

A Best Practice Approach Report describes a public health strategy, assesses the strength of evidence on the effectiveness of the strategy, and uses practice examples to illustrate successful/innovative implementation.

Date of Report: March 2017

Best Practice Approach Improving Children's Oral Health through the Whole School, Whole Community, Whole Child (WSCC) Model

- I. Description (page 1)
- II. Guidelines and Recommendations (page 13)
- III. Support for WSCC Model (page 14)
- IV. Research Evidence (page 14)
- V. Best Practice Criteria (page 15)
- VI. State Practice Examples (page 17)
- VII. Acknowledgements (page 19)
- VIII. Attachments (page 20)
- IX. References (page 23)

I. Description

A. Children's and Adolescents' Oral Health

In the Surgeon General's Report: *Oral Health in America* released in 2000, Dr. David Satcher, the Surgeon General of the United States from 1998 to 2002, called oral disease "a silent epidemic affecting our most vulnerable citizens—poor children, the elderly, and many member of racial and ethnic minority groups. No schoolchild should suffer the stigma of craniofacial birth defects nor be found unable to concentrate because of the pain from untreated oral infections." Dr. Richard H. Carmona, the Surgeon General of the United States from 2002 to 2006, reiterated this in *A National Call to Action to Promote Oral Health* released in 2003.¹

The focus of children's oral health has historically been preventing and controlling tooth decay (dental caries). Despite achievements in lowering rates of tooth decay since the early 1970s, tooth decay remains the most common chronic disease of childhood in the United States.² Approximately 80% of tooth decay is found in 25% of children, primarily vulnerable children from low-income families.³ During 1999-2004, 42% of 2-11 year-olds have experienced tooth decay in their primary (baby) teeth and 59% of 12-19 year olds have experienced tooth decay in their permanent (adult) teeth.^{2,4} Children from families living below the federal poverty level have more tooth decay; Mexican-American and non-Hispanic black children are more susceptible to tooth decay than non-Hispanic white children.²⁻⁴

Another oral health concern for children is tobacco use. A well-documented association exists between tobacco use and oral diseases. Smoking and the use of smokeless tobacco can cause oral cancer and periodontal ("gum") disease. While tobacco use among students in grades 9-12 has decreased yearly since 1999 - 9% are still smoking cigarettes and 6% use smokeless tobacco, the use of electronic (e-) cigarettes/vaping is rapidly rising. In 2015, 5% of middle school and 16% of high school students reported using e-cigarettes with the belief that these products were "safer" than traditional tobacco. Even more startling is the fact that almost one-third of high school students are regularly using more than one tobacco product.⁵ While a percentage of teens from non-smoking households do smoke, young

teens are more likely to smoke if an older sibling does, or if they live with a parent who is a heavy smoker.⁶ If smoking continues at the current rate among youth in this country, 5.6 million of today's Americans younger than 18 will die early from a smoking-related illness. That's about 1 of every 13 Americans aged 17 years or younger alive today.⁷

Optimal oral health also includes being free from injury to the teeth, mouth and face. During 1999-2004, 3% of 6-8 year-olds, 11% of 9-11 year-olds, 18% of 12-15 year-olds, and 23% of 16-19 year-olds have experienced trauma to their permanent incisors (front teeth).² Contributing to the significant number of dental and facial injuries is the increase in participation in organized youth sports and their level of competitiveness. Consequences of these injuries for children and their families are substantial because of the potential for pain, psychological effects, and economic implications.⁸

B. Tooth Decay and Unmet Need for Dental Care

Tooth decay is progressive. If left untreated, it can significantly diminish overall health and quality of life for children. Failure to prevent and treat tooth decay has long-term effects on children's development, compromising their ability to eat and speak, reducing self-esteem, and contributing to failure to thrive.⁹ The cost of preventive dental care is minimal compared to cost and adverse consequences of children suffering from dental pain/infection, who require extensive treatment to repair damaged teeth.^{10,11}

Oral health care is the most common unmet health care need among children. One-third (33%) of low-income children age 2-11 have untreated tooth decay in their primary teeth, compared with 15% of children at or above twice the poverty level.² Almost 12% of low-income children age 6-11 have untreated tooth decay in their permanent teeth, compared with 4% of children at or above twice the poverty level.²

"The Affordable Care Act (ACA) specifically included oral care for children among the ten "essential health benefits" that must be offered in individual and small-group insurance markets, including the state health insurance marketplaces. The ACA allows pediatric dental benefits to be offered either as part of a qualified health plan or through a stand-alone dental plan. Only three states (Nevada, Kentucky, and Washington) require pediatric dental coverage to be purchased when offered separately. There is no subsidy or penalty for parents living in the other forty-eight states to purchase coverage.¹² While the number of children able to receive dental benefits through Medicaid has increased each year since 2000, this public insurance covered just 38% of children in 2013. In the same year, almost 50% had private dental insurance and 12% had no coverage.¹³ Children who lack any dental insurance are more likely to have an unmet need for care.¹⁴

Hand-in-hand, children from low-income families are less likely to obtain dental care.¹⁵ Just 48% of low-income children served by Medicaid had a preventive dental visit and 22% had a dental treatment visit in federal fiscal year (FFY) 2014.¹⁶ Also, African-American and Hispanic children are more likely to have untreated tooth decay than white children, and they are less likely to have had a dental visit in the past year.¹⁷ There is a disparity in the prevalence of dental sealants, a key component to preventing tooth decay among school-age children, as well with just 39% of low-income children having one sealant compared to 48% of their higher-income counterparts. Also, among low-income children aged 7-11 years, the mean number of decayed and filled first molars (DFFM) was almost three times higher among children without sealants (0.82) than among children with sealants.¹⁸

Even though families may have the means to cover dental care, having dental professionals willing to provide that care is as important.¹⁷ Just 38% of all US dentists participate in Medicaid or the Children's Health Insurance Plan (CHIP),¹⁹ only about 20% of the nation's privately practicing dentists provide

care to individuals across the lifespan covered by Medicaid; and of those who do, only a small percentage devote a substantial part of their practice to serving those who are poor, chronically ill, or living in rural communities.²⁰

C. Relationship to Learning and Academic Success

There is a relationship between a child's health and academic performance.²¹ The fundamental mission of schools is to provide the knowledge and skills children need to become healthy and productive adults. Promoting healthy and safe behaviors among students is an important part of this mission. Improving personal health and safety can increase a student's capacity to learn, reduce absenteeism, and improve physical fitness and mental alertness.

Likewise, children with poor oral health status are more likely to experience dental pain, miss school, and perform poorly in school. Children with poor oral health status are nearly three times more likely than their counterparts to miss school as a result of dental pain.²² When children have poor oral health, their ability to learn is affected.²³ Students with toothaches are almost 4 times more likely to have a low grade point average.²⁴ In fact, students aged 5 to 17 years miss more than 1.6 million school days due to acute dental problems.²⁵ Children from families with low incomes had nearly 12 times as many restricted-activity days (e.g., missing school) because of dental problems compared to children from families with higher incomes.^{26,27}

A child with a dental problem may have anxiety, fatigue, irritability and depression; and may withdraw from normal activities.^{28,29} Children distracted by dental pain may be unable to concentrate and learn, complete schoolwork and score well on tests.³⁰ Poor oral health has been related to decreased school performance, poor social relationships and less success later in life.³¹⁻³² When children's acute dental problems are treated, and they are no longer experiencing pain, their learning and school-attendance records improve.³³

Dental problems (e.g., pain, infection and teeth missing due to tooth decay) can cause chewing problems. This can limit food choices and result in inadequate nutrition.³⁴ Nutritional deficiencies also hinder children's school performance, reduce their ability to concentrate and perform complex tasks, and contribute to behavioral problems.^{35,36}

D. Preventing Tooth Decay in the School-Setting

Children with tooth decay suffer needlessly. Tooth decay can be prevented and prevention is cost-effective.³⁷ School-based oral health services have the advantage of reaching children and are able to target preventive services to underserved, low-income children.³⁸ School-based programs can provide a range of services including oral health education and promotion, dental screenings and referrals, dental sealants, fluoride mouth rinses or tablets, fluoride varnish applications, case management, establishment of a dental home, and restorative treatment. These programs assure timely oral health care for children with unmet treatment needs. Strategies to prevent tooth decay in school-settings include the following:

Water Fluoridation and Topical Fluoride – Water remains the most cost-effective method of delivering fluoride to communities.³⁹⁻⁴¹ Community water fluoridation decreases tooth decay by up to 40% among children and adults.⁴¹ The Centers for Disease Control and Prevention (CDC) statement on the Evidence Supporting the Safety and Effectiveness of Community Water Fluoridation highlighted a finding that treating all community water supplies with fluoride additives was cost effective relative to other interventions to prevent dental caries. CDC's conclusions are consistent with The U.S. Preventive Services Task Force's (The Task Force) systematic review of the economic evaluations reporting fluoridation to be cost saving.⁴² The return on investment (ROI) for community water fluoridation

increases as community size increases but, as noted by The Task Force, community water fluoridation is cost saving even for small communities.^{42,43} The estimated ROI for community water fluoridation was \$7 in small communities and \$43 in large communities.^{43,44} Medicaid dental programs cost 50% less in fluoridated communities compared to non-fluoridated communities.⁴¹ Assuring regular access to fluoridated water in schools and limiting bottled water is integral to preventing tooth decay.

