

# Pennsylvania Oral Health Basic Screening Survey

2021-2022 Oral Health  
Basic Screening Survey of  
Third-Graders

June 2023

Updated as of 10/05/2023



**pennsylvania**  
DEPARTMENT OF HEALTH

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## Executive Summary

With support from the PCOH, a basic screening survey (BSS) was conducted on third-grade children to collect data on their oral health status during the 2021-2022 academic year. This report summarizes the findings of the state-wide sample and provides valuable insights into the current oral health status of children in third-grade in Pennsylvania.

Dental caries, the disease that causes tooth decay or cavities, is a multifactorial chronic infectious disease that affects the hard tissues of the teeth. It is caused by bacteria interacting with fermentable carbohydrates (sugars) found in food and beverages. Dental caries is the number one chronic disease of children in the United States.

According to the data analysis, the prevalence of dental caries (cavities), the infection that causes tooth decay, in third-grade children in Pennsylvania is higher than the national average. Untreated tooth decay, or cavities that have not been restored is also a significant issue among students. The report highlights regional, urban and socioeconomic disparities in oral health outcomes. Children from low-income families and those living in rural areas are at a higher risk of poor oral health.

The findings of this report suggest a need for policy and programmatic interventions aimed at improving oral health outcomes for children in Pennsylvania. Such interventions should prioritize reducing disparities in oral health outcomes based on geographic region and socioeconomic status. Additionally, efforts should focus on increasing access to preventive oral health services and promoting healthy oral hygiene practices among children.

In conclusion, this report provides a comprehensive overview of the oral health status of third-grade children in Pennsylvania. The findings highlight the need for a collaborative and comprehensive approach to improving oral health outcomes for the state's young population.

# Introduction

Oral health is a vital aspect of overall well-being, impacting overall health, productivity and functionality. On average, 34 million school hours are lost each year because of unplanned (emergency) dental care, and over \$45 billion in US productivity is lost each year due to untreated dental disease. Estimating the oral health status of a population is crucial in implementing targeted interventions, such as expanding school-based dental sealant programs or improving access to fluoridated public water.

The World Health Organization (WHO) defines oral health as a key indicator of overall health, well-being and quality of life. The CDC defines oral health as the health of the teeth, gums and the entire oral-facial system that allows one to smile, speak and chew. Oral health affects one's ability to express emotion, be productive, learn and engage in social activities. Self-esteem can be greatly affected by the appearance of one's smile. Good oral health is often taken for granted, even though it is an essential indicator of overall health.



Taking care of oral health and hygiene has a myriad of benefits, such as the prevention of oral diseases and halitosis (bad breath). It improves quality of life and reduces the cost of health care over the lifetime.



Oral health is affected by several factors, such as eating habits and access to health care. Poor oral health is a challenging issue to overcome in Pennsylvania due to underserved populations and existing disparities between oral health and access to oral health care. Oral health is a critical component of overall health and well-being, particularly among children as poor oral health may lead to pain, infection, missed school days and long-term health problems.

Basic screening surveys provide a snapshot view of a specific population and are a helpful public health surveillance tool for measuring population changes over time. Using sampling methods, the oral health status of a specific population (third-grade children) is summarized by collecting data on only a portion of the population that serves as a representative sample. It involves a dental provider checking for tooth decay, dental sealants and overall dental need in a brief oral examination.

The survey results enable programs and organizations such as the Pennsylvania Department of Health Oral Health Program (OHP) and the PCOH to identify shortcomings and successfully take preventive measures to improve oral health in Pennsylvania.







This report aims to provide valuable insights into the oral health status of Pennsylvania children, informing future policies and programs promoting oral health among the state's youth.

Report Structure and Roles of Involved Organizations	
 Funding	CDC through the DOH
 Collaborations	DOH, PCOH and the PDE

 Participants	School districts, employees, third-grade students, screeners and other individuals
 Consultants	DOH epidemiologist and the ASTDD

## Benefits of Good Oral Health

Despite its importance, good oral health is often overlooked, even though it is a vital indicator of overall health and well-being. Maintaining proper oral health and hygiene offers numerous benefits, including:

-  **Prevention of oral diseases:** Taking good care of oral health can prevent or successfully treat oral health conditions such as cavities, gum disease and oral cancer later in life.
-  **Prevention of other health conditions:** Poor oral health can lead to other conditions, such as diabetes, as individuals with gum diseases struggle to control their blood sugar levels. Another resulting health condition is endocarditis, the inflammation of the heart’s inner lining. The spread of bacteria from the oral cavity via the bloodstream can infect the inner lining of the heart chambers.
-  **Halitosis or bad breath:** The prevalence of bacteria residing in the oral cavity leads to the build-up of plaque, which causes bad breath. It can easily be prevented by regularly brushing teeth and the tongue, flossing and using mouth rinses.
-  **Comfort:** Ignoring oral health can lead to painful toothaches and diseases. This affects a person’s ability to eat, swallow, talk or carry out daily activities.
-  **Quality of life:** Good oral health boosts confidence and avoids disruption of work performance or school attendance. The influence of good oral health goes beyond having a bright smile; daily interactions with other people, showing up for school and being an active participant are some instances directly affected by oral health.
-  **Reduced cost of health care:** Every year, American taxpayers spend billions of dollars on treating and managing oral discomfort and diseases. This cost can be significantly reduced if oral health is maintained from early childhood. Some examples of prophylactic measures include regular dental visits, brushing teeth at least twice daily and using fluoridated water and toothpaste.

## Oral Health Status in Pennsylvania

The basic screening survey (BSS) was conducted by screening third-grade children to collect data on their oral health status. The sample was stratified by geographic location, urbanicity and free/reduced lunch status. The study found that 60 percent of the children had dental caries (cavities) and 26 percent had untreated dental caries (cavities). Moreover, the study identified regional, urban and socioeconomic disparities in oral health outcomes. Children from low-income families and those living in rural areas were found to be at a higher risk of poor oral health outcomes.

Furthermore, Pennsylvania ranks 44th in the nation in the percentage of residents who receive fluoridated water, only 57.3 percent of the population receives fluoridated drinking water, significantly lower than the national average of 72.8 percent. These statistics demonstrate the need for policy and programmatic interventions aimed at improving oral health outcomes. Efforts should focus on increasing access to preventive oral health services, promoting healthy oral hygiene practices and reducing disparities in oral health outcomes based on geographic region, race, ethnicity, socioeconomic status and access to optimally fluoridated water.

### Survey Method

Public health dental hygiene practitioners (PHDHP) and Certified School Dental Hygienists (CSDH) were approved by the DOH and the PDE to conduct this screening. Public elementary schools, including charter schools, were selected to participate in the BSS. Only students in third-grade were asked to participate in the assessment.

To assure that the results were representative of the state in terms of both geographic location and socioeconomic status, the ASTDD consultant supplied a systematic sampling and developed weighted percentages. The state-wide sample was drawn proportional to district size and stratified by geographic region and income status of individual schools, based on which the ASTDD consultant developed weights to be use in the data analysis to generate state-level estimates of oral health indicators. The BSS protocol began with a list of 80 schools identified for participation. When schools declined to participate, a similar replacement school was selected. The final sample was 74 schools from across the Commonwealth and 4,234 (69.9%) students were screened.

The assessment was conducted by the PCOH to increase community capacity and skills for collecting community-specific oral health data. The PCOH, along with an experienced consultant from the ASTDD, provided professional training to calibrate all screeners on assessment, technique, and documentation.

Information was shared with school administrators before they agreed to participate in the BSS. Parent information and passive consent forms were distributed to participating schools. Screeners were provided with the following materials: screening spreadsheets for each school, parent notification and referral cards for each participating student following the screening,

antiseptic hand sanitizer, disposable mirrors, gauze, flossers, toothbrushes, face shield, headlamp, gloves and face masks.

The oral health data elements are comparable to the Healthy People 2030 Oral Health Objectives and include dental cavities experience, the presence of cavitated (broken-through) untreated lesions and the presence of dental sealants. The oral health data are appropriate for inclusion in the National Oral Health Surveillance System (NOHSS) administered by the CDC and will be used as an indicator of oral health and a state-wide baseline for future program planning and evaluation. The Pennsylvania Oral Health Plan 2020-2030 guides the oral health work in Pennsylvania.

Children were screened for the following four indicators in the Pennsylvania Oral Health Basic Screening Survey:

**Table 1 – Basic Screening Survey Indicators, 2023**

Indicators	
1.	Caries Experience
2.	Untreated Decay
3.	Dental Sealants
4.	Urgent Need for Dental Care

To be screened, children participated through a “passive consent” process as approved by the PDE through an Institutional Review Board (IRB) waiver process. Parents were notified of the screening purpose and date of the event and had the option to decline participation by notifying the school.

The screeners were required to attend two training sessions, contact schools to schedule screening dates, verify screening supplies prior to the screening date and submit data to the PCOH following each screening.

## Procedure

In general, the screening procedures for the BSS assumed that the screener would not touch the child being screened. However, screeners wore a mask, face shield and gloves during the screenings.

