2016 Iowa Third Grade Oral Health Survey Report

September 23, 2016

The Bureau of Oral and Health Delivery Systems (OHDS) within the Iowa Department of Public Health (IDPH) coordinated an open-mouth survey of third grade students during the spring of 2016. This report describes the survey process and the results.

Objectives

Tooth decay is the most common chronic childhood illness and leads to problems in eating, speaking and learning when left untreated.[1] A recent American Journal of Public Health article finds that poor oral health affects systemic health with consequences that can seriously compromise quality of life and life expectancy.[2] Social function, quality of life and academic achievements are also significantly impacted by tooth decay.[3]

In order to learn about the oral health status of Iowa children, IDPH regularly administers open mouth surveys. The results are used to assist in program and policy planning and evaluation of current public health initiatives.

Protocol

Seventy-two Iowa elementary schools were randomly selected to take part in this survey, with 5,660 third grade children as possible participants.

IDPH selected schools based on the proximity of an I-Smile™ contract agency to the school, under the assumption that each agency could conduct the survey in three schools. The schools were stratified into I-Smile™ service areas using the Iowa Department of Education (IDOE) school building directory. Within the stratum, IDPH used a probability proportional to size sampling design, based on the year-old enrollment of third graders. Our selection method was based on guidelines from the Association of State and Territorial Dental Directors (ASTDD).[4] The 2014-2015 IDOE enrollment and building directory data were used to ensure all schools, both private and public, with at least one third grade student, were included in the sample.

This sampling protocol is different from the IDPH 2012 third grade survey, when no schools with sealant programs were included in the sample. A change was made for the 2016 survey because the scope of the I-Smile™ @ School dental sealant program has increased substantially, and a sample excluding sealant program schools would not be representative of Iowa's third grade population.

The state dental director sent an email to all selected school superintendents to notify them of the survey and to request an email or phone call to confirm that they would participate in the survey. Six schools declined participation; all of which were replaced with a school of similar demographics in the

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[1] US Department of Health and Human Services. *Oral Health in America: A Report of the Surgeon General-- Executive Summary*. Rockville, MD: US Department of Health and Human Services, National Institute of Dental and Craniofacial Research, National Institutes of Health, 2000.

[2] Seirawan, H. et al. The Impact of Oral Health on the Academic Performance of Disadvantaged Children**.** *American Journal of Public Health*, 2012; 102 (9): 1729 DOI: 10.2105/AJPH.2011.300478

[3] Ibid.

[4] Association of State and Territorial Dental Directors. "Guidance on Selecting a Sample for a School-Based Oral Health Survey – May 2013". Received via personal communications with Kathy Phipps, Dr.PH, Data & OH Surveillance Coordinator.

same geographic area. The surveys were scheduled during February, March, and April. IDPH obtained signed parental consent for children to participate in the open-mouth survey. Specifically, a parent/guardian informative letter and consent form, in both English and Spanish, were sent home with students at least three days before the scheduled open-mouth survey. In addition to consent for student participation, parents/guardians were asked to provide the child's age and race/ethnicity, whether their child had a dentist, how long since the child's most recent dental visit, their form of payment for dental care, a subjective evaluation of the ability to get dental care, and whether the child participated in the free and reduced lunch (FRL) program.

OHDS staff developed calibration training using the ASTDD basic screening survey guidelines and previous IDPH trainings. In January 2016, OHDS staff conducted a web-based calibration training for the dental hygienists who would complete the survey screenings. Hygienists unable to attend were required to view a recording of the training and review the notes from the web-based meeting. In order to complete the open-mouth survey screenings, the dental hygienists were required to be registered in Iowa and to have a public health supervision agreement on file with IDPH.

Visual screenings were completed by the dental hygienists for all children who submitted parental consents. Dental explorers were not used. The presence or absence of and number of teeth with cavitated lesions, fillings and sealants were recorded.

Sixteen schools selected for the survey were served by I-Smile™ @ School dental sealant programs. In order to minimize disruptions to the students' learning, data was used from those schools' 2015-2016 sealant programs. Documentation from the screenings that were completed prior to sealant placement were used as survey data.

Third grade enrollment on the actual date of the survey was collected from school administrators to get the most up-to-date number to calculate participation rate. All data was completed on paper forms and sent to IDPH for electronic data entry into a Microsoft Excel workbook, and then analyzed using SAS.[5]

Results

The survey participation rate was 43.6 percent (2,470 of 5,660). Of children screened, 59.4 percent had at least one sealant on a permanent first molar, 16 percent had untreated tooth decay and 47.1 percent had at least one filled tooth. (See Table 1)

IDPH determined socioeconomic status (SES) of a child's family based on participation in the free and reduced lunch (FRL) program. Low SES was defined as children on the FRL program and high SES as children not on the FRL program. A slightly higher percentage of children from low SES families had a preventive dental sealant (61.4 percent) compared to children of high SES families (58.7 percent). A higher percentage of children from families of low SES had untreated decay (21.8 percent) and a history of decay (60.7 percent) compared to children from high SES families (11.7 percent and 46.7 percent, respectively). (See Table 1)