For school-age children with no or limited access to community water fluoridation and those that are at high-risk for tooth decay, topical fluoride in the form of a mouthrinse or varnish provides a real benefit. Evidence suggests the effectiveness of preventing tooth decay with 0.2% sodium fluoride mouthrinse one time each week is 20% to 35% over a 2-3 year period.⁴⁵ While used for more than three decades for the prevention of tooth decay, the use of fluoride varnish in school-based programs is relatively new. Preventing tooth decay in primary (baby) teeth by as much as 40%, fluoride varnish is well tolerated by children and the frequency of its application is limited to 2-3 times annually, taking less time away from learning.⁴⁶

Limiting Sugar-Sweetened Beverages - Sugar-sweetened beverages (SSBs) or sugary drinks are leading sources of added sugars in the American diet. Frequently drinking SSBs is associated with tooth decay, among other serious health conditions. On average, U.S. youth consume 155 calories from SSBs on a given day, though the intake is higher among boys, adolescents, and youth living in low-income families.⁴⁷ Education and nutritional counseling by those professionals working in school-based programs, including an emphasis on drinking fluoridated water can play a role in reducing the risk of tooth decay associated with consuming SSBs.

Dental Sealants – Dental sealants are effective in preventing tooth decay in the pits and fissures of teeth.^{48,49} Approximately 6.5 million low-income children could potentially benefit from the delivery of sealants through a school-based oral health program.¹⁸ Without access to regular preventive dental services, dental care for many children is postponed until symptoms (e.g., a toothache or a facial abscess) become so severe that care is sought in hospital emergency rooms.⁵⁰ The consequences are costly. A three-year comparison of Medicaid reimbursement for emergency room treatment for dental problems versus preventive treatment showed that the cost to manage symptoms related to tooth decay in the emergency room (\$6,498) is approximately ten times more than if preventive care is provided in a dental office (\$660) for the same patients.⁵⁰

Dental sealants are applied to the chewing surface of molar (back) teeth and provide a physical barrier between the bacteria that causes tooth decay and the tooth's enamel surface. Studies have demonstrated that sealants prevent over 80% cavities 2 years after placement.⁴⁶

Professional Dental Care – A dental professional can determine the appropriate use of fluoride to prevent or slow the progression of tooth decay, place dental sealants, educate children about oral hygiene, determine risk factors for appropriate disease management, and counsel parents on healthy behaviors for optimal oral health.⁵¹ Early prevention is important and for some children – the low income and those with special needs, their first experience with a dental professional is at school, demonstrating the importance of school-based oral health programs in accessing regular care.

E. The Whole School, Whole Community, Whole Child Model

In 1987, the Centers for Disease Control and Prevention (CDC) developed a research-based model called the Coordinated School Health Program (CSHP). The mission of the CSHP was to improve the health and academic performance of school children by actively involving parents, teachers, students, families and communities in the implementation. The program targeted long-term results. A CSHP helped students establish and maintain healthy personal and social behaviors, improved student knowledge about health,

and helped them develop personal and social skills to make smart choices in school and in life. In other words, a CSHP is a planned, organized set of health-related programs, policies and services coordinated to meet the health and safety needs of K-12 students at both the individual school level and in the larger school district.

The CSHP model consisted of eight components (see Figure 1) to influence health and learning. During the implementation phase of the CSHP, the CDC's Division of Adolescent and School Health funded state and territorial education agencies and tribal governments to help school districts and schools support the model.

CSHPs demonstrated improved health outcomes and student academic achievement in the following ways:⁵²

- Schools that offered breakfast programs had increased academic test scores, daily attendance, and class participation.
- Each \$1 invested in school-based tobacco prevention, drug and alcohol education and family life education saved \$14 in avoided health costs.
- Students who received mental health services experienced reduced failure rates and disciplinary actions, while having improved grade point averages.

Figure 1: Coordinated School Health Model



In 2014, the CDC in partnership with the Association for Supervision and Curriculum Development (ASCD) expanded on the eight components to address the education, public health and school health requests for greater alignment, integration and collaboration between education and health to improve each child's cognitive, physical, social, and emotional development. This new expanded model is known as the Whole School, Whole Community, Whole Child (WSCC) model and incorporates the principles of a whole child approach to education.

The WSCC model includes ten components expanding two of the original CSH components. Healthy and Safe School Environment and Family/Community Involvement were split into four new and distinct components: 1) Physical Environment, 2) Social and Emotional Climate, 3) Family Engagement, and 4) Community Involvement (see Figure 2). This change places a greater emphasis on both the psychosocial and physical environment, in addition to drawing attention to the expanded role that community agencies and families must play. The new model also emphasizes the need to engage students as active participants in their learning and health.



Figure 2: Whole School, Whole Community, Whole Child Model⁵³

F. Recommendations for Integrating Oral Health into the Whole School, Whole Community, Whole Child Model

The WSCC model highlights the importance of including all ten components to fully impact students’ health behaviors. A strategic approach to improve the oral health of school children is important to assure that oral health is integrated into each of the ten components of the WSCC model. Figure 3 and Table I illustrate and detail each component of the WSCC model, describes the integration of oral health into each component and provides examples for its practical application. The WSCC model can provide children and adolescents with the knowledge, skills, social support and environmental reinforcement needed to adopt long-term behaviors for optimal oral health.

Existing school-based or school-linked oral health programs most likely have been developed and implemented outside of the WSCC model. These programs are addressing at least one or more of the ten components – (e.g., health education and health services), and they should be encouraged to integrate with the WSCC initiative. Integrating oral health into the remaining components will assure continuity for preventive health measures, establish a foundation for optimal (oral) health behaviors, and promote life-long oral health.

Based on evidence-based research, the CDC in collaboration with other federal agencies, state agencies, educational institutions, voluntary organizations, and professional organizations has developed guidelines for school health program strategies. Attachment A provides links to the CDC school health guidelines/recommendations related to oral health (promotion of healthy eating, prevention of unintentional injuries and violence, and prevention of tobacco use and addiction).



Figure 3: Integration of Oral Health into the WSCC Model⁵³

TABLE I: Integrating Oral Health into the Whole School, Whole Community, Whole Child Model

** Oral health Integration and Recommendations were developed and updated by the ASTDD School and Adolescent Oral Health Committee in August 2015

WSCC Components ⁵⁵	Oral Health Integration and Recommendations
<p>Health Education</p> <p>WSCC: Formal, structured health education consists of any combination of planned learning experiences that provide the opportunity to acquire information and the skills students need to make quality health decisions. When provided by qualified, trained teachers, health education helps students acquire the knowledge, attitudes, and skills they need for making health-promoting decisions, achieving health literacy, adopting health-enhancing behaviors, and promoting the health of others. Comprehensive school health education includes curricula and instruction for students in pre-K through grade 12 that address a variety of topics such as alcohol and other drug use and abuse, healthy eating/nutrition, mental and emotional health, personal health and wellness, physical activity, safety and injury prevention, sexual health, tobacco use, and violence prevention. Health education curricula and instruction should address the National</p>	<p>Oral Health Integration: Oral health education is an integral component of school health education classes. The school comprehensive health education curriculum includes prevention and control of oral and dental diseases, oral and facial injury prevention, and personal health practices that promote oral health. Assure that oral health education, whenever possible, complies with the Department of Education Standards and integrates with teachers' lesson plans.</p> <p>Oral Health Recommendations:</p> <ul style="list-style-type: none"> • Provide oral health education on disease process, risk factors, and behavior to promote oral health. • Provide tobacco-use prevention including electronic cigarette education in Kindergarten through 12th grade, and link students using tobacco products to cessation intervention programs.

<p>Health Education Standards and incorporate the characteristics of an effective health education curriculum. Health education, based on an assessment of student health needs and planned in collaboration with the community, ensures reinforcement of health messages that are relevant for students and meet community needs. Students might also acquire health information through education that occurs as part of a patient visit with a school nurse, through posters or public service announcements, or through conversations with family and peers.</p>	<ul style="list-style-type: none"> • Integrate oral health into nutrition education from preschool through secondary school. • Implement health and safety education curricula that help students adopt and maintain safe lifestyles, advocate for health and safety education that prevents oral and facial injuries and including behaviors impacting oral health such as Methamphetamine use. • Assess/evaluate oral health education programs at regular intervals.
--	--

Physical Education and Physical Activity

WSSC:

Schools can create an environment that offers many opportunities for students to be physically active throughout the school day. A comprehensive school physical activity program (CSPAP) is the national framework for physical education and youth physical activity. A CSPAP reflects strong coordination across five components: physical education, physical activity during school, physical activity before and after school, staff involvement, and family and community engagement. Physical education serves as the foundation of a CSPAP and is an academic subject characterized by a planned, sequential K-12 curriculum (course of study) that is based on the national standards for physical education. Physical education provides cognitive content and instruction designed to develop motor skills, knowledge, and behaviors for healthy active living, physical fitness, sportsmanship, self-efficacy, and emotional intelligence. A well-designed physical education program provides the opportunity for students to learn key concepts and practice critical skills needed to establish and maintain physically active lifestyles throughout childhood, adolescence and into adulthood. Teachers should be certified or licensed, and endorsed by the state to teach physical education.

