

Master of Public Health

Integrative Learning Experience Report

ADVANCING ORAL HEALTH IN KANSAS: THE IMPACT OF APPLIED PRACTICAL EXPERIENCE AT THE BUREAU OF ORAL HEALTH

by

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MASTER OF PUBLIC HEALTH

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Summary/Abstract

This report summarizes my experiences captured during my tenure as an intern at the Kansas Department of Health and Environment (KDHE) in the Bureau of Oral Health (BOH). The BOH at the KDHE is committed to promoting and improving the oral health of Kansans. The BOH achieves this through various initiatives and programs aimed at preventing oral diseases and promoting oral health in communities throughout the state. Over the course of months, I gained invaluable experience in public health practices and community-based programs and have been exposed to a wide variety of projects and initiatives aimed at improving the oral health outcomes of Kansans. Amalia Almeida and Debra Trybom served as my preceptors and provided me with tasks during our weekly meetings. The primary objective of this integrated learning experience (ILE) is to provide an insight into the operations of a state public health department, including the policies and principles necessary for effective management of the agency at all levels of service. At the Bureau of Oral Health, I have had the chance to learn about the many ways in which the BOH works to promote oral health equity and access to care.

As a part of my internship, I was involved in several projects aimed at promoting oral health and improving access to dental care in Kansas. One of my primary contributions was creating a comprehensive map of public and private K-12 schools throughout the state along with the screeners that carry out dental screenings at schools in Kansas. This map not only provides a visual representation of the locations of the public and private schools but also allows the BOH to better understand where access to oral health services may be limited. I was involved in the development of a white paper proposing statutory changes to increase the number of trained school-based healthcare staff who can perform dental screenings. This included collaborating with BOH staff and contributing to the writing and editing of the proposal. My contributions to this white paper aimed to provide evidence-based recommendations and persuasive arguments in support of the proposed changes. In addition to this, I wrote an article for the BOH's newsletter, highlighting the need for increased access to dental screenings in Kansas schools and the proposed changes to oral health legislation.

My work at the BOH allowed me to gain practical experience in public health promotion, legislative advocacy, and oral health policy development.

Subject Keywords: Oral Health, White Paper, Legislation, Newsletter

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Chapter 1 - Introduction and Literature Review

Introduction to the Bureau of Oral Health

The internship took place at the BOH located within the KDHE headquarters in Topeka, Kansas from January 17, 2023, to April 17, 2023. The BOH is responsible for promoting and protecting the oral health of Kansans, particularly vulnerable populations such as children, pregnant women, and seniors. The BOH works to achieve its goals through a range of programs and initiatives that focus on prevention, education, and access to care. One of the key programs run by the BOH is the Kansas Early Smiles program, which aims to improve the oral health of young children by providing preventative care and education to families. The program provides dental screenings, fluoride varnish treatments, and education on good oral hygiene practices to children from birth to five years of age¹.

Another important program is the Kansas School Sealant Program, which provides preventative dental care to school-aged children in underserved communities. The program works to increase the number of dental providers serving vulnerable populations, as well as support community-based efforts to improve oral health outcomes. Through its educational outreach programs, the BOH provides resources and information on the importance of good oral hygiene practices, as well as how to access dental care services².

My preceptors, Amalia Almeida (MSN), who is the Children's Program Manager & Fluoridation Specialist, and Debra Trybom (RDH, ECP III), who is an Outreach Dental Hygienist at the BOH. Together, their diverse roles and expertise allow them to effectively tackle various challenges in the field of public health, including improving access to dental care services and promoting oral health education in Kansas. I had the privilege of engaging in weekly meetings with Amalia Almeida and Debra Trybom during my tenure at the BOH. During these meetings, they provided me with invaluable guidance and mentorship pertaining to the work we were conducting. Their extensive experience and expertise in public health, with a specific focus on oral health, were of immense benefit to me and helped me develop my knowledge and skills in this field. As the Dental Director at the BOH, Dr. Dayna Brinckman (DDS, CHCEF) oversees dental public health programs across the state and provides guidance on dental policies and regulations. Dr. Brinckman's passion for oral health extended beyond her current role at the BOH and is deeply

committed to improving the oral health outcomes of Kansas students through statutory changes that would increase the number of trained school-based healthcare staff. I was fortunate to receive her guidance and mentorship throughout my work on the white paper.

Literature Review

Oral health is an essential component of overall health and wellbeing. Poor oral health can lead to a variety of adverse health outcomes, including pain, infection, tooth loss, and reduced quality of life³. However, oral health outcomes are not distributed equally across populations, with some groups experiencing a greater burden of oral diseases and conditions than others⁴. Addressing oral health equity is therefore critical to promoting overall health equity⁵.

As individuals engaged in delivering oral health care, advocating for enhanced oral health, or carrying out research in this field, the figure of 3.5 billion holds significant importance. This number signifies the vast number of individuals who bear the burden of untreated dental caries (also known as tooth decay or cavities, when left untreated, can progress and cause pain, infection, or tooth loss), severe periodontitis (a type of gum disease that occurs when the tissues and structures surrounding the teeth become inflamed and infected), and edentulism (a condition in which an individual has lost all of their natural teeth) across the globe⁶. In the United States, individuals who are low-income, uninsured, and/or belong to racial/ethnic minority, immigrant, or rural populations with limited access to quality oral health care are at a greater risk of experiencing poor oral health⁷. Older Americans aged 65 and above, particularly those with low incomes, encounter considerable obstacles in obtaining dental care. Among all groups, low-income non-elderly adults are the ones facing the most serious difficulties in accessing dental services⁷. The proportion of Americans lacking dental insurance has consistently exceeded the proportion without health insurance, and there exist significant variations in dental coverage rates between children and adults⁷. Despite safe and effective oral health methods, many Americans still suffer from avoidable pain and complications, leading to a "silent epidemic" of oral diseases that affects vulnerable groups such as underprivileged children, seniors, and ethnic minorities⁸. Immigrants have been found to underutilize dental care and experience higher levels of dental disease than those born in the US, making migration a social determinant of oral health⁹. They tend to opt for extractions instead of conservative treatments, and over half of the noncitizens lack insurance, contributing to poor oral health. Factors such as slow acculturation, multigenerational households,

misunderstandings about cariogenic foods, homeopathic treatments, and cultural beliefs about the value of preventive dental care all play a role in this trend⁹. This has led to poor oral health being regarded as a symbol of social inequality in the United States¹⁰.

The prevalence of dental caries varies significantly among different racial and ethnic groups in the United States. Despite increases in the supply of dentists in 2019, adults living below 200% of the federal poverty level (FPL) were least likely to have seen a dentist in the past year and has nearly twice the prevalence of caries and untreated decay compared to those living at or above 200% of the federal poverty level^{5,11}. The prevalence of dental problems in children and adolescents is directly linked to disparities in access to dental services⁵. In 2019, the Centers for Disease Control and Prevention highlighted several such disparities, revealing that African American and Mexican American children, adolescents, and young adults aged 2 to 19 years had up to 2 to 3 times higher rates of caries and untreated tooth decay compared to their non-Hispanic White counterparts⁵.

In Kansas, there is a critical public health concern regarding poor oral health in children that necessitates immediate attention. As per the KDHE, tooth decay is the most prevalent chronic disease affecting children in Kansas, with almost 55% of third graders having experienced tooth decay¹². Fifteen of the Healthy People 2030 objectives focus on oral health, overseen by the Centers for Disease Control and Prevention (CDC), National Institute of Dental and Craniofacial Research (NIDCR), Indian Health Service (IHS), and Health Resources and Services Administration (HRSA)¹³. The primary objective is to prevent and control oral and craniofacial diseases, conditions, and injuries and improve access to related services. Like general health, oral health status in the United States tends to vary based on social and economic condition¹³. Oral health issues can have significant economic implications, leading to increased healthcare costs and missed workdays for parents¹⁴. Therefore, it is crucial to prioritize the oral health of Kansas children and take necessary actions to prevent and treat oral health problems.

In Kansas, there are a total of 1,317 public schools and 172 private schools¹⁵. According to the KDHE, in the 2022 school year, there were a total of 501,944 enrolled students, and out of that, 141,808 dental screenings were performed in schools. This means that 28.25% of the screenings were done by voluntary dentists and dental hygienists in schools¹⁶. The number of dentists and dental hygienists in Kansas is 2,239 and 3,109 respectively, as reported by the Kansas Dental Board in 2021¹⁷. The dentist to population ratio in Kansas is 1:2,660, which is higher than

the national average of 1:1,640¹⁸. However, there are still disparities in oral health outcomes among different populations, as socioeconomic factors, education, food, insurance, and other indirect variables significantly impact oral health problems.

The epidemiology of oral health is influenced by various direct and indirect factors. Direct factors affecting oral health include poor oral hygiene practices, tobacco use, alcohol consumption, and dietary habits. Indirect factors affecting oral health include socioeconomic factors such as income, education level, and employment status, as well as access to healthcare, dental insurance, and preventive dental services. In Kansas, the epidemiology of oral health is influenced by similar direct and indirect factors. Oral health disparities exist in the state, with low-income and uninsured individuals, as well as those living in rural areas, experiencing higher rates of dental disease¹⁹. One example of a fluoridation initiative is the Community Water Fluoridation program, which involves adding a safe and effective amount of fluoride to the public water supply in order to prevent tooth decay¹. In Kansas, the Department of Health and Environment is responsible for implementing and monitoring the Community Water Fluoridation program¹.

The direct and indirect factors that affect oral health, such as socioeconomic status, education, food, insurance, and access to dental care, can also affect the success and impact of a fluoridation initiative. For example, low-income individuals and families may have limited access to dental care and be more likely to rely on community water sources, making them more vulnerable to tooth decay if their water supply is not fluoridated. Similarly, individuals with limited education and poor dietary habits may also be at higher risk for oral health problems.

To illustrate the relationship between these factors and the success of a fluoridation initiative, we can use a directed acyclic graph (DAG). In this DAG, socioeconomic status, education, food/diet, health insurance, water fluoridation, other health problems, hormones, medication, and oral hygiene are all variables that can affect the outcome.

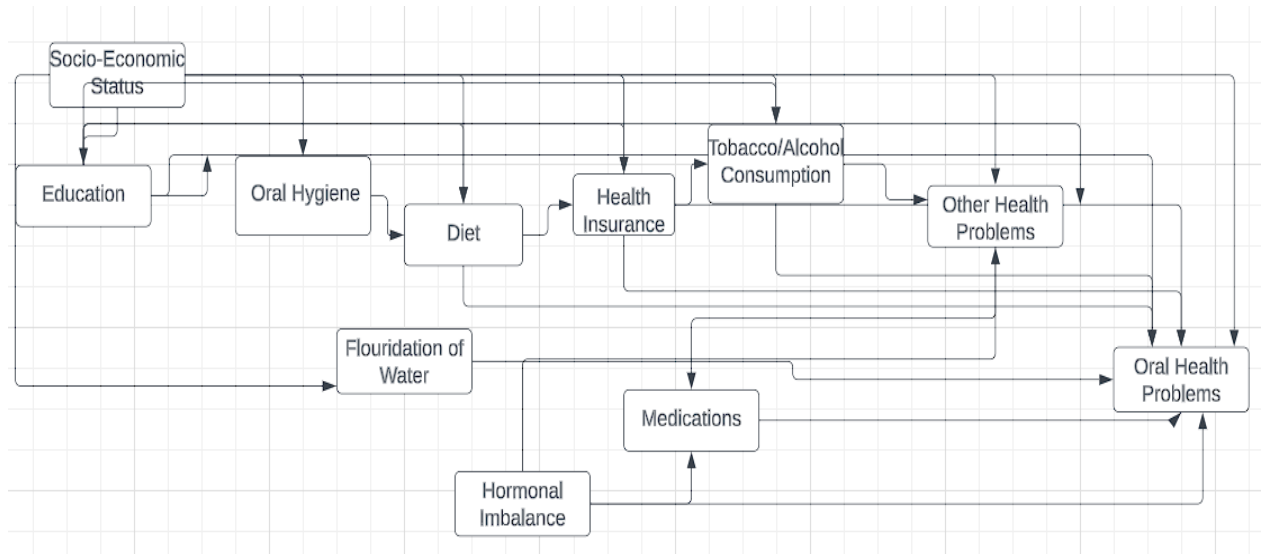


Figure 1.1: Directed Acyclic Graph showing direct and indirect causes of Oral Health Problems

Chapter 2 - Learning Objectives and Portfolio Products

During my internship at the BOH at the KDHE, I was given the opportunity to pursue a virtual integrated learning experience. With the help of my site preceptors, Amalia Almeida, and Debra Trybom, we created a unique role for me to undertake at BOH. This role involved participating in several different projects aimed at promoting oral health and improving access to dental care in Kansas. I was excited to be given such a diverse range of responsibilities, which allowed me to gain a deeper understanding of the multifaceted nature of public health work.

