

COMMENTARY

Ensuring Access to Oral Health Care for Children: School-Based Care by Dental Therapists — A Commentary

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The oral health of children is critically important to their overall health and well-being. Unfortunately, a crisis exists in the oral health of America's children, an epidemic of debilitating dental disease.^{1,2} Furthermore, significant barriers exist for providing children preventive and rehabilitative care.³⁻⁵ Other nations have experienced success reducing both levels of tooth decay in children and also treating dental disease by utilizing dental therapists, clinicians with a "limited scope of practice" in caring for children.^{6,7} International evidence indicates that dental therapists practicing in schools improve access to care, providing safe, quality care, with oral health outcomes better than those in the United States, and they do so more economically.⁸⁻¹¹ This commentary documents the problem of dental disease and lack of access to oral health care for children in the United States, suggesting the advantages of adopting a school-based model of care utilizing dental therapists.

Tooth decay is our nation's most common childhood disease. It affects approximately 60% of America's children aged 5-17 years.¹² Dental care is the most prevalent unmet health need among children.¹³ Eighty percent of dental disease is found in 20-25% of children — approximately 18 million children — and these children are primarily from minority populations and economically disadvantaged families.¹⁴ Children lose 52 million hours of school time each year because of dental problems.¹⁵ Children with toothaches are almost 4 times more likely to have a low grade-point average. Poor children experience nearly 12 times as many restricted-activity days because of dental disease as do children from economically advantaged

families.⁴ Parents miss 2.5 days of work annually because of their children's dental problems.¹⁶

Dental workforce barriers have been identified for children obtaining dental care including the geographic distribution of dentists, their inadequate education in caring for children, and their failure to accept children with public insurance in their practices.^{1,3,17,18}

In 2011, Medicaid and the Children's Health Insurance programs served 43.5 million children.¹⁹ Thus, the majority of America's children (58%) were covered with public insurance for health care, including dental care. This number will rise as a result of the expansion of public insurance with the Affordable Care Act. Yet, few dentists treat publicly insured children. A 2001 study found that approximately 25% of dentists received some payment from Medicaid during a given year; however, less than 10% received \$10,000 or more, reflecting how few children with public insurance received regular, comprehensive oral health care.²⁰ Even though the dentist-to-population ratio is expected to improve as a result of the opening of new dental schools and the expansion of class sizes in existing schools, even with the increased number of dentists, it cannot be expected that they will expand their care to include children with public insurance.

Sociocultural and economic issues such as transportation, distances to travel for care, work commitments, lack of child care for siblings, out-of-pocket expenses, and the health literacy of parents are also major barriers for children receiving dental care. Additionally, the stressors of living at or near a level of poverty can reduce dental care to a lower family priority.²¹ Even where there no social determinants

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impeding care for children, the dearth of dentists both available and willing to treat children with public insurance creates a virtually insurmountable barrier.

In 1921, New Zealand developed a 2-year program to train high school graduates to become school dental nurses.²² These school dental nurses (known as dental therapists since the 1980s) were assigned to school-based dental clinics, eventually providing access to care for the entire New Zealand elementary school population. Dental therapists provide basic dental care to children under the general supervision of a dentist. Typically, care includes diagnostic and preventive procedures, fillings, pulpotomies, stainless steel crowns, and extraction of primary teeth.²³

This model has spread to 54 other countries.⁷ The school-based programs in New Zealand, Hong Kong, Singapore, Malaysia, and in Saskatchewan, Canada are noteworthy in their achievements with school-based care by dental therapists.

In New Zealand, there are approximately 600 dental therapists caring for the country's 850,000 children.²⁴ Ninety-eight percent of school-age children and 60% of preschool children are provided preventive and rehabilitative dental care annually by dental therapists assigned to dental clinics in New Zealand's elementary and middle schools.²⁴ A report on the oral health of New Zealand's school children documented that 52% of school children had not experienced tooth decay, and of those who had, over 80% had been treated.²⁴ The average cost of care for the New Zealand School Dental Service in 2011 was US\$99 per child.¹¹

Malaysia was the first country to follow New Zealand's lead in establishing a school-based dental service. The program resulted in a sharp decline in tooth decay and a corresponding increase in treated teeth. One study indicated that 97% of elementary and 91% of secondary school children in Malaysia had been rendered "orally fit."²⁵

When Singapore's School Dental Service began in 1946 it was determined that 98% of children required dental treatment.²⁶ A 2009 study found that 89% to 96% of the children were "dentally fit."²⁷ This result was attributed to the role of dental therapists in the School Dental Service.²⁸

Hong Kong established a school-based dental service with dental therapists in 1981, resulting in improved access to care and a decline in tooth decay for children.²⁹ By 2011, the participation rate of primary school children was 95%.³⁰ In the most recent study conducted in Hong Kong, 62% of the children aged 12 had never had a cavity; the average number of decayed teeth was less than one, and essentially all the decayed teeth had been treated.³¹ The estimated annual cost of care in the Hong Kong School Dental Care Service is US\$78 per child (E.C.M. Lo, 2012; personal communication)