Gloves were changed after every child. If there was no physical contact, it was not necessary to wash hands between children. If a gloved hand touched the mouth’s mucous membrane, lips, or saliva, gloves were removed and hands were rubbed with an antiseptic before putting on a new pair of gloves to screen the next child. After the screening, both handwritten and electronic data spreadsheets were submitted to the PCOH. The results were gathered with the understanding that if the tooth surfaces could not be seen due to debris, the screener could use a flosser to clean away food.



Screeners used a headlamp provided in the supply kit. Magnifying loupes were not used by the screeners. Disposable dental mirrors were used for retraction and visualization.

Screener activities on the screening day included:

**Table 2 – Screening and Recording Activities for a Single Day, 2023**

Screening and Recording Activities	
1.	Arrive at the screening site at least 30 minutes before the first scheduled screening.
2.	Check-in at the school's office, then set up supplies for the screening in the predetermined area. Obtain a class roster for the classroom that is scheduled for screening. Verify that no student on the list has declined participation from parents. Notify the third-grade classroom that you are ready.
3.	Screen the child and fill in the screening spreadsheet. Double-check to ensure you have completed a field for every column.
4.	The runner/helper, if available, will bring children to the screening site. The recorder will write down the results of the screening.
5.	After assessment, complete the parent notification form. Give the child the parent notification form, toothbrush and flosser pack. Send the child back to the classroom.
6.	Leave a toothbrush for each child in the classroom that was not screened. Provide an adult toothbrush to each third-grade teacher and any parent/staff volunteers.
7.	When finished for the day, stop by the office and thank the staff for helping with the BSS. Return the list of names and IDs that was provided to you at the beginning of the session. Take the garbage bag along with you to be disposed of appropriately.

**A cavitated lesion was detected when a screener could readily observe two things:**

- A ½ millimeter loss of tooth structure at the enamel.
- The walls of the lesion are brown to dark brown in color.

Teeth that met both criteria were considered cavitated lesions, even if they had an existing filling or a crown (cap). These criteria applied to both pit and fissure (chewing surface) cavitated lesions and smooth tooth surfaces. If the screener noticed a retained root, they were to assume that cavities destroyed the entire tooth and code the child as having a cavitated lesion.

Unless a cavitated lesion was present, broken or chipped teeth were considered sound. For the BSS, the guidance was to be conservative in assessment. If screeners were unsure whether a cavitated lesion was present, they were to assume it was not. Standardizing this assessment process ensured that data were reliable and conservative in their measurements.

Positive caries experience includes a filling (permanent or temporary), crown or tooth that is missing because it was extracted due to caries.

A dental filling is a restorative dental procedure that involves repairing a decayed, damaged, or broken tooth by filling the cavity with a dental material such as composite resin, amalgam, gold or porcelain.

Dental fillings are used to restore the tooth's function, shape and appearance, as well as to prevent further decay or damage. A dental filling can also be used to replace an old or damaged filling or to repair a cracked or chipped tooth. The procedure involves removing the decayed or damaged portion of the tooth, cleaning the area and filling the cavity with dental material.

A dental crown is a type of dental restoration that completely covers or "caps" a damaged or weakened tooth. It is custom-made to fit over the tooth, providing support, strength and a natural appearance. Dental crowns are typically made from various materials, such as porcelain, ceramic, metal (such as gold or other alloys), or a combination of these materials.

A tooth can be lost for reasons other than dental decay, such as trauma; only missing permanent first molars were considered caries-related. Missing front teeth were not considered to be missing as a result of decay caries, due to the natural process of losing deciduous teeth, or baby teeth.

The presence of dental sealants was also assessed for permanent first molars. The CDC defines dental sealants as thin coatings painted on the chewing surfaces of the back teeth (molars) that can prevent cavities for many years. Dental sealants are available in both transparent and opaque varieties. While opaque white sealants are relatively easy to identify visually, other shades, such as tooth-colored sealants, may be more difficult. Screeners were required to confirm the presence of sealants by using the flosser handle to feel the chewing surface of the first molars and assess tactile changes in the surface of the tooth. Gauze could also be used to dry the tooth surface and helped to see the sealant if needed.

To explain occlusal surface, in oral health and dentistry, the occlusal surface refers to the chewing or biting surface of a tooth. It is part of the tooth that comes into contact with the opposing tooth in the opposite jaw while chewing. The occlusal surface varies in structure and appearance depending on the type of tooth.

In the case of posterior teeth, such as molars and premolars, the occlusal surface is characterized by cusps, ridges and grooves that help grind and break down food. For anterior teeth, such as incisors and canines, the occlusal surface is much simpler, featuring a flat or slightly curved surface that is primarily designed for cutting and tearing food. Maintaining the health and proper alignment of the occlusal surfaces is essential for effective chewing and overall oral health, as it can help prevent issues like tooth wear and cavities.

**Treatment Urgency**

After categorizing each child according to cavitated lesion status, one of three treatment urgency codes was assigned to estimate how soon the child should visit the dentist for clinical diagnosis and any necessary treatment.

**Table 3 – Treatment Urgency Codes by Category and Criteria, 2023**

Treatment Urgency Codes	
Category Code	Criteria
0 - No obvious problem	No problems observed

1 - Early dental care needed	Cavitated lesion without accompanying signs or symptoms. Suspicious soft white or red tissue areas
2 - Immediate dental care needed	Signs or symptoms that include pain, infection or swelling

Those children with no obvious dental problems observed were given a code “0”, which means that they should receive routine dental check-ups as recommended by their dentist.

Assigning a Code “1” indicated there was some reason that the screener felt they needed to see a dentist sooner than their next routine check-up.

Assigning a Code "2" indicated that immediate dental care was needed due to signs or symptoms that include pain, infection or swelling.

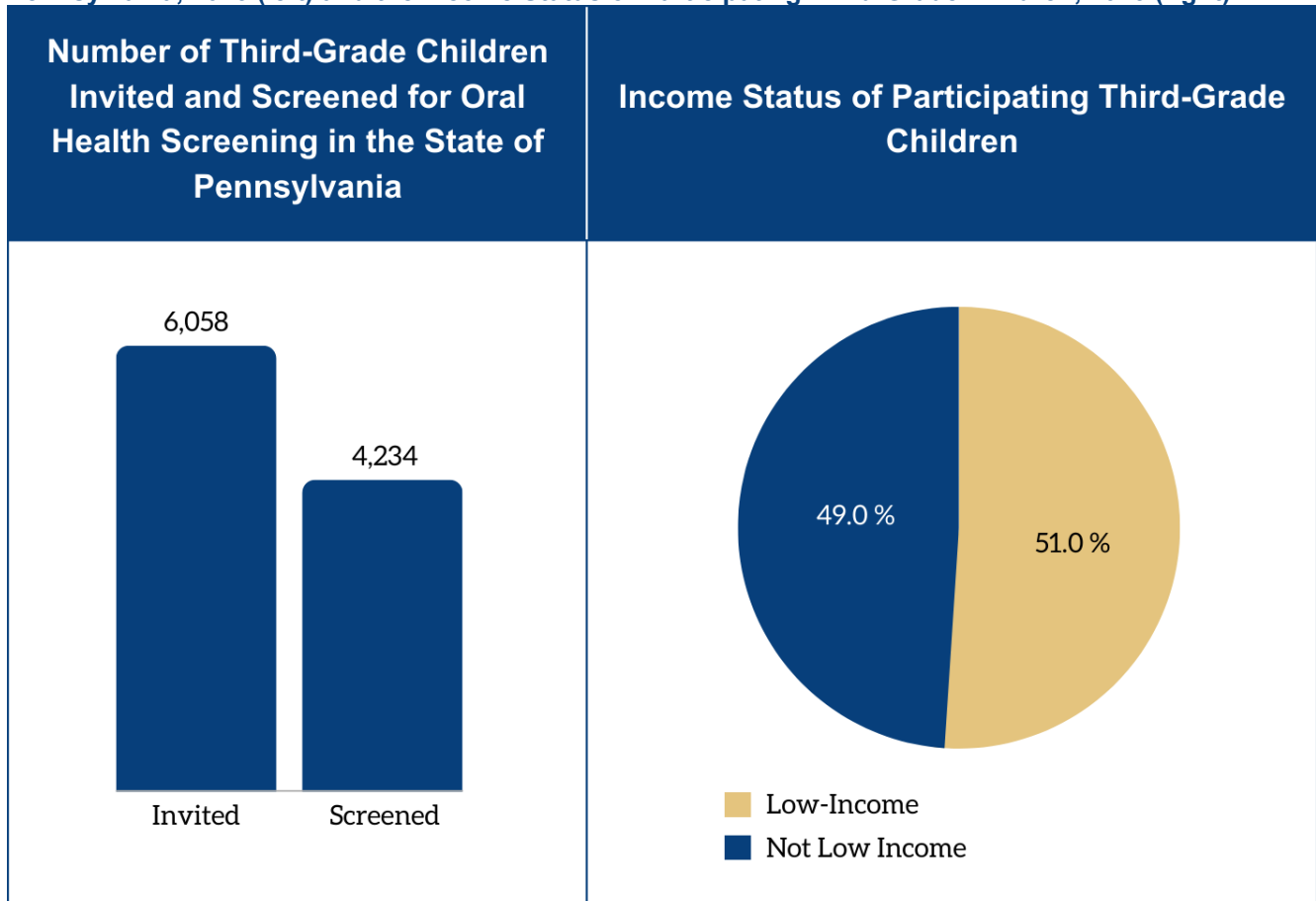
The screening was documented in spreadsheets that included questions about the presence of dental caries, untreated decay, dental sealants and urgent dental care needs. The completed screening spreadsheets were submitted to the PCOH. The datasets were matched by PDE staff to add demographic information and remove PA Secure IDs before sending to DOH Epidemiology for analysis. Children were identified only by a school ID number and no names or protected health information were recorded.