2.1 Original Learning Objectives:

- Gain comprehensive knowledge and understanding of the epidemiology of Oral Health, current research, and disease surveillance.

For the development of a white paper, I had to read extensively about the epidemiology of oral health, current research, and disease surveillance. I was given access to the KSOH oral health portal, which provided me with valuable information on the screenings done in schools along with the screening reports. This allowed me to gain comprehensive knowledge and understanding of oral health epidemiology and current research.

- To develop effective communication skills that can translate complex ideas and data into clear, concise language that can be easily understood by stakeholders.

The white paper was presented clearly and concisely, making it easier for policymakers to understand the need for the proposed statutory changes by BOH. This experience allowed me to gain skills in translating data and communicating findings to support program decisions.

- To be proficient in presenting and reporting program outcomes and results using various formats such as technical reports, presentations, or publications.

This objective was accomplished as the Oral Health Newsletter article highlighted the importance of preventative oral health care and the role of the BOH in providing access to screening services at the K-12 schools in Kansas. By sharing this information with the public, the newsletter article contributed to the BOH's efforts to improve oral health outcomes for Kansas students and reduce disparities in access to care.

2.2 Field Experience Activities (Reflected by Portfolio Products):

- Translated quantitative data related to the availability of oral health screening services in K-12 schools across the state and helped inform program decisions while communicating performance and findings clearly by creating a comprehensive map of schools and dental screeners throughout the state.

The map provided a visual representation of the availability of oral health screening services in K-12 schools across the state, which allowed the BOH to identify areas that required greater attention in terms of access to dental care. The map, which was transformed into a web application for sharing, can be accessed by a wider audience and has the potential to inform future program decisions.

- Reported performance data related to oral health outcomes and access to oral health services in Kansas school in the relevant format of a white paper by presenting evidence-based recommendations and persuasive arguments to increase access to oral health services in Kansas schools.

The white paper was in a format that was targeted towards legislators and policymakers who have the power to implement the proposed changes. The activity of creating the white paper directly reflected the objective of reporting performance data in a relevant format.

- Writing an article for the BOH newsletter allowed research and synthesis of current information on the epidemiology of oral health and the importance of disease surveillance.

By writing the newsletter article, I was able to consolidate this information into a concise and informative piece, helping to educate readers about the statutory changes that BOH is proposing.

2.3 Summary of Portfolio Products

Through the following portfolio products and their associated experiences, I gained a distinct and practical understanding of how public health practitioners can effectively engage with the public, recognizing that at the heart of public health lies the public themselves. One of the primary projects was creating a comprehensive [map](#) of public and private K-12 schools and dental screeners throughout Kansas. This project involved extensive research on the distribution of oral health screening services in the state and identifying areas where access may be limited. The resulting map provides the BOH with critical information about the availability of oral health

screening services in schools in the state. This information is essential for making informed decisions about where to allocate resources for all Kansan school-going children.

Another significant project I worked on during my internship was the development of a [white paper](#) proposing statutory changes to increase the number of trained school-based healthcare staff who can perform dental screenings. This project involved collaboration with BOH staff and writing and editing the proposal. The white paper proposed evidence-based recommendations for increasing the number of trained school-based healthcare staff, which would help ensure that every child in Kansas schools has access to the screening service at their schools. This initiative has the potential to significantly improve oral health outcomes for Kansas students and reduce disparities in access to care.

The [article](#) for the newsletter focused on the need for increased access to dental screenings in Kansas schools and the proposed changes to oral health legislation. This work was critical in promoting the BOH's services and educating the public about the importance of preventative oral health care.

Chapter 3 - Methods

Map

As part of my internship at the Bureau of Oral Health, I created a comprehensive map of public and private K-12 schools and dental screeners throughout Kansas. The creation of a map using GIS and mapping techniques is an important approach. ArcGIS was used to create an interactive and customizable map.

METHODS

Step 1: Access the KSOH Portal.

The first step I took was to gain access to the KSOH portal, which is a state-level portal that provides information on oral health screenings and services in Kansas. KSOH portal has data on school-based oral health screenings. It provides information on the number of screenings conducted, who conducted the screenings, the contact information of the schools, and the oral health status of the students. This data can be used to inform policies and programs aimed at improving oral health outcomes for school-aged children in Kansas. Access to the KSOH portal is restricted and requires authorized access. To obtain access to the portal, individuals must submit a request to the KSOHP and receive approval. Once approved, users can access the portal by logging in with their credentials. However, there is some data available publicly on the KSOH portal, including the KSOH Screening Reports - Public. These reports provide information on oral health screenings conducted in Kansas schools, including the number of students in the school, the percentage of students with dental treated/untreated decay, and the total number of students screened.

This data can be accessed through this link

https://khap.kdhe.state.ks.us/Public/ksoh/ksoh_report_public.aspx¹⁶.

Step 2: Download the Data. Once I gained access to the KSOH portal, I downloaded information on all public and private K-12 schools in Kansas, along with the information on 2021-2022 screenings. This data was downloaded in Excel sheets, which allowed me to easily work with the data.

I made 25 different workbooks for each screener that conducted the screening in different regions of Kansas with the information of the name of the school, district name and number, name of the screener, year of last screening, county name, address of the school, and phone number.

Step 3: Create a project in Google Cloud.

I created a project in Google Cloud, which is a cloud computing platform that provides access to various APIs and services. API stands for Application Programming Interface, which is a set of protocols, tools, and routines that developers use to build software applications. APIs provide a way for different software applications to communicate with each other and share data. This platform allowed me to perform geocoding, which is the process of converting addresses into latitude and longitude coordinates. I obtained an API key, which is a unique identifier that allowed me to authenticate my requests to the Google Maps API.

Step 4: Perform geocoding in R Studio.

Using the R Studio version 4.1.0 programming language, I performed geocoding. R is a powerful statistical programming language used for data analysis, visualization, and modeling. In R, I installed the "ggmap" package, which provided me with functions to perform geocoding. "ggmap" is a package that allows users to interact with Google Maps API from within R.

```
1 library(readex)
2 library(readxl)
3 library(ggmap)
4 library(openxlsx)
5 register_google("AIZA5yBQtAcziPITrPxDguIU02ZDomj9wSer20E")
6 data <- readxl::read_excel("*****", sheet = "Sheet1")
7 geocoded <- geocode(data$`Address of school`)
8 geocoded_data <- cbind(data, lon = geocoded$lon, lat = geocoded$lat)
9 write.xlsx(geocoded_data, file = "*****", rowNames = FALSE)
```

Image 3.1 Codes used to perform geocoding in R Studio

The "geocode" function from the "ggmap" package allowed me to convert the school addresses into latitude and longitude coordinates by sending requests to Google's Geocoding API using my API key. The resulting coordinates were then combined with the original school data using the "cbind()" function using the codes in Image 3.1.

Geocoding was necessary to convert the school addresses from the Excel sheet into geographic coordinates (latitude and longitude), which can be used to plot the schools on a map. By geocoding the school addresses, the resulting latitude and longitude coordinates can be used in mapping applications like ArcGIS to visualize the location of the schools and their proximity to other features like screening facilities

Step 5: Create a map in the ArcGIS application.

After performing geocoding and obtaining the latitude and longitude coordinates for the schools, BOH helped me create an account on ArcGIS which was used for creating the map. I made a base map layer that serves as the foundation of the map and provides context for the other layers. In this case, the base map layer was a map of Kansas. I added different layers for different screeners in the ArcGIS application. To add the layers, I used the "Add Layer" functionality in ArcGIS and selected the relevant data. Each layer represented a different screener and contained information on the schools that were screened by that screener and when they were screened. This allowed me to visualize the schools based on who conducted the screenings and when they were done. I used different color coding for each screener to make the visualization more easily interpretable.

Step 6: Made the map available to the Public.

After creating the map, I wanted to make it accessible to the public, so I created a web app using ArcGIS. A web app is an application that is accessible through a web browser and can be used by anyone with an internet connection. Creating a web app involved selecting the map I had created in ArcGIS and configuring the settings to make it available to the public. Once the web app was created, I was able to share the link with others, allowing them to view the map and interact with it. The web app provides users with a range of functionalities, including zooming in/out, panning, and selecting different layers. Each screener is added as a separate layer, which can be added or removed depending on the user's needs. Users can also click on individual schools to view information on them, such as the name of the school, the type of screening that was conducted, and the date of the last screening.

The link to the web app is

<https://kdhe.maps.arcgis.com/apps/webappviewer/index.html?id=5baa3a53501e458b9e4af589598c8a56>¹⁶.

White Paper

METHODS

1. The first step proposed in the white paper is to make statutory changes to increase the number of trained school-based healthcare staff who can perform dental screenings in Kansas.
2. The proposed changes include amendments to the KSA statute that would expand the scope of practice for trained healthcare staff to include dental screenings, increase the number of healthcare staff trained to perform dental screenings and establish protocols and standards for conducting dental screenings in schools.
3. The white paper acknowledges potential concerns about the proposed changes, including the need for adequate training for healthcare staff, potential cost implications, and privacy and confidentiality concerns.
4. To address these concerns, the white paper proposes solutions such as providing comprehensive training for conducting screenings at schools. This training can be accessed at <https://www.train.org/ks> Course #1029736¹⁷.

Trifold

METHODS

1. The first step in effectively communicating public health messages to the public is to identify the key messages that need to be conveyed. In this case, the key messages was about the school screening program of the BOH. The trifold included information about the BOH at the KDHE, the screening program, and the sample contract for potential screeners.
2. Once the key messages were identified, the next step was to determine the best format for communicating them to the public. In this case, a trifold was chosen as it allowed for a compact and visually appealing way to convey information.
3. The front page of the trifold was designed to catch the attention of potential readers and draw them in to learn more about the screening program of BOH. Image 4.5 shows the front page of

the trifold, which includes information about the BOH's screening program and contact information.

4. The inside of the trifold likely included detailed information about the sample contract for potential screeners.
5. Along with the trifold, a BOH postcard was made keeping the same color pattern and theme. Images 4.7 and 4.8 show the front and back of the postcard. Both the trifold and the postcard were distributed at the Kansas Mission of Mercy Event in Topeka, Kansas in April 2023.

