Oral Health Bureau
Iowa Dept. of Public Health

2009 Third Grade Open Mouth Survey Report

The Oral Health Bureau (OHB) within the Iowa Department of Public Health (IDPH) coordinated an open-mouth survey of third grade students during the spring of 2009. This report describes the process for conducting the oral health survey and the results.

Objectives

The Surgeon General's first ever report on oral health in 2000 documents the impact of oral diseases on overall health.[1] Tooth decay is the most common chronic childhood illness and can impact children's ability to concentrate and learn in school.

The OHB conducts surveys in order to track the oral health status of Iowa children. Results assist in program and policy planning, as well as evaluation of current public health initiatives. It also allows OHB to determine the national performance measure for the Title V program, the percent of third grade children who have received protective sealants on at least one permanent molar tooth.

Methods

Based on information from the Iowa Department of Education, the number of third-graders in Iowa schools for the 2008-2009 school year was 35,235. A computerized random sample of 1,850 third-grade children from 30 schools was selected, based upon the location of the 24 Title V child health centers in Iowa. Schools with school-based sealant programs were excluded. None of the selected schools had participated in the survey in the past 5 years.

The open mouth survey was conducted by dental hygienists employed or contracted by the state's Title V child health centers. Oral health status indicators collected were the presence of filled (restored) teeth, sealed permanent molars, and/or cavitated lesions (untreated tooth decay). Consent forms also collected information on race/ethnicity, payment source of dental care, participation in the free/reduced lunch program, recency of last dental visit, ability to access dental care, and whether each child has a dentist.

Calibration training was developed using information from existing OHB training materials and the University of Iowa College of Dentistry. The training was held via the Iowa Communications Network (ICN), a videoconferencing system, in January 2009. The training was mandatory for dental hygienists who would conduct the surveys. The

[1] Oral Health in America: A report of the Surgeon General, National Institute of Dental and Craniofacial Research, National Institutes of Health, U.S. Department of Health and Human Services (DHHS), 2000.

ICN training was recorded, and the recording was provided to three hygienists unable to participate the day of the training.

School superintendents were notified about the upcoming surveys through a letter from the state dental director. Follow-up phone calls were made to principals for each school to finalize participation and verify enrollment numbers. All but one selected school agreed to participate. This school was replaced by one with similar demographics in the same geographic area.

Consent forms in both English and Spanish were provided to each school to be sent home, completed by parents/guardians, and returned to classrooms prior to the date of the survey. Surveyors were provided vinyl gloves, mouth mirrors, and pen lights to conduct the visual screenings. All children in the selected schools received toothbrushes, regardless of participation. Hygienists were also instructed to use the brushes to retract tongue and cheeks and to clean the teeth if necessary.

Oral health status indicators were entered on the completed consent forms and returned to IDPH. IDPH staff analyzed data by the use of SPSS.[2] Data collected are confidential. Any report or publication of this information requires permission from the Oral Health Bureau at the IDPH.

Results

The participation rate was 65 percent (1,206 of 1,850 potential third grade students). The survey indicates that 49.2 percent of the children have at least one sealant on a permanent first molar, 21.9 percent have untreated decay and 46.7 percent have at least one filled tooth. (See Table 2.)

The majority of children, 88.3 percent, were White/Caucasian; 5.4 percent were Hispanic/Latino and 4.1 percent were Black/African American. Black/African American children are much less likely to have dental sealants (33.3%) compared to White/Caucasian (49.8%) and Hispanic/Latino (47.5%) children. In addition, minority children are less likely to have a dentist of record and much less likely to have private dental insurance than White/Caucasian children. (See Table 1.)

Table 1: *Oral health status indicators and payment sources relative to race/ethnicity*

		Untreated Decay	Filled Tooth	Sealant	With a Dentist	Private Insurance	Medicaid	Self-pay
Prevalence	White/Caucasian	21.9%	45.6%	49.8%	94.4%	57.2%	16.4%	18.9%
	Black/African American	22.9%	39.6%	33.3%	78.8%	17.6%	64.7%	5.9%
	Hispanic/Latino	23.7%	47.5%	47.5%	70.6%	28.8%	39.4%	24.2%

[2] SPSS 16.0 Base for Windows. Chicago, SPSS, Inc. 2008

Participation in the free/reduced lunch program is used to determine the number of children from lower-income families, in order to compare oral health status of those children to those from families with higher socio-economic status. Of the children participating in the free/reduced lunch program, 26.6 percent have untreated decay compared to 19.2 percent of the children not in the lunch program. Children who participate in the free/reduced lunch program are also less likely to have a dentist (86.1%) compared to 96.3 percent of children who do not participate in the program. (See Table 2.)