## Data

Of the 6,058 children invited to participate, 4,234 (69.9%) were screened. Children who were absent on the day of the screening and children whose parents refused participation were excluded. Among children who participated, more than half were eligible for the National School Lunch Program (NSLP). The NSLP serves low-cost or free lunches to children in nearly 100,000 public and non-profit private schools (pre-kindergarten through grade 12) and residential childcare institutions.

Note that the income status data provided below refer specifically to third-grade children who were eligible for the NSLP.

**Figure 1 - Number of Third-Grade Children Invited and Screened for Oral Health Screening in Pennsylvania, 2023 (left) and the Income Status of Participating Third-Grade Children, 2023 (right)**



The spreadsheet sample included columns for Student School ID, Treated Decay, Untreated Decay, Sealants and Urgency. Treated Decay and Untreated Decay indicate whether a student has received treatment for decay and whether there is decay present that has not been treated, respectively. Sealants indicate whether a student has dental sealants applied to the first molars. Urgency indicates the level of urgency for dental care needs, ranging from routine to immediate.

**Table 4 – Sample of the Completed Screening Form and Data Reporting Form Submitted, 2023**

Completed Screening Forms and Data Reporting Form Submitted				
Student ID	Treated Decay	Untreated Decay	Sealants	Urgency
00001	Y	Y	N	Immediate
00002	Y	N	Y	Early
00003	N	N	Y	Routine

## Key Terms

When reporting oral health screening data, it is important to understand and use the following key terms to to explain and comprehend results accurately:

- **CI - Confidence Interval:** A range of values that is likely to contain the true population value with a certain level of confidence.
- **NC - Not Collected:** If any data were not collected, "NC" was entered in the corresponding estimate field and the other fields were left blank.
- **NR - Not Reported:** If any group had an unweighted denominator (sample size) less than 30, or the relative standard error (RSE) of the estimate is greater than 30 percent the screener entered "NR" in the corresponding estimate field and left the other fields blank. RSE was obtained by dividing the standard error (SE) of the estimate by the estimate.

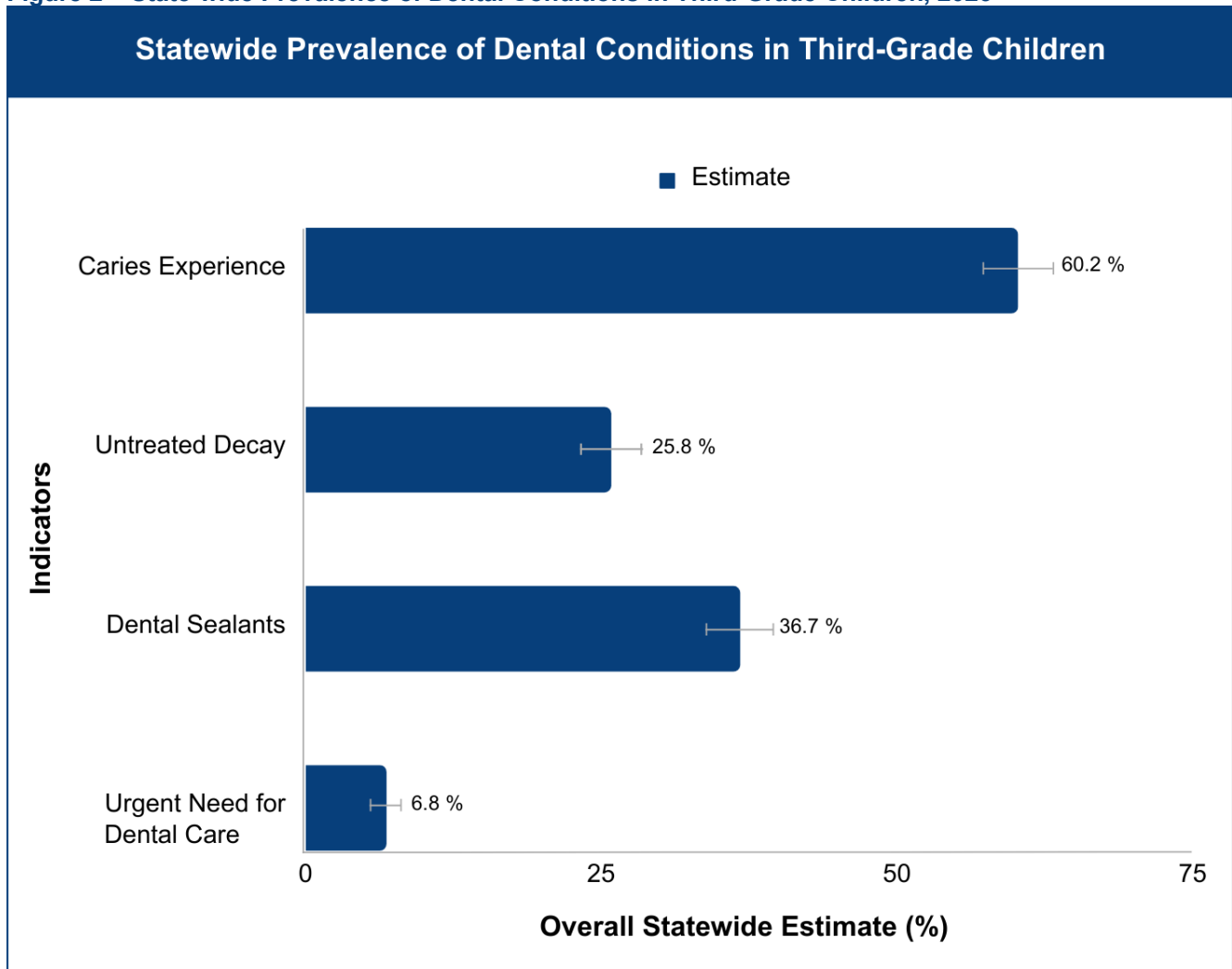
By using these terms, the accuracy and reliability of the data are ensured, which is useful in identifying oral health disparities and developing appropriate interventions and programs to improve oral health outcomes.

## Results

In this section, key demographic trends and disparities in oral health outcomes are highlighted. The results provide insights into the current state of oral health in Pennsylvania and can be used to inform policy and practice aimed at improving oral health outcomes and reducing disparities.

The state-wide estimate of oral health indicators in third-grade children shows that 60.2 percent of children have caries experience, with an estimated 25.8 percent having untreated decay. Additionally, 36.7 percent of children have received dental sealants, while 6.8 percent have an urgent need for dental care. These findings suggest that there is a significant need for oral health interventions and access to timely dental care among this population.

Figure 2 – State-wide Prevalence of Dental Conditions in Third-Grade Children, 2023