Oral Health Integration:

Schools should promote the use of personal and protective equipment while participating in all school-associated sports and recreational activities. Students should be provided with and required to use personal protective equipment appropriate to the type of physical activity that are well fitted, in good condition and comply with state and national standards.

Oral Health Recommendations:

- Provide safe physical education and extracurricular physical activity programs that include appropriate protection from oral and facial injuries including mouthguard use.
- Provide fabricated mouthguards and other protective gear for physical activity programs by engaging local dental providers (e.g. conduct clinics for onsite fabrication of mouthguards for student athletes).
- Develop communication program and social media platform integrating messages that promote prevention and protection from oral and facial injuries, (e.g. testimonials and support of professional team players).
- Expand campaigns for promoting prevention and protection from oral and facial injuries to community recreation and sports programs.
- Assess/evaluate oral and facial injury prevention education programs and use of mouthguard protection at regular intervals.

Nutrition and Environment Services

WSSC:

The school nutrition environment provides students with opportunities to learn about and practice healthy eating through available foods and beverages, nutrition education, and messages about food in the cafeteria and throughout the school campus. Students may have access to foods and beverages in a variety of venues at school including the cafeteria,

Oral Health Integration:

School nutrition programs teach students better choices of foods for oral health. Lunches, snacks and beverages offered by school foodservices should be healthy and lower the risk of oral disease, like tooth decay.

Oral Health Recommendations:

- Adopt a well-balanced school nutrition policy

<p>vending machines, grab 'n' go kiosks, schools stores, concession stands, classroom rewards, classroom parties, school celebrations, and fundraisers.</p> <p>School nutrition services provide meals that meet federal nutrition standards for the National School Lunch and Breakfast Programs, accommodate the health and nutrition needs of all students, and help ensure that foods and beverages sold outside of the school meal programs (i.e., competitive foods) meet Smart Snacks in School nutrition standards. School nutrition professionals should meet minimum education requirements and receive annual professional development and training to ensure that they have the knowledge and skills to provide these services. All individuals in the school community support a healthy school nutrition environment by marketing and promoting healthier foods and beverages, encouraging participation in the school meal programs, role-modeling healthy eating behaviors, and ensuring that students have access to free drinking water throughout the school day.</p> <p>Healthy eating has been linked in studies to improved learning outcomes and helps ensure that students are able to reach their potential.</p>	<p>that promotes health eating classroom lessons and promotes a supportive school environment including promoting balanced school meals and no junk foods in vending machines.</p> <ul style="list-style-type: none"> • Integrate oral health in school nutrition programs related to obesity, diabetes and general health. • Integrate campaigns into school food services that prohibit junk food and other foods that increase the risk of tooth decay, (e.g. "Stop the Pop" campaign). • Promote programs that use incentives other than foods that increase the risk for tooth decay for rewarding/incentivizing learning and positive behavior. • Assure students have access to fluoridated tap water throughout the day. • Assess/evaluate effectiveness of the school health program in promoting healthy eating.
---	---

Health Services

WSCC:

School health services intervene with actual and potential health problems, including providing first aid, emergency care and assessment and planning for the management of chronic conditions (such as asthma or diabetes). In addition, wellness promotion, preventive services and staff, student and parent education complement the provision of care coordination services. These services are also designed to ensure access and/or referrals to the medical home or private healthcare provider. Health services connect school staff, students, families, community and healthcare providers to promote the health care of students and a healthy and safe school environment. School health services actively collaborate with school and community support services to increase the ability of students and families to adapt to health and social stressors, such as chronic health conditions or social and economic barriers to health, and to be able to manage these stressors and advocate for their own health and learning needs. Qualified professionals such as school nurses, nurse practitioners, dentists, health educators, physicians, physician assistants and allied health personnel provide these services.

Oral Health Integration:

Services provided for students to appraise, protect and promote health should include prevention and treatment of oral and dental diseases. Services assure access or referral to oral health care services and provide emergency care for dental and mouth pain, infection or injury. The school nurse or school-based health center medical personnel would have oral health information services, provide effective preventive services, and assure students with dental treatment needs access to professional care.

Oral Health Recommendations:

- Assure oral health is included in school health services that meet the physical, mental, social and emotional health needs of students.
- Assure students are receiving effective preventive oral health services including dental sealants in schools and school fluoride programs, (e.g. fluoride mouthrinse programs for schools in communities without optimally fluoridated water and fluoride varnish programs for high-risk children).
- Support the establishment of a dental home for students. Develop a referral program or system for students with unmet oral health

	<p>needs.</p> <ul style="list-style-type: none"> • Promote a medical/dental integration model for school-based health centers. • Provide a training program for school nurses in the identification of oral health needs. • Assess/evaluate oral health prevention and treatment service programs at regular intervals.
Counseling, Psychological, & Social Services	
<p>WSCC: These prevention and intervention services support the mental, behavioral, and social-emotional health of students and promote success in the learning process. Services include psychological, psychoeducational, and psychosocial assessments; direct and indirect interventions to address psychological, academic, and social barriers to learning, such as individual or group counseling and consultation; and referrals to school and community support services as needed. Additionally, systems-level assessment, prevention, intervention, and program design by school-employed mental health professionals contribute to the mental and behavioral health of students as well as to the health of the school environment. These can be done through resource identification and needs assessments, school-community-family collaboration, and ongoing participation in school safety and crisis response efforts. Additionally, school-employed professionals can provide skilled consultation with other school staff and community resources and community providers. School-employed mental health professionals ensure that services provided in school reinforce learning and help to align interventions provided by community providers with the school environment. Professionals such as certified school counselors, school psychologists, and school social workers provide these services.</p>	<p>Oral Health Integration: Services to improve students’ mental, emotional and social health should integrate the impact of oral health to the well being of the students. These services can help by ensuring that children with oral health needs obtain the needed professional care.</p> <p>Oral Health Recommendations:</p> <ul style="list-style-type: none"> • Promote awareness that poor oral health impacts self-esteem and the ability to learn among school-age children. • Create an educational program to inform school counselors, psychologists and social workers regarding issues of oral health related to self-esteem and the ability to learn. • Inform school counselors, psychologists and social workers on options for children with unmet oral health needs to access care, (e.g. school dental referral program). • Assess/evaluate oral health integrated with counseling, psychological and social services at regular intervals.
Social and Emotional Climate	
<p>WSCC: Social and Emotional School Climate refers to the psychosocial aspects of students’ educational experience that influence their social and emotional development. The social and emotional climate of a school can impact student engagement in school activities; relationships with other students, staff, family, and community; and academic performance. A positive social and emotional school climate is conducive to effective teaching and learning. Such climates promote health, growth, and development by providing a safe and supportive learning environment.</p>	<p>Oral Health Integration: The psychosocial climate and culture of the school can influence and promote oral health.</p> <p>Oral Health Recommendations:</p> <ul style="list-style-type: none"> • Establish a social environment that is accepting of prevention initiatives that promote safety and prevents unintentional injuries of the face and mouth. • Establish a social environment that promotes healthy lifestyles and healthy eating – minimizing the risk for tooth decay. • Promote oral health self-care habits in the school environment, (e.g. toothbrush, floss and rinse after school breakfast and lunch).

Physical Environment	
<p>WSCC: A healthy and safe physical school environment promotes learning by ensuring the health and safety of students and staff. The physical school environment encompasses the school building and its contents, the land on which the school is located, and the area surrounding it. A healthy school environment will address a school’s physical condition during normal operation as well as during renovation (e.g., ventilation, moisture, temperature, noise, and natural and artificial lighting), and protect occupants from physical threats (e.g., crime, violence, traffic, and injuries) and biological and chemical agents in the air, water, or soil as well as those purposefully brought into the school (e.g., pollution, mold, hazardous materials, pesticides, and cleaning agents).</p>	<p>Oral Health Integration: The physical and aesthetic surroundings of the school can promote oral health in schools, by utilizing available community resources such as fluoridated water, enforcing public health laws, and by not using junk food for fundraisers or as choices in vending machines.</p> <p>Oral Health Recommendations:</p> <ul style="list-style-type: none"> • Develop and enforce a school policy on tobacco use, including the use of electronic cigarettes. • Establish a physical environment that promotes safety and prevents unintentional injuries of the face and mouth. • Promotes the availability of tap water for cooking and human consumption, especially if the water is optimally fluoridated. • Assure “easy” implementation of strategies by school personnel for the integration of oral health prevention services programming that will fit into the school routine with minimal loss of class time or little disruption of class activities. • Assess/evaluate school environment for the promotion of oral health at regular intervals.
Employee Wellness	
<p>WSCC: Schools are not only places of learning, but they are also worksites. Fostering school employees’ physical and mental health protects school staff, and by doing so, helps to support students’ health and academic success. Healthy school employees—including teachers, administrators, bus drivers, cafeteria and custodial staff, and contractors—are more productive and less likely to be absent. They serve as powerful role models for students and may increase their attention to students’ health. Schools can create work environments that support healthy eating, adopt active lifestyles, be tobacco free, manage stress, and avoid injury and exposure to hazards (e.g., mold, asbestos). A comprehensive school employee wellness approach is a coordinated set of programs, policies, benefits, and environmental supports designed to address multiple risk factors (e.g., lack of physical activity, tobacco use) and health conditions (e.g., diabetes, depression) to meet the health and safety needs of all employees. Partnerships between school districts and their health insurance providers can help offer resources, including personalized health assessments and flu vaccinations. Employee wellness programs and healthy work environments can improve a district’s bottom line by decreasing employee health insurance</p>	<p>Oral Health Integration: Providing opportunities for school personnel to improve their oral health status through various activities and initiatives often transfers into a greater commitment to the health of the students and creates positive role modeling. Providing school personnel with access to oral health information will encourage them to set an example for students by promoting good oral health behaviors.</p> <p>Oral Health Recommendations:</p> <ul style="list-style-type: none"> • Provide program-specific in-service for teachers, athletic coaches and school nutrition services personnel on oral health. • Support cessation efforts among school personnel using tobacco and electronic cigarettes. • For all school personnel, provide staff development services that impart the knowledge, skills and confidence to effectively promote safety and prevent unintentional facial and mouth injuries. • Provide personnel involved in nutrition education with adequate training and ongoing in-service training that focuses on teaching strategies for oral health behavioral change. <p>At regular intervals assess/evaluate oral health programs targeted at school personnel.</p>

