

## ***Dental Care: The Often Neglected Part of Health Care***



**Beth Lapin and Anna Jo Bodurtha Smith**

School of the 21<sup>st</sup> Century  
Yale University

Yale University School of the 21<sup>st</sup> Century (21C) program publishes Research and Practice Issue Briefs to summarize and disseminate current research on topics of special interest to educators and policymakers, as well as to provide information to facilitate the application of research to practice. The goal is to provide concise, objective, and constructive information and explore the implications for the 21C program and other school reform efforts.

---

Publication of this Issue Brief is possible with support from the Winthrop Rockefeller Foundation.

The School of the 21st Century, Yale University  
310 Prospect Street, New Haven, CT 06511-2187  
Phone: (203) 432-9944, Fax: (203) 432-9945, Email: [yale21c@yale.edu](mailto:yale21c@yale.edu), [www.yale.edu/21C](http://www.yale.edu/21C)

© Spring 2008

## ***Dental Care: The Often Neglected Part of Health Care***

Tooth decay is the single most common—and preventable—chronic childhood disease. In the United States, childhood tooth decay is five times more common than asthma and seven times more common than hay fever.<sup>1</sup> Evidence shows that proper dental care and oral hygiene maintenance vastly decrease dental problems and are essential to childhood health and well-being.

Schools are uniquely suited to promote oral health; research shows that school-based oral health programs can reduce tooth decay and promote oral health.<sup>2</sup> Evidence indicates that Schools of the 21<sup>st</sup> Century provide precisely the mix of education and services to improve students' oral health and overall well-being. In this issue brief, we examine how Schools of the 21<sup>st</sup> Century implement cost-effective and efficient dental care programs.

### **Extent of the Problem**

Tooth decay and other preventable dental problems begin early; more than a quarter of children age 2 to 5 had decayed baby teeth. Approximately half of children have had cavities by the age of 11. By the age of 19, tooth decay in one or more permanent teeth affects 68 percent of adolescents.<sup>3</sup> Yet, more than 25 percent of poor children enter kindergarten never having seen a dentist.<sup>4</sup>

Dental problems negatively impact a student's ability to attend and participate fully in school. Tooth decay may result in pain, poor nutrition, dysfunctional speech, lack of concentration, poor appearance, low self-esteem, and absenteeism. According to the US Surgeon General, American schoolchildren lose more than 51 million school hours each year due to dental problems.<sup>5</sup>

Tooth decay becomes larger and more expensive to repair when left untreated. Both preventing tooth decay and treating existing dental problems are essential to good childhood health and well-being.

### **Key Risk Factors Related to Poor Dental Health**

Understanding the roots of dental problems is important to determine appropriate school-based interventions. These are discussed as follows.

#### ***Affordability of Dental Care***

As with health care, dental care can be prohibitively expensive for families. More than 20 million American children lack dental insurance and uninsured children are 2.5 times less likely to receive dental care than insured children, detailed in the table on the following page.<sup>6, 7</sup>

Even children covered by SCHIP or Medicaid are less likely to receive dental treatment because some dentists refuse to accept patients on public insurance due to the low reimbursement rates. Consequently, poor children experience twice as much tooth decay as their more affluent peers and are less likely to receive treatment.<sup>8,9</sup>