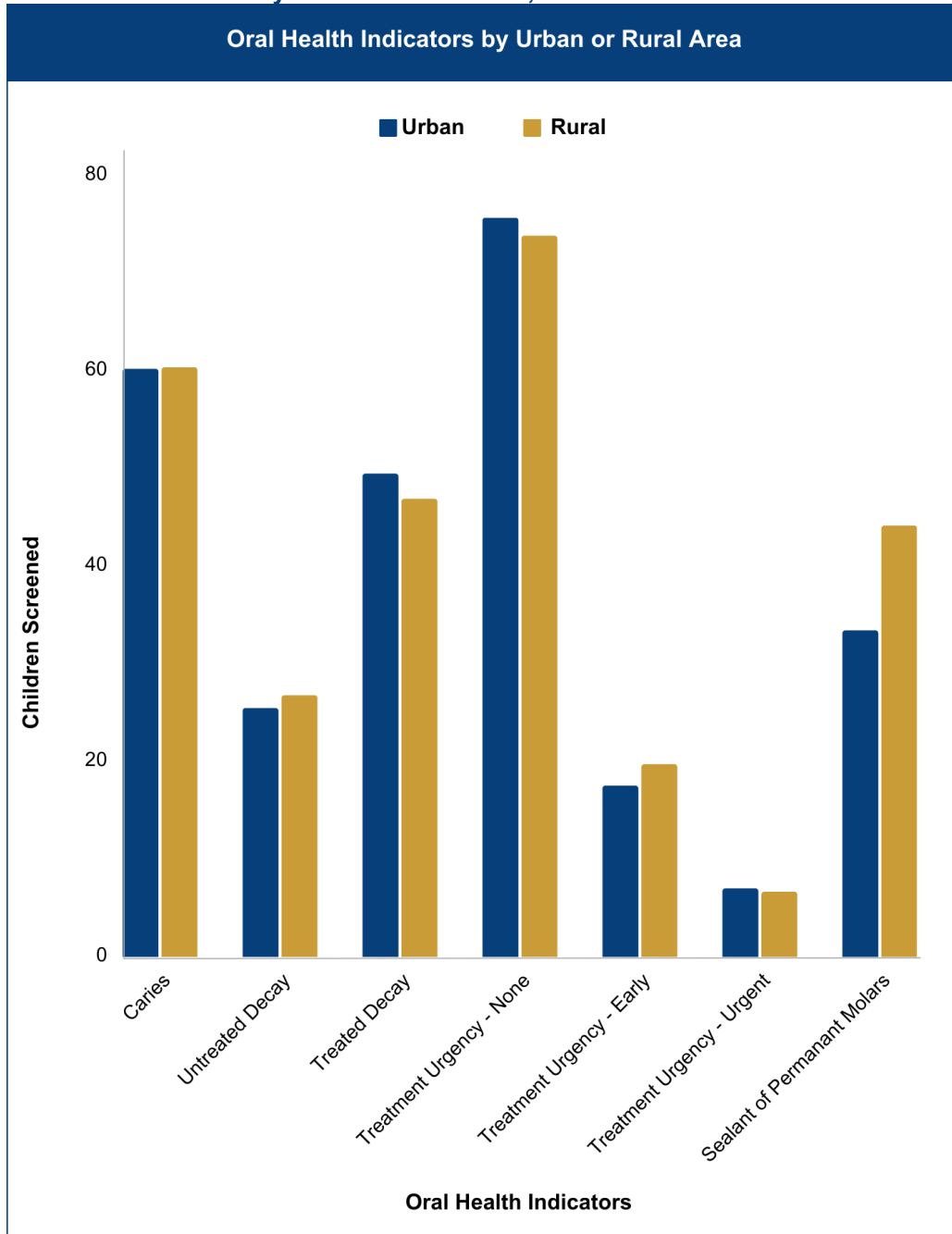


Among children who were screened, 3,015 were from urban settings and 1,146 were from rural settings. Figure 3 presents weighted percentages of key oral health indicators by county and setting (urban/rural) based on the Pennsylvania BSS conducted in 2022.

In urban areas, 60.1 percent of children had caries compared to 60.3 percent in rural areas. Children in urban areas had lower rates of untreated decay (25.4 percent) compared to children in rural areas (26.7 percent). Also, children in urban schools had higher rates of treated decay (49.4 percent) than children in rural areas (46.8 percent).

Most children in both urban and rural settings not requiring urgent treatment 75.6 percent and 73.8 percent, respectively. The percentage of children with permanent molars sealed was higher in rural areas (44.1 percent) than in urban areas (33.4 percent).

Figure 3 – Oral Health Indicators by Urban or Rural Area, 2023



**60%** The prevalence of caries is high in both urban and rural settings, with more than 60 percent of children having caries in both areas. This highlights the need for better oral health education and access to dental care in both urban and rural areas of Pennsylvania.

More than 60 percent of children in both urban and rural settings experience caries, and require dental treatment, suggesting that many children need necessary dental care in a timely

manner. The percentage of children with permanent molars sealed is relatively low in both urban and rural areas, indicating that there is room for improvement in preventive dental care practices.

**Table 5 – Oral Health Indicators by Race and Ethnicity in Pennsylvania, Basic Screening Survey, 2023**

<b>Oral Health Indicators by Race and Ethnicity in Pennsylvania*</b>					
<b>Race/Ethnicity</b>	<b>Caries</b>	<b>Treated Decay</b>	<b>Untreated Decay</b>	<b>Urgent Treatment Need</b>	<b>Sealed Permanent Molars</b>
White	56.9%	24.1%	46.1%	5.5%	38.5%
Black or African-American	65.1%	32.5%	50.9%	32.9%	30.8%
Hispanic	65.8%	27.8%	52.3%	27.5%	33.1%
Asian	66.2%	26.1%	56.7%	26.6%	26.0%
Multi-racial	64.5%	25.4%	54.1%	24.9%	41.9%

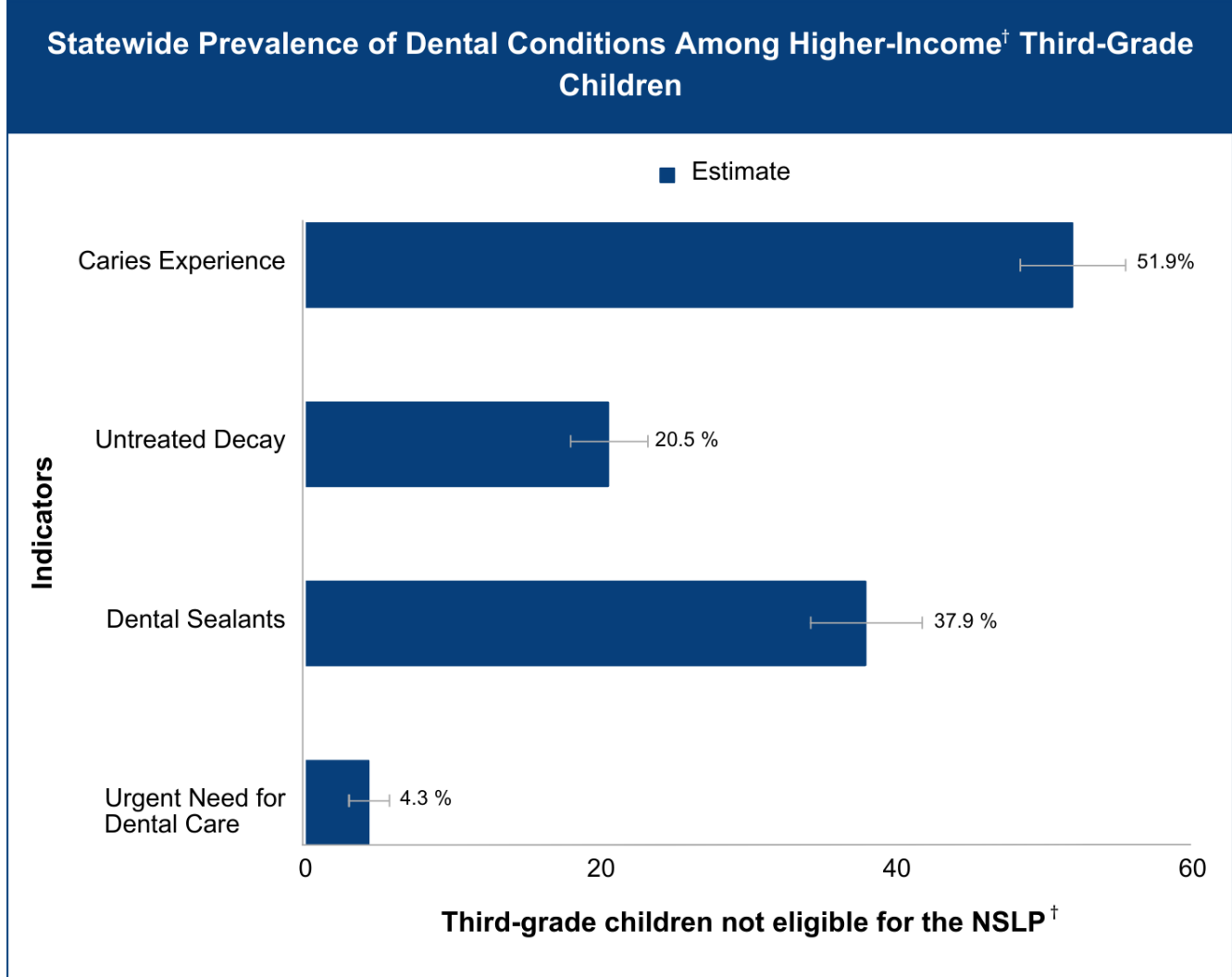
\* All percentages are weighted

The overview of the racial and ethnic demographics table indicates the distribution of crucial oral health indicators across Pennsylvania. The table shows the weighted percentages of caries, untreated decay, treated decay, treatment urgency and sealed permanent molars for racial and ethnic categories.

- Caries prevalence is highest among Black or African-American children (65.1 percent) and lowest among White children (56.9 percent).
- Untreated decay is highest among Black or African-American children (32.5 percent) and lowest among White children (24.1 percent).
- Treatment for decay is highest among Asian children (56.7 percent) and lowest among White children (46.1 percent).
- Urgent need for dental treatment is highest among Black or African-American children (32.9 percent) and lowest among White children (5.5 percent).
- Permanent sealants on molars is highest among multi-racial children (41.9 percent) and lowest among Asian children (26.0 percent).



