Using Registered Dental Hygienists to Promote a School-Based Approach to Dental Public Health

We examine a strategy for improving oral health in the United States by focusing on low-income children in school-based settings. Vulnerable children often experience cultural, social, economic, structural, and geographic barriers when trying to access dental services in traditional dental office settings. These disparities have been discussed for more than a decade in multiple US Department of Health and Human Services publications. One solution is to revise dental practice acts to allow registered dental hygienists increased scope of services, expanded public health delivery opportunities, and decreased dentist supervision.

We provide examples of how federally qualified health centers have implemented successful school-based dental models within the parameters of two state policies that allow registered dental hygienists varying levels of dentist supervision.

Changes to dental practice acts at the state level allowing registered dental hygienists to practice with limited supervision in community settings, such as schools, may provide vulnerable populations greater access to screening and preventive services. We derive our recommendations from expert opinion. (*Am J Public Health*. 2017;107:S56–S60. doi: 10.2105/AJPH.2017.303662)

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Community fluoridation of drinking water is recognized as one of the top 10 achievements of US public health in the 20th century.[1] A cost-effective, population-based, widely accepted intervention to prevent dental caries,[2] water fluoridation currently reaches approximately 74% of all persons living in the United States.[3] Although there is much to admire in this history, the work of dental public health is incomplete. Nearly two decades after the landmark report *Oral Health in America: A Report of the Surgeon General*, the prevalence of dental caries among children remains relatively unchanged.[4,5] The most recent report, *Healthy People 2020*, acknowledged that the original goals were not being achieved and that oral health services need to be accessible beyond the scope of a traditional dental practice. To address this, *Healthy People 2020* added objective OH-9 to increase the proportion of school-based health centers with an oral health component.[6]

We examine a strategy for improving oral health in the United States that focuses on low-income children in school-based settings. In the wake of *Healthy People 2020*,[6] changes to dental practice acts regulating registered dental hygienists' (RDHs') scope of practice enabled preventive services to move outside dental offices and into community settings in half of the states. Regrettably, the other half of the states—many with disproportionate numbers of vulnerable populations—have not permitted RDHs to practice beyond the watchful eye of supervising dentists.

VULNERABLE POPULATIONS ARE AT GREATER RISK

All children are at risk for life-altering oral disease, but the risk is higher among low-income children and racial and ethnic minorities. In a 2015 *National Center for Health Statistics Data Brief*, Dye et al. reported that 37% of children aged two to eight years experienced dental caries in primary teeth and 14% had untreated dental caries. During the same period, 29% of children aged 9 to 11 years experienced dental caries in permanent teeth and 8% had untreated dental caries. This number increased in adolescents: 58% of children aged 12 to 19 years experienced dental caries in permanent teeth and 15% had untreated dental caries. These percentages were notably higher in the non-Hispanic Black and Hispanic populations.[4]

Vulnerable populations often experience cultural, social, economic, structural, and geographic barriers when trying to access dental services.[7] Contributory health beliefs that influence parent's attitudes toward accessing preventive oral health care involve negative parental experiences and not valuing baby teeth.[8,9] Children with low socioeconomic status experience significant disparities accessing dental care.[10–12] Medicaid is accepted by only about 20% of dentists,[13] making access more difficult. Geographic maldistribution of dentists is also a barrier. In the United States 49 million individuals live in a dental provider shortage area.[14] US residents with low socioeconomic status have the least access to dental health care.[10–12] Among children, poor oral health correlates with diminished concentration and self-esteem and increased school absences.[13,15–19] Annually, more than 51 million school hours are lost as a result of illnesses associated with dental problems.[5]

ORAL HEALTH POLICY AT THE NATIONAL LEVEL

The publication of *Oral Health in America* in 2000 signaled the revitalization of oral health

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policy.[5] The report cultivated a greater awareness of the relationship of oral health to general health, identified the profound disparities that occur in access to oral health services and oral health indicators, and reviewed the measures that exist to prevent most common oral diseases and assessed their achievements to date. An update of the report was published in 2011, and the same year yet another book-length study focusing exclusively on vulnerable and underserved populations' access to oral health care was published.[7,20] Selected policy recommendations from these three reports are summarized in the box on the next page.

During the same period, the Institute of Medicine sponsored two oral health workshops to stimulate thinking about key facets of oral health services policy, workforce demand, and oral health literacy.[21,22] No specific recommendations emanated from the workshops, but both highlighted research and demonstrations intended to point policymakers and practitioners in the direction of best practices. The workforce proceedings suggested the use of RDHs in alternative practice settings as a strategy for promoting access.[21] Most recently, the National Academy of Medicine (formerly the Institute of Medicine) published a discussion paper that concluded that shared decision-making, improved health literacy, patient-specific education and care, and interprofessional collaboration are necessary to successfully manage the multifaceted nature of caries.[23] Much of the oral health literacy proceedings focus on community engagement, particularly among underserved populations.[22]

Recurring policy themes across US Department of Health and Human Services publications focus on (1) improving structural aspects of the system (e.g., the oral health workforce) and the more effective use of existing resources, (2) removing or reducing barriers that impede access to oral health services by vulnerable and underserved populations, and (3) encouraging public–private partnerships (e.g., state government, federally qualified health centers [FQHCs], and philanthropies) to improve oral health among disadvantaged populations. A synergy among these themes is needed to overcome the multitude of barriers for vulnerable populations.