Table 2: *Oral health status indicators*

		Untreated Decay	Filled Tooth	Sealant	With a Dentist
Prevalence	Overall	21.9%	46.7%	49.2%	92.5%
	Low SES*	26.6%	54.1%	50.2%	86.1%
	High SES*	19.2%	42.3%	48.7%	96.3%

*socio-economic status

Of the surveyed children, 54.3 percent have private dental insurance, 18.5 percent pay out-of-pocket for dental care, 19.8 percent have Medicaid, and 4.2 percent have ***hawk-i*** (Iowa's Children's Health Insurance Program).

The untreated decay rate for Medicaid-enrolled children is the highest (26.4%) compared to children with other payment sources (private insurance, 19.5%; ***hawk-i***, 20.8 %). Children with private insurance are the most likely to report having a dentist (96.4%) compared to Medicaid-enrolled (86.9%) and those without insurance (87.3%). Of those children with private insurance, 80.5 percent had seen a dentist within the last six months, while only 58 percent of the self-pay children had seen a dentist in the same time period.

Parents of children with private insurance also rate their ability to get care as excellent (64.6%) more often than parents of children without insurance (40.5%) or Medicaid-enrolled (42.4%). The inverse was also true with self-pay and Medicaid-enrolled families reporting their ability to get care as poor (7.4 % and 5.9%, respectively) compared to only 1.5 percent of the families with private insurance. Fifty-nine percent of parents of White/Caucasian children rate their ability to get care as "excellent", compared to just 36.5 percent of Black/African American and 32.3 percent of Hispanic/Latino parents.

Discussion

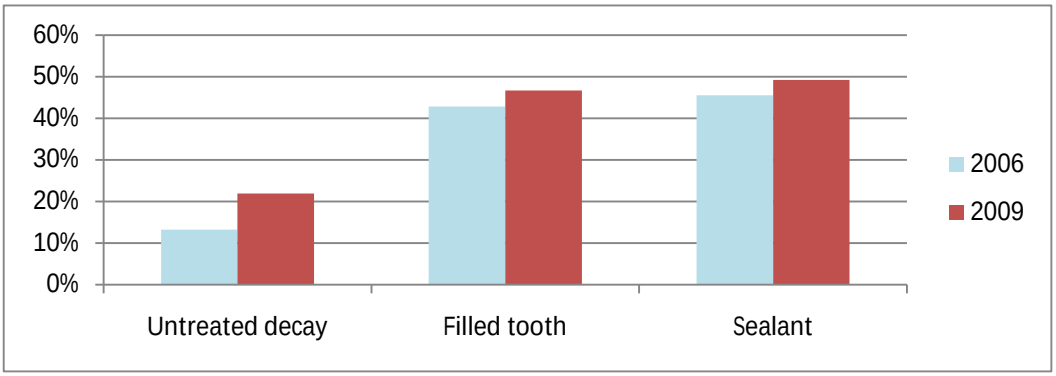
Dental sealants are effective in preventing tooth decay on permanent molars.[3] The overall sealant rate in 2009 is higher than in 2006 (49.2% compared to 45.5%), nearing the Healthy Iowans 2010 goal of 50% statewide. (See Table 3.) There is significant improvement in the use of sealants by Medicaid-enrolled children (from 34.8% in 2006 to 51.9% in 2009). However, when looking at race/ethnicity, access to preventive sealants for Black/African American children is much lower than for other children.

Race/ethnicity also appears to be a factor in accessing regular dental care. Although most parents indicate their child has a dentist (92.5%), there is a large disparity between the White/Caucasian children and the Black/African American and Hispanic/Latino children. In addition, fewer minority families rate their ability to get dental care as "excellent".

To ensure continued improvement in the number of children with preventive sealants and to address disparities in access, it will be important to not only maintain funding for school-based sealant programs in the state, but to be sure the programs are located in areas with populations most at-risk, including children from low-income families and racial/ethnic minority groups. Examining ways to improve minority families' ability to access the dental delivery system must also be a priority.

Although the overall improvement in children with sealants is promising, it is not necessarily reflected as improved oral health status, due to the unanticipated increase in the number of children with tooth decay. Survey results show more children with untreated tooth decay in 2009 than in the 2006 survey (21.9% compared to 13.2%).