**Access to Dental Care**

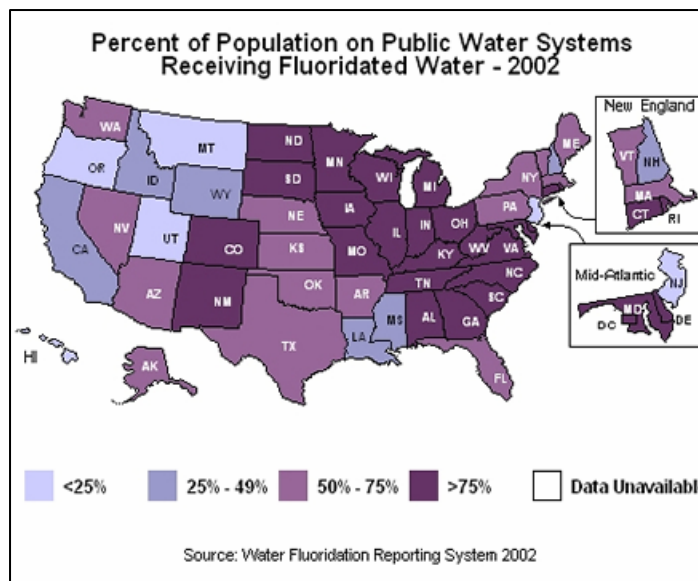
Access to dental care is problematic for rural residents, as dentists are more highly concentrated in urban areas.<sup>10</sup> An estimated 25 million Americans live in areas without adequate dental care services; as many as 11 percent of our nation’s rural population has never been to a dentist.<sup>11</sup>

Children Under Age 19 Years at or Below 200 Percent of the Federal Poverty Level, 1996 (Healthy People, 2010)	Preventive Dental Visit in Past 12 Months Percent
<b>TOTAL</b>	20
<b>Race/ethnicity</b>	
Black or African American	13
White	25
Hispanic or Latino	16
<b>Gender</b>	
Female	21
Male	19

In addition, finding a dentist who treats children can be difficult for families. The United States has more than 175,000 dentists, but only 3,800 are pediatric dentists. Finally, for every three dentists who retire each year, only two graduate from dental school to replace them.<sup>12</sup>

**Access to Fluoride**

Fluoride, essential for healthy teeth, is generally consumed through drinking tap water that contains added fluoride at a low cost per person.<sup>13</sup> Children in communities with fluoridated water experience 29 percent fewer cavities.<sup>14</sup> Yet, nationally, only 60.5 percent of public water supplies are fluoridated (see map below).<sup>15</sup> Rural communities are less likely to have fluoridated public water supplies, which leads to increased tooth decay in rural communities relative to the American population.<sup>16</sup>



## What Schools Can Do

Although schools can promote oral health education and prevent tooth decay in many ways, most strategies fall in one of two categories: oral health education and dental care services. Many schools combine oral health education and dental care services, depending on the needs of their student body.

The following are school-based strategies to promote oral health education and examples of successful dental care programs in select 21C schools.

### **Oral Health Education**

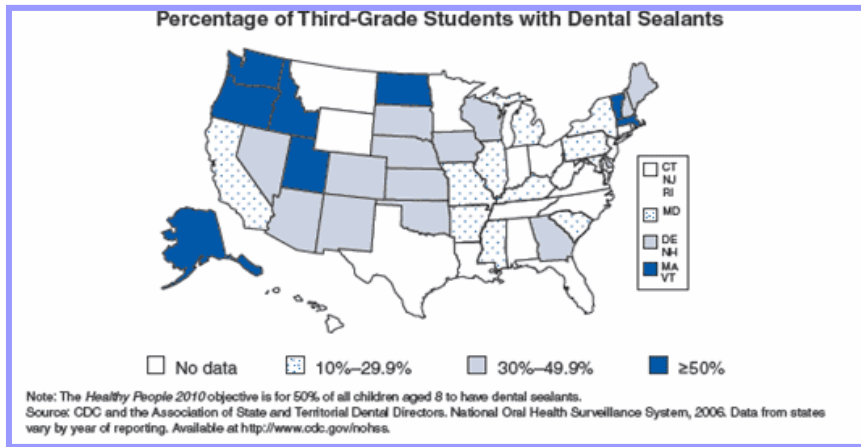
STRATEGY	EXAMPLE
<p><i>1. Teach proper oral hygiene</i> Many children are not aware of the importance of oral health and the basics of oral hygiene. Teachers or school nurses can instruct children on ways to brush their teeth, floss, and use mouth rinse and why clean teeth are important for health. School staff can involve parents in the process through workshops and newsletters.</p>	<p><i>Boyd County, KY:</i> Parents scheduled dental visits for their children at a school-based health center. After examining a child's teeth, the part-time dentist hosted video conferences with parents to explain how to improve the child's bite and maintain a healthy mouth. The school also promoted good oral health through articles and newsletters.<sup>17</sup></p>
<p><i>2. Encourage tooth-brushing after meals</i> Since tooth decay is caused by bacterial infection, brushing reduces the risk of infection and tooth decay by removing food particles where oral bacteria grow. Schools can encourage students, particularly younger children, to brush their teeth by teaching the importance of tooth-brushing, setting aside tooth-brushing time after meals, and providing toothpaste and toothbrushes for students.</p>	<p><i>Hamburg, AR:</i> In pre-kindergarten classrooms, children were provided with toothpaste and toothbrushes and taught how to brush their teeth. Teachers set aside time during the school day for tooth brushing and other oral care.</p>
<p><i>3. Teach good nutrition and provide nutritious school meals</i> Consumption of refined carbohydrates, such as white bread and highly processed foods, increases the risk of tooth decay.<sup>18</sup> Schools can reduce their students' risk of tooth decay by teaching proper nutrition and serving school meals rich in whole grains, fruits, and vegetables.</p>	<p><i>Independence, MO:</i> In addition to emphasizing fruits and vegetables in the cafeteria, the school designated Friday as "Nutrition Day" with special activities around food and nutrition. Teachers incorporated fruits and vegetables into various class curricula. Every teacher and child received a nutrition newsletter with ideas for the classroom, recipes, and activities for the child and parent.<sup>19</sup></p>

