

ID: 60452634

Oral Health, Chronic Disease - Host Site Description

Arizona Department of Health Services

Assignment Location: Phoenix, US-AZ
Arizona Department of Health Services
Bureau of Assessment and Evaluation

Primary Mentor: Keisha Jenkins, DrPH, MPH
Direct Assistance State Assignee
Centers for Disease Control and Prevention

Secondary Mentor: Martín Celeya, DrPH, MPH
Chief, Bureau of Assessment and Evaluation
Arizona Department of Health Services

Work Environment

Hybrid

Assignment Description

The fellow will be placed with the Bureau of Assessment and Evaluation (BAE), which houses Oral health surveillance. Oral health initiatives are housed in the Office of Oral Health (OOH). The fellow will partner with BAE and OOH to support a combination of surveillance and prevention work that focuses on enhancing oral health surveillance, producing statistical reports and other communication deliverables for widespread dissemination, and evaluating the state's oral health surveillance and intervention programs.

Day-to-day activities will include:

- Meetings (virtually or in-person) with OOH and external stakeholders to work through data requests, improve surveillance systems, and collect feedback for program improvements
- Conduct analyses on available oral health surveillance and programmatic data using SAS or other statistical software
- Creating/maintaining public health surveillance reports and other communication deliverables (i.e., dashboards, infographics) to translate oral health data
- Engage with other CSTE fellows and epidemiologists to identify opportunities for cross-learning and collaboration
- Consult with the State Epidemiologist, Bureau Chief for Assessment and Evaluation, the Oral Health Director, and CDC Epidemiologist (primary mentor) to establish an enhanced surveillance system for oral health in a school children population
- Conduct routine data management, quality assurance, and analyses
- Working with partners to monitor and identify data to help guide oral health policy and programmatic activities
- Participate in regularly scheduled meetings with the Bureau of Assessment and Evaluation staff

Describe Statistical and Data Analysis Support, Such as Databases, Software, and Surveillance Systems Available to the Fellow

The fellow will be provided access to SAS, Tableau, and ArcGIS to support assigned activities. They will have access to Google and Office Suite products. They will be provided access to hospital discharge data (HDD), syndromic surveillance (ESSENCE), vital records, and all other necessary data systems to complete assigned tasks. The fellow will also have access to public health survey data, including the Behavioral Risk Factor Surveillance System (BRFSS), the Youth Risk Behavior Survey (YRBS), and the Pregnancy Risk Assessment Monitoring System (PRAMS). The fellow will also be able to access training for SAS or other software for statistical analyses through LinkedIn Learning or other trainers.

Projects

Surveillance Activity Title: Comprehensive Oral Health Surveillance

Surveillance Activity Description:

This activity involves building a collaborative partnership with the Office of Oral Health and its external partners to conduct routine and systematic surveillance on the oral health status of Arizona adults and children. By leveraging established public surveys like the Behavioral Risk Factor Surveillance System (BRFSS) for adults, the Pregnancy Risk Assessment Monitoring System (PRAMS) for pregnant people, and the National Survey of Children's Health (NSCH) for children, this activity aims to investigate patterns, causes, and effects of poor oral health outcomes in Arizona. The fellow will integrate other oral health data into the state's surveillance protocol, such as the Health Resources and Services Administration (HRSA) Uniform Data System (UDS), Centers for Medicare & Medicaid Services (CMS) Form 416, workforce data, hospital discharge, and syndromic surveillance. The goal is to produce a comprehensive surveillance plan and protocol that will ultimately enhance the Department's ability to provide regular oral health status reports that provide valuable information to stakeholders, policymakers, and the public.

