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Increasing Oral Health in A Midwest Elementary School: Quality Improvement Project

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Executive Summary

Introduction to the Problem

In the United States (US), the healthcare system and the oral healthcare system (dentistry) are completely separated, leading to barriers to accessing oral health services in the US because even health insurance policies do not cover oral healthcare. Dental caries can lead to pain and infection, as well as human suffering and costly healthcare visits, including to the emergency department. Springfield, Illinois, the setting for this DNP project, is in an area serving families with Medicaid insurance. While Medicaid managed-care plans cover dental care for children, few dentists accept Medicaid insurance in Springfield. This leads to lengthy waiting lists for appointments. In addition, children are more likely to require sedation dentistry when dental caries are present, and no local dentists in the local area provide sedation dentistry to children. Due to the lack of services, the importance of cavity prevention cannot be underscored. This region benefits from population-based services and resources from the Sangamon County Department of Public Health (SCDPH). SCDPH offers population-based oral health education, dental cleanings and sealants to elementary school children in the Sangamon County region in the school setting. In February 2023, the oral health program was delivered to the students at one elementary school, with an enrollment of 300 students from kindergarten to grade five. This program used a paper permission slip process that resulted in the loss of permission slips/dental consent forms. The scope of the proposed change sought to make this permission slip process electronic and part of registration to increase the number of children with access to this program.

Literature Review

During COVID-19, barriers to accessing oral healthcare increased worldwide as well as in the US. In the US, cost is a barrier, and those on Medicaid face more significant barriers to

accessing oral healthcare than those with a higher socioeconomic status (Northridge et al., 2020). During COVID-19, the barriers to accessing oral healthcare increased globally as well as in the US and resulted in many adults and children delaying oral healthcare they would have otherwise received (Brian & Weintraub, 2020). Oral health insurance is inaccessible to oral health patients in the US, which leads to the use of the emergency room as a safety net system for oral health, which is not cost effective and is putting more strain on an already overtaxed healthcare system (Singh et al., 2019). In 2012, according to one analysis, the US healthcare system spent \$1.6 billion on dental-related ED visits (Bersell, 2017). This study estimated an average cost of \$745 per visit and found that Medicaid paid approximately 62% of those charges (Bersell, 2017). Oral health treatment in the emergency room also incurs elevated health risks.

Children experience high rates of dental caries which can lead to infection. Impoverished children are at higher risk for oral ED treatment than their higher SES counterparts (Morgan et al., 2021). Children living in urban areas with high concentrations of Medicaid patients and remote rural areas cannot access geographically proximal practices settings and professionals. Southern Illinois, where the practice site is located, has elevated oral and medical health needs and a high prevalence of Medicaid recipients. While there are public health resources available in this area, school-based oral health programs for children provide an option. But many downsides exist, including lack of efficacy.

Project Methods

The purpose of this nursing quality improvement project was to improve oral health service access and oral health literacy to children at one suburban Midwest elementary school. Specifically, it was intended: a) to improve the efficiency of students registering in Fall 2023 to access the oral health exam services, and b) to increase the number of students who receive an

oral health exam compared to the number in February 2023. The setting for this nursing quality improvement project (QIP) was one suburban Midwest elementary school. Protocol # 2062 Increasing Oral Health in a Midwest Elementary School was determined to be a nursing QIP exempt from the need for Institutional Review Board (IRB) review by the IRB of the Southern Illinois University Edwardsville on May 8, 2023.

Evaluation

The plan to evaluate this nursing QIP was multifaceted and included stakeholder interviews, a comparison of program participation of pre and post –intervention and feedback of teachers and observers during oral educational presentations.

Stakeholder interviews. The stakeholders identified for the interviews were the following: a) The oral health program coordinator at SCDPH b) the faculty DNP project advisor, c) the faculty DNP content expert, d) the principal at the elementary school where this project took place, and e) the private oral health outreach clinic that provides location-based services for SCDPH. Stakeholders were to be interviewed in June 2023 prior to oral health program implementation and again in November 2023 post implementation. Stakeholders were to be asked the following questions: a) In your opinion, what went well with this oral health program? b) How do we expand this program to more students? c) What other topics should be included in the educational session? d) What are your thoughts on the educational component of this program? e) How would you improve the program process the next time we offer it? and f) what components should be added to the program?

Data collection in June 2023. In June 2023, multiple attempts were made to meet with two stakeholders: the school principal and a member of the private oral health outreach clinic. Due to it being the end of the school year, it was not possible to schedule a meeting with these

individuals. Therefore, a meeting was conducted with the faculty DNP project lead and the decision was made to conduct post-intervention interviews only.

Data collection in November 2023. The dental program took place on October 24, 25, and 26, 2023. Stakeholders were interviewed in November 2023. Unfortunately, despite multiple attempts to schedule, the school principal and the health outreach clinic did not respond to requests for post-intervention interview. A phone appointment with the oral health program coordinator took place. When asked what went well with the program, the program coordinator merely listed the program outcomes. To increase program participation, the coordinator recommended having schools promote the program. However, experience with trying to work with the principal suggests that the schools do not have the capacity to do this.