<p>premiums, reducing employee turnover, and cutting costs of substitutes.</p>	
<p>Family Engagement</p>	
<p>WSCC: Families and school staff work together to support and improve the learning, development, and health of students. Family engagement with schools is a shared responsibility of both school staff and families. School staff are committed to making families feel welcomed, engaging families in a variety of meaningful ways, and sustaining family engagement. Families are committed to actively supporting their child’s learning and development. This relationship between school staff and families cuts across and reinforces student health and learning in multiple settings—at home, in school, in out-of-school programs, and in the community. Family engagement should be continuous across a child’s life and requires an ongoing commitment as children mature into young adulthood.</p>	<p>Oral Health Integration: Support from family is needed to ensure success for oral health programming in schools – both school-based and school-linked. Parents are invited to attend workshops on oral health and to encourage their children to develop good oral hygiene practices at home and school, as well as provide permission for their child(ren) to participate in preventive oral health programs. In addition, parent organizations can serve as the catalyst for social and environmental changes within the school to promote oral health.</p> <p>Oral Health Recommendations:</p> <ul style="list-style-type: none"> • Integrate school and family support of school-based programs to prevent tobacco use and electronic cigarette use for children and their family members. • Integrate school and family efforts to prevent unintentional injuries to the face and mouth. • Integrate school and family efforts in supporting and reinforcing nutrition education. • Integrate school and family support in providing preventive dental services and improving access to dental care. • Promote school and family support for oral health screenings. <p>Assess/evaluate family involvement in promoting oral health at regular intervals.</p>
<p>Community Involvement</p>	
<p>WSCC: Community groups, organizations, and local businesses create partnerships with schools, share resources, and volunteer to support student learning, development, and health-related activities. The school, its students, and their families benefit when leaders and staff at the district or school solicits and coordinates information, resources, and services available from community-based organizations, businesses, cultural and civic organizations, social service agencies, faith-based organizations, health clinics, colleges and universities, and other community groups. Schools, students, and their families can contribute to the community through service-learning opportunities and by sharing school facilities with community members (e.g., school-based community health centers and fitness facilities).</p>	<p>Oral Health Integration: Building support from school health advisory councils, coalitions and other organizations in addition to local businesses can contribute to activities meant to improve oral health among school-age children.</p> <p>Oral Health Recommendations:</p> <ul style="list-style-type: none"> • Integrate school and community efforts to prevent unintentional injuries to the face and mouth, (e.g. athletic/sporting events). • Integrate school and community support for programs that prevent tobacco use. • Integrate school and community support in providing preventive dental services and screenings to improve access to dental care, (e.g. local dental offices and FQHCs). • Involve school and community support in integrating oral health into community events, (e.g. fairs, athletic events).

II. Guidelines & Recommendations from Authoritative Sources

Guidelines and recommendations for improving the oral health of children include the following:

Healthy People 2020

[Healthy People 2020](#)⁶¹ objectives aim to improve the health of all people in the United States. The following objectives related to children's oral health:

- [Oral Health](#): Several oral health objectives relate to increasing dental sealant placement, the use of the oral health care system, preventive services for low- income children, school-based health centers with an oral health component, and systems for recording and referring children with craniofacial anomalies.
- [Tobacco Use](#): Several objectives focus on reducing tobacco use, the initiation of tobacco use, exposure to tobacco smoke, illegal tobacco sales to minors and tobacco advertising, while increasing cessation of tobacco use and smoke-free environments.
- [Injury and Violence Prevention](#): An objective targets increasing the use of head, face, eye and mouth protection.
- [Nutrition and Weight Status](#): An objective calls for increasing students' dietary quality at school.

American Academy of Pediatrics

The American Academy of Pediatrics (AAP)⁶² Section on Oral Health and Chapter Oral Health Advocates provide education, training, and advocacy for pediatricians, dentists, other health professionals, and families. The importance of improving children's oral health and strategies to do so are included in the Academic Pediatrics' Special Issue on Children's Oral Health published in 2009.

American Academy of Pediatric Dentistry

The mission of the [American Academy of Pediatric Dentistry](#) (AAPD)⁶³ is to advocate policies, guidelines and programs that promote optimal oral health and oral health care for children. The [AAPD 2012-2015 Strategic Plan](#) has a goal that promotes optimal health for all children and persons with special health care needs and includes objectives related to (a) an oral disease-free population, (b) access to appropriate oral health care and (c) support for community water fluoridation and other topical and systemic fluorides.

Children's Dental Health Project

The [Children's Dental Health Project](#) (CDHP)⁶⁴ advances research-driven policies and innovative solutions to eliminate barriers to preventing tooth decay and to ensure that all children reach their full potential. CDHP focuses on five policy areas: preventing tooth decay and managing dental caries; access to affordable, quality dental care; assuring a strong oral health infrastructure; reducing oral health disparities; and supporting families to achieve oral health.

National Association of School Nurses

The [National Association of School Nurses'](#) (NASN)⁶⁵ mission is to optimize student health and learning by advancing the practice of school nursing. The professional organization hosts an online forum that provides school nurses and other school oral health champions a place to discuss assessment, planning, intervention and evaluation of student oral health needs. Resources for oral health programs, information, fact sheets, education, screening, emergency care, and referrals will be shared.

School-Based Health Alliance

The [School-Based Health Alliance](#) (SBHA)⁶⁶ works to improve the health of children and youth by advancing and advocating for school-based health care. Through their “Innovation in School-Based Oral Health Services” initiative, the Alliance has laid a solid foundation for collaboration between school districts and national oral health experts. They have conducted research, key informant interviews, and in-person meetings with the oral health stakeholders in seven of the top ten school districts in the US.

III. Support for Whole School, Whole Community, Whole Child Programs

Many voices support the WSCC Model:

- The American School Health Association (ASHA) believes that a multidisciplinary, coordinated school health approach is the most effective and efficient means of promoting healthy citizens. To this end, ASHA supports the Whole School, Whole Community, Whole Child model, which combines and builds on elements of the traditional coordinated school health approach and ASCD’s Whole Child Framework. ASHA believes that the WSCC model makes visible the commitment of education and health to collaboratively prepare today’s students to become successful and healthy citizens.⁶⁷
- The U.S. Department of Health and Human Services has noted that schools have more influence on young people than any other social institution except the family, and highlights the opportunity that schools offer for improving the health status of children.⁶⁰
- Superintendents and school administrators nationwide have found benefits from implementing the WSCC model. For example, the Superintendent of Adams 12 Five Star Schools in Adams County, Colorado, Chris Gdowski stated: “We’ve made a commitment to integrate health and wellness into our schools. This is an important effort because research and first-hand experience clearly show that healthy students are more likely to be academically successful students.”⁶⁸

IV. Research Evidence

A. Evidence Supporting the Whole School, Whole Community, Whole Child Model

The WSCC model is based on the close association of health and education. Research on health and student achievement supported the development of the WSCC model.²² Scientific evidence of the effectiveness should show that incorporating the WSCC components have a positive impact on academic achievement, health-risk behaviors and health status outcomes. Research consisted of a review of the existing literature, including scientific articles and key publications from national agencies and organizations. These were reviewed and synthesized to describe (1) the historical context for CSH and a whole child approach, and (2) lessons learned from the implementation and evaluation of these approaches. The literature review revealed that interventions conducted in the context of CSH do improve health-related and academic outcomes, as well as policies, programs, or partnerships. Several structural elements and processes have proved useful for implementing CSH and a whole child approach in schools, including use of school health coordinators, school-level and district-level councils or teams; systematic assessment and planning; strong leadership and administrative support, particularly from school principals; integration of health-related goals into school improvement plans; and strong community collaborations.⁶⁹

B. Evidence Supporting Preventive Oral Health Services

[The Guide to Community Preventive Services](#)⁷⁰ conducted systematic reviews on the effectiveness of population-based interventions to prevent or control (a) tooth decay, (b) oral and pharyngeal cancers, and (c) sports-related craniofacial injuries.