Chapter 4 - Results

Map

Upon accessing the provided link, an interactive and comprehensive Oral Health Map App is displayed for the state of Kansas shown in Figure 4.1. The map displays a variety of color blocks and dots on the screen. The color blocks represent different types of screeners that conduct screenings in schools, including dentists, dental clinics, and FQHCs.

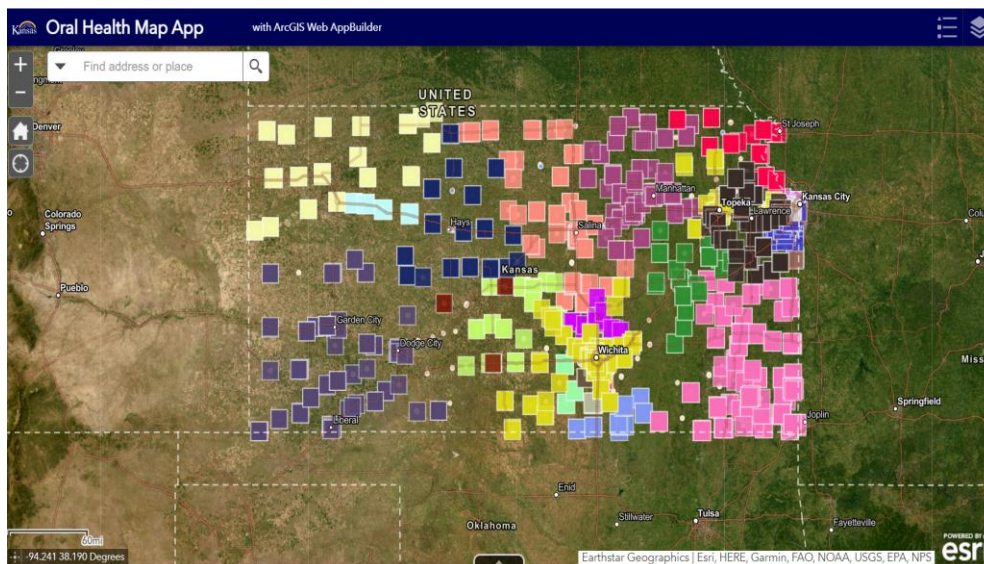
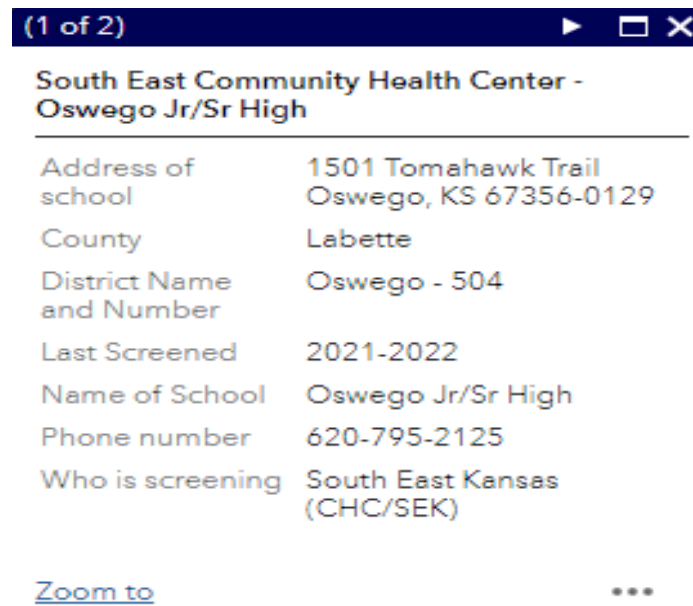


Image 4.1 Screenshot of Oral Health Map Web Application.

The map consists of several layers that include public schools, private schools, and dental screeners. Each colored block or dot can be clicked on to reveal additional information, such as the name of the school or screener, its location, and the services provided.

To illustrate, it can be observed that all the pink blocks on the map represent the schools that have been covered by Southeast Community Health Center, and the screenings are conducted by them. Upon clicking any pink block, two legends are presented, as depicted in Images 4.2 and 4.3. The first legend, labeled as "1 of 2", consists of the screener's name and the name of the school as the heading. The remainder of the legend provides information such as the address, county name, district name and number, year of the most recent screening, and the phone number of the school, along with the name of the screening, as shown in Image 4.2. The second legend, labeled

as "2 of 2", provides the same details as the first legend, but with an additional heading that indicates if the school is public or private, as illustrated in Image 4.3.

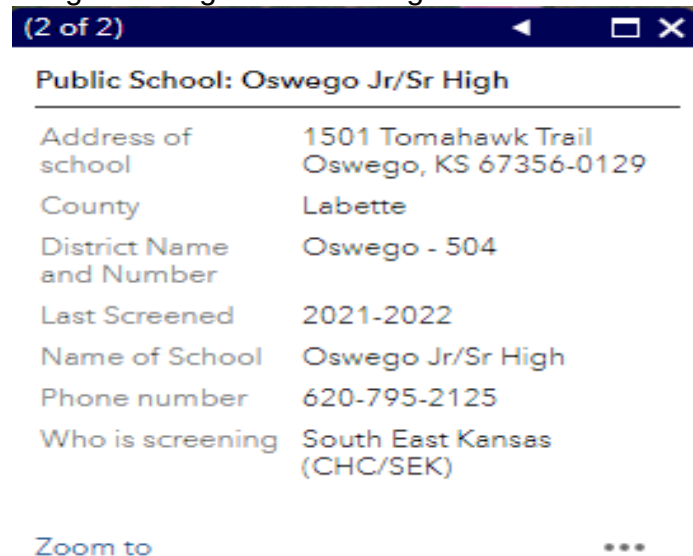


The screenshot shows a legend window with a dark blue header bar containing the text "(1 of 2)" and navigation icons. The title of the legend is "South East Community Health Center - Oswego Jr/Sr High". Below the title is a table with the following data:

Address of school	1501 Tomahawk Trail Oswego, KS 67356-0129
County	Labette
District Name and Number	Oswego - 504
Last Screened	2021-2022
Name of School	Oswego Jr/Sr High
Phone number	620-795-2125
Who is screening	South East Kansas (CHC/SEK)

Below the table, there is a "Zoom to" link and a three-dot menu icon.

Image 4.2 Legend for Oswego School 1 of 2.



The screenshot shows a legend window with a dark blue header bar containing the text "(2 of 2)" and navigation icons. The title of the legend is "Public School: Oswego Jr/Sr High". Below the title is a table with the following data:

Address of school	1501 Tomahawk Trail Oswego, KS 67356-0129
County	Labette
District Name and Number	Oswego - 504
Last Screened	2021-2022
Name of School	Oswego Jr/Sr High
Phone number	620-795-2125
Who is screening	South East Kansas (CHC/SEK)

Below the table, there is a "Zoom to" link and a three-dot menu icon.

Image 4.3 Legend for Oswego School 2 of 2.

A comprehensive legend that displays all the screeners and their corresponding-colored blocks on the map can be accessed by clicking on the three-line tab located at the upper ribbon . The legend can be viewed in Image 4.4. This legend provides a convenient reference for users to quickly identify the screener responsible for a particular school on the map.



Image 4.4 Legend shows the screeners represented by colored blocks.

White Paper

The white paper presented compelling arguments for the proposed changes, highlighting the critical need to improve access to oral health services for school-going children in Kansas. The white paper cited statistics that showed a significant proportion of children in the state had untreated dental decay. The white paper argued that dental screenings in schools could help identify oral health problems early, prevent the development of more severe dental issues, and improve oral health outcomes for children. The white paper's proposals and arguments presented a compelling case for increasing the number of trained healthcare staff who can perform dental screenings in schools, with potential benefits of improved access to oral health services for school-going children in Kansas, reducing oral health disparities, and promoting oral health equity in the state.

Newsletter Article and Trifold

The newsletter article I wrote for the BOH focuses on the proposed statutory changes to increase the number of trained school-based healthcare staff who can perform dental screenings in Kansas schools. The article serves the purpose of informing and educating the readers about the proposed changes and the importance of oral health, and the services provided by the BOH. By sharing this information, the BOH aims to raise awareness about the need for increased access to dental screenings in schools and the potential benefits of the proposed changes. The article is an essential part of the BOH's public health promotion initiatives, and it will play a critical role in advancing their efforts to improve oral health outcomes for Kansas students. The newsletter article is a valuable contribution to the BOH's mission, and it demonstrates our ability to effectively communicate public health messages to the public. The trifold I created for the KMOM was an important tool for informing the public about the BOH at KDHE, the screening program, and the sample contract for the potential screeners shown in Images 4.5 and 4.6.

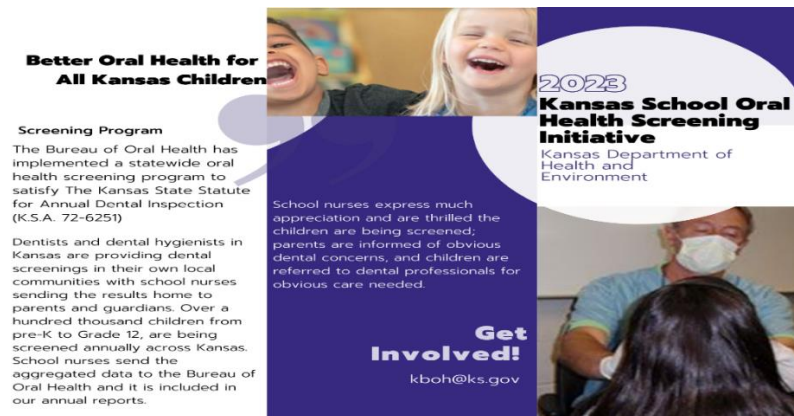


Image 4.5 Front page of the trifold

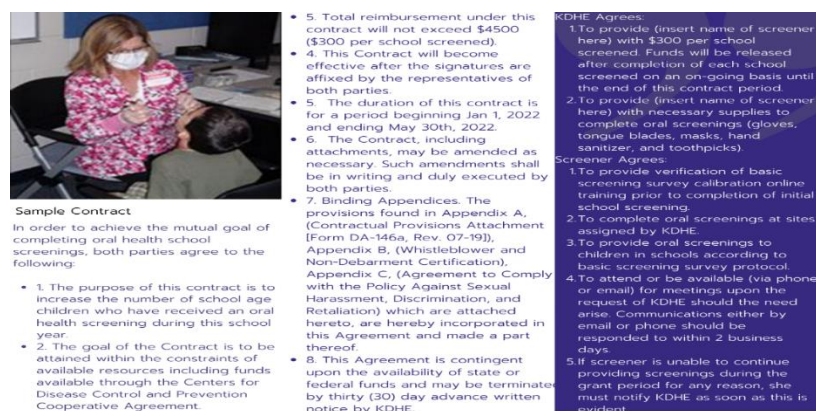


Image 4.6 Back page of the trifold



Image 4.7 Front of the Postcard

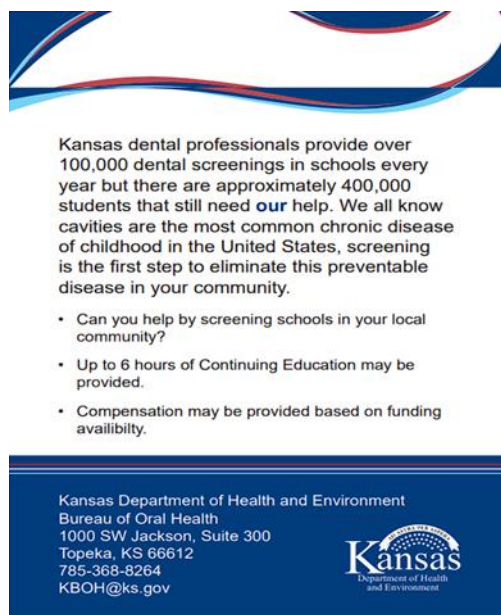


Image 4.8 Back of the Postcard

Chapter 5 - Discussion

The report presented a comprehensive overview of my work with the BOH at the KDHE to improve access to oral health services for school-going children in Kansas. The report highlighted the various initiatives undertaken by the BOH, including the screening program, the proposed statutory changes to increase the number of trained school-based healthcare staff who can perform dental screenings, and the public health promotion initiatives. The screening program conducted by the BOH has been a critical component of their efforts to improve oral health outcomes for Kansas students. The program aimed to identify and treat oral health problems in children and provide referrals to dental professionals when necessary. In Kansas, poor oral health in children is a critical public health concern that demands immediate attention. According to the KDHE, tooth decay is the most prevalent chronic disease affecting children in the state, with nearly 55% of third graders having experienced tooth decay⁸. The statistics are alarming and indicate the severity of the oral health issue in Kansas, emphasizing the need for urgent action.