## **Dental Care Services**

<i>STRATEGY</i>	<i>EXAMPLE</i>
<p><i>1. Screen children at school for dental problems</i> Some schools set aside a few days each year to screen every child in the school for dental problems. A school nurse or local dental hygienists checks inside a child’s mouth for issues and documents any problems to a child’s school health record. If a problem exists, school officials notify parents and provide a referral list of local dentists and dental clinics.<sup>20</sup></p>	<p><i>Claremont, NH:</i> A Mobile Oral Health Clinic provided dental screenings to all children in the school district and cleanings and sealants to children who were income-eligible or without a dentist. The mobile clinic visited each elementary school in the district and provided these dental services during normal school hours.<sup>21</sup></p>
<p><i>2. Promote school-affiliated or school-based dental care</i> Quality timely dental care is essential for the maintenance of oral health. Lack of transportation, the need to take time off from work, and affordability can limit a parent’s ability to provide dental care for their children. Schools can provide dental care through school-based clinics, complete with dental equipment and a part-time dental hygienist, or school-affiliated dental clinics that operate on a sliding scale.</p>	<p><i>Bridgeport, CT:</i> At the Six to Six Magnet School, the Bridgeport Health Department operates a school-based health center with services for enrolled students. Once a week, an on-site dentist provides X-rays, dental sealants, fillings, and minor extractions to enrolled students who are uninsured or on Medicaid without a current dentist. The center also provides emergency dental services to insured students and refers families to outreach workers who assist with Medicaid enrollment when needed.<sup>22</sup></p>
<p><i>3. Provide fluoride mouth rinse and/or supplement programs</i> Although fluoride reduces tooth decay and prevents cavities, many schoolchildren do not consume an adequate amount. Schools can help their students with oral health by providing fluoride rinses or supplements. Fluoride rinses are traditional mouth rinses with fluoride added that a student would swish and spit after 30 seconds. Fluoride supplements are vitamin-like tablets containing high levels of absorbable fluoride.</p>	<p><i>Little Rock, AR:</i> The school district and local Head Start collaborate to provide dental fluoride varnishes to all preschoolers (with parental permission) in targeted schools in the district. Children with further dental problems are referred to local dentists.<sup>23</sup></p>