The Task Force on Community Preventive Services recommends Community Water Fluoridation (CWF) based on strong evidence of effectiveness in reducing dental decay. CWF reduces dental caries approximately 30% to 50%.⁷¹ Stopping CWF (when other fluoride sources are inadequate) can result in increases in new tooth decay by 13%.⁷² Years of research have demonstrated that CWF is the most cost effective means for preventing tooth decay. The average cost of CWF is \$0.40 per person per year for communities with 20,000 or more people (\$2.70 per person per year for communities with 5,000 or less people).^{72,73}

The Task Force recommends school-based and school-linked dental sealant programs on the basis of strong evidence in reducing decay. Sealants were associated with an 81% decrease in tooth decay.^{72,74} Applying sealants in school-based or linked programs was found to be effective among children at different risk of tooth decay and in families of varying economic means.⁷² For school-based and school-linked sealant programs, costs per child ranged from \$18 to \$60 (median cost is \$39); the cost saving per tooth surface saved from decay ranged from \$0 to \$487.⁷² (Additional systematic reviews by a work group sponsored by CDC concluded that evidence supports recommendations to seal sound surfaces and non-cavitated lesions, to use visual assessment to detect surface cavitation, to use a toothbrush or handpiece prophylaxis to clean tooth surfaces, and to provide sealants to children even if follow-up cannot be ensured.)⁴⁸

The American Dental Association Center for Evidence-Based Dentistry

The [ADA Center for Evidence-Based Dentistry](#) provides systematically assessed evidence as tools and resources to support clinical decisions to integrate evidence into patient care.

An expert panel, convened by the ADA Council on Scientific Affairs, reevaluated the collective evidence and developed [evidence-based clinical practice guidelines for the use of pit-and-fissure sealants](#) (published in August 2016).⁷⁵ The panel concluded that sealants are effective in preventing and arresting pit-and-fissure occlusal carious lesions of primary and permanent molars in children and adolescents compared with the nonuse of sealants or use of fluoride varnishes. The panel also recommended that clinicians reorient their efforts toward increasing the use of sealants on the occlusal surfaces of primary and permanent molars in children and adolescents.

An expert panel, established by the ADA Council on Scientific Affairs, evaluated the collective body of scientific evidence and provided [evidence-based recommendations on the use of professionally applied topical fluoride](#) (published in May 2006).⁷⁶ The panel recommended that periodic fluoride treatments (fluoride varnish or gel) be considered for children age 6-18 years who are at moderate or high risk of developing tooth decay.

V. Best Practice Criteria

The ASTDD Best Practices Project has selected five best practice criteria to guide state and community oral health programs in developing their best practices. For these criteria, initial review standards are provided to help evaluate the strengths of a program or practice to prevent and control tooth decay.

(1) Impact/Effectiveness

- Program measures showing oral health benefits achieved. For example:
 - Oral health surveillance documents improved oral health status (reduced levels of tooth decay experience and untreated decay) as a result of programs reaching school-aged children.
 - A school-based dental sealant program increases the proportion of children with sealants over time and achieves the Healthy People 2020 target.
 - A program reduces the number of children who are treated in the hospital emergency room (ER) for dental pain or infection. (Note: There are issues translating limited ER diagnosis codes and reliable tracking to show trends.)
- Program measures showing improved processes/systems for oral health. For example:
 - Incorporation of the WSCC Model with integration of oral health into the model components.
 - New policies promoting oral health as an important focus for healthy schools.

(2) Efficiency

- An analysis that demonstrates efficiency in terms of costs vs. benefits. For example:
 - An intervention program showing cost savings for averted tooth decay or avoiding the need to treat dental disease in an advanced stage.
 - The cost of treating children in an outpatient dental facility (dental office) is less than the costs of treating school-aged children in a hospital emergency room.
- Demonstration of efficiency in terms of leveraging resources through collaborations with other programs. For example:
 - Using Medicaid reimbursement to sustain school-based dental programs.
 - Collaboration with other chronic disease or Maternal and Child Health programs to improve access to dental care and care coordination for high-risk children.

(3) Demonstrated Sustainability

- Documentation of the sustainability of the program or a plan to address sustainability. For example:
 - Funding devoted to the integration of oral health services.
 - The oral health components of the program have a long track record of successful operation.

(4) Collaboration/Integration

- Demonstration of partnerships developed through the WSCC model and the resulting benefits. For example:
 - Oral health services like dental sealants and fluoride have expanded through the integration of oral health in the model.
 - Having a formal Memorandum of Understanding or an informal relationship with collaborating agencies supporting oral health integration.

(5) Objectives/Rationale

- The goals and objectives of the WSCC include oral health and are consistent with recommendations and guidelines promoted by authoritative sources, state oral health plans, and Healthy People 2020 oral health objectives.

Evidence Supporting Best Practice Approaches

The ASTDD Best Practices Committee takes a broad view of evidence to support best practice approaches for building effective state and community oral health programs. Practices which are linked by strong causal reasoning to the desired outcome of improving oral health and total well being of priority populations will be reported on by the Best Practices Committee. Strength of evidence from research, expert opinion and field lessons fall within a spectrum: on one end of the spectrum are

promising best practice approaches, which may be supported by little research, a beginning of agreement in expert opinion, and very few field lessons evaluating effectiveness; on the other end of the spectrum are **proven best practice approaches**, ones that are supported by strong research, extensive expert opinion from multiple authoritative sources, and solid field lessons evaluating effectiveness.

Research may range from a majority of studies in dental public health or other disciplines reporting effectiveness to the majority of systematic review of scientific literature supporting effectiveness. Expert opinion may range from one expert group or general professional opinion supporting the practice to multiple authoritative sources (including national organizations, agencies or initiatives) supporting the practice. Field lessons may range from success in state practices reported without evaluation documenting effectiveness to cluster evaluation of several states (group evaluation) documenting effectiveness.

To access information related to a systematic review vs. a narrative review: [Systematic vs. Narrative Reviews. \(Accessed: 6/23/2016\)](#)

VI. State Practice Examples

The following practice examples illustrate various elements or dimensions of the best practice approach of *Improving Children’s Oral Health through the Whole School, Whole Community, Whole Child Model*. These reported success stories should be viewed in the context of the state’s and program’s environment, infrastructure and resources. End-users are encouraged to review the practice descriptions (click on the links of the practice names) and adapt ideas for a better fit to their state and program.

A. Summary Listing of Practice Examples

Table 1 provides a listing of programs and activities submitted by states. Each practice demonstrated the implementation of at least eight of the WSCC components. Each practice name is linked to a detailed description of the oral health program and includes a table outlining how each is implementing the WSCC components.

#	Practice Name	State	Practice
1	Leading Chicago Children to Oral Health Improvement: A Community Based Public-Private Collaboration	Chicago, IL	16013
2	Tennessee School-Based Dental Prevention Program	TN	48006
3	Tooth Tutor Program	VT	51001

B. Highlights of Practice Examples

1. [Chicago’s School-Based Oral Health Program](#) (Practice 16013)

In 2000, the Chicago Department of Public Health (CDPH) initiated the School-Based Oral Health Program (SBOHP) within the Chicago Public School System (CPS). Initially, CDPH dentists delivered the school-based oral health services, including assessment/screenings, oral prophylaxis, fluoride

treatments, and dental sealants. CDPH developed a referral network to care for those students in need of urgent care by using the Illinois Medicaid provider list and providing each student with a referral letter that provided them the name, number and address of two Medicaid providers in their zip code. It quickly became apparent that the demand for school-based oral health services far exceeded CDPH's dental capacity. Therefore, a professional service agreement was developed to allow CDPH to contract with private dental providers to reach more children in need of this service. Through this arrangement, the number of dental providers has grown from one in 2002 to 18 for the current 2015-2018 contract-period. The oral health referral network has also expanded to more than 300 providers and sites where students can access follow up care. At the present, CDPH SBOHP is considered the largest school-based oral health program in the country.

2. Tennessee School-Based Dental Prevention Program (Practice 48006)

Tennessee's School-Based Dental Prevention Program (SBDPP) is a statewide comprehensive preventive program that has been operational in its current design for 15 years. It is fully funded by the State's TennCare program and provides services to eligible children for free.

Staffing consists of 77 licensed dentists and registered dental hygienists who are providing services with support provided by an additional 14 clerical staff.

The program aims to reach high-risk children from low-income families who have reduced access to care. Children in grades K – 8th in schools with 50% of the student population on free and reduced lunch programs are eligible to receive the SBDPP services regardless of economic status.

Details for program implementation in each school and region vary. The program's core component areas are: Oral Health Education; Dental Hygienist Sealant Screening; Dentist Screening; Sealant Application; Fluoride Varnish; Referral for Treatment; and TennCare Outreach (Tennessee's Medicaid program).