The proposed statutory changes to increase the number of trained school-based healthcare staff who can perform dental screenings, along with the implementation of the MAP, are expected to have a significant impact on improving access to oral health services for school-going children in Kansas. The recommendations presented in the white paper have the potential to contribute to the amendment of the KSA statute and increase the number of trained staff who can perform dental screenings in schools. This would ensure that more children receive timely oral health screenings,

leading to earlier detection and treatment of oral health problems. The public health promotion initiatives undertaken by the BOH have also been critical in raising awareness about the importance of oral health and the services provided by the BOH. The newsletter article written for the BOH by me focused on the proposed statutory changes and the importance of oral health services provided by the BOH. By sharing this information, the BOH aims to raise awareness about the need for increased access to dental screenings in schools and the potential benefits of the proposed changes.

These initiatives highlight the importance of collaboration between public health practitioners and other stakeholders, such as BOH staff, educators, and policymakers, in addressing oral health disparities and promoting access to care. The portfolio products have contributed to a deeper understanding of the importance of promoting oral health outcomes and the role of public health practitioners in achieving this goal.

The map is a valuable tool for identifying areas with higher need for oral health services in Kansas schools. However, the map has limitations. One limitation is that the map does not provide information on the total number of students enrolled in the particular public and private school in the legend. Another limitation of the map is that it does not provide information on the screenings performed. For instance, it does not provide additional information about the total number of students screened for dental problems in the school. This lack of information makes it challenging to determine the screening rate and the overall oral health status of Kansas school children. Despite these limitations, the map remains a useful tool for identifying areas with high need for oral health services. However, the BOH is working on modifying the map to address some of these limitations for future advancements.

The white paper is another valuable tool developed to address the need for increased access to oral health services for school-going children in Kansas. The white paper provides a comprehensive overview of the proposed statutory changes to increase the number of trained school-based healthcare staff who can perform dental screenings. However, one limitation of the white paper is that it is not yet in legal language, making it unsuitable for submission to the legislature. The white paper will be modified and updated with legal language and other necessary changes to ensure its suitability for submission to the legislature. Once submitted, the proposed statutory changes have the potential to increase the number of trained staff who can perform dental

screenings in schools, leading to earlier detection and treatment of oral health problems in Kansas school children.

Moving forward, it is essential to continue collaborating with stakeholders and develop evidence-based recommendations to promote access to care and reduce oral health disparities. The BOH is committed to working on addressing the limitations of the map and the white paper to ensure they are effective tools in promoting oral health outcomes for Kansas school children. The BOH is planning to add several new features to the MAP, including shading to demonstrate the number of students in each school, the number of oral screenings performed, the number of students who receive follow-up care, and addressing the granularity of the map. These modifications will help to identify areas with the greatest need for oral health services and allocate resources accordingly. It is crucial to promote awareness of the importance of oral health and the services provided by the BOH.

While the limitations of the MAP and white paper are important to note, they do not detract from the significance of the initiatives undertaken by the BOH to improve access to oral health services for school-going children in Kansas. These initiatives represent a critical step forward in addressing the oral health disparities that currently exist in the state, and they have the potential to make a significant impact on improving oral health outcomes for Kansas students.

Chapter 6 - Competencies

Student Attainment of MPH Foundational Competencies

The five MPH Foundational Competencies that were utilized the most in my APE's products are 2,3,11,13 and 15. The creation of a map using geographic information systems (GIS) and mapping techniques is an important approach for analyzing healthcare access. ArcGIS was used to create interactive and customizable maps. The data used for the map was obtained from the oral health portal of the Kansas State Oral Health (KSOH). This meets the Public Health Foundational Competency 2, which is, "Select quantitative and qualitative data collection methods appropriate for a given public health context" The map identified areas with a high need for oral healthcare services, informing public health policies and programs to improve access to care. For this, the ArcGIS software was used to analyze quantitative and qualitative data related to oral health access, with biostatistics and informatics being employed. This fulfilled the foundational competency 3 which states, "Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming, and software, as appropriate." The resulting map provided a clear and concise representation of the data, allowing for evidence-based decision-making in public health policies and programs aimed at improving access to oral healthcare services in the state.

Competency 11 of selecting appropriate evaluation methods for public health programs was demonstrated using a trifold brochure to promote and evaluate the Kansas Mission of Mercy (KMOM) program in Topeka, Kansas. The brochure effectively communicated the program's goals and objectives, tracked attendance, and gathered feedback from participants. This allowed for the evaluation of the program's success and the identification of areas for improvement. By using this method, public health professionals could better serve the needs of their target population. Competency 13 of proposing strategies to identify stakeholders and build coalitions

and partnerships for influencing public health outcomes was met via the white paper that presented recommendations to address the issue of limited access to dental screening services for Kansas students by proposing strategies for building coalitions and partnerships with stakeholders from various fields. The paper emphasized the importance of partnerships and coalitions for successful public health interventions and highlighted the competency of identifying stakeholders and effectively engaging them to achieve shared goals. By offering specific strategies, the white paper demonstrated a practical application of this competency in promoting better oral health outcomes. Competency 15 of evaluating policies for their impact on public health and health equity was achieved by analyzing a white paper that identified a policy gap in the limited availability and resources of dental screening services in schools. By evaluating the proposed amendment as a strategy to increase access to oral healthcare services for students, the potential impact on oral health outcomes and reduced health disparities were considered.

Table 5.1 Summary of MPH Foundational Competencies

Number and Competency		Description
2	Select quantitative and qualitative data collection methods appropriate for a given public health context	In the creation of a map, for identifying the location and distribution of public and private K-12 schools and dental screeners, it was necessary to select relevant data sources for analysis and mapping.
3	Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming, and software, as appropriate	Mapping schools and oral health screening services in Kansas using GIS and mapping techniques involves the use of computer-based programming and software.
11	Select methods to evaluate public health programs	By including relevant information about BOH and the sample contract, the trifold helped in communicating the goals and objectives of the public health program. The trifold was useful in tracking attendance at the event and gathering feedback from participants, which was useful to evaluate the success of the program.
13	Propose strategies to identify stakeholders and build coalitions and partnerships for influencing public health outcomes	By proposing specific strategies to address the issue of limited access to dental screening services, the white paper serves as a tool for building coalitions and partnerships with policymakers, school administrators, dentists, public health personnel, and community members to achieve better oral health outcomes for Kansas students.
15	Evaluate policies for their impact on public health and health equity	By highlighting the limited availability and resources of dental screening services in schools, the white paper

		identifies a policy gap that needs to be addressed to improve oral health outcomes for students. The proposed amendment is evaluated as a strategy to increase access to oral healthcare services for students, which can ultimately lead to better oral health outcomes and reduced health disparities.
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Below is a list of the 22 Public Health Foundational Competencies, the competency number, and the courses they are taught in to facilitate completing the table above.

Table 5.2 MPH Foundational Competencies and Course Taught In

22 Public Health Foundational Competencies Course Mapping	MPH 701	MPH 720	MPH 754	MPH 802	MPH 818
Evidence-based Approaches to Public Health					
1. Apply epidemiological methods to the breadth of settings and situations in public health practice	x		x		
2. Select quantitative and qualitative data collection methods appropriate for a given public health context	x	x	x		
3. Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming, and software, as appropriate	x	x	x		
4. Interpret results of data analysis for public health research, policy, or practice	x		x		
Public Health and Health Care Systems					
5. Compare the organization, structure, and function of health care, public health, and regulatory systems across national and international settings		x			
6. Discuss the means by which structural bias, social inequities and racism undermine health and create challenges to achieving health equity at organizational, community and societal levels					x
Planning and Management to Promote Health					
7. Assess population needs, assets and capacities that affect communities' health		x		x	
8. Apply awareness of cultural values and practices to the design or implementation of public health policies or programs					x
9. Design a population-based policy, program, project or intervention			x		
10. Explain basic principles and tools of budget and resource management		x	x		
11. Select methods to evaluate public health programs	x	x	x		
Policy in Public Health					
12. Discuss multiple dimensions of the policy-making process, including the roles of ethics and evidence		x	x	x	
13. Propose strategies to identify stakeholders and build coalitions and partnerships for influencing public health outcomes		x		x	
14. Advocate for political, social or economic policies and programs that will improve health in diverse populations		x			x

22 Public Health Foundational Competencies Course Mapping	MPH 701	MPH 720	MPH 754	MPH 802	MPH 818
15. Evaluate policies for their impact on public health and health equity		x		x	
Leadership					
16. Apply principles of leadership, governance and management, which include creating a vision, empowering others, fostering collaboration and guiding decision making		x			x
17. Apply negotiation and mediation skills to address organizational or community challenges		x			
Communication					
18. Select communication strategies for different audiences and sectors	DMP 815, FNDH 880 or KIN 796				
19. Communicate audience-appropriate public health content, both in writing and through oral presentation	DMP 815, FNDH 880 or KIN 796				
20. Describe the importance of cultural competence in communicating public health content		x			x
Interprofessional Practice					
21. Perform effectively on interprofessional teams		x			x
Systems Thinking					
22. Apply systems thinking tools to a public health issue			x	x	

Student Attainment of MPH Emphasis Area Competencies

Competency #2: Select quantitative and qualitative data collection methods appropriate for a given public health context

The creation of a MAP involved using geographic information systems (GIS) and mapping techniques to visualize the data. The use of ArcGIS, a popular GIS software, was an integral part of the mapping process as it allowed for the creation of interactive and customizable maps that displayed the data in an accessible way. The process involved the selection of both quantitative and qualitative data related to oral health to analyze it and create the map. The BOH provided a few hours of video-based training to better understand the uses of ArcGIS. It was essential in utilizing ArcGIS to its full potential and accurately analyze the data. The data about the public and private K-12 schools and screeners were obtained from the oral health portal of the Kansas State Oral Health (KSOH) administration. This data is not public and requires special access, which was given to me by BOH. By identifying the location and distribution of schools and screening facilities, the areas with a high need for oral health screening services could be identified.

The use of GIS and mapping techniques in this epidemiological approach was an effective method for analyzing and identifying areas with a high need for oral healthcare screening services and contributed to the competency of selecting quantitative and qualitative data collection methods appropriate for a given public health context.

Competency #3: Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming, and software, as appropriate.

The utilization of GIS and mapping techniques was essential in creating a MAP that identified the location and distribution of schools and dental screeners in Kansas. The process involved using the ArcGIS software to analyze both quantitative and qualitative data related to oral health access in the state. Quantitative data refers to numerical data related to the distribution of schools and dental screeners in Kansas, such as the number of schools and the number of screeners in each location. Qualitative data refers to non-numerical data that helped inform the analysis, such as the characteristics of the schools and the communities they serve, as well as the quality of the dental screening services provided. Biostatistics and informatics were employed to identify patterns of distribution of schools and screeners and to manipulate and analyze complex datasets.

