants), particularly among high-risk children such as RIte Smiles and Medicaid-enrolled children.
- Continue to support school-based dental programs that provide, or facilitate, the delivery of dental sealants, with particular focus on high-risk children in underserved communities and schools with higher FRSM eligibility. Since 2007-2008, dental sealant prevalence rates continuously suggest that the programs can reduce gaps in children's receipt of preventive dental services. However, close evaluation of these programs is recommended to ensure more effective sealant delivery and better ability to meet high-risk children's needs.
- Continue collaboration between RIDOH and the Rhode Island Department of Education to standardize and improve the mandatory annual school dental screening protocol and reporting process to make the data available for oral health surveillance. Rhode Island Rules and Regulations for School Health Programs require that every student receive an annual dental screening by a licensed dentist or dental hygienist through fifth grade and at least one screening between sixth grade and 10th grade.

APPENDICES

Acknowledgements

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Resources

The *Kindergarten and Third Grade Oral Health Screening Form* appears on the following page.

RI BSS DENTAL SCREENING (K & 3RD GRADERS) 2019-20/2021-22 SCHOOL YEARS

(a) SCHOOL (CODE):	(b) CITY/TOWN:	(c) ZIP:
(d) SCREENER:	(e) DATE:	(f) CLASSROOM:

STUDENT DEMOGRAPHICS

(g) AGE	(h) GENDER	(i) RACE/ETHNICITY	
	☐ Male (1) ☐ Female (2)	☐ Non-Hispanic, White (1) ☐ Hispanic (3) ☐ Non-Hispanic, Black (5)	☐ Asian/Pacific Islander (2) ☐ Native American (4) ☐ Other (6)

SCREENING FINDINGS

1. TREATED CARIES	2. UNTREATED CARIES	3. RAMPANT CARIES (7 or more teeth with treated and/or untreated caries)	4. SEALANT(S) on PERMANENT MOLARS
☐ No (0) ☐ Yes (1) ☐ Primary Teeth (2) ☐ Permanent Teeth (3)	☐ No (0) ☐ Yes (1) ☐ Primary Teeth (2) ☐ Permanent Teeth (3)	☐ No (0) ☐ Yes (1)	☐ No (0) ☐ Yes (1)

5.ABNORMAL SOFT TISSUE	6. TREATMENT URGENCY
☐ No (0) ☐ Yes (1) Gross gingival inflammation or soft tissue lesions (fistulas, abscesses, etc.)	☐ No Apparent Need for Care (0) ☐ Apparent Need for Routine, Non-Urgent Care/ Referral Recommended (1) ☐ Apparent Emergency Need/ Immediate Referral Recommended (2)

7. COMMENTS

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