3. Vermont's School-Based Oral Health Program: Tooth Tutor (Practice 51001)

Vermont's Office of Oral Health (OOH) administers the Tooth Tutor Program (TTP), which aims primarily to help children who have not accessed dental care (those who have not been to the dentist or who are missing dental information on their health information records) in the previous year to find and connect with a dental home where they can receive dental sealants and other procedures (i.e. restorative treatment), as needed. Most of the children in this category are at higher risk for dental disease (i.e. low income, rural populations). In Vermont, Medicaid-eligible children have no cap for dental services through a program called Dr. Dinosaur. However, in spite of the availability of Medicaid benefits, these children have a higher rate of decay: decay experience is 1.6 times more prevalent and untreated decay is 2 times more prevalent in this group than in non-Medicaid children (2013 Burden of Oral Disease in Vermont). Although the utilization rate of dental care among Medicaid-eligible children throughout Vermont has been rising over time, there is still considerable room for improvement.

Public health dental hygienists (present in 5 of Vermont's 12 district offices, as of 2016) provide support for the program by helping to advertise openings to dental hygienists interested in working as Tooth Tutors (TTs) and providing training, technical assistance, and monitoring. The OOH also provides screening and teaching materials for the program and coordinates two meetings per year.

C. Resources to Support the Integration of Oral Health into the WSCC Model

ASTDD White Papers

- [School Dental Sealant Programs](#) (2016)

Improving Children's Oral Health through the Whole School, Whole Community, Whole Child (WSCC) Model

- [Integrating Oral Health Education into Health Education Curricula in Schools](#) (2013)
- [Integrating Oral Health into the Whole School, Whole Community, Whole Child School Health Model](#) (2015)
- [Nutrition Education and Healthy Eating in School Settings](#) (2015)

ASTDD WSCC Toolkit

The ASTDD-WSCC toolkit contains resources to assist in integrating oral health into the WSCC model. The toolkit is useful for oral health programs, school nurses and other health professionals, teachers and school administrators, community health workers, parents, and others who are interested in promoting oral health in the school setting following a model that addresses the whole child and whose goal is to improve learning and health among school-age children.

- [WSCC fact sheet](#) (ASTDD)
- WSCC [presentation](#) and [notes](#) (ASTDD)
- [WSCC webinar](#) (ASTDD)
- ASTDD Best Practice Approach Report: [Capacity Building Tool: Oral Health Integration and Recommendations](#) (ASTDD)
- [ASTDD Basic Screening Survey Tool](#) (ASTDD)

CDC Resources

- WSCC *Journal of School Health* special issue (CDC, ASCD)
- [WSCC overview](#) (CDC)
- [WSCC fact sheet](#) (CDC)
- [Healthy Schools website](#)

In addition to the State Practice Examples in Section V of this report, ASTDD has WSCC state activity submissions on the Best Practice website: [Access to Care: School-Based Oral Health](#). While there is much to be learned from these submissions, they were implementing less than the required eight components to be considered a WSCC State Practice Example.

VII. Acknowledgements

This report is the result of efforts by the ASTDD Best Practices Committee to identify and provide information on developing successful practices that address *Improving Children’s Oral Health through the Whole School, Whole Community, Whole Child Model*.

The ASTDD Best Practices Committee extends a special thank you to the ASTDD School and Adolescent Oral Health Committee and Lynn Ann Bethel Short, RDH, MPH, for their partnership in the preparation of this report.

Cooperative Agreement 1U58DP004919-04 from CDC, Division of Oral Health, supported this publication.

Suggested citation: Association of State and Territorial Dental Directors (ASTDD) School and Adolescent Oral Health and Best Practices Committees. Best practice approach: improving children’s oral health through the whole school, whole community, whole child model [monograph on the Internet]. Reno, NV: Association of State and Territorial Dental Directors; 2017 March 21. 26 p. Available from: <http://www.astdd.org>.

VIII. Attachments

Attachment A

CDC Guidelines for School Health Program Strategies

CDC has published a series of guideline documents that identify the school health program strategies most likely to be effective in promoting healthy behaviors among young people. Based on extensive reviews of research literature, the guidelines were developed by CDC in collaboration with other federal agencies, state agencies, universities, voluntary organizations, and professional organizations.

1. Guidelines for School Health Programs to Promote Lifelong Healthy Eating (<https://www.cdc.gov/healthyschools/npao/strategies.htm>)

The guidelines serve as the foundation for developing, implementing, and evaluating school-based healthy eating and physical activity policies and practices for students.

Based on the available scientific literature, national nutrition policy documents, and current practice, these guidelines provide nine recommendations for ensuring a quality nutrition program within a comprehensive school health program.

- | | |
|--------------|--|
| Guideline 1. | Use a coordinated approach to develop, implement and evaluate healthy eating and physical activity policies and practices. |
| Guideline 2. | Establish school environments that support healthy eating and physical activity. |
| Guideline 3. | Provide a quality school meal program and ensure that students are provided with the knowledge, attitudes, skills, and experiences needed for lifelong healthy eating and physical activity. |
| Guideline 4. | Implement a comprehensive physical activity program with quality physical education as the cornerstone. |
| Guideline 5. | Implement health education that provides students with the knowledge, attitudes, skills and experiences needed for lifelong healthy eating and physical activity. |
| Guideline 6. | Provide students with health, mental health and social services to address healthy eating, physical activity, and related chronic disease prevention. |
| Guideline 7. | Partner with families and community members in the development and implementation of healthy eating and physical activity policies, practices, and programs. |
| Guideline 8. | Provide a school employee wellness program that includes healthy eating and physical activity services for all school staff members. |
| Guideline 9. | Employ qualified persons, and provide professional development opportunities for physical education, health education, nutrition services, and health, mental health and social services staff members, as well a staff members who supervise recess, cafeteria time, and out-of-school-time programs. |

2. School Health Guidelines to Prevent Unintentional Injuries and Violence (<http://www.cdc.gov/mmwr/PDF/RR/RR5022.pdf>)

Centers for Disease Control and Prevention. School health guidelines to prevent unintentional injuries and violence. MMWR 2001;50(No. RR-22):1-74.

Recommendations to prevent unintentional injuries, violence, and suicide:

- Recommendation 1. Social environment. Establish a social environment that promotes safety and prevents unintentional injuries, violence, and suicide.
- Recommendation 2. Physical environment. Provide a physical environment, inside and outside school buildings, that promotes safety and prevents unintentional injuries and violence.
- Recommendation 3. Health education. Implement health and safety education curricula and instruction that help students develop the knowledge, attitudes, behavioral skills, and confidence needed to adopt and maintain safe lifestyles and to advocate for health and safety.
- Recommendation 4. Physical education and physical activity programs. Provide safe physical education and extracurricular physical activity programs.
- Recommendation 5. Health services. Provide health, counseling, psychological, and social services to meet the physical, mental, emotional, and social health needs of students.
- Recommendation 6. Crisis response. Establish mechanisms for short and long term responses to crises, disasters, and injuries that affect the school community.
- Recommendation 7. Family and community. Integrate school, family, and community efforts to prevent unintentional injuries, violence, and suicide.
- Recommendation 8. Staff members. For all school personnel, provide staff development services that impart the knowledge, skills, and confidence to effectively promote safety and prevent unintentional injuries, violence, and suicide, and support students in their efforts to do the same.

3. Guidelines for School Health Programs to Prevent Tobacco Use and Addiction
(<http://www.cdc.gov/mmwr/PDF/RR/RR4302.pdf>)

Centers for Disease Control and Prevention. Guidelines for school health programs to prevent tobacco use and addiction. MMWR 1994;43(No. RR-2):1-18.

Recommendations for school health programs to prevent tobacco use and addiction:

The seven recommendations below summarize strategies that are effective in preventing tobacco use among youth. To ensure the greatest impact, schools should implement all seven recommendations.

- Recommendation 1. Develop and enforce a school policy on tobacco use.
- Recommendation 2. Provide instruction about the short and long-term negative physiologic and social consequences of tobacco use, social influences on tobacco use, peer norms regarding tobacco use, and refusal skills.

- Recommendation 3. Provide tobacco-use prevention education in kindergarten through 12th grade; this instruction should be especially intensive in junior high or middle school and should be reinforced in high school.
- Recommendation 4. Provide program-specific training for teachers.
- Recommendation 5. Involve parents or families in support of school-based programs to prevent tobacco use.
- Recommendation 6. Support cessation efforts among students and all school staff who use tobacco.
- Recommendation 7. Assess the tobacco-use prevention programs at regular intervals

Attachment B

Organizations Dedicated to Promoting the Whole School, Whole Community, Whole Child Model

The following national organizations have developed resources to support the adoption and implementation of the WSCC model.