This approach allowed for a comprehensive analysis of the data, fulfilling the competency of analyzing quantitative and qualitative data using biostatistics, informatics, computer-based programming, and software, as appropriate.

Competency #11. Select methods to evaluate public health programs.

Selecting appropriate methods to evaluate public health programs is a key competency in public health practice. In this case, the use of a Trifold Brochure for KMOM Event to promote and evaluate a public health program was an effective approach. The brochure provided relevant information about the program, including details about the BOH and the sample contract, which helped in communicating the goals and objectives of the BOH to potential participants. The trifold served as a useful tool for tracking attendance at the event and gathering feedback from participants. This information was critical in evaluating the success of the program and identifying areas for improvement. By using this method of evaluation, public health professionals can identify

the strengths and weaknesses of their programs and adjust to better serve the needs of their target population.

Competency #13. Propose strategies to identify stakeholders and build coalitions and partnerships for influencing public health outcomes.

The White paper proposed strategies to identify stakeholders and build coalitions and partnerships for influencing public health outcomes related to oral health. It addressed the issue of limited access to dental screening services for Kansas students and provided specific recommendations to address the problem. The paper highlighted the importance of engaging policymakers, school administrators, dentists, public health personnel, and community members to achieve better oral health outcomes.

The proposed strategies in the white paper serve as a tool for building coalitions and partnerships, which are essential for successful public health interventions. By identifying stakeholders and bringing them together, partnerships and coalitions can leverage collective expertise, resources, and influence to achieve shared goals. The white paper's proposal of specific strategies to address the issue of limited access to dental screening services demonstrates the fulfillment of this competency.

Competency #15. Evaluate policies for their impact on public health and health equity.

The White paper provides an evaluation of the policies related to dental screening services in schools, analyzing their impact on public health and health equity. The paper highlights the lack of availability and resources for such services, which can have a negative impact on the oral health outcomes of students, particularly those from marginalized communities. By evaluating the current policies, the white paper identifies a policy gap that needs to be addressed to improve oral health outcomes for students.

The proposed amendment to the policy is evaluated as a strategy to increase access to oral healthcare services for students, with the potential to reduce health disparities. The evaluation of policies in the white paper is important to ensure that policies are effective in achieving their intended public health outcomes and are equitable in their impact on all members of the community.

Table 5.3 Summary of MPH Emphasis Area Competencies

MPH Emphasis Area: Infectious Diseases and Zoonoses		
Number and Competency		Description
1	Pathogens/pathogenic mechanisms	The evaluation of modes of disease causation of infectious agents is a critical component of understanding the pathogenesis of infectious diseases. Courses such as BIOL 890 (Host-Pathogen Interactions) and DMP 710 (Introduction to One Health) provided me with a comprehensive understanding of pathogens, their pathogenic mechanisms, and how they cause disease. This includes a thorough examination of the transmission, replication, and virulence factors of pathogens and learning about the different modes of transmission, such as direct contact, aerosol, vector-borne, and foodborne transmission.
2	Host response to pathogens/immunology	Investigating the host response to infection is a crucial component of understanding the immunology of infectious diseases. The courses BIOL 890 (Host-Pathogen Interactions) and DMP 895 (Vaccinology) provided me with a comprehensive understanding of the host response to pathogens. I learned about the different components of the immune system and how they work together to protect the host from infectious agents.
3	Environmental/ecological influences	Examination of the influence of environmental and ecological forces on infectious diseases is an essential component of understanding the epidemiology of infectious diseases. MPH 802 (Environmental Health) is a course that provided me with an in-depth understanding of the environmental and ecological influences on infectious diseases. I learned about the impact of climate change, water quality, air pollution, and other environmental factors on the transmission and spread of infectious diseases and about the impact of changes in land use, deforestation, and biodiversity on the emergence and re-emergence of infectious diseases.
4	Disease surveillance	DMP 854 (Intermediate Epidemiology) and DMP 954 (Advanced Epidemiology) are courses that taught me the various risk factors for infectious and non-infectious diseases, including genetic, environmental, and lifestyle factors. I learned about the different surveillance methods used to track and monitor the incidence and prevalence of diseases, including passive and active surveillance, syndromic surveillance, and sentinel surveillance. The courses also

		covered the analysis of disease data, including the calculation of disease rates, risk ratios, and other epidemiological measures.
5	Disease vectors	MPH 802 (Environmental Health) and DMP 710 (Introduction to One Health) are courses that helped me learn about the different types of vectors, including arthropods such as mosquitoes, ticks, and fleas, and the role they play in the transmission of infectious diseases. I learned about the impact of toxic plants, pesticides, and other environmental toxins on the incidence and prevalence of infectious diseases. The courses laid the foundation to the One Health approach, which emphasizes the interconnectedness of human, animal, and environmental health, and how it can be applied to the prevention and control of infectious diseases

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Appendix A - MAP

Interactive Map of K-12 Schools and Oral Health Screening in Kansas

This appendix provides a brief description of the interactive map created to identify the distribution of public and private K-12 schools and dental screening services across different regions in Kansas. The map was created using ArcGIS software and provides a visual representation of the distribution of schools and dental screening services across the state. By layering this information, areas where access to screening services may be limited for students can be identified, which can inform policy decisions and healthcare resource allocation to improve access to these services for students and promote better health outcomes.

The interactive map can be accessed at

<https://kdhe.maps.arcgis.com/apps/webappviewer/index.html?id=5baa3a53501e458b9e4af589598c8a56>

It provides a user-friendly interface to explore the data and allows users to zoom in and out of different regions in Kansas. The map also includes a legend to help users understand the different layers of the information displayed. The interactive map provides a valuable tool for analyzing and understanding oral screening services in Kansas, helping to inform policy decisions and resource allocation to improve access to dental screening services for students in the state.

When accessing the link provided, the user is directed to an interactive and comprehensive Oral Health Map App (Image 7.1) that is specifically designed for the state of Kansas, as shown below. The map provides a visually appealing and intuitive interface, which displays a variety of color blocks and dots. The color blocks represent different types of screeners that conduct screenings in schools, such as dentists, dental clinics, health departments, and FQHCs.

The user can access the list of layers on the map by clicking the layers icon  located in the top ribbon of the interface, as shown in Image 7.2. This list displays all the layers available on the map, and the user can select or remove layers as needed. Additionally, the attribute table can be accessed by clicking the arrow tab located at the bottom of the map interface . This opens a new tab for each screener, displaying the relevant information in columns that are scrollable. This is depicted in Image 7.3.

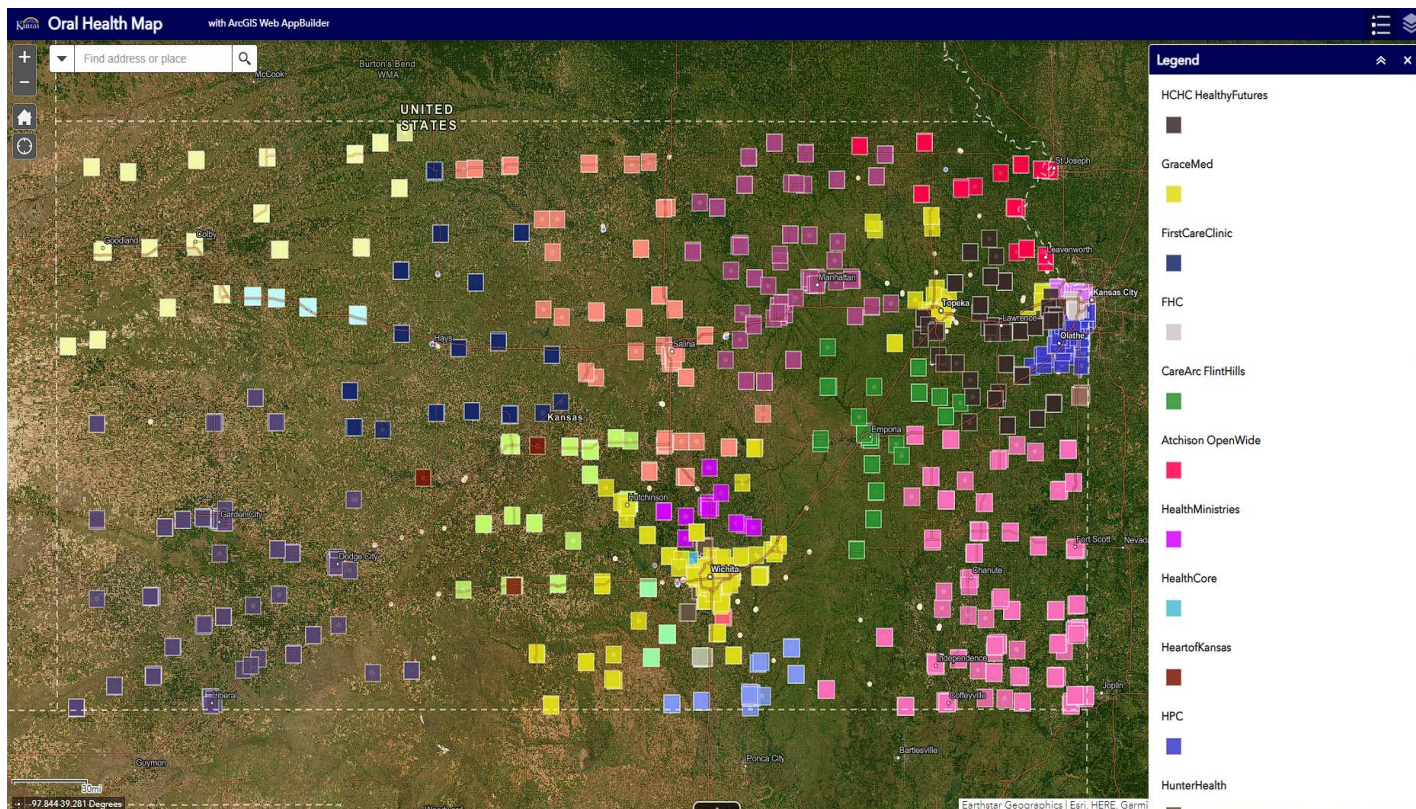


Image 7.1 Screenshot of Oral Health Map Web Application with legend.

Image 7.2 Screenshot of Oral Health Map Web Application with Layer List.

HCHC HealthyFutures GraceMed FirstCareClinic FHC CareArc FlintHills Atchison OpenWide HealthMinistries HealthCore HeartofKansas HPC HunterHealth JoCoHD Konza LifetimeSmiles Genesis Prairie Star - Prairie Star Rawlins County Dental Clinic Salina Family Healthcare Sedgwick						
Options Filter by map extent Zoom to Clear selection Refresh						
Address of School	County	District Name and Number	Last Screened	Name of School	Phone Number	Who is screening?
810 N Commercial ST • Auburn, KS 66402	Shawnee	Auburn Washburn - 437	2019/2020	Auburn Elementary	(785) 339-4400	HCHC Healthy Futures
701 SW 33rd ST • Topeka, KS 66614	Shawnee	Auburn Washburn - 437	2014/2015	Farley Elementary	(785) 408-8300	HCHC Healthy Futures
7445 SW 29th ST • Topeka, KS 66614	Shawnee	Auburn Washburn - 437	2014/2015	Indian Hills Elementary	(785) 339-4500	HCHC Healthy Futures
4948 SW Wanamaker RD • Topeka, KS 66610	Shawnee	Auburn Washburn - 437	2012/2013	Jay Shideler Elementary	(785) 339-4600	HCHC Healthy Futures
6625 SW Westview RD • Topeka, KS 66619	Shawnee	Auburn Washburn - 437	2021-2022	Pauline Central Primary	(785) 339-4700	HCHC Healthy Futures
7035 SW Morrill RD • Wekarusa, KS 66546	Shawnee	Auburn Washburn - 437	2021-2022	Pauline South Intermediate	(785) 339-4750	HCHC Healthy Futures
100 Bullpup Drive Baldwin City, KS 66006	Douglas	Baldwin City - 348	2019/2020	Baldwin Elementary Intermediate Center	785-594-2446	HCHC Healthy Futures

Image 7.3 Attribute Table

Appendix B - White Paper

This appendix consists of the pdf of the white paper written to propose statutory changes aimed at increasing access to dental screening services for Kansas students. The white paper proposes amendments to the current laws that govern dental screening services in Kansas. The proposed changes would allow trained school healthcare personnel, such as school nurses, to carry out dental screenings for students. By broadening the pool of qualified personnel who can conduct dental screenings, this amendment aims to enhance access to oral healthcare services for students and promote better oral health outcomes.