EXPANDED DENTAL HYGIENIST PRACTICE

In accordance with these policy themes, we believe that state-level changes to dental practice acts that allow RDHs to practice with limited supervision in community settings, such as schools, will provide vulnerable populations greater access to the screening and preventive services that are currently unavailable.

Changes to the practice acts of RDHs must focus predominantly on three aspects: (1) scope of service, (2) delivery location (i.e., dental offices vs remote public health sites), and (3) amount of dentist supervision. Although all three aspects are important, supervision, arguably, is primary because it addresses RDH autonomy and the ability to deliver care in community settings. In 2014, 12 states allowed RDHs to provide services outside the office with no dentist supervision.[24] Thirteen states allowed RDHs to practice according to collaborative arrangements agreed on between an RDH and a dentist.[24]

These collaborative arrangements are similar to standing orders in institutional medicine. They identify what services may be provided under what circumstances and the degree of reporting required by the dentist. The other 25 states require general or direct dentist supervision of RDHs. Although these terms vary at the margin by state, typically "general supervision" means that a dentist needs to examine a patient and authorize services before the provision of RDH services but does not need to be present; "direct supervision" means a dentist needs to be present at all times.[25] Nineteen of the 25 states that call for general or direct supervision also require by state law a previous examination by a dentist before hygiene services can be carried out. These limitations on practice autonomy mean RDHs in 25 states can practice only in public health settings, such as schools, if they practice alongside dentists.

Even in states that have not expanded the RDH scope of practice, easing supervision rules would provide a cadre of oral health professionals to engage in population-based preventive services. Table 1 lists the tasks that RDHs are allowed to provide by state legislation. The table lists nine tasks and the number of states that allow the tasks as well as the number of states that allow RDHs to provide at least six of the tasks.

The first four tasks are permitted in almost every state. The first three tasks, along with screening or assessment (allowed by 40 states), are especially important for children and form the basis of typical school-based oral health programs. Table 1 highlights the latent potential of RDHs to provide preventive services to target populations in community settings. The primary barrier to moving these services out of the dental office and into the community in one half of the states is the level of dental supervision required. Ironically, under current law, when the services are provided in a dental office, a dentist is not required to be physically present (the previous examination criterion still applies).

SCHOOL-BASED ORAL HEALTH PROGRAMS

Despite recent trends in RDH autonomy and direct payment for services, RDHs are typically employed by dentists and work in traditional dental practices. FQHCs that offer oral health services also employ RDHs. Many FQHCs integrate culturally appropriate oral health services with primary care medical services. They have numerous enabling services (e.g., translation, transportation, case management) aimed at reducing barriers. Some have also established relationships with a school or, more typically, a network of schools to provide oral health services. Because services offered in schools must be available to all students, FQHCs tend to focus their programs on schools that serve predominately low-income children. The Centers for Disease Control and Prevention estimates that 6.5 million low-income children do not have sealants and that providing this service to these children would prevent 3.4 million cavities.[26] FQHCs, located in two neighboring states, successfully used existing policy to move preventive oral health services into school-based settings.

In 2003, the Kansas legislature passed a bill that allowed RDHs with an extended care permit

SELECTED ORAL HEALTH POLICY RECOMMENDATIONS FROM THE US DEPARTMENT OF HEALTH AND HUMAN SERVICES: 2000–2011

Publication	Selected Recommendations
Oral Health in America: A Report of the Surgeon General[5]	Build an effective infrastructure that meets the oral health needs of all Americans and integrates oral health effectively into overall health. Remove known barriers between people and oral health services. Use public–private partnerships to improve the oral health of those who still suffer disproportionately from oral diseases.
Advancing Oral Health in America[20]	US Department of Health and Human Services should invest in workforce innovations that focus on . . . interprofessional, team-based approaches to the prevention and treatment of oral disease, and best use of new and existing oral health care professionals.
Improving Access to Oral Health Care for Vulnerable and Underserved Populations[7]	State legislatures should amend existing state laws, including practice acts, to maximize access to oral health care. At a minimum, they should • allow allied dental professionals to practice to the full extent of their education and training; • allow allied dental professionals to work in a variety of settings under evidence-supported remote collaboration and supervision; and • allow technology-supported remote collaboration and supervision. To expand the capacity of FQHCs to deliver essential oral health services, HRSA should . . . assist FQHCs in all states to operate programs outside their physical facilities and take advantage of new systems to improve the oral health of the populations they serve.