### **Dental Care Services (continued)**

STRATEGY	EXAMPLE
<p><b>4. Provide sealant applications for school children</b></p> <p>Dental sealants, thin plastic coatings applied to back teeth or molars, maintain healthy teeth and prevent tooth decay by preventing bacteria that cause decay from penetrating the sealed teeth. Sealants last 5 to 7 years with full protection. Applying sealants is a quick, low-cost, painless procedure; a dentist or dental hygienist cleans the teeth and then applies sealant, which takes less than ten minutes.<sup>24</sup> Schools can reduce their students' rate of tooth decay up to 60% by providing sealant applications for students at high-risk for dental cavities.<sup>25, 26</sup> See map below for locations where sealants are used.</p>	<p><b>Eagle County, CO:</b> The Department of Health and Human Services plans to implement a school-based sealant program. The school district received a grant to pay for necessary equipment for this program and is using state funding to cover other costs.<sup>27</sup></p>



### Implications for Schools of the 21<sup>st</sup> Century

21C schools are well positioned to impact the prevention of tooth decay and promotion of oral health, given their access to parents, emphasis on health education and services, and their partnerships with child care and community organizations that work with children and families.

*Cover photo credit: Little Rock School District/UAMS Head Start collaborative project*

## ENDNOTES

- 
- <sup>1</sup> U.S. Department of Health and Human Services (2000). *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, 26.
- <sup>2</sup> Fielding et al. (30 Nov 2001). "Promoting Oral Health: Interventions for Preventing Dental Caries, Oral and Pharyngeal Cancers, and Sports-Related Craniofacial Injuries." *MMWR Report and Recommendations* [Internet]. [Cited 7 Apr 2008] 50(RR21); 1-13. Available from: <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5021a1.htm>.
- <sup>3</sup> "Children's Oral Health" [Internet]. [Updated 20 Dec 2007]. Atlanta, GA: U.S. Department of Health and Human Services, [National Center for Chronic Disease Prevention and Health Promotion, Division of Oral Health](http://www.cdc.gov/OralHealth/topics/child.htm). [Cited 10 Feb 2008]. Available from: <http://www.cdc.gov/OralHealth/topics/child.htm>.
- <sup>4</sup> Surgeon General, 26.
- <sup>5</sup> Surgeon General, 26.
- <sup>6</sup> DeNavas-Walt, Carmen, Bernadette D. Proctor, and Cheryl Hill Lee. (2006). *Income, Poverty, and Health Insurance Coverage in the United States: 2005*. Washington, DC: U.S. Census Bureau, U.S. Government Printing Office, Current Population Reports, P60-231.
- <sup>7</sup> Surgeon General, 26.
- <sup>8</sup> Surgeon General, 26.
- <sup>9</sup> Healthy People 2010. 21-12. *Increase the proportion of low-income children and adolescents who received preventative dental care in the past year* [Internet]. Rockville, MD: U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion; [cited 8 Apr 2008]. Available from: <http://www.healthypeople.gov/document/html/objectives/21-12.htm>.
- <sup>10</sup> "Too Few Visits to the Dentist? The Impact on Children's Health" (Feb 2002). Little Rock, AK: Arkansas Advocates for Children and Families, Arkansas Kids Count. 6.
- <sup>11</sup> "21C Schools Give Children a Reason to Smile" (Winter 2003). New Haven, CT: Schools of the 21<sup>st</sup> Century, 21C Community News.
- <sup>12</sup> Hurst, Marianne D. "Dental Dilemma." (8 Jan 2003). *Education Week*. 22 (16): 27-9.
- <sup>13</sup> Fluoride Recommendations Work Group (17 Aug 2001). *Recommendations for Using Fluoride to Prevent and Control Dental Caries in the United States*. *MMWR Report and Recommendations* [Internet]. [Cited 7 Apr 2008] 50(RR14); 1-42. Available from: <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5014a1.htm>