1. White Paper: Smiling Brighter

Smiling Brighter: Enhancing School Dental Health Programs for Kansas Children through Expanded Dental Screenings

WHITE PAPER



Bureau of Oral Health

Kansas Department of Health and Environment

2023

The Kansas Department of Health and Environment's Bureau of Oral Health (BOH) is a key state-level agency committed to advancing oral health in Kansas. BOH's programs aim to improve oral health awareness and outcomes through various activities, including:

- **Development of an Evidence-based Oral Health Policy**
- **Oral Health Data Collection and Dissemination**
- **Programming Dedicated to Dental Disease Prevention**
- **Statewide Oral Health Education**

The Bureau of Oral Health at KDHE has initiated the Kansas School Oral Health Screening program with the vision of better oral health for all Kansas children.

For more information about the BOH and other oral health resources in Kansas, visit <https://www.kdhe.ks.gov/619/Oral-Health>

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I. Introduction

Oral health care is a vital aspect of overall health and well-being, particularly for young children. Unfortunately, tooth decay remains a widespread and chronic problem, with devastating consequences for children's health and quality of life. In fact, tooth decay is the most common chronic childhood disease, affecting five times as many children as asthma. Left untreated, tooth decay can lead to pain and suffering, impacting a child's ability to eat, speak, and learn¹.

School-based oral health screenings can provide parents with valuable information about their child's oral health and the importance of regular dental care. This data can also help state officials identify areas with high levels of dental disease and implement targeted preventive interventions to improve the oral health of Kansas school children¹.

According to Kansas State Statute 72-6251, all school children are required to receive annual school-based dental screenings. The Bureau of Oral Health at KDHE has developed oral health screenings that help schools meet this legal obligation. These screenings identify various issues such as tooth decay, previous dental work, infection, swelling, and pain. Parents are informed of the screening results, and those children who require dental treatment are referred to local dentists. It is recommended that school nurses monitor these referrals to ensure that children receive proper care. While school screenings are helpful, they are not a substitute for a comprehensive dental exam by a dental professional. Therefore, it is recommended that every child has a dental home that provides regular dental care. By collecting data from the KDHE school screening program, the state can gain insights into the prevalence of oral disease among Kansas school children¹.

Poor oral health in children is a significant public health issue in the United States, with tooth decay being one of the most common chronic diseases among children. In Kansas, tooth decay is the most prevalent chronic disease affecting children, with nearly 55% of third graders experiencing tooth decay². The state faces challenges in maintaining good oral health for its children, with 18% of kindergarten children having untreated tooth decay. In terms of protective dental sealants, 42% of Kansas third-grade children have them³. It is crucial to prioritize the oral health of children in Kansas and take necessary measures to prevent and treat oral health problems. Considering this, the Bureau of Oral Health is proposing a statutory change that would allow trained school healthcare personnel to perform dental screenings in schools. This would increase access to oral healthcare services for students and improve the overall quality of oral healthcare services in schools. The current model relies on the voluntary time and resources of dentists and dental hygienists, which leads to limited availability and revenue loss. By increasing the number of trained school healthcare professionals who can perform the screenings at no cost to school districts, this initiative aims to ensure that all students have access to essential dental screenings.

II. Oral Health Screening Statute

Legislative Implications/History

Oral health is essential to the general health and well-being of all Americans and can be achieved by all Americans, especially children⁴. The Bureau of Oral Health (BOH) recognizes the significance of providing dental screenings to all children in Kansas schools and is committed to enhancing the Kansas Dental School Screening Program to achieve this goal.

In 1915, K.S.A. 72-6251, the Annual Free Dental Inspection Statute, was enacted to provide free annual oral health screenings to every child enrolled in a Kansas school. However, the current provisions of K.S.A. 72-6252 limit the designation of Dentists as the only healthcare personnel who can provide this screening, despite not being a part of the school's healthcare team. This exclusive designation of Dentists as the sole provider of dental screenings has created a significant barrier to children receiving this service, as there is no funding available to reimburse them or Dental Hygienists for this service. As a result, the screening is conducted on a volunteer basis only, leading to inconsistencies in availability and quality of care. To overcome this issue, there is a need to expand the pool of qualified healthcare personnel who can provide dental screenings in schools, thereby increasing access to this essential service and promoting better oral health outcomes for school-aged children.

Recommendations for Enhancements

BOH is proposing statutory changes to increase the number of trained school-based healthcare staff who can perform dental screenings, thereby ensuring that every child in Kansas schools has access to this crucial service. This initiative would help mitigate this issue and improve oral health outcomes for Kansas students. The purpose of the proposed amendment is to increase access to dental screening services in schools. To achieve this objective, the Board of Education will be permitted to assign trained school healthcare personnel, such as school nurses, to carry out the screening. This modification aims to bring the Act in line with other health-related screenings performed in schools, including vision and hearing screenings, which already permit trained school healthcare personnel to perform the screenings. By broadening the pool of qualified personnel who can conduct dental screenings, this amendment aims to enhance access to oral healthcare services for students. In addition, the screening results will be communicated to the parents or guardians of the students. If further examination by a qualified dentist is deemed necessary, this will also be reported. By promoting better communication and coordination among healthcare providers, this amendment aims to improve the overall quality of oral healthcare services in schools. The goal is to promote better oral health outcomes for students by increasing access to dental screening services.

The current model for providing dental screenings in schools relies on the voluntary time and resources of Dentists and Dental Hygienists, as this service is not reimbursable. This leads to

limited availability and reflects a loss in revenue for these healthcare professionals. To mitigate these issues and benefit school-age children, this proposed amendment seeks to increase the number of trained school healthcare professionals who can perform the screenings at no cost to the school districts. This would help ensure that all students have access to essential dental screenings and would help reduce the burden on outside Dentists and Dental Hygienists who currently volunteer to provide this service.

This initiative is relevant to the mission of KDHE, Division, Bureau, or Program, as it aligns with their objective of safeguarding and enhancing the health and environment of all Kansans. School-based oral health screenings are a crucial aspect of improving the oral health of children in the state. Improving the oral health of all Kansans is a priority for the Bureau of Oral Health by starting with the most vulnerable population, children, which allows for improved oral health education and the development of improved oral health practices throughout the lifespan.

III. Oral Health of Children in Kansas

Oral health is a critical component of overall health and well-being, particularly in children. However, not all Americans are achieving the same degree of oral health. Poor oral health in children can lead to pain, difficulty eating and sleeping, speech issues, and poor school attendance. According to the Centers for Disease Control and Prevention (CDC), tooth decay is one of the most common chronic diseases among children in the United States. About 1 in 5 children aged 5 to 11 years have at least one untreated decayed tooth³. Over half (51.2%) of children aged 6 to 11 have primary teeth decay, and 24.5% of them have untreated decay⁵. Almost one-third of school-aged children in the US have untreated dental decay, which can cause pain, and tooth loss, and affect their overall health, eating, sleeping, and learning abilities⁶.

In Kansas, poor oral health in children is a pressing public health issue that requires attention. According to the KDHE, tooth decay is the most prevalent chronic disease affecting children in Kansas, with nearly 55% of third graders experiencing tooth decay². One of the objectives of Healthy People 2020 is to decrease the prevalence of untreated dental decay among children from 23.8% to 21.4% for 3- to 5-year-olds, from 28.8% to 25.9% for 6- to 9-year-olds, and from 17% to 15.3% for 13- to 15-year-olds⁷. Oral health problems can have a significant economic impact, as they can lead to increased healthcare costs and missed workdays for parents⁸. Therefore, it is crucial to prioritize the oral health of children in Kansas and take necessary measures to prevent and treat oral health problems. By promoting good oral health habits, such as brushing and flossing, and providing access to dental care, we can ensure that Kansas children grow up with healthy smiles and bodies.

IV. Prevalence of Dental Diseases in Kansas' Children

Dental caries is a significant health issue for children and adolescents in Kansas. While preventable, about 40% of Kansas kindergarten children have experienced tooth decay, slightly lower than the national average of 42%. Additionally, 55% of third-grade children in Kansas have experienced tooth decay, which is also lower than the national average of 60%. Many young children start school with dental disease and are at school in pain, potentially impacting their ability to learn. Kansas faces challenges in maintaining good oral health for its children. 18% of kindergarten children in Kansas have untreated tooth decay, slightly higher than the national average of 15%, while 17% of third-grade children have untreated decay, slightly lower than the national average of 20%².

Figure 1: Percentage of **Kindergarten** Children with Decay Experience and Untreated Decay; Kansas (2021-2022) Compared to U.S. Average for 5-year old children (NHANES 2011-2016)²

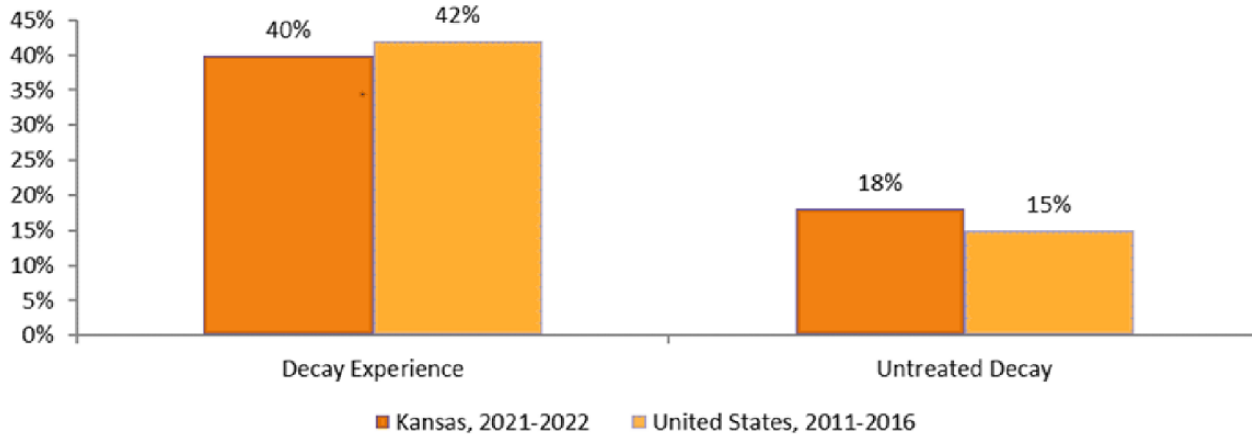
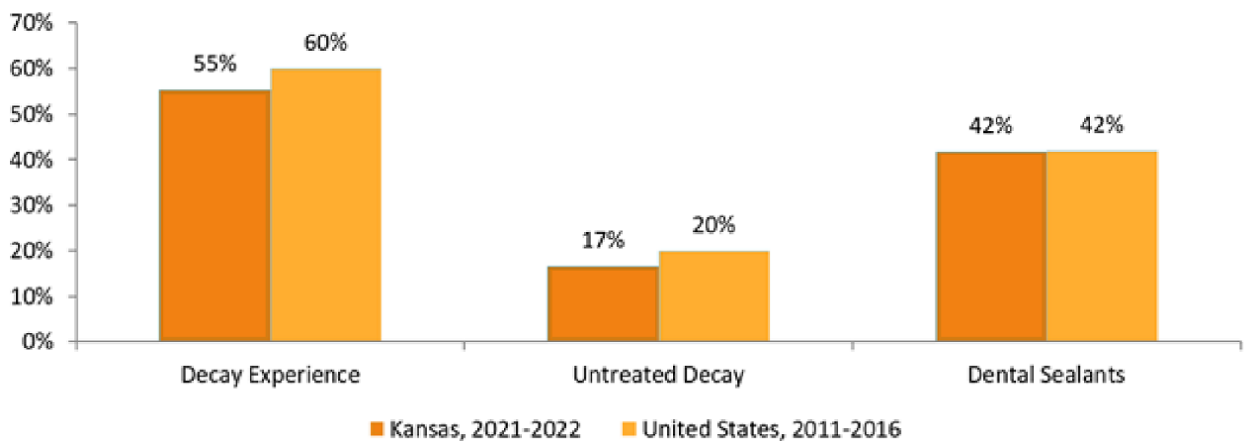