Saskatchewan, Canada instituted a province-wide school-based oral health program staffed by dental therapists in 1974.³² After only 6 years, almost 90% of the children had all their treatment needs completed during the school year.³³ When the program closed in 1988, as a result of pressure from the province's dentists and the election of a conservative government, the decay prevalence for 6-year-old children had dropped from 6 teeth to only 1 tooth, with essentially all decayed teeth having been treated.³⁴ The decline in tooth decay coincided with the increased attention given to preventive procedures. The annual cost of care for Saskatchewan's program was estimated in current dollars to have been US\$176.25 per child.¹⁰

Children require high-quality, culturally competent, and comprehensive health care. The school setting is a sensible and appropriate place to deliver health care because schools are where children are accessible. School-based health centers (SBHCs) reduce health inequities and improve health outcomes for underserved youth.³⁵ As one academic pediatrician expressed it: "School-based health centers are the best model of healthcare in this country for at-risk populations... [they] increase access to healthcare, eliminate barriers and improve health outcomes for essentially every patient enrolled."³⁶

The United States has a long tradition of school-based health services beginning in 1902 with the first nurse assigned to a public school in New York City.³⁷ Established in the 1970s, the SBHC initiative provides care by a multidisciplinary team of health workers. Today, there are nearly 2000 SBHCs serving 2 million children in 46 states and the District of Columbia.³⁵ Whereas, there are a number of benefits to provide health care to children in a school setting, the primary one is the ability to meet the unmet healthcare needs in a setting where children are located, thereby ensuring access to needed care. School-based care also provides support to parents, permitting them to remain at work, or at home caring for others, while their children's healthcare needs are being addressed. Both of these advantages are particularly supportive of low income families for whom public insurance covers the provision of care. In fact, SBHCs are predominately located in schools that have large ethnic, minority, and poor populations, which historically have experienced disparities in healthcare access, including dental care. School-based centers are increasingly identified as medical homes. The dental home concept should become an integral component of SBHCs to ensure access to oral health care for children. Whereas, a majority of SBHCs provide some dental services, these are primarily oral health education (84%) and dental screenings (57%). A smaller percentage provides dental examinations (20%) and dental sealants (25%). Few (10%) are equipped to provide therapeutic clinical care such as

provided internationally by dental therapists. Only 12% report having a dental professional on staff.³⁵

Because of the prevalence of severe dental disease among Alaska Native children and the chronic shortage of dentists willing to work in remote tribal villages, the Alaska Native Tribal Health Consortium, with the support of the Indian Health Service, sent 6 Alaska Natives to the University of Otago, New Zealand's national dental school, to be trained as dental therapists. Upon completing the 2-year program, they returned to Alaska to practice and serve the Alaska Native population living in remote communities.^{38,39}

In 2010, an assessment of the performance of Alaska's dental therapists concluded dental therapists were "performing well and operating safely and appropriately within their defined scope of practice; were technically competent to perform these procedures;" and patients were "very satisfied with the care received."⁴⁰ Dental therapists are now being trained in Alaska in cooperation with the physician's assistant program of the School of Medicine at the University of Washington.⁴¹

In 2009, Minnesota passed legislation authorizing the practice of dental therapists. Subsequently, 2 training programs were established in the state.⁴² Restrictions were adopted to ensure dental therapists practice in settings that serve low income, uninsured, and underserved individuals.

The major objection to the introduction of dental therapists in the United States is the belief by many dentists that dental therapists are inadequately trained and provide substandard care.^{43,44} This is the view of the American Dental Association which strongly opposes dental therapists practicing in the United States.⁴³ The successful introduction of dental therapists in the workforce of over 50 countries throughout the world, and more recently, to the workforce in Alaska and Minnesota provides evidence-based repudiation of this claim. The American Association of Public Health Dentistry and the American Public Health Association have endorsed the practice of dental therapists.^{45,46}

Deploying dental therapists to provide care for children in school-based programs not only addresses the issue of access to care and an anticipated reduction in existing disparities but also makes economic sense. According to the Agency for Health Care Research and Quality, per child dental costs (ages 5-17) averaged \$677 in 2009.⁴⁷ Nationally, only 50% of children had at least one dental visit that year. The cost of dental care for children in the United States far exceeds that of international school-based programs of \$100-\$200/child/year. If school-based clinics staffed by dental therapists existed in the United States, not only would access to primary dental care be available for essentially all children, versus the approximately one half of children who annually receive care currently,

but also the cost of dental care for children would be reduced dramatically. With the majority of America's children now eligible for primary dental care with public monies, it is essential that these funds be expended as economically as possible in publically funded school-based programs, as is the international tradition.

Many children face barriers to dental care. These barriers have resulted in inadequate access to care with poor oral health outcomes, particularly for economically disadvantaged children. Economic barriers to oral health care are reduced through expanding coverage by public insurance. However, the additional barriers of an inaccessible dental workforce, as well as barriers such as parental values, family stressors, and transportation must also be addressed. Dental therapists practicing in public, SBHCs would provide an approach to quality preventive and rehabilitative care for children, as well as improve access to care. Leaders in formulating public policy, federal and state lawmakers, and leaders in public health, education, and dentistry have an obligation to promote "best practices," foremost of which are dental therapists staffing SBHCs so that all our children are able to gain the benefits of comprehensive oral health.

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