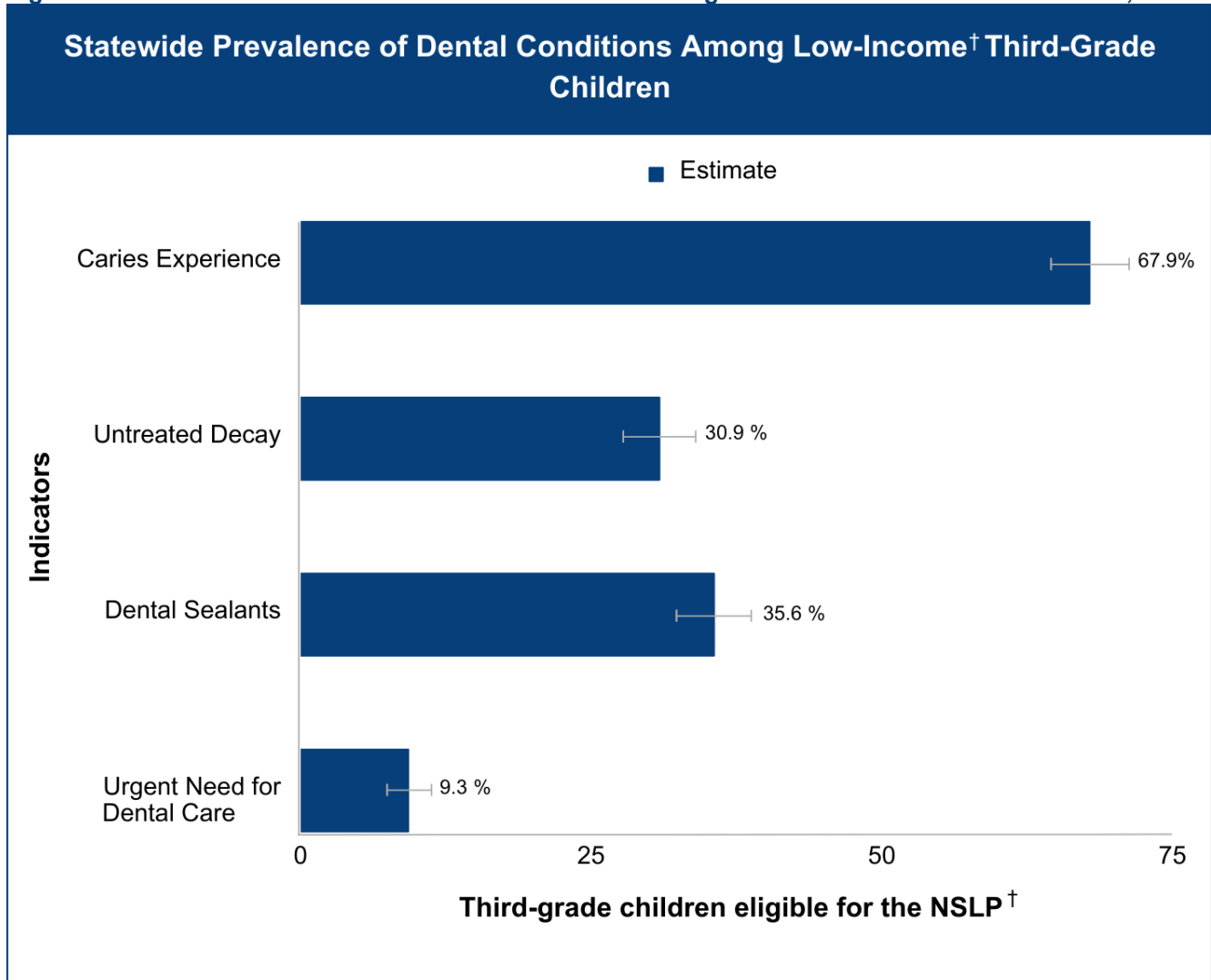
Figure 4 – State-wide Prevalence of Dental Conditions Among Higher-Income<sup>†</sup> Third-Grade Children, 2023



<sup>†</sup> Eligible for NSLP - National School Lunch Program

According to the collected data, among third-grade children with eligibility for the NSLP, an estimated 67.9 percent had caries experience, 30.9 percent had untreated decay, 35.6 percent had dental sealants and 9.3 percent had an urgent need for dental care.

**Figure 5 – State-wide Prevalence of Dental Conditions Among Low-Income<sup>†</sup> Third-Grade Children, 2023**

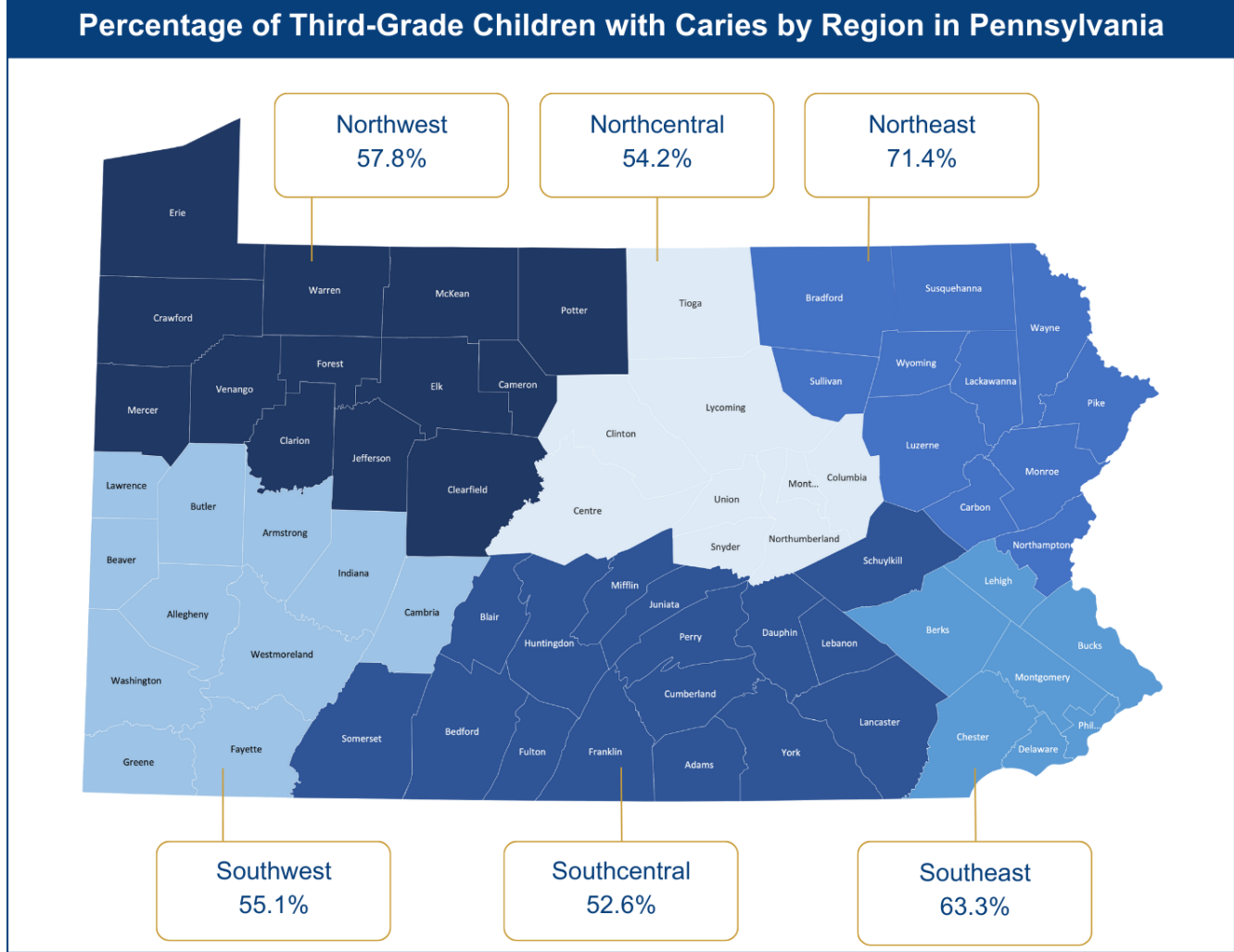


\*CI - confidence interval

<sup>†</sup> NSLP - National School Lunch Program

The prevalence of caries experience is estimated at 67.9 percent, which is significantly higher than the prevalence among children not eligible for the NSLP. The prevalence of untreated decay is estimated at 30.9 percent, which is also higher than the prevalence among children not eligible for the NSLP. The prevalence of dental sealants is estimated at 35.6 percent, which is slightly lower than the prevalence among children not eligible for NSLP. The prevalence of urgent need for dental care is estimated at 9.3 percent, which is higher than the prevalence among children not eligible for the NSLP. Overall, the data suggest that children from low-income households may have higher rates of dental caries, untreated decay and urgent need for dental care compared to children from higher-income households.