Figure 2: Percentage of **3rd Grade** Children with Decay Experience, Untreated Decay and Dental Sealants; Kansas (2021-2022) Compared to U.S. Average (NHANES 2011-2016)²



Decay experience is a term used to describe teeth with untreated decay or dental restorations, including extracted teeth due to decay. This definition is used for both primary and permanent dentition and is approved by the Council of State and Territorial Epidemiologist (CSTE) for the National Oral Health Surveillance System (NOHSS). Untreated decay, specifically referring to dental cavities or tooth decay that has not received proper treatment, is also a CSTE-approved indicator for NOHSS. On the other hand, treated decay refers to teeth that have received a dental filling, crown, or have been extracted due to decay. For children who require early or urgent dental care, restorative dental care is necessary. Urgent dental care is defined as requiring restorative dental care within 24-48 hours due to pain or infection. Dental sealants are a plastic-like coating applied to the chewing surfaces of back teeth, forming a physical barrier to protect against decay. While dental sealants on permanent molars are a CSTE-approved indicator for NOHSS, information on dental sealants is not provided for kindergarten children since they do not typically have permanent molars. The National School Lunch Program (NSLP) is a federal program that provides nutritionally balanced, low-cost, or free lunches to children each school day, with eligibility guidelines updated annually².

In terms of protective dental sealants, 42% of Kansas third-grade children have them, which is the same as the national average. The need for dental care is also evident in Kansas. Of the Kansas kindergarten children with decay experience, only 54% have had all their teeth treated, 10% have had some teeth treated, and 36% have untreated decay without any evidence of treated decay. Among third-grade children with decay experience, 71% have had all their teeth treated, 12% have had some teeth treated, and 17% have untreated decay without any evidence of treated decay. Significant socioeconomic oral health disparities exist in Kansas. Children attending lower-income schools have a significantly higher prevalence of decay experience and untreated decay compared to those attending higher-income schools².

V. School-Based Oral Health Programs

School-Based Oral Health Programs (SBOHP) are designed to provide dental care to children and reduce barriers to accessing dental services. SBOHP typically includes dental education, oral screenings, fluoride applications, sealant placement, and referrals for follow-up dental treatment. One of the efforts to improve the oral health of children is by implementing school-based oral health promotion programs, as proposed by the World Health Organization (WHO)⁹. Schools serve as ideal settings for health promotion as they can reach most school-aged children and provide important networks to their families and communities. School-based programs can also help increase children's access to dental services, especially those from disadvantaged socio-economic backgrounds¹⁰. Children benefit from receiving oral health screenings and dental care in a familiar and non-threatening environment. Parents benefit from not having to take time off from work for dental appointments. SBOHP also benefits schools by reducing time out of the classroom and demonstrating a commitment to the welfare of their students¹¹. SBOHPs present an opportunity to tackle various socio-economic factors influencing

oral health, as they offer alternative and convenient access points for care. An amalgamation of comprehensive care models showcased an enhancement in oral health, as barriers such as transportation, missed appointments, and lack of parental engagement were overcome¹⁰. To maximize the effectiveness of SBOHPs, national experts have recommended the implementation of supporting public policies such as the utilization of dental hygienists or other qualified providers at the highest level of their licensure¹².

The Bureau of Oral Health has implemented a statewide program for an oral health screening with the purpose of fulfilling the requirement of The Kansas State Statute for Annual Dental Inspection (K.S.A. 72-6251). In accordance with this program, dental professionals, including dentists and dental hygienists, are providing dental screenings in their respective local communities, with the results being sent home to parents and guardians by school nurses. Annually, over a hundred thousand children ranging from pre-K to Grade 12 are being screened throughout Kansas. Subsequently, the school nurses aggregate the data and forward it to the Bureau of Oral Health, where it is included in the annual reports. The school nurses express their gratitude for the screening program and are pleased that the children are receiving such attention to their oral health. Additionally, the program is highly beneficial for parents, as it enables them to become informed about any evident dental concerns, and the children can receive professional dental care for any issues identified¹³.

VI. Dental Screenings at Schools: First Step Towards Prevention of Oral Health Problems

School dental screenings involve a dental health professional examining children's oral cavities in a school setting and informing parents of their child's oral health status and any necessary treatments. The screenings identify potential issues before symptomatic disease onset, promoting preventive and therapeutic oral healthcare¹⁴. They play a vital role in promoting children's oral health by detecting and treating oral health problems early, preventing pain, and complex procedures. Furthermore, screenings identify children with dental anxiety, requiring additional support. Early detection improves overall oral health and well-being; while educating children and families on good oral hygiene habits, healthy eating, and regular dental check-ups. Promoting good practices helps children develop lifelong healthy habits.

Dental screenings play a crucial role in promoting oral health, particularly in cases where there is a lack of accessibility to dental care. The accessibility of regular dental care remains a challenge for many Americans, particularly those with limited financial resources, no dental insurance, or restrictions on their veterans, Medicare, and Medicaid health insurance coverage. These groups of individuals who cannot obtain adequate dental care for optimal oral health are collectively referred to as underserved populations. These underserved populations may include those who are classified as poor, racial or ethnic minorities, children under the age of five, persons with disabilities, place-bound older adults, veterans, members of the LGBTQ+ community,

individuals with special health care needs, and those with complex medical conditions, such as HIV/AIDS. Other underserved groups lack access to dental care because providers are unwilling to accept payments from federally funded programs like Medicaid, or those residing in areas with a shortage of dental professionals, such as inner-city or rural areas¹⁵. By detecting potential dental issues early on, dental screenings can help prevent the need for more invasive and costly procedures in the future. Thus, while the lack of accessibility to dental care is a significant challenge, dental screenings can provide an important first step in promoting oral health and identifying individuals who require additional support and services.

VII. The Gap

The primary objective of the oral health workforce in the United States is to fulfill the oral health needs of the population. This objective is achieved through the concerted efforts of professionals and other supporting personnel who offer direct care and preventive services in diverse settings. The configuration of this workforce is influenced by multiple factors, such as the oral health requirements of the public, patients' awareness and habits regarding preventive health measures, and the policy and regulatory frameworks that govern the location of oral health providers. The pressing need to enhance access to care has stimulated initiatives aimed at creating novel workforce models and expanding existing ones, including the development, and training of new allied health professionals¹⁶.

Workforce Shortages Nationwide

The oral health workforce in the United States encompasses a variety of professionals, including dentists and allied health professionals such as dental hygienists, dental therapists, dental assistants, dental laboratory technicians, and community dental health coordinators (CDHCs). These professionals provide care to patients through a collaborative approach, working in a range of settings that includes solo and group dental practices, community clinics, academic institutions, commercially owned clinics, hospitals, and government agencies at the federal, state, or local level¹⁴. The United States has more than 5,800 dental health professional shortage areas (HPSAs) affecting almost 58 million people, including Kansas which has 58-111 HPSAs. Professional burnout is another concern that needs to be addressed. A study by the Mayo Clinic indicated that over 50% of physicians experienced at least one symptom of burnout, and other healthcare providers are similarly impacted¹⁵.

Importance of Workforce for Oral Health Screenings

Rural communities encounter various obstacles such as limited access to healthcare providers, inadequate insurance coverage, low incomes, and aging populations with complex care needs¹⁷. To enhance oral health care accessibility for rural populations, a multifaceted approach is necessary, which can be tailored to fit the diverse needs, resources, cultural, and political environments of different communities. Utilizing interprofessional care, shared goals, health

informatics, telehealth, and other technologies in combination with community-wide public health initiatives and novel workforce models can enhance access to care for underserved patients while simultaneously improving care quality¹⁵.

A greater workforce for oral health screenings is essential for various reasons. It enhances accessibility to oral health services for underserved and vulnerable populations, identifies and addresses oral health issues earlier, caters to diverse patient needs, and educates the public on oral health and preventative measures. A more extensive workforce is crucial for promoting oral health and improving quality of life.

The Kansas School Oral Health Screening Program is a training course that aims to provide standardized data collection and ensure compliance with Kansas Law. The training program is designed to teach dental screeners in Kansas about the uniformed school screening process and enable them to identify and refer children with dental disease for treatment. The course provides official continuing education credit for dental professionals, and learners from other professions can use the certificate to self-submit for education credit to their boards of practice. The training covers various topics, including screening terminology, organizing oral health screenings in schools, identifying the roles of school nurses and oral health screeners, and conducting oral health screenings consistent with other screeners statewide. The course was developed by the Kansas Department of Health and Environment; the Bureau of Oral Health, and is supported by many organizations, including the Delta Dental of Kansas Foundation, Children's Mercy Family Health Partners, and Health Resources Service Administration (HRSA)¹⁸.

VIII. Need for Change in Legislation?

Proposed amendment K.S.A. 72-6252 seeks to authorize school boards to provide a designated place of inspection and competent, trained dental screener to conduct dental screenings. The board of education may provide compensation for such services and make necessary rules and regulations for the proper conduct of the inspection. As per K.S.A. 72-6253, dentists are not allowed to perform any work other than inspection and reporting without the consent of the parents or guardians of the child. This implies that dentists cannot make any decisions on the necessary dental work that may be required after the inspection. Therefore, allowing other trained healthcare personnel, such as dental hygienists, to perform dental screenings in schools can be a viable solution. By expanding the pool of qualified personnel who can conduct dental screenings, this proposed amendment can enhance access to oral healthcare services for students, promote better communication and coordination among healthcare providers, and ultimately improve the overall quality of oral healthcare services in schools.

IX. Impact of Change

Feasibility Assessment

The proposed amendment aims to address the limited availability of dental professionals for in-school screenings by training more school healthcare professionals to provide them. This would increase the feasibility of providing dental screenings in schools, as it would not rely solely on the voluntary services of outside dentists and dental hygienists. By providing free training and technical assistance, the Bureau of Oral Health aims to ensure that school healthcare personnel are properly equipped to provide dental screenings to students.