Surveillance Activity Objectives:

The proposed project objectives include 1) build a collaborative partnership with the Office of Oral Health and its external partners for routine oral health surveillance, 2) integrate supplementary oral health data sources with public health survey data to provide a comprehensive picture of oral health status in Arizona, and 3) create a comprehensive oral health surveillance plan and protocol that leverages established public surveys and additional data sources. Expected deliverables include 1) a documented collaborative partnership framework or approach between the Office of Oral Health and external partners, 2) documented processes and findings (e.g., reports, dashboards, infographics) from integrating supplementary oral health data sources with public health survey data, and 3) a comprehensive oral health surveillance plan and protocol for the state.

Surveillance Activity Impact:

The project is expected to yield significant public health impacts. The project will empower the Office of Oral Health and its stakeholders to make timely and informed choices on future oral health initiatives by generating regular and comprehensive oral health status reports based on diverse surveillance data. The project aims to identify health disparities in the state's holistic approach by examining patterns and disparities in oral health among diverse demographic groups. This, in turn, optimizes prevention strategies and allows for the efficient allocation of public health resources and continuous evaluation of local oral health programs throughout the state. Ultimately, the project is intended to support the Office of Oral Health in taking a more proactive and evidence-based approach to oral health promotion, addressing the unique needs of communities and reducing health disparities.

Surveillance System Evaluation Title: Evaluating Oral Health Surveillance Strategies in Arizona

Surveillance System Evaluation Description:

This project focuses on conducting a thorough cross-walk evaluation of multiple oral health surveillance datasets to gain valuable insights into the strengths and limitations of each system. The analysis aims to identify gaps in critical health indicators, allowing for a better understanding of the current state of oral health surveillance. The project will also assess and identify discrepancies in definitions and methodologies across multiple datasets. By critically assessing various surveillance systems, the project will provide actionable recommendations to improve surveillance in the state. The goal is to inform decision-makers, stakeholders, and policymakers about Arizona's most effective strategies for optimizing oral health surveillance. This ensures that oral health surveillance captures a comprehensive and accurate representation of oral health indicators. Through this initiative, the project aims to contribute to a more robust and refined oral health surveillance framework at the state and national levels.

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Ultimately the fellow will engage in the following activities to accomplish this project 1) compare various surveillance data elements, 2) assess surveillance methodologies, 3) evaluate data quality and accuracy, 4) align oral health indicators, especially amongst those listed in the Arizona Oral Health Action Plan Healthy People 2030, 5) identify gaps, and 6) provide recommendations.

Surveillance System Objectives:

The expected objectives for this project are 1) design and implement a thorough cross-walk comparison of oral health data sources (National Oral Health Surveillance System, BRFSS, NSCH, as such), 2) develop a framework to align oral health indicators available in multiple data sources with the Arizona Oral Health Action Plan and Healthy People 2030, 3) develop actionable recommendations to improve alignment and accuracy of oral health surveillance mechanisms. The expected deliverables for this project include 1) an evaluation plan that describes the framework, methods, and processes for conducting a cross-walk comparison of oral health surveillance data sets, 2) an evaluation report outlining strengths and limitations for each surveillance system along with a proposed framework for the alignment of oral health indicators, and 3) a list of actionable recommendations to enhance the accuracy and reliability of oral health data in Arizona.

Surveillance System Impact:

This project will provide ADHS and its partners with a comprehensive understanding of the strengths, limitations, and discrepancies of existing oral health surveillance systems. The actionable recommendations from this project will guide the improvement of future oral health surveillance mechanisms, leading to more effective and targeted initiatives. The findings from this project may influence national surveillance frameworks, promoting consistency and standardization in oral health surveillance practices at a broader scale. Lastly, ensuring alignment with current health initiatives ensures that oral health surveillance efforts contribute directly to overarching health goals and promote a holistic and coordinated approach to public health.