**Figure 6 – Weighted Percentage of Third-Grade Children with Caries by Region in Pennsylvania, 2023**



**Table 6 – Percentage of Third-Grade Children with Caries by Region in Pennsylvania, 2023**

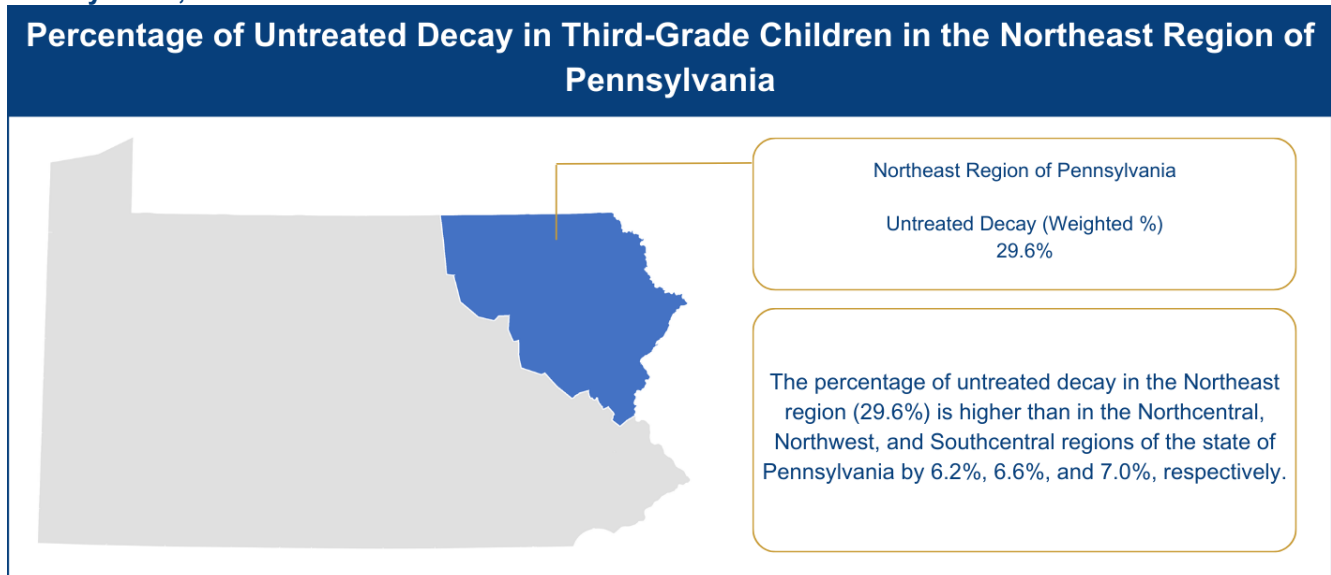
<b>Percentage of Third-Grade Children with Caries by Region in Pennsylvania</b>	
<b>Region</b>	<b>Caries (Weighted %)</b>
Northcentral	54.2%
Northeast	71.4%
Northwest	57.8%
Southcentral	52.6%
Southeast	63.3%
Southwest	55.1%

The prevalence of caries among third-grade children varies by region, with the highest prevalence in the northeast region (71.4 percent) and the lowest prevalence in the southcentral region (52.6 percent).

**Table 7 – Percentage of Untreated Decay in Third-Grade Children by Region in Pennsylvania, 2023**

<b>Percentage of Untreated Decay in Third-Grade Children by Region in Pennsylvania</b>	
<b>Region</b>	<b>Untreated Decay (Weighted %)</b>
Northcentral	23.3%
Northeast	29.6%
Northwest	23.0%
Southcentral	22.6%
Southeast	25.9%
Southwest	27.3%

**Figure 7 – Percentage of Untreated Decay in Third-Grade Children in the Northeast Region of Pennsylvania, 2023**



The prevalence of untreated decay among third-grade children in Pennsylvania varies by region, with the highest prevalence in the northeast (29.6 percent) and the lowest prevalence in the southcentral region (22.6 percent). The northcentral region had a prevalence of untreated decay of 23.3 percent, while the northwest and southwest had a prevalence of 23.0 percent and 27.3 percent, respectively. The southeast had a prevalence of untreated decay of 25.9 percent.

**Table 8 – Percentage of Treated Decay in Third-Grade Children by Region in Pennsylvania, 2023**

<b>Percentage of Treated Decay in Third-Grade Children by Region in Pennsylvania</b>	
<b>Region</b>	<b>Treated Decay (Weighted %)</b>
Northcentral	41.6%
Northeast	58.2%
Northwest	44.3%
Southcentral	39.7%
Southeast	54.1%
Southwest	42.0%

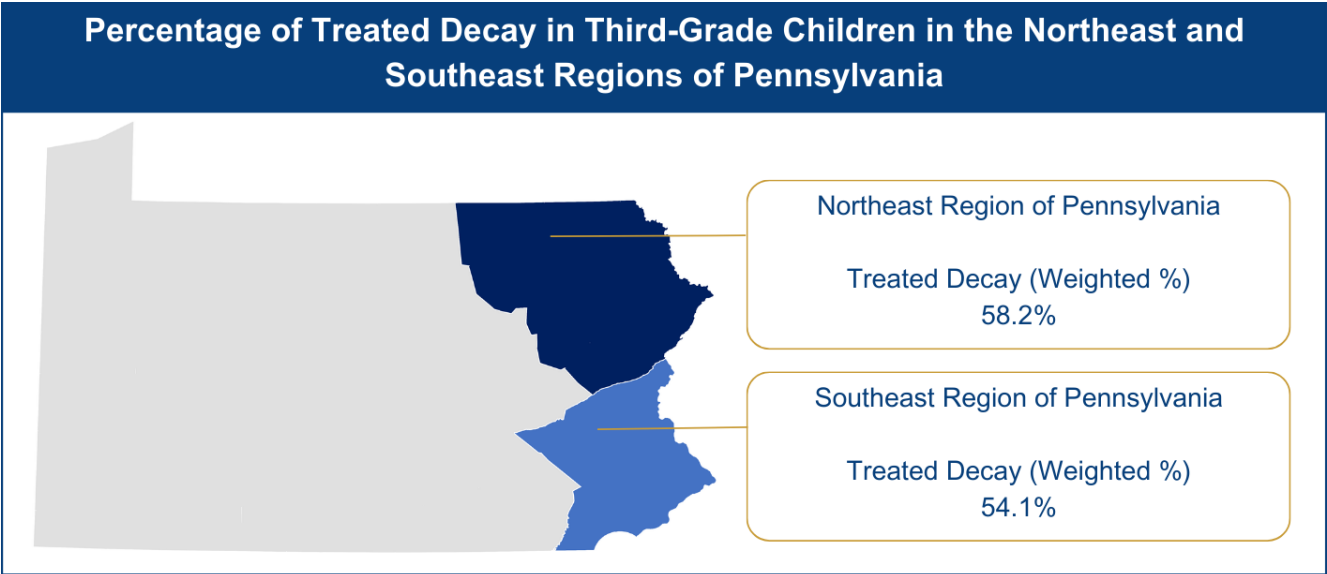
The prevalence of untreated decay is higher in the northeast (29.6 percent) compared to the overall state-wide prevalence of untreated decay (25.9 percent). This suggests that children in the northeast may have more difficulty accessing dental care services or may not be receiving adequate preventive dental care.

The prevalence of untreated decay is lowest in the southcentral region (22.6 percent). However, the prevalence of treated decay in this region is also lower than the state-wide average. This suggests that while children in the southcentral region may be receiving adequate preventive dental care, there may be room for improvement in the quality or frequency of their treatment.

There is a similar trend in the southeast, where the prevalence of untreated decay is higher than the state-wide average (25.9 percent), but the prevalence of treated decay is also higher than the state-wide average (46.5 percent). This suggests that children in this region may have better access to dental care services, but may not be receiving adequate preventive dental care.

The prevalence of untreated decay is consistent across the other regions of the state (northcentral, northwest and southwest), with values ranging from 23.0 percent to 27.3 percent. The prevalence of treated decay in these regions is also relatively consistent, with values ranging from 41.6 percent to 44.3 percent.

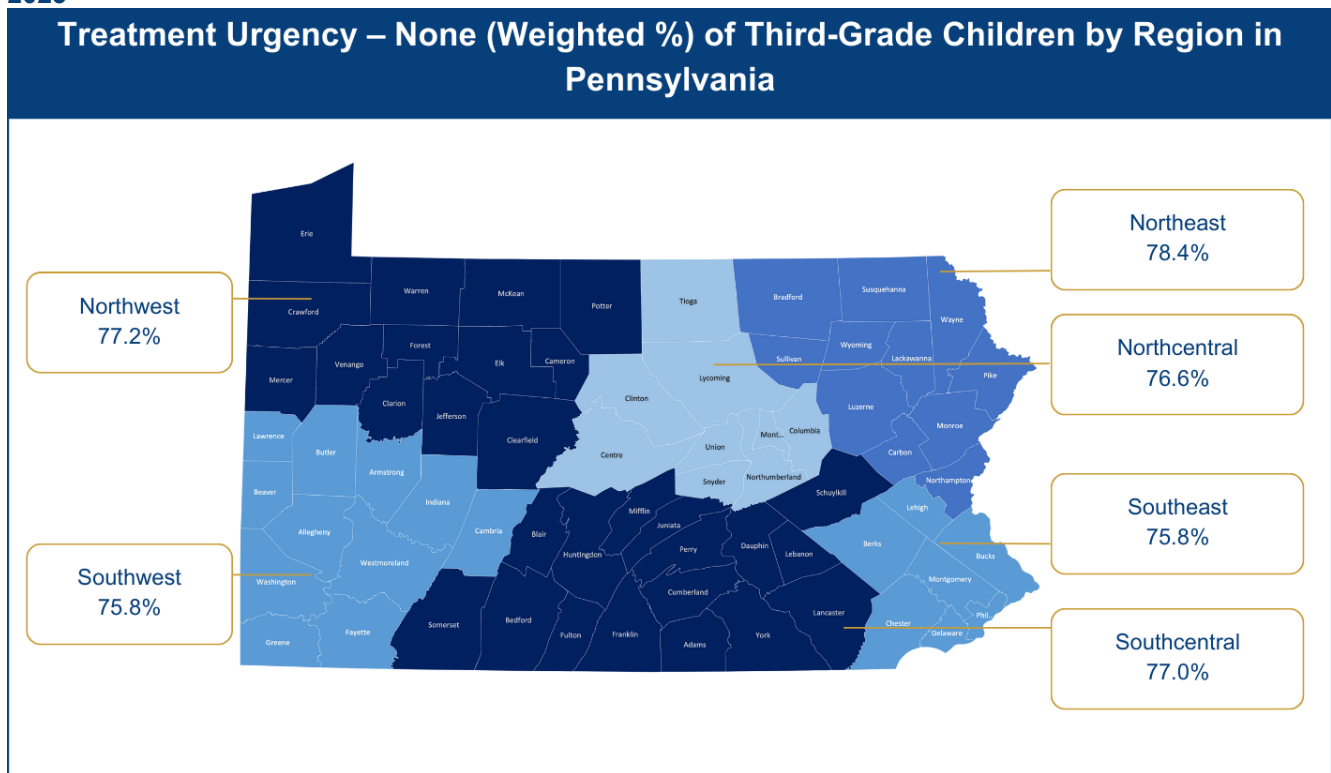
**Figure 8 – Percentage of Treated Decay in Third-Grade Children in the Northeast and Southeast Regions of Pennsylvania, 2023**



