

INTERPROFESSIONAL COLLABORATION: SAVING SMILES THROUGH SCHOOL-BASED TELEHEALTH

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This article provides an overview of the use of school-based telehealth to deploy oral health assessments and establish connections for urgent dental referrals from within the school nurse's office. A case example follows the experience of a pediatric patient who resides in one of South Carolina's more rural and medically underserved areas through the innovative use of technologies and the deployment of professional teams for diagnosis and treatment planning. As presented, telehealth connects providers and patients through the fostering of improved patient care access within and across health care systems. Population health goals are addressed through exciting real-world applications and help result in more "smiles saved".

WILLIAMSBURG COUNTY, SOUTH CAROLINA

Williamsburg County, South Carolina was located along the Interstate 95 corridor in what is known as the Pee Dee region. The counties that line this corridor are some of the most economically disadvantaged in the country. Historically, this region's economy was centered around agriculture and its citizens experienced marked health and educational disparities. The population in Williamsburg is 32,535 with 33.3% of the population being white and 65.7% being black². The unemployment rate is 9.2% with 49.5% of households reporting income of less than \$25,000 per year. The entire county is designated as a Health Professions Shortage Area (HPSA) for primary care, mental health and dental care.

SCHOOL-BASED TELEHEALTH

Telehealth refers to a collection of means or methods for enhancing health care, public health and health education delivery and support using telecommunications technologies³. Telemedicine is defined as the use of medical information exchanged from one site to another via electronic communications to improve a patient's health status⁴. The terms are often used interchangeably. School-based

telehealth allows a virtual clinic to be established in the school nurse's office. A telemedicine cart, which uses a secure videoconferencing client along with digital stethoscopes, otoscopes and exam cameras, is placed at the school allowing a connecting provider to complete exams in real-time. School-Based telehealth programs have been shown to reduce absenteeism, financial and transportation costs related to offsite health care visits and overall health care expenses⁵. Bian, et al, reported a 21% reduction in emergency department (ED) utilization among children with asthma in Williamsburg County who had access to school-based telehealth as compared to students in neighboring counties without school-based telehealth. Further analysis revealed a 35% reduction in ED utilization by the completion of the third year of program implementation⁶. School-based telehealth has also been shown to improve the health status of patients with chronic disease such as asthma and diabetes⁷. In addition, school-based telehealth improves collaboration and communication among the school nurse, child, parents, teachers, school staff and health care providers⁷.

Being a very rural county with limited access to health care services, Williamsburg was identified as the first school district in which to establish school-based telehealth in South Carolina (SC). In 2013, two schools were equipped, and services were expanded to all 11 schools in the district in 2015 through the help of a philanthropic grant with subsequent expansion of the program supported in part by state legislative appropriations. Initially, school-based telehealth care was focused on physical and mental health. However, recognizing the limited access to dentists in the Pee Dee region (6,230 population per dentist in Williamsburg²), oral health assessment was added in 2019. Through a HRSA funded grant, Prioritizing Oral Health Workforce & Education in the Rural Pee Dee (POWER Pee Dee), each school telehealth cart was equipped with a dental lens attachment for the peripheral camera which uses a disposable mirror to evaluate the oral cavity.