- American School Health Association www.ashaweb.org
 - ASCD www.ascd.org
 - Centers for Disease Control and Prevention www.cdc.org
 - National Association of Chronic Disease Directors www.chronicdisease.org
 - National Education Association www.nea.org
 - Oral Health America www.oralhealthamerica.org
-

IX. References

1. U.S. Department of Health and Human Services. National call to action to promote oral health. Rockville, MD: U.S. Department of Health and Human Services, Public Health Service, National Institutes of Health, National Institute of Dental and Craniofacial Research; 2003. NIH Publication No. 03-5303.
2. Dye BA, Tan S, Smith V, Lewis BG, Barker LK, Thornton-Evans G, et al. Trends in oral health status: United States, 1988–1994 and 1999–2004. MD: National Center for Health Statistics. Vital Health Stat. 2007 Apr;11(248):1-91. Available from: https://www.cdc.gov/nchs/data/series/sr_11/sr11_248.pdf
3. National Maternal and Child Oral Health Center. Preventing tooth decay and saving teeth with dental sealants. Washington, DC: National Maternal and Child Oral Health Resource Center; 2003. Available from: <http://www.mchoralhealth.org/pdfs/ohdentsealantfactsheet.pdf>.
4. National Institutes of Health, National Institute of Dental and Craniofacial Institute. Dental Caries (Tooth Decay) in Children (2 to 11) [Internet]. [cited 2016 June 10]. Available from: <http://www.nidcr.nih.gov/DataStatistics/FindDataByTopic/DentalCaries/DentalCariesChildren2to11.htm>.
5. Center for Disease Control and Prevention, Smoking and Tobacco Use. Youth and Tobacco Use Fact Sheet [Internet]. [cited 2017 February 10]. Available from: https://www.cdc.gov/tobacco/data_statistics/fact_sheets/youth_data/tobacco_use/
6. Vuolo M, Staff J. Parent and child cigarette use: a longitudinal multigenerational study. *Pediatr.* 2013 September; 132(3):568-577. [cited on 2017 March 16]. Available at: <http://pediatrics.aappublications.org/content/132/3/e568>
7. U.S. Department of Health and Human Services. The Health Consequences of Smoking – 50 Years of Progress: A Report for the Surgeon General. Atlanta: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2014 [cited 2017 February 10]. Available from: https://www.cdc.gov/tobacco/data_statistics/sgr/50th-anniversary/index.htm
8. American Academy of Pediatric Dentistry. Policy on Prevention of Sports-related Orofacial Injuries, 2013. [Internet]. [cited 2016 June 12]. Available from: http://www.aapd.org/media/policies_guidelines/p_sports.pdf.
9. National Maternal and Child Oral Health Center. Child and adolescent oral health issues. Washington, DC: National Maternal and Child Oral Health Resource Center; 2004. Available from: <http://www.mchoralhealth.org/PDFs/Issues.pdf>.
10. Lee JY, Bouwens TJ, Savage MF, Vann WF Jr. Examining the cost-effectiveness of early dental visits. *Pediatr Dent.* 2006 Mar-Apr;28(2):102-5; discussion 192-8.
11. US Department of Health and Human Services. Oral Health in America: A Report of the Surgeon General. Rockville, MD: U.S. Department of Health and Human Services, National Institute of Dental and Craniofacial Research, National Institutes of Health; 2000.
12. American Academy of Pediatric Dentistry. What Parents Should Know About Dental Coverage for Their Children under the ACA and Other Sources, [Internet]. [cited 2016 October 22]. Available from http://www.mychildrensteeth.org/education/aca_coverage_for_children/.
13. American Dental Association, Health Policy Institute. Dental Benefits Coverage Rates Increased for Children and Young Adults 2013. Health Policy Institute Research Brief. 2015 October. [cited on February 1, 2017]. Available from: http://www.ada.org/~media/ADA/Science%20and%20Research/HPI/Files/HPIBrief_1015_3.ashx
14. Liu J, Probst JC, Martin AB, Wang JY, Salinas CF. Disparities in dental insurance coverage and dental care among US children: the National Survey of Children's Health. *Pediatrics.* 2007 Feb;119 Suppl 1:S12-21.
15. American Academy of Pediatric Dentistry. The State of Little Teeth. [Online Report]. 2013 July. [cited on February 1, 2017]. Available from: http://www.aapd.org/assets/1/7/State_of_Little_Teeth_Final.pdf
16. US Department of Health and Human Services. 2015 Annual Report on the Quality of Care for Children in Medicaid and CHIP. [HHS Report on the Internet]. 2016 February. [cited on 2017 February 12]. Available at: <https://www.medicaid.gov/medicaid/quality-of-care/downloads/2015-child-sec-rept.pdf>
17. Kaiser Commission on Medicaid and the Uninsured, Kaiser Family Foundation. Children and Oral Health: Assessing Needs, Coverage, and Access, [policy brief]. 2012 June. Available from:

- <http://kff.org/disparities-policy/issue-brief/children-and-oral-health-assessing-needs-coverage/>.
18. Griffin SO, Wei L, Gooch BF, Weno K, Espinoza L. Vital Signs: Dental sealant use and untreated tooth decay among US school-age children. *MMWR Morb Mortal Wkly.* 2016;65: 1141-1145. Available at: <https://www.cdc.gov/mmwr/volumes/65/wr/mm6541e1.htm>
 19. American Dental Association Health Policy Institute. Dentist Participation in Medicaid or CHIP. [Infographic]. 2016. [cited on 2017 March 16]. Available from: http://www.ada.org/~/media/ADA/Science%20and%20Research/HPI/Files/HPIGraphic_0217_1.pdf?la=en
 20. US Senate Committee on Health, Education, Labor & Pensions. Dental Crisis in America: The Need to Expand Access. [US Senate Report on the Internet]. 2012 February. [cited on 2016 June 24]. Available from: <http://www.sanders.senate.gov/imo/media/doc/DENTALCRISIS.REPORT.pdf>.
 21. Whole School, Whole Community, Whole Child: A Collaborative Approach to Learning and Health. [Internet Report]. ASCD and Centers for Disease Control and Prevention. [cited on 2016 July 7]. Available at: http://www.cdc.gov/healthyschools/wsc/wscmodel_update_508tagged.pdf.
 22. Jackson S, Vann W, Kotch J, Pahel B, Peterson J. Impact of Poor Oral Health on Children's School Attendance and Performance. *AJPH.* 2010Oct; 101(10)1900-1906.
 23. Holt K. Kraft K. Oral health and learning: when children's oral health suffers, so does their ability to learn (3rd ed). Washington, DC: National Maternal and Child Oral Health Resource Center, 2013. Available from: <http://mchoralhealth.org/PDFs/learningfactsheet.pdf>
 24. Hazem S, Faust S, Mulligan R. The impact of oral health on the academic performance of disadvantaged children. *AJPH.* September 2012; 102(9): 1729-34. [cited March 16, 2017]. Available at: <http://ajph.aphapublications.org/doi/abs/10.2105/AJPH.2011.300478?journalCode=ajph&>
 25. Adams PF, Hendershot GE, Marano MA. Current estimates from the National Health Interview Survey, 1996. *Vital Health Stat 10.* 1999 Oct;(200):1-203.
 26. Adams PF, Marano MA. Current estimates from the National Health Interview Survey, 1994. *Vital Health Stat 10.* 1995 Dec;(193):1-260.
 27. Chen M, Andersen RM, Barmes DE, Leclercq MH, Lyttle CS. Comparing oral health care systems: a second international collaborative study. Geneva, Switzerland: World Health Organization; 1997. 350 p.
 28. Ramage S. The impact of dental disease on school performance: the view of the school nurse. *J Southeastern Society Pediatr Dent.* 2000;6(2):26.
 29. Schechter N. The impact of acute and chronic dental pain on child development. *J Southeastern Society Pediatr Dent.* 2000;6(2):16.
 30. Rothstein, R.. Lessons: seeing achievement gains by an attack on poverty. *New York Times* 2001 Mar 7; Sec B:9.
 31. Blumenshine SL, Vann Jr WF, Gizlice Z, Lee JY. Children's school performance: impact of general and oral health. *J Pub Health Dent.* 2008 Spring; 68(2): 82-7.
 32. U.S. General Accounting Office. Oral health: dental disease is a chronic problem among low-income and vulnerable populations. Washington, DC: U.S. General Accounting Office; 2000.
 33. Reisine ST. Dental health and public policy: the social impact of dental disease. *Am J Public Health.* 1985 Jan;75(1):27-30.
 34. Garg N, Anandakrishna L, Prakash C. Is there an association between oral health status and school performance: a preliminary study. *Int J Clin Pediatr Dent.* 2012 May – Aug; 5(2): 132-135. [cited 2016 Aug 11]. Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4148740/>.
 35. Rampersaud GC, Pereira MA, Girard BL, Adams J, Metz J. Breakfast habits, nutritional status, body weight, and academic performance in children and adolescents. *J Am Diet Assoc.* 2005 May;105(5):743-60.
 36. Florence MD, Asbridge M, Veugelers P. Diet quality and academic performance. *J Sch Health.* 2008 Apr;78(4):209-15; quiz 239-41.
 37. Children's Dental Health Project. CDHP policy brief: cost effectiveness of preventive dental services. Credits: Sinclair SA, Edelstein BL. 2005 Feb 23. Available from: http://www.cdc.gov/OralHealth/publications/resources/burdenbook/pdfs/CDHP_policy_brief.pdf
 38. StateUniversity.com. – Dental Health and Children - Prevention of Dental Diseases, School-Based Health Care Services [Internet]. [cited 2009 Jun 14]. Available from: <http://education.stateuniversity.com/pages/1907/Dental-Health-Children.html>.
 39. Cost savings of community water fluoridation [fact sheet on the Internet]. Centers for Disease Control