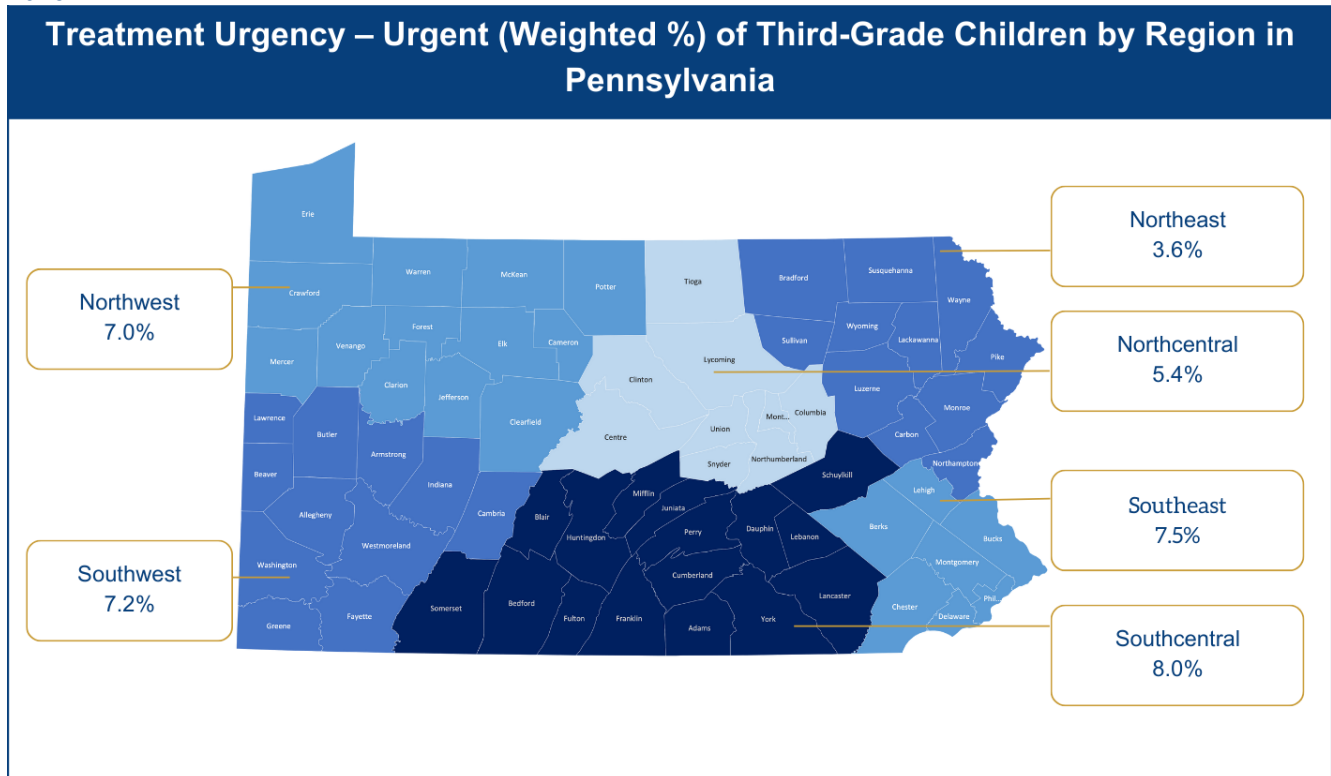
**Table 9 – Comparison of Weighted Percentage of Treatment Urgency - None and Urgent among Third-Grade Children in Pennsylvania by Region, 2023**

Comparison of Weighted Percentage of Treatment Urgency - None and Urgent among Third-Grade Children in Pennsylvania by Region		
Region	Treatment Urgency – None (Weighted %)	Treatment Urgency – Urgent (Weighted %)
Northcentral	76.6%	5.4%
Northeast	68.4%	3.6%
Northwest	77.2%	7.0%
Southcentral	77.0%	8.0%
Southeast	75.8%	7.5%
Southwest	75.3%	7.2%

**Figure 9 – Treatment Urgency – None (Weighted %) of Third-Grade Children by Region in Pennsylvania, 2023**



**Figure 10 – Treatment Urgency – Urgent (Weighted %) of Third-Grade Children by Region in Pennsylvania, 2023**



The majority of third-grade children in all regions have a treatment urgency of "None", with values ranging from 68.4 percent in the northeast to 77.2 percent in the northwest.

The percentage of third-grade children with urgent treatment needs is highest in the southcentral region (8.0 percent), followed by the southeast region (7.5 percent).

There is some variability in the percentage of third-grade children with an urgent treatment need in the other regions, with values ranging from 3.6 percent in the northeast region to 8.0 percent in the southcentral.

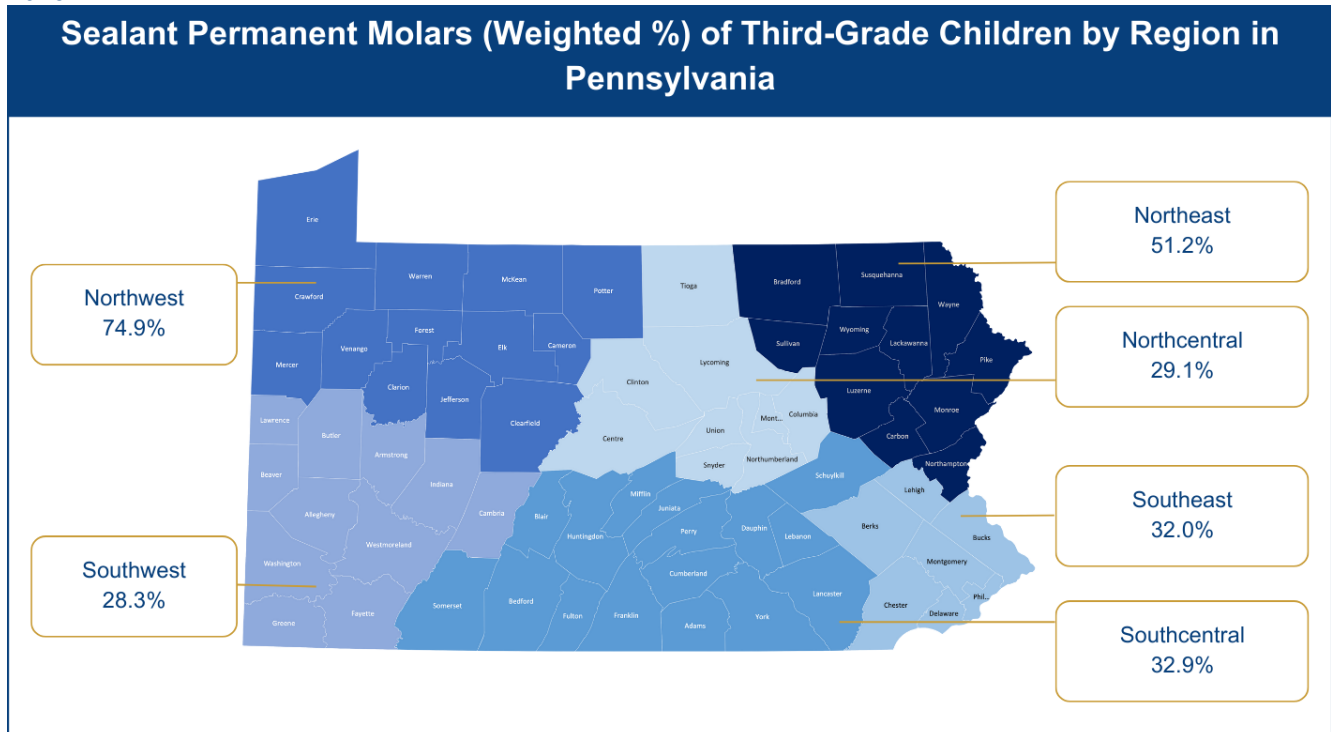
**Table 10 – Prevalence of Permanent Molars with Sealants among Third-Grade Children in Pennsylvania by Region, 2023**

Prevalence of Sealed Permanent Molars among Third-Grade Children in Pennsylvania by Region	
Region	Sealed Permanent Molars*
Northcentral	29.1%
Northeast	51.2%
Northwest	74.9%
Southcentral	32.9%
Southeast	32.0%
Southwest	28.3%

\*weighted

%

**Figure 11 – Sealed Permanent Molars (Weighted %) of Third-Grade Children by Region in Pennsylvania, 2023**



The prevalence of permanent sealant molars varies widely by region, with the highest prevalence in the northwest (74.9 percent) and the lowest prevalence in the southwest (28.3 percent).