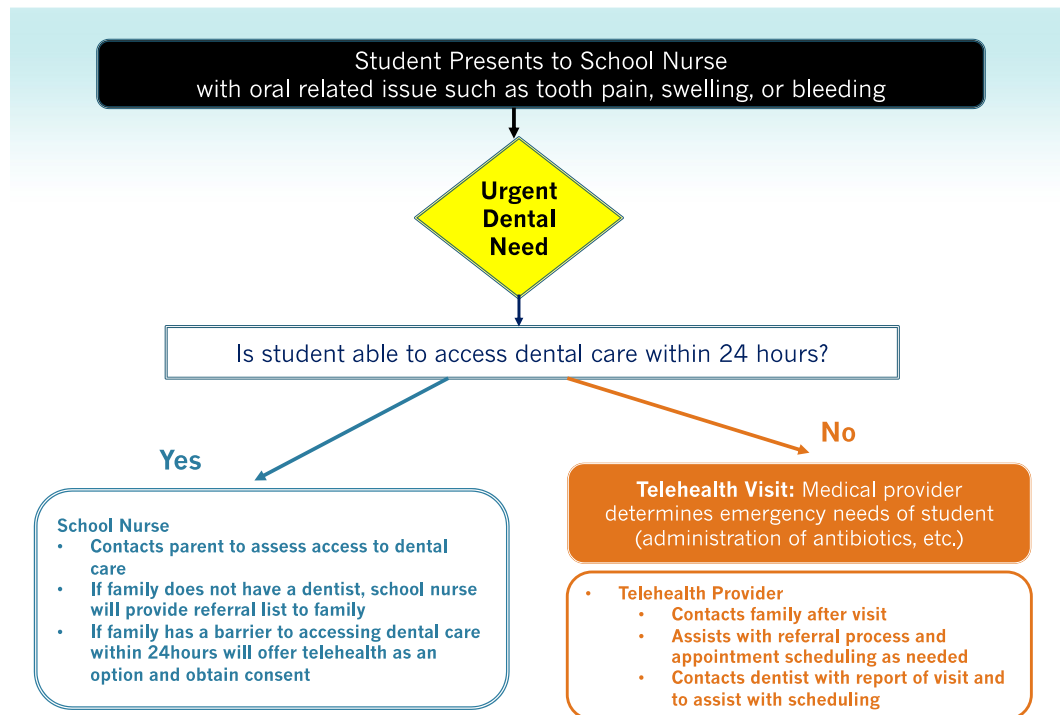
INTERPROFESSIONAL COLLABORATION

Upon layering oral health care on to school-based telehealth in Williamsburg, school nurses were provided with a review of oral health assessment by the Director of Oral Health at the SC Department of Health and Environmental Control (DHEC). In addition, a flow chart to guide the school nurse's decisions in evaluating and referring children with oral complaints was provided (Figure 1, next page). School nurses were encouraged to request telehealth visits for students with parental consent to participate in the program who present with oral related concerns and who may not have access to timely dental care. Once the telehealth nurse practitioner or physician evaluates the student in coordination with the school nurse presenter, the prescribing provider will determine appropriate treatment for the child along with time sensitivity in order to facilitate the appropriate plan of care. If the child requires dental care, the provider will contact the patient's local dentist

to expedite an appointment. If a local dentist is not available, a mobile dental health unit serving Williamsburg County may be requested to provide the care. A dental referral network was created of community dentists in order to increase the availability and access to local dental professionals. This referral list was provided to the school nurses as well as the school-based telehealth provider team. In addition, a Regional Oral Health Systems Coordinator (ROHSC) was hired under the same grant to facilitate enrolling dentists into the network and actively connecting patients to care.

FIGURE 1

Decision-Making Schematic for School-Based Dental Referral Process



TAKELA

Takela is a nine-year old 4th grader at Kenneth Gardner Elementary school in Williamsburg County. She has received oral health screenings by the school nurse annually as directed by DHEC. Each year she has been noted to have varying levels of tooth decay. The family has been referred to dental care several times but has not been able to attend the recommended visits. Takela lives with her grandmother, two younger siblings and her mother without access to reliable transportation. Her mother works at a hotel on the beach about an hour drive away, providing cleaning services. She rides the “beach bus” to work at seven am and returns at seven pm,

after all of the dental offices are closed. As the main financial provider for her family, she is not able to take time off of work as she would not receive pay for the work hours missed.

Shortly after the tardy bell, Takela presented to the school nurse complaining of tooth pain. She complained of pain at her lower right second molar. The nurse examined her and noted redness and swelling of the gum surrounding the tooth along with significant tooth decay. There was no drainage noted. Her temperature was 99 degrees Fahrenheit orally, pulse 74 beats per min, respirations 16 per min, and blood pressure 90/56. She appeared well otherwise. She has a history of asthma but has not wheezed in years. Her immunizations are up to date. The school nurse notified Takela's mother, Ms. Hampton, that she was concerned about a possible abscess. Ms. Hampton was unable to leave work to pick her daughter up and reported not having a family dentist. Fortunately, Takela's mother had signed consent for the school-based telehealth Program, allowing the school nurse to request an acute telehealth visit. The pediatric nurse practitioner (PNP) evaluated the student via telehealth in collaboration with the school nurse. After performing a thorough physical exam, the PNP noted that Takela's vital signs were normal, her lungs were clear and her heart rate and rhythm were normal. Examination of her throat, nose and ears was also within normal limits.

Using the exam camera with the dental lens and mirror (Figure 2), the provider was able to do a thorough assessment of the painful tooth and gum. The PNP confirmed an abscess of the right lower second molar with moderate gingival swelling surrounding the decayed tooth. There was no drainage. Her right anterior cervical lymph node was noted to be enlarged at 1 cm. It was firm, mobile, and slightly tender without warmth as reported by the school nurse on site.

FIGURE 2
Horus Scope Camera with Dental Lens Attachment



The PNP prescribed on Augmentin for the child, after confirming her medical history and the absence of drug allergies and discussing the diagnosis and plan of care with her mother by phone. Because Takela's mother was unable to transport her to a dentist for further care, the PNP collaborated with the school nurse to request a visit by the mobile dental unit for the following day. The mobile unit came to her school and the dentist and dental technician performed the evaluation and treatment onsite. The cost of the telehealth visit as well as the mobile dental visit was covered by her South Carolina Medicaid insurance at the same rate as in-office care. Arrangements were then made, with the support of the ROHSC, to connect the child to a local dentist for ongoing preventative care. Takela's mother stated that without tSBH, her only option would have been to take her daughter to the emergency department after hours.

Takela's case is a true example of successful interprofessional collaboration and practice. Telehealth not only connects providers to patients for virtual care, but also fosters collaboration among clinicians leading to successful patient outcomes and ensuring cost savings for the health care system. Helping to "save smiles" through the use of telehealth services has broader implications for the health care teams and communities they serve.

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