- and Prevention web site. [updated 2013 July 10]; [cited 2016 June 24] Available from://www.cdc.gov/fluoridation/factsheets/cost.htm.
40. Fluoride Works. Water Fluoridation is Effective: drinking fluoridated water fights tooth decay. [Website 2012]. [cited 2016 June 30]. Available at: <http://fluorideworks.org/benefits/effective/>
 41. Centers for Disease Control and Prevention. Cost Effectiveness of Preventive Dental Services: CDHP Policy Brief [online]. [cited 2017 February 12]. Available at: https://www.cdc.gov/OralHealth/publications/resources/burdenbook/pdfs/CDHP_policy_brief.pdf
 42. Centers for Disease Control and Prevention. Statement on the Evidence Supporting the Safety and Effectiveness of Community Water Fluoridation, January 30, 2017. [cited 2017 March 20]. Available at: <https://www.cdc.gov/fluoridation/pdf/cdc-statement.pdf>
 43. Ran T, Chattopadhyay SK, Community Preventive Services Task Force. Economic evaluation of community water fluoridation: a Community Guide systematic review. *Am J Prev Med.* 2016;50(6):790–796). [cited 2017 March 20]. Available at: https://www.thecommunityguide.org/sites/default/files/publications/oral-ajpm-econ-fluoridation_0.pdf
 44. Griffin SO, Jones K, Tomar SL. An economic evaluation of community water fluoridation. *Journal of Public Health Dentistry.* 2001;61(2):78-86.
 45. Association of State and Territorial Dental Directors. Use of Fluoride: School based Fluoride Mouthrinse and Supplement Programs. [A Best Practice Approach Report on the Internet]. [2003 June]. [cited 2017 February 12]. Available at: <http://www.astdd.org/bestpractices/BPAFluorideMouthrinseSupplement.pdf>
 46. Centers for Disease Control and Prevention. Office of the Associate Director of Policy. Preventing Tooth Decay [webpage]. [2015 May 29]. [cited 2017 February 11]. Available at: 106 <https://www.cdc.gov/policy/hst/statestrategies/oralhealth/>
 47. Centers for Disease Control and Prevention. Sugar Sweetened Beverage Intake [webpage]. [2016 September 14]. [cited 2017 February 11]. Available at: <https://www.cdc.gov/nutrition/data-statistics/sugar-sweetened-beverages-intake.html>
 48. Centers for Disease Control and Prevention. Dental Sealants Prevent Cavities: Effective Protection for Children (fact sheet). [cited 2016 November 20] Available from <https://www.cdc.gov/vitalsigns/pdf/2016-10-vitalsigns.pdf>.
 49. National Maternal and Child Oral Health Resource Center. 2017. Dental Sealants: A Resource Guide (4th ed.). Washington, DC: National Maternal and Child Oral Health Resource Center. [cited 2017 February 16] Available at: <https://www.mchoralhealth.org/PDFs/DentalSealantGuide.pdf>
 50. Decay Among U.S. School-Aged Children. *MMWR Morb Mortal Wkly Rep.* ePub: 18 October 2016. DOI: <http://dx.doi.org/10.15585/mmwr.mm6541e1>
 51. Pettinato ES, Webb MD, Seale NS. A comparison of Medicaid reimbursement for non-definitive pediatric dental treatment in the emergency room versus periodic preventive care. *Pediatr Dent.* 2000 Nov-Dec;22(6):463-8.
 52. Bader JD, Rozier RG, Lohr KN, Frame PS. Physicians’ roles in preventing dental caries in preschool children: a summary of the evidence for the U.S. Preventive Services Task Force. *Am J Prev Med.* 2004 May;26(4):315–25.
 53. Coalition of National Health Education Organizations. Healthy Schools Healthy Youth [fact sheet], 2009. [cited on 2017 February 12] Available at: http://www.healtheducationadvocate.org/factsheets/dash_factsheet_2009.pdf#136
 54. Centers for Disease Control and Prevention. Whole School, Healthy Schools. Whole Community, Whole Child (WSCC). [Internet] [updated 2015 August 24; cited 2016 June 30]. Available from: <https://www.cdc.gov/healthyschools/wsc/index.htm>
 55. Centers for Disease Control and Prevention. Healthy Schools. Components of the Whole School, Whole Community, Whole Child (WSCC). [Internet] 2015 August 19; cited July 3, 2016. Available from: <https://www.cdc.gov/healthyschools/wsc/components.htm>
 56. Centers of Disease Control and Prevention. Healthy Youth. Building a Healthier Future Through School Health Programs. [Internet] [cited 2016 July 7] Available from: <http://www.cdc.gov/healthyyouth/publications/pdf/pp-ch9.pdf>
 57. Marx E, Wooley SF, Northrop D, editors. Health is academic: a guide to coordinated school health programs. New York, NY: Teachers College Press; 1998. 368 p.
 58. Allensworth D, Lawson E, Nicholson L, Wyche J, editors. Institute of Medicine. Schools and health: our nation’s investment. Washington, DC: National Academy Press; 1997. 514 p.
 59. Policy statements: school health, 2004 [Internet]. Council of Chief State School Officers web site.

- [cited 2009 Oct 22]. Available from: <http://www.ccsso.org/>.
60. Rooney LE, Videto D, Birch DA. Using the whole school, whole community, whole child model: implications for practice. *J Sch Health*. 2015 Nov; 85(11): 817-23. Available from: <http://onlinelibrary.wiley.com/doi/10.1111/josh.12304/full>.
 61. U. S. Department of Health and Human Services. Healthy People 2020. Washington, DC: U. S. Department of Health and Human Services, Public Health Service; 2020. Available from: <http://www.healthypeople.gov/>.
 62. American Academy of Pediatrics (AAP) website.[cited 2017 March 16]. Available at: <http://www2.aap.org/commpepd/doch/oralhealth/index.html>
 63. American Academy of Pediatric Dentistry (AAPD) web site. 2009. [cited 2016 Aug 04]. Available from: <http://www.aapd.org>.
 64. Children’s Dental Health Project (CDHP) website. [cited 2016 August 4]. Available from: www.cdhp.org
 65. National Association of School Nurses (NASN) website. [cited 2017 February 11]. Available from: www.nasn.org
 66. School-based Health Alliance website. [cited 2017 February 11]. Available at: www.sbh4all.org
 67. American School Health Association. ASHA Position Statement: A Coordinated Approach to Support Health and Learning. 2015. Available from: <http://www.ashaweb.org/wp-content/uploads/2015/05/ASHA-Position-Paper-Coordinated-School-Health-FINAL.pdf>
 68. Adams 12 Five Star School District. The Case for the Whole School, Whole Community, Whole Child Model. Connecticut State Department of Education. Adams, County, CO. [cited 2016 July 29]. Available from: www.adams12.org/sites/default/files/uploads/documents/WSCC_Basics_2015.pdf
 69. Raspberry C, Slade S, Lohrmann D, Valois R. Lessons learned from the W\whole child and coordinated school health approaches. *J Sch Health*. 2015 Nov; 85(11): 759–765.
 70. Truman BI, Gooch BF, Sulemana I, Gift HC, Horowitz AM, Evans CA, Griffin SO, Carande-Kulis VG. Reviews of evidence on interventions to prevent dental caries, oral and pharyngeal cancers, and sports-related craniofacial injuries. *Am J Prev Med* 2002 Jul;23(1 Suppl):21–54.
 71. Wright JT, Crall JJ, Fontana, M, Gillette EJ, Novy B, Gooch B, Siegal M, et al. Evidence-based clinical practice guideline for the use of pit-and-fissure sealants: a report of the American Dental Association Council on Scientific Affairs. *J Am Dent Assoc*. 2016 Aug; 147(8): 672-83. Available from: [http://jada.ada.org/article/S0002-8177\(16\)30473-1/pdf](http://jada.ada.org/article/S0002-8177(16)30473-1/pdf).
 72. Preventing dental caries: community water fluoridation [Internet]. Atlanta, GA: Guide to Community Preventive Services; [updated 2016 May 26; cited 2016 Aug 9]. Available from: www.thecommunityguide.org/oral/fluoridation.html.
 73. Preventing dental caries: dental school-based or -linked sealant delivery programs [Internet]. Atlanta, GA: Guide to Community Preventive Services; [updated 2016 May 18; cited 2016 Aug 9]. Available from: www.thecommunityguide.org/oral/schoolsealants.html.
 74. Oral health: oral and pharyngeal cancers [Internet]. Atlanta, GA: Guide to Community Preventive Services; [updated 2013 Oct 25; cited 2016 Aug 11]. Available from: www.thecommunityguide.org/oral/cancers.html.
 75. Oral health: preventing oral and facial injuries [Internet]. Atlanta, GA: Guide to Community Preventive Services; [updated 2014 Sep 2; cited 2016 Aug 11]. Available from: www.thecommunityguide.org/oral/injuries.html.
 76. American Dental Association Council on Scientific Affairs. Professionally applied topical fluoride: evidence-based clinical recommendations. *J Am Dent Assoc*. 2006 Aug; 137(8): 1151-9. Available from: <http://jada.ada.org/content/137/8/11>
-