- <sup>14</sup> Centers for Disease Control and Prevention. (2005) "Preventing Chronic Diseases: Investing Wisely in Health- Preventing Dental Caries." Atlanta, GA: U.S. Department of Health and Human Services, [National Center for Chronic Disease Prevention and Health Promotion](http://www.cdc.gov/nccdphp/publications/factsheets/Prevention/oh.htm). [Cited 8 Apr 2008]. Available from: <http://www.cdc.gov/nccdphp/publications/factsheets/Prevention/oh.htm>.
- <sup>15</sup> "Fluoridation Statistics 2002: Status of Water Fluoridation in the United States" [Internet]. [Updated 9 Aug 2007]. Atlanta, GA: U.S. Department of Health and Human Services, [National Center for Chronic Disease Prevention and Health Promotion](http://www.cdc.gov/nccdphp/publications/factsheets/Prevention/oh.htm), Division of Oral Health. [Cited 8 Apr 2008]. Available from: [http://www.cdc.gov/fluoridation/statistics/us\\_stats2002.htm](http://www.cdc.gov/fluoridation/statistics/us_stats2002.htm) (Accessed 18 Feb 2008).
- <sup>16</sup> "National Fluoridation Map" [Internet]. [Updated 2008]. Providence, RI: Rhode Island Department of Health, Oral Health Program. [Cited 10 Apr 2008]. Available from: <http://www.health.state.ri.us/disease/primarycare/oralhealth/prevention-fluoridation-map.php>.
- <sup>17</sup> "21C Schools Give Children a Reason to Smile" (Winter 2003). New Haven, CT: Schools of the 21<sup>st</sup> Century, 21C Community News.
- <sup>18</sup> Fluoride Recommendations Work Group (17 Aug 2001). *Recommendations for Using Fluoride to Prevent and Control Dental Caries in the United States*. *MMWR Report and Recommendations* [Internet]. [Cited 7 Apr 2008] 50(RR14); 1-42. Available from: <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5014a1.htm>
- <sup>19</sup> "Health Education and Services." (2001). In: *School of the 21<sup>st</sup> Century Implementation Manual*. New Haven, CT: Schools of the 21<sup>st</sup> Century.
- <sup>20</sup> "Access to Dental Care for Children in Rhode Island" (Jan 2001). Providence, RI: Rhode Island Kids Count; [cited 18 Feb 2008]. Available from: <http://www.rikidscount.org/matriarch/documents/dental%20brief%20May%202002%20update.pdf>
- <sup>21</sup> "The School of the 21<sup>st</sup> Century Health Education and Services" (2007). New Haven, CT: Schools of the 21<sup>st</sup> Century.
- <sup>22</sup> Butte, Cathy. (10 Apr 2008). Telephone interview by Beth Lapin. Ms. Butte is a staff member of the School-Based Health Center.
- <sup>23</sup> Little Rock School District (June 2007). Final Report to Schools of the 21<sup>st</sup> Century.
- <sup>24</sup> Centers for Disease Control and Prevention. (2004). "Dental Sealants." Atlanta, GA: U.S. Department of Health and Human Services, [National Center for Chronic Disease Prevention and Health Promotion](http://www.cdc.gov/OralHealth/publications/factsheets/sealants_faq.htm). [Cited 8 Apr 2008]. Available from: [http://www.cdc.gov/OralHealth/publications/factsheets/sealants\\_faq.htm](http://www.cdc.gov/OralHealth/publications/factsheets/sealants_faq.htm)
- <sup>25</sup> Centers for Disease Control and Prevention. (2005). "Preventing Chronic Diseases: Investing Wisely in Health- Preventing Dental Caries." Atlanta, GA: U.S. Department of Health and Human Services, [National Center for Chronic Disease Prevention and Health Promotion](http://www.cdc.gov/nccdphp/publications/factsheets/Prevention/oh.htm). [Cited 8 Apr 2008]. Available from: <http://www.cdc.gov/nccdphp/publications/factsheets/Prevention/oh.htm>.
- <sup>26</sup> Centers for Disease Control and Prevention. (2007). "Oral Health: Preventing Cavities, Gum Disease, and Tooth Loss At A Glance 2007." Atlanta, GA: U.S. Department of Health and Human Services, [National Center for Chronic Disease Prevention and Health Promotion](http://www.cdc.gov/nccdphp/publications/aag/oh.htm). [Cited 8 Apr 2008]. Available from: <http://www.cdc.gov/nccdphp/publications/aag/oh.htm>.
- <sup>27</sup> Anselmo, Theresa. (10 Apr 2008). Telephone Interview by Beth Lapin. Ms. Anselmo is a staff member of the Colorado Department of Public Health and Environment.