Program participation. As described previously, in February 2023, this school participated in the oral health program from the SCDPH. For students to receive services, they needed to turn in a permission slip. This process was handled using paper permission slips, and many were misplaced in the process. As a result, only 102 of 262 students (39%) were able to submit permission slips and get services.

To improve this, as part of this QIP, the permission slip process was made electronic. When students registered for their classes for fall 2023, they were given an option to have the permission slip submitted electronically. As a result, of 281 students, 140 submitted permission slips, resulting in 131 students receiving services, which was 47%. This is 8% higher than in February 2023, so this electronic permission slip system increased the percentage of children receiving services.

Educational presentations. As part of the QIP, an educational presentation developed by the DNP student was to be given to all grades. Unfortunately, because the principal said the

school was too busy on the days of the outreach dental clinic, the oral health educational presentation developed for the students could not be delivered to any of the classes, and therefore, the feedback from teacher and other observers could not be collected.

Discussion. The lack of the stakeholder feedback and availability for interviews was disappointing. The program-related stakeholders took a system-centric view and expected the school to change its operational pattern to accommodate the intervention. Unfortunately, the school is under-resourced and must meet many outcomes written into policies and laws, leaving little to no time for additional programs aside from educational initiatives. Changing the permission slip from paper to electronic increased the percentage of students receiving dental services by 8%. However the percentage of student population who participated in the program only reached 47%, and that is still less than half the children receiving services. It was observed that second-graders had the highest rate of receiving services (72%). It was found after looking at school policies that in order to attend school in Illinois, a child must have a dental check-up before entering kindergarten, second, and sixth grade. However, as described earlier, this check-up may have identified children with caries, but could not provide treatment. Therefore, it is unclear if this program actually improved access to oral health care. Finally, even though the educational presentation was developed, it could not be delivered to the grades because of lack flexibility in school scheduling.

Impact on Practice

The immediate impact on the organization from this QIP is that the permission slip/consent process became more efficient, resulting an 8% increase in students receiving the oral health program. However, implementing the program was greatly disruptive to the school's operation during the three days the clinic was held. It was not possible to implement the entire

QIP because of the school's participation in other programs. Therefore, the short-term impact was increasing access but complicating the school operation. In the long-term, the school may continue to use the automated permission slip process, but if this DNP student is not there, it is unlikely the SCDPH will be contacted and invited to return to the school for the program in following school years. This is due to the lack of resources and capacity at the schools. The principal did not even have time to be interviewed as a stakeholder at follow-up, so this program is unlikely to continue due to lack of school-based resources.

Based on the literature, it was predictable that this program would not reach the levels of success intended. According to the scientific literature, the optimal solution to removing barriers to accessing oral healthcare in the US for low-income children is to provide oral healthcare available free-of-cost at Federally Qualified Health Centers (FQHCs) in the US. This solution was originally proposed by Northridge and colleagues (2020). Their philosophy is that FQHCs were designed to be a safety net system in the US, and since there are critical access barriers in all income brackets to oral health care, expanding the FQHC safety net to cover a large proportion of oral health needs in the US population would be the most practical and feasible way to solve this problem (Northridge et al., 2020). Expanding the oral health safety net by empowering and funding FQHCs to deliver oral health care at a very low-cost or free for most US residents would ensure that children would receive high-quality oral healthcare in an oral healthcare setting, rather than a school setting. It would also ensure that children were not simply screened at school without receiving follow-up care. It is clear that in schools like the practice setting, there are too many limitations to adding healthcare programs, and these programs do not provide restorative dental services such as fillings, crowns or extractions needed to address health outcomes.

Important practical points need to be made. First, not all locations will have an FQHC in it, so the safety net would not be expanded to residents in those locations if the FQHC could expand its services to provide low-cost or free dental care to US residents. In Springfield, there may even be transportation or other issues that would prevent students from accessing the FQHC in their region, even if it were to expand and offer oral health services at a low cost or free. Second, making these services available will greatly increase demand, and may simply result in waiting lists, which do not really remove barriers to access. Even if the FQHC oral health safety net were expanded, there would be practical issues to address. However, other approaches – such as expanding dental insurance – seem hopeless in the face of such an overall healthcare finance crisis that continues to face the US (Northridge et al., 2020).

Conclusions

In summary, while using an automated permission slip process increased participation in this school-based oral health program by 8%, it was challenging to implement in a school setting, and it is unclear that it positively impacted oral health outcomes in students who cannot afford or access quality dental care. It is recommended that in the US, rather than implementing school-based programs, the government should make oral healthcare free-of-charge at FQHCs so that students like the ones in the practice setting have access to high-quality oral healthcare in the appropriate setting.

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