Table 3: *Comparison of oral health status indicators 2006/2009*



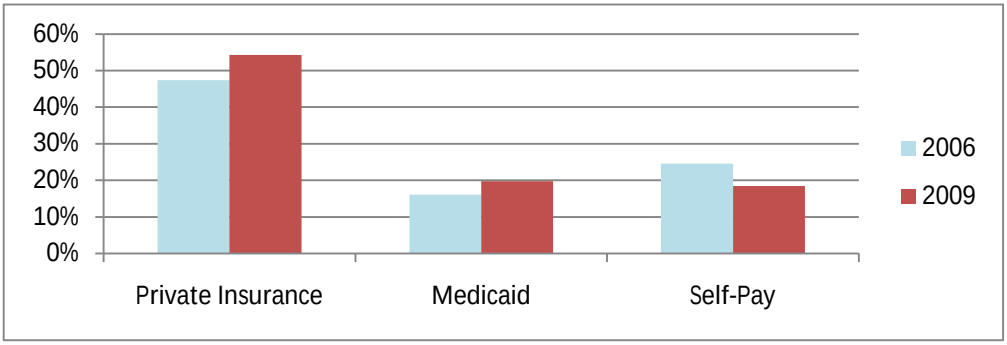
Children from low-income families are at greater risk for tooth decay.[4] This year's survey included a higher percent of children participating in the free/reduced lunch program (37.8%) than the state average for 2008-2009 (34.1%). There was also a higher percent of Medicaid-enrolled children (19.8%) when compared to the 2006 survey (16.1%). These may both be factors in the higher overall decay rate this year.

[3] Beauchamp, J. et al; Executive Summary of evidence-based clinical recommendations for the use of pit-and-fissure sealants, A report of the American Dental Association Council on Scientific Affairs, JADA, Vol. 139, March 2008

[4] Oral Health in America: A report of the Surgeon General, National Institute of Dental and Craniofacial Research, National Institutes of Health, U.S. Department of Health and Human Services (DHHS), 2000.

More families report having a payment source for dental services this year, typically reflecting improved ability to access regular care. (See Table 4.) However, untreated tooth decay not only increased for the uninsured (23.9% compared to 14.8% in 2006), but also for Medicaid-enrolled (26.4% compared to 18.8%) and for those with private insurance (19.5% compared to 10.5%).

Table 4: *Comparison of payment sources 2006/2009*



Improvements in the use of sealants on newly erupted permanent molars suggests less dental disease for those teeth and possibly more readily available preventive services for older, school-age children. If permanent molars are sealed and decay-free, the other teeth most susceptible to tooth decay for a third grader are primary molars, which begin to erupt when a child is one. Decay in these teeth may indicate less access to preventive care for children at a young age.

The I-Smile™ dental home program, implemented since 2007 through Iowa's Title V child health program, has a large focus on preventive care for at-risk children. The program targets young children by encouraging provision of gap-filling preventive services in locations where low-income families may be found, such as in Head Start classrooms and at WIC clinics. Dental hygienists serving as local I-Smile™ Coordinators work with families, physicians, dentists, and community organizations to assure children have early and regular dental care, as soon as teeth erupt in the mouth. This year's survey results signify the importance of I-Smile™ and continuation of its activities to provide additional prevention for children ages 0-5.

The reduction in families who pay for dental care out-of-pocket is a positive sign that outreach programs, such as I-Smile™, are successful in helping families enroll on Medicaid or ***hawk-i.*** However, the rising number of children with untreated decay, regardless of having a way to pay for care, brings into question the availability of restorative care from dentists.

Working families, in particular, face certain barriers to accessing dental care, including the ability to take time off work during traditional dental office business hours and sometimes having unreliable transportation to get to appointments. Although the number of children with a payment source for prevention and treatment should continue to improve with the changes to the ***hawk-i*** program this year, Iowa must consider

exploring new dental delivery system models that will help families receive needed restorative care.

IDPH will look to enhance I-Smile™ activities, continuing to target preventive care for children as soon as teeth erupt to try to stop disease or lessen its severity. But prevention alone will not resolve the inability of families to access regular care. State stakeholders must also study work force enhancements that will enable families to have treatment needs met in locations convenient for them, and at a cost that is not prohibitive.

Addendum

Students' heights and weights were also collected this year. This information is used by the Iowans Fit for Life project to calculate body mass indices for health assessment purposes. The dental hygienists were taught to use digital scales and stadiometers through the calibration training, and each third grader received an armband radio and hand-held mechanical puzzle to promote physical and cognitive health.

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