Financial Implications

Currently, dental screenings in schools are provided by dentists and dental hygienists on a voluntary basis, which can result in limited availability and revenue loss for dental offices. However, the proposed amendment would not impose any financial burden on school districts, as the training and equipment for school healthcare personnel to perform dental screenings would be provided by the Bureau of Oral Health at no cost. This would increase access to dental screenings for school-age children and reduce the financial burden on outside dental professionals who currently provide this service on a voluntary basis.

Stakeholder Impact

The proposed amendment would have a positive impact on school districts, as they would have increased access to dental screening opportunities for students with additional resources. Dentists and dental hygienists may choose to continue volunteering for community screenings, but the burden of providing in-school screenings would be lifted. The trained school healthcare personnel would be able to provide reliable and consistent dental screenings for students, leading to improved oral health outcomes.

Potential Issues & Strategies

One potential issue with the proposed amendment is ensuring proper training and education of school healthcare staff on dental screening techniques. To address this, the Bureau of Oral Health offers a free online training course for designated screeners, which will be accessible to all school healthcare personnel. The BOH will also provide technical assistance and support to newly trained dental screeners to ensure that they are equipped to provide high-quality dental screenings to students. This would help to address any potential issues with the feasibility of implementing the proposed amendment.

X. Impact of Oral Health on Overall Health

Oral health plays a critical role in overall health and is a contributing factor, symptom, and consequence of many chronic diseases. The relationship between oral health and chronic diseases can be better understood through collaborative efforts in health promotion, disease prevention, early intervention, and coordinated clinical management, resulting in more efficient and effective public health approaches. Neglecting oral health can lead to adverse health outcomes, affecting

general health, health-related quality of life, nutrition, self-image, social interaction, mental health, and physical health^{19,20}. Oral health impacts systemic health, especially in individuals with chronic diseases such as diabetes, cardiovascular disease, and obesity^{20,21,22}. Health behaviors such as tobacco use, and consumption of high-sugar foods and beverages can have adverse consequences for oral and overall health²³. However, few state and local public health programs in the United States have integrated oral health and chronic disease prevention interventions and health promotion messages, leading to missed opportunities for improved health outcomes for populations. Common risk factors such as tobacco and alcohol use and dietary behaviors associated with obesity and elevated blood sugar are shared by the most common oral diseases and noncommunicable chronic diseases²⁴. The lack of coordination between oral health and chronic disease programs in state health departments hinders the promotion of disease prevention and health promotion messages and strategies that can achieve mutually beneficial outcomes²⁴.

XI. Conclusion

In conclusion, oral health is an essential component of overall health, and it is crucial to promote good oral health habits and provide access to dental care services to prevent and manage oral health problems. The proposed amendment to increase dental screenings in schools by providing training for screenings in schools is a step in the right direction toward improving oral health outcomes for school-age children. By providing free training and technical assistance, the Bureau of Oral Health can ensure that school healthcare personnel are equipped to provide reliable and consistent dental screenings to students, reducing the burden on outside dental professionals and increasing access to dental screenings for school-age children.

Coordinated efforts between oral health and chronic disease prevention programs can achieve mutually beneficial outcomes and improve health outcomes for populations. It is important to prioritize and invest in oral health promotion and disease prevention interventions to improve overall health and well-being.

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XIII. Appendix

1. The Kansas State Statute for Annual Dental Inspections 72-6251

72-6251

Chapter 72 - SCHOOLS Article 62 - STUDENT HEALTH

Sections 51 – 53

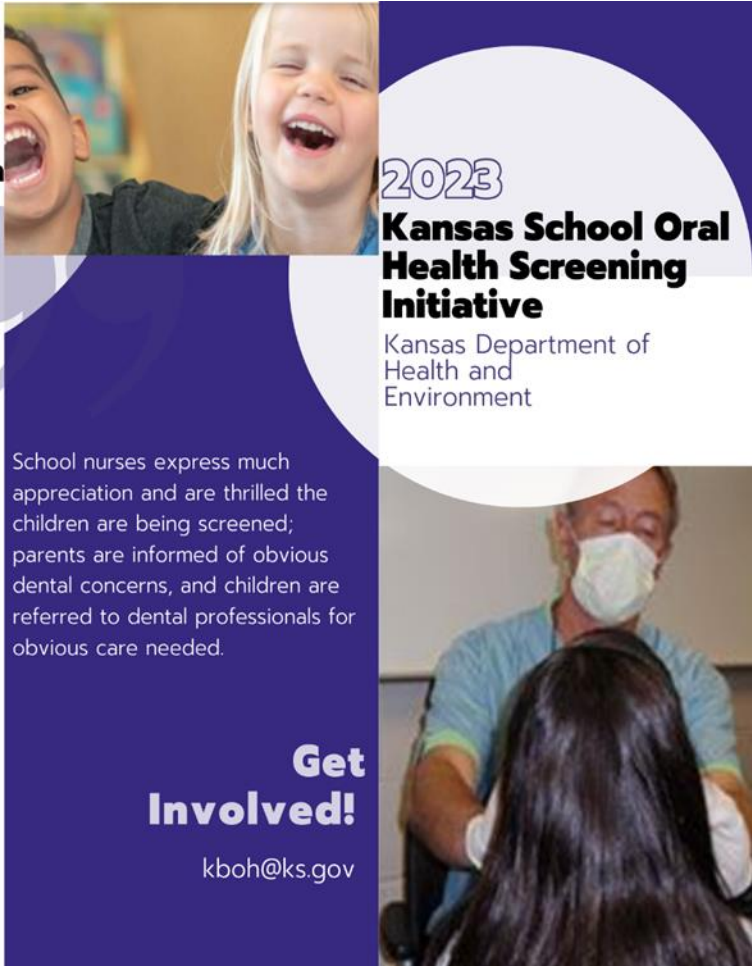
THE KANSAS STATUTE FOR ANNUAL FREE DENTAL INSPECTION (K.S.A.72-6251) was initially established in 1915, revised in 1923 and recoded in 2017. This statute states:

“Annual free dental inspection; exceptions. The boards of education of cities of the first and second class and school boards of school districts are hereby required to provide for free dental inspection annually for all children, except those who hold a certificate from a legally qualified dentist showing that this examination has been made within three months last past, attending such schools.”

History: L.1915, Ch. 308, § 2; L. 1919, Ch. 263 § 1 June 17; R.S. 1923, 17-5201. Recoded 2017. Source or Prior Law: 72-5201.

Appendix C - Trifold for the KMOM Event

This appendix consists of the tri-fold brochure created to recruit volunteers or contracted screeners, distributed at the Kansas Mission of Mercy (KMOM) event in Topeka. The brochure includes information on the roles and responsibilities of volunteers or contracted screeners, as well as a sample contract. Its purpose is to attract individuals interested in contributing to the Screening Program of the BOH and ensure that they have a clear understanding of their roles and expectations.



**Better Oral Health for
All Kansas Children**

Screening Program

The Bureau of Oral Health has implemented a statewide oral health screening program to satisfy The Kansas State Statute for Annual Dental Inspection (K.S.A. 72-6251)

Dentists and dental hygienists in Kansas are providing dental screenings in their own local communities with school nurses sending the results home to parents and guardians. Over a hundred thousand children from pre-K to Grade 12, are being screened annually across Kansas. School nurses send the aggregated data to the Bureau of Oral Health and it is included in our annual reports.

**2023
Kansas School Oral
Health Screening
Initiative**

Kansas Department of
Health and
Environment

School nurses express much appreciation and are thrilled the children are being screened; parents are informed of obvious dental concerns, and children are referred to dental professionals for obvious care needed.

**Get
Involved!**

kboh@ks.gov



Sample Contract

In order to achieve the mutual goal of completing oral health school screenings, both parties agree to the following:

- 1. The purpose of this contract is to increase the number of school age children who have received an oral health screening during this school year.
- 2. The goal of the Contract is to be attained within the constraints of available resources including funds available through the Centers for Disease Control and Prevention Cooperative Agreement.

- 5. Total reimbursement under this contract will not exceed \$4500 (\$300 per school screened).
- 4. This Contract will become effective after the signatures are affixed by the representatives of both parties.
- 5. The duration of this contract is for a period beginning Jan 1, 2022 and ending May 30th, 2022.
- 6. The Contract, including attachments, may be amended as necessary. Such amendments shall be in writing and duly executed by both parties.
- 7. Binding Appendices. The provisions found in Appendix A, (Contractual Provisions Attachment [Form DA-146a, Rev. 07-19]), Appendix B, (Whistleblower and Non-Debarment Certification), Appendix C, (Agreement to Comply with the Policy Against Sexual Harassment, Discrimination, and Retaliation) which are attached hereto, are hereby incorporated in this Agreement and made a part thereof.
- 8. This Agreement is contingent upon the availability of state or federal funds and may be terminated by thirty (30) day advance written notice by KDHE.

KDHE Agrees:

- 1.To provide (insert name of screener here) with \$300 per school screened. Funds will be released after completion of each school screened on an on-going basis until the end of this contract period.
- 2.To provide (insert name of screener here) with necessary supplies to complete oral screenings (gloves, tongue blades, masks, hand sanitizer, and toothpicks).

Screener Agrees:

- 1.To provide verification of basic screening survey calibration online training prior to completion of initial school screening.
- 2.To complete oral screenings at sites assigned by KDHE.
- 3.To provide oral screenings to children in schools according to basic screening survey protocol.
- 4.To attend or be available (via phone or email) for meetings upon the request of KDHE should the need arise. Communications either by email or phone should be responded to within 2 business days.
- 5.If screener is unable to continue providing screenings during the grant period for any reason, she must notify KDHE as soon as this is evident

Appendix D - Article for Oral Health Newsletter

This appendix consists of the pdf of the article written for the Oral Health Newsletter outlining proposed statutory changes to improve access to dental screening services for Kansas students. The article provides a clear overview of the proposed changes and explains how they could help raise awareness and support for the initiative. It is scheduled to be published in the Fall edition of the Oral Health Newsletter.

From Volunteers to Trained Professionals: A Proposal to Expand Dental Screenings in Kansas Schools

The secret to a healthy and happy life is often a lot simpler than we think. Did you know that oral health is essential to our overall well-being? Yes, you read that right¹! And it's not just about brushing your teeth twice a day (although that's important too!). It's about ensuring that every child in Kansas has access to dental screenings, so they can develop good oral health practices from a young age². However, the current provisions of K.S.A. 72-6252 limit the designation of Dentists as the only healthcare personnel who can provide this screening, leading to inconsistencies in the availability and quality of care³. That's why the Bureau of Oral Health (BOH) is proposing some important changes to the Kansas Dental School Screening Program.

The BOH wants to expand the pool of qualified healthcare personnel who can provide dental screenings in schools, beyond just Dentists. The proposed amendment would allow trained school healthcare personnel to conduct the screenings and communicate the results to parents or guardians. By broadening the pool of qualified personnel who can conduct dental screenings, this amendment aims to enhance access to oral healthcare services for students and improve the overall quality of oral healthcare services in schools.

Currently, dental screenings in schools rely on the voluntary time and resources of Dentists and Dental Hygienists, which can lead to limited availability and a loss of revenue for these healthcare professionals. But with the proposed changes, more trained healthcare professionals will be able to perform the screenings at no cost to school districts. This means that all students will have access to essential dental screenings, and it will reduce the burden on outside Dentists and Dental Hygienists who currently volunteer to provide this service. Promoting better oral health outcomes for school-aged children in Kansas is a priority for the BOH, and this proposed amendment is a crucial aspect of achieving that goal. By starting with the most vulnerable population, children, we can improve oral health education and practices throughout their lives. So, let us keep our smiles shining bright and support these important changes to ensure every child has access to the dental care they need!

References

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