Note. FQHC = federally qualified health centers; HRSA = Health Resources and Services Administration.

direct patient access to provide screening, education, preventive dental hygiene services, and topical anesthesia application in community-based settings under the sponsorship of a dentist.[27] GraceMed, one of the larger Kansas FQHCs, has offered school-based oral health services since 2006. Their school-based programming greatly accelerated after the introduction in 2007 of a four-year public–private partnership known as the Dental Hub Program.[28] Funded collectively by one public and six private entities, the program provided 6.1 million dollars in grants to 10 FQHCs. GraceMed used the extended care permit policy and Dental Hub infrastructure to increase dental services to low-income individuals at hubs in existing FQHCs and expanded preventive and screening services to remote community and public health settings that did not previously offer oral health services (spokes).

TABLE 1—Dental Hygienist Tasks Allowed by State Legislation: United States, 2014

Tasks	No. of States
Prophylaxis[a]	48
Fluoride treatment[a]	48
Sealant application[a]	47
X-rays	48
Place amalgam restorations	19
Administer local anesthesia	45
Administer nitrous oxide	34
Perform initial screening or assessment	40
Refer patient	26
Provide at least 6 of the 9 tasks	42

Source. Langelier et al.[24]
[a]Physical presence of dentist not required.

Embedding hubs in safety net clinics ensured a referral pathway between spokes and hubs. GraceMed had a single school-based program in 2006; in 2016 it served 130 elementary and middle schools in a 15-county area by providing screenings, sealants, fluoride varnish applications, cleanings, and needed referrals. Using portable equipment, the program operates with mobile dental clinics staffed exclusively by RDHs with extended care permits. The temporary school clinics are usually set up and taken down in a single day. Because of the previous success of the program, schools typically contact the FQHC to be scheduled for a visit. The clinics are sustained by a combination of public (primarily Medicaid) and commercial insurance, sliding-scale fees, donations, and grants.

Missouri does not have a separate licensure category for expanded RDH practice, but it altered its legislation to allow all RDHs who have practiced more than three years to work in public health settings without direct dental supervision. Comtrea, an FQHC located in Jefferson County just south of St. Louis, has adopted a somewhat different model of school-based oral health using this policy. It has established full dental practices with fixed equipment in two schools. The practices are staffed by one dentist, two dental assistants, and one RDH. Children can be seen at the school clinic without their parents being present (prior consent is required), eliminating the need for parents to take time off work to obtain care for their children.

Both children and adults are seen at the clinics, but during school hours at least 80% of the appointments are for children. After school and into the early evening, adult patients predominate. The FQHC also operates a van service that transfers children with appointments (or emergencies) from other schools to the school-based

clinics. In addition, the FQHC operates a separate outreach department that provided services similar to those in the Kansas model to approximately 4000 students in 44 elementary and middle schools in 2014 and 2015. The Missouri FQHC also relied on public–private partnerships to finance oral health services. A combination of public (primarily Medicaid) and commercial insurance, sliding-scale fees, a county mill levy earmarked for children services, and grants from a health foundation created by the sale of a county hospital sustains the permanent and temporary school-based oral health clinics.

POLICY AND FUTURE RESEARCH RECOMMENDATIONS

Changes to licensing policy in one half of the states could have a beneficial impact on the ability of RDH to play a more active role in public health dentistry. These changes would not expand the scope of RDH services or their ability to be self-employed; neither would they greatly expand the number of RDHs who currently practice. The changes would merely allow RDHs in the states to practice in public health settlings to the full extent of their education, training, and experience. The policy changes that would unlock this potential are (1) relaxing dentist supervision for RDHs who have demonstrated proficiency in office practice, (2) eliminating the previous examination by dentist rule, and (3) allowing RDHs to conduct oral scans and make referrals to dentists. After these changes have been made, policymakers might also consider RDH scope-of-practice modifications.

In the 25 states with more liberal licensing rules, the number of RDHs who practice in school settings is presumably higher, but to date we have not identified studies that have quantified the extent of school-based practice or the variation in delivery models. This information might spur the development of school-based practice in the states with more generous licensing and may also stimulate the states that have not yet changed their RDH practice acts to do so.

Certainly the policy changes we have suggested are a necessary component in moving RDH practice out of the dental office and into the community, but changes to workforce policy alone are not sufficient. An investment in mobile operatories, equipment, and transportation is also needed, and some FQHCs may not be able to engage in this line of business without the assistance of philanthropic foundations or other private benefactors. The financial arrangements by which school-based clinics come into being is also a topic for investigation.

Finally, school-based services offer access to preventive oral health services that frequently are unavailable to low-income children at other sites. The two example programs we cited serve 174 low-income schools. Parental consent for preventive services is obtained for approximately one half of the students. The preventive value of sealants, fluoride varnish applications, cleanings, and dental referrals based on screenings is unambiguous. Nevertheless, the longer-term impact of school-based services on population health should be explored, but this school-based work should not stop while we wait for these needed studies. As Braveman et al. argue in regard to taking action on the social determinants of health:

> Rather than pursuing certainty, the preferred goal is to identify and apply the best available knowledge, with full awareness and acknowledgement of its limitations. . . . In an ideal world, all policies—current and future—would be supported by a sound base of scientific evidence. In reality, in most situations, including ones in which experimental results are available, decisions affecting health must be made on less-than-certain knowledge.[29(pS63)] AJPH

CONTRIBUTORS

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