The northeast has a prevalence of permanent sealant molars of 51.2 percent, while the southcentral and southeast have a prevalence of 32.9 percent and 32.0 percent, respectively.

## Way Forward

Health care advocates and organizations can take actionable steps to improve the state of oral health in Pennsylvania. The cost-effective steps below can yield visible results.

- Increasing the number of dental sealant programs in schools: This is an effective way of providing sealants to children who cannot afford or cannot access dental health care. Delivering dental sealants to children who have a high probability of acquiring dental cavities protects them from subsequent expensive dental treatment costs.
- Increasing the number of fluoridated public water systems: Community water fluoridation is an effective way to increase constant contact with fluoride. In practice, it involves adjusting the amount of fluoride in drinking water to an optimal level. This allows people consuming that water to obtain the recommended fluoride levels to protect their teeth from decay. Drinking optimally fluoridated water can prevent 25 percent of tooth decay in children and adults.



Given the disparities in oral health outcomes observed among different racial and ethnic groups in Pennsylvania, it is crucial to address these issues through targeted interventions. Building on the findings from the racial and demographic data presented in this report, the following steps can be taken to further improve oral health in the state:

- Targeted outreach and education: health care organizations and government agencies can focus on providing targeted outreach and education programs to communities most affected by oral health disparities. This can include educating parents and caregivers on the importance of dental care for children and providing information on available resources for dental care.
- Cultural competency training: health care providers can receive training on cultural competency to better understand the unique needs and experiences of patients from different racial and ethnic backgrounds. This can help to improve communication and build trust between patients and providers, leading to better health outcomes.
- Increase access to affordable dental care: Steps can be taken to increase access to affordable dental care for underserved communities. This can include expanding Medicaid coverage and reimbursement for dental services, as well as increasing funding for community health centers and other safety net providers.

Based on the regional data collected, the DOH, the PCOH and other health care organizations should focus their efforts on areas with the highest prevalence of oral health issues.

For example, the northeast region had the highest rates of caries and untreated decay, indicating a need for increased access to preventive services like sealants and fluoride. Additionally, the northwest region had the highest rates of sealant permanent molars, suggesting that this region may be a good candidate for targeted outreach and education programs to ensure that children receive proper oral health care.

Furthermore, addressing the disparities in oral health outcomes among different regions and communities is important. Rural communities in Pennsylvania may face unique challenges in accessing affordable dental care, while communities with larger proportion of people of color may experience higher rates of oral health problems due to systemic issues like poverty and discrimination.

By tailoring interventions to address these disparities and increasing access to affordable dental care for all Pennsylvanians, we can work towards achieving better oral health outcomes and reducing health inequities in the state.

## Conclusion

It is imperative to know the oral health status of a population to improve oral health conditions by taking the right preventive measures.

The DOH conducted a comprehensive oral health screening of third-grade children in Pennsylvania to collect data on oral health status and found that more than 60 percent of children in third-grade have dental caries. The survey also identified untreated tooth decay as a significant issue among third-grade children. Moreover, regional, urban and socioeconomic disparities in oral health outcomes were also observed, with low-income families and those living in rural areas found to be at a higher risk of poor oral health outcomes.

The findings of this report highlight the urgent need for policy and programmatic interventions aimed at improving oral health outcomes for children in Pennsylvania. Efforts should prioritize reducing disparities in oral health outcomes based on geographic region, urbanicity and socioeconomic status. Additionally, there is a need to increase access to preventive oral health services and promote healthy oral hygiene practices among children. These interventions are essential for the well-being of Pennsylvania children and to ensure a healthier future for the state.

Further to this, the racial and demographic data presented in this report suggest that there are significant disparities in oral health outcomes among different racial and ethnic groups in Pennsylvania. Black or African-American children were found to be particularly affected by higher rates of caries, untreated decay and urgent treatment needs. This highlights the need for targeted interventions to reduce these disparities and promote equitable oral health outcomes for all populations in the state.

In conclusion, the findings of this report emphasize the urgent need for comprehensive oral health policies and programs in Pennsylvania that prioritize preventive measures and promote equitable access to oral health services. It is essential to address the systemic barriers that prevent under-resourced populations from accessing necessary oral health care services and to work towards ensuring that all Pennsylvanians achieve optimal oral health.

## Citations

- <sup>1</sup> CDC, Health and Economic Benefits of Oral Health Interventions. <https://www.cdc.gov/chronicdisease/programs-impact/pop/oral-disease.htm>
- <sup>2</sup> Jankowski, P., Glick, M., & Holt, R. D. (1993). 'The use of fluoride supplements for the prevention of dental caries.' *Annals of Dentistry*, 52(1), 27-32. doi:10.1016/0003-9969(93)90111-E
- <sup>3</sup> Pennsylvania Coalition for Oral Health. (2017). "The State of Children's Oral Health in Pennsylvania: A Summary of the 2016 Pennsylvania Oral Health Survey." Retrieved March 30, 2023, from [https://www.paoralhealth.org/wp-content/uploads/2017/10/PCOH\\_2016\\_Summary\\_Report.pdf](https://www.paoralhealth.org/wp-content/uploads/2017/10/PCOH_2016_Summary_Report.pdf)
- <sup>4</sup> Pennsylvania Department of Health. (2020). "Pennsylvania Oral Health Plan 2020-2030." Retrieved March 30, 2023, from <https://www.health.pa.gov/topics/Documents/Programs/Pennsylvania%20Oral%20Health%20Plan%202020-2030.pdf>
- <sup>5</sup> World Health Organization. (n.d.). "Oral health." Retrieved March 30, 2023, from <https://www.who.int/news-room/fact-sheets/detail/oral-health>
- <sup>6</sup> Dental Care.com, "An Overview Of Dental Anatomy" <https://www.dentalcare.com/en-us/ce-courses/ce500/surfaces-of-the-teeth>
- <sup>7</sup> Pennsylvania Department of Health. (2020). "Pennsylvania Oral Health Plan 2020-2030." Retrieved March 30, 2023, from <https://www.health.pa.gov/topics/Documents/Programs/Pennsylvania%20Oral%20Health%20Plan%202020-2030.pdf>
- <sup>8</sup> U.S. Department of Health and Human Services. (n.d.). "Increase the proportion of people served by community water systems who receive optimally fluoridated drinking water [Healthy People 2030 Objective OH-11]." Retrieved March 30, 2023, from <https://health.gov/healthypeople/objectives-and-data/browse-objectives/health-policy/increase-proportion-people-whose-water-systems-have-recommended-amount-fluoride-oh-11>
- <sup>9</sup> Pennsylvania Coalition for Oral Health. (2019). "Oral Health Surveillance Plan." Retrieved March 30, 2023, from <https://paoralhealth.org/wp-content/uploads/2019/09/Revised-Oral-Health-Surveillance-Plan.pdf>

<sup>10</sup> Centers for Disease Control and Prevention. (n.d.). “Oral health conditions.” Retrieved March 30, 2023, from <https://www.cdc.gov/oralhealth/conditions/index.html>

<sup>11</sup> Centers for Disease Control and Prevention. (n.d.). “Oral health disparities.” Retrieved March 30, 2023, from [https://www.cdc.gov/oralhealth/oral\\_health\\_disparities/index.htm](https://www.cdc.gov/oralhealth/oral_health_disparities/index.htm)

<sup>12</sup> Mayo Clinic. (n.d.). “Dental exam.” Retrieved April 30, 2023, from <https://www.mayoclinic.org/healthy-lifestyle/adult-health/in-depth/dental/art-20047475>

<sup>13</sup> Pennsylvania Department of Health. (n.d.). “Oral health.” Retrieved March 30, 2023, from <https://www.health.pa.gov/topics/programs/Pages/Oral-Health.aspx>

<sup>14</sup> The Pew Charitable Trusts. (2011). “Pew report card: The state of children's dental health.” Retrieved March 30, 2023, from <https://www.pewtrusts.org/en/research-and-analysis/articles/2011/05/24/pew-report-card-the-state-of-childrens-dental-health>

<sup>15</sup> Minnesota Department of Health. (n.d.). “Basics of dental screening.” Retrieved March 30, 2023, from <https://www.health.state.mn.us/people/oralhealth/data/basicscreening.html>

<sup>16</sup> Centers for Disease Control and Prevention. (n.d.). “Community Water Fluoridation Levels To Promote Effectiveness and Safety in Oral Health — United States, 2016–2021” Retrieved March 30, 2023, from <https://www.cdc.gov/mmwr/volumes/72/wr/mm7222a1.htm#:~:text=Drinking%20water%20fluoridated%20at%20the,associated%20with%20excess%20fluoride%20exposure>