Major Project Title: Enhancing Pediatric Oral Health Surveillance in Arizona

Major Project Description:

Good oral health significantly improves a child's overall social, physical, and mental development. Despite the preventability of tooth decay, a considerable number of children in Arizona continue to experience cavities. In response to this issue, the Arizona Department of Health Services, in collaboration with First Things First, conducts a statewide oral health survey every 5 years in the state known as the Healthy Smiles Healthy Bodies Survey. The survey focuses on kindergarten and third-grade children in public schools to assess their current oral health status. The survey collects information on a variety of oral health indicators, including the presence of tooth decay (cavities), untreated tooth decay, dental sealants, missing teeth, use of dental services, and a child's access to dental insurance.

The data collected from the survey is used to monitor trends in oral health over time, identify disparities in oral health among different groups of children, and inform oral health policy and programs in Arizona.

Historically, the oral health survey was administered every 5 years to over 3,600 kindergarten and 2,300 third-grade children across 84 schools. However, due to challenges in school recruitment, personnel training, and data collection, ADHS will develop a new methodology to shift from a 5-year cycle to an annual cycle. Therefore the project aims to establish a sustainable and efficient cycle for the annual oral health survey in kindergarteners and third grade children. The fellow would be responsible for 1) developing an improved survey design that captures comprehensive data on the oral health of kindergarten and third-grade children, 2) implementing a refined approach for sample selection to ensure representation from diverse demographics, and 3) enhancing strategies for school recruitment to overcome previous challenges. The fellow will also be the lead investigator and facilitate the necessary Institutional Review Board approvals to ensure ethical considerations in data collection.

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In partnership with the secondary mentor, the fellow will develop a robust training program for personnel administering the survey; establish a comprehensive system for managing the collected data; implement protocols for data aggregation and analysis; and produce a report of the findings. The launch of the new survey will occur in the 2025-2026 school year.

Major Project Objectives:

There are four overall objectives for this project: 1) develop an improved survey design capturing comprehensive data on the oral health of kindergarten and third-grade children, 2) optimize sample selection and school recruitment, 3) facilitate IRB approvals, 4) establish a robust training program and data management system. The expected deliverables include 1) an updated survey instrument for comprehensive oral health data collection, 2) documented strategies for optimized sample selection and enhanced school recruitment, 3) collect approval documentation from the IRB, 4) training materials for personnel, and 5) a functional data management system for efficient data handling.

Major Project Impact:

The proposed project will offer a more sustainable and responsive pediatric oral health surveillance model. Lessons learned from this process can be shared with other state oral health offices to implement in their respective states. By addressing the challenges faced in the previous cycle, this project aims to provide policymakers, healthcare professionals, and educators with timely and reliable data to inform targeted interventions and improve the overall oral health of Arizona's children.

Additional Project #1 Title: School-based Sealant Program Annual and Short-Term Retention Evaluation

Project #1 Type: Major Project

Project #1 Description:

Dental sealants are thin coatings that when painted on the chewing surfaces of the back teeth (molars) can prevent cavities (tooth decay) for many years. The longer a sealant is retained, the more likely it is able to prevent a tooth from decaying. Once applied, sealants protect against 80% of cavities for 2 years and continue to protect against 50% of cavities for up to 4 years. A key indicator for measuring dental sealant quality is by retention rate. To determine whether the ADHS Sealant Program is operating effectively by delivering high quality dental sealants, evaluation efforts will focus on analyzing retention rates.

Project #1 Objectives and Expected Deliverables:

To evaluate the quality of dental sealants applied in Arizona school-based dental sealant programs by assessing short-term and long-term retention rates.

Key Indicators:

- Short-term retention rates: Assess sealant integrity, coverage, and marginal integrity within a few days or weeks post-application.
- Long-term retention rates: Evaluate sealant retention within one year after application, with a focus on third-grade students who received sealants the previous year.

Methodology:

Short-Term Retention Checks:

- The protocol will include selection of a sample of students who received dental sealants for evaluation shortly after application.
- Assess sealant integrity, coverage, and marginal integrity.
- Identify any issues with application techniques, equipment, or supplies.
- Utilize findings to enhance staff performance and adjust protocols as needed.

Long-Term Retention Checks:

- Long-term retention checks will be conducted within one-year post-application, focusing on third-grade students from the previous year.
- Consider extending retention checks to fourth-year students for documenting 4-year retention rates.
- Retrieve student records from the previous year and identify students who received sealants.
- Prepare student records with updated room numbers and ensure availability during program operations.
- Generate lists of third-grade students with room numbers for electronic records.
- Perform retention checks on as many students as possible and record results on student records.

Differentiating Lost vs. Partially Lost Sealants:

- Establish clear criteria to differentiate between lost and partially lost sealants resulting from moisture contamination during application.
- Identify partially sealed teeth during retention checks and consider add-on sealants as necessary.
- Decide whether lost sealants will be reapplied based on program policies and funding.

Deliverables:

- Deliverables will include an analysis of long-term and short-term retention rates by individual providers.
- Compute retention rates for each provider in each program.
- Analyze findings to assess overall sealant quality and identify areas for improvement.
- Compare retention rates with established benchmarks (e.g., 80-90% retention rate for properly applied sealants).
- Develop recommendations for training resources for underperforming providers and programs.

Project #1 Impact:

The expected public health impact of the School-based Sealant Program Annual and Short-Term Retention Evaluation project is significant in several ways:

Improved Oral Health Outcomes: By assessing short-term and long-term retention rates of dental sealants, the project aims to ensure the quality of sealants applied in Arizona school-based programs. High-quality sealants contribute to better oral health outcomes by preventing cavities, reducing the incidence of tooth decay among children, and promoting overall dental health.

Prevention of Dental Cavities: Dental sealants are effective in preventing cavities, particularly in the back teeth (molars) where they are typically applied. By evaluating the retention rates of sealants, the project helps in identifying any issues with application techniques, equipment, or supplies, which could affect their efficacy in cavity prevention. Addressing these issues can lead to higher retention rates and ultimately prevent more cavities among children.

Enhanced Program Effectiveness: The evaluation of retention rates provides valuable insights into the effectiveness of the Arizona school-based dental sealant programs. By analyzing the data and comparing retention rates with established benchmarks, program administrators can identify areas for improvement and make informed decisions to enhance the overall effectiveness of the programs. This includes adjusting protocols, providing training resources, and implementing programmatic changes as necessary.

Optimized Resource Allocation: By ensuring the quality of sealants applied through regular evaluation, the project helps in optimizing resource allocation within school-based dental sealant programs. Resources can be directed towards areas identified for improvement, such as staff training or equipment upgrades, to maximize the impact of the programs and reach more children in need of dental sealants.

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Equity in Access to Dental Care: School-based dental sealant programs play a crucial role in increasing access to preventive dental services, particularly for underserved populations. By maintaining high-quality sealant application practices, the project contributes to promoting equity in access to dental care by ensuring that all children, regardless of socioeconomic status, have access to effective cavity prevention measures.

Overall, the School-based Sealant Program Annual and Short-Term Retention Evaluation project has the potential to significantly improve oral health outcomes among children in Arizona, enhance the effectiveness of school-based dental sealant programs, and promote equity in access to preventive dental care.

Please Describe the Fellow's Anticipated Role in Preparedness and Response Efforts – Include Activities and Time Allocation (Required Competency of Fellowship)

BAE staff are often involved in state-wide emergency responses (e.g., COVID-19, infant formula shortage). The fellow will be integrated into the data analysis arm of the HEOC structure and will assist with epidemiologic data analysis (as requested).

Please Describe the Fellow's Anticipated Role in Cluster and Outbreak Investigations – Include Activities and Time Allocation (Required Competency of Fellowship)

The fellow will be responsible for analyzing surveillance data aimed at identifying oral health conditions in the state. Oral health conditions are typical indicators of overall health and include tooth decay, periodontal disease, edentulism, and oral cancers. These conditions are often a result of disease or injury which emphasizes the importance of early detection, oral health promotion/disease prevention.