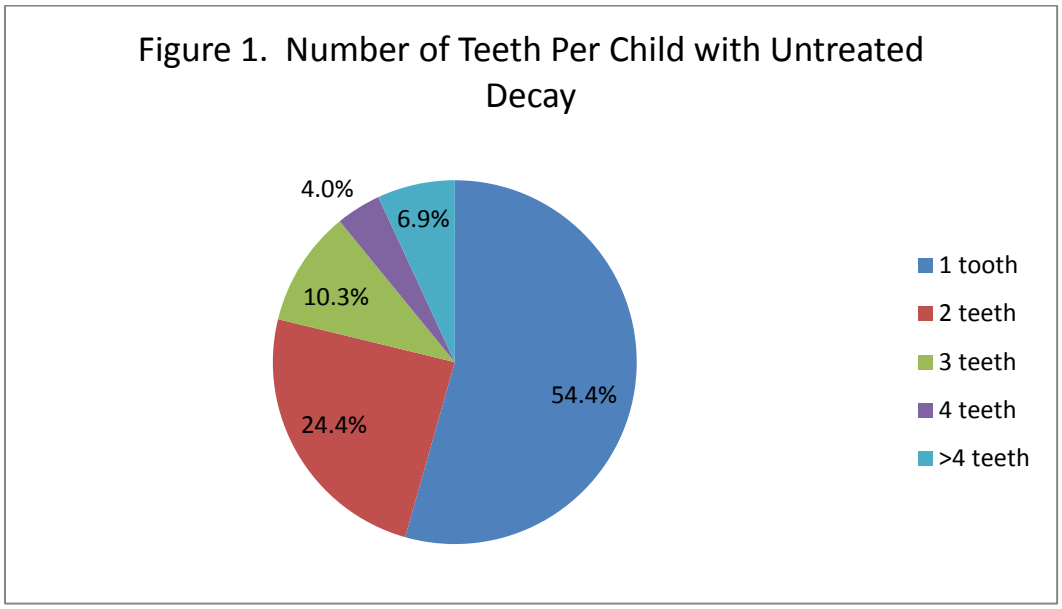
[5] SAS, Statistical Analysis System, Version 9.4

Table 1. Oral health status for all children and by socioeconomic status (SES)				
	Untreated Tooth Decay	Filled Tooth	With Sealant	History of Decay [a]
All Children	16.0%	47.1%	59.4%	53.6%
Low SES Children	21.8%	51.8%	61.4%	60.7%
High SES Children	11.7%	42.0%	58.7%	46.7%
[a] history of tooth decay includes any child with untreated tooth decay and/or a filled tooth				

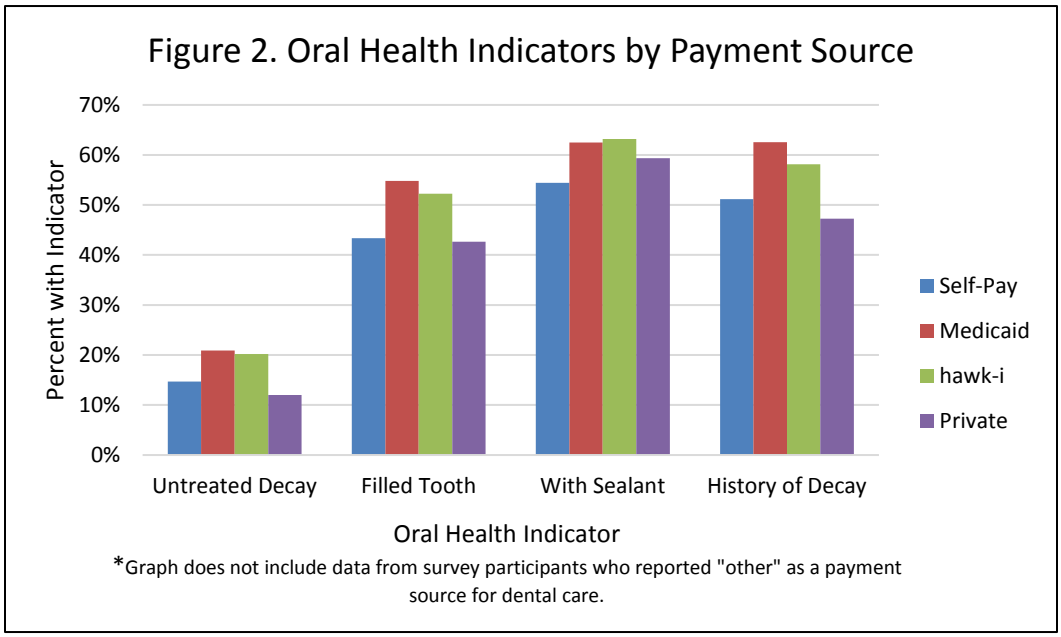
Based on information provided by parents and guardians, the majority of children were White/Caucasian (82.8 percent); 8.4 percent were Hispanic/Latino and 2.5 percent were Black/African American. A majority of the students were 8 and 9 years old. More than 87 percent of the children surveyed had a payment source for dental care. (See Table 2)

Table 2. Payment sources for dental care					
	Private Insurance	Medicaid	***hawk-i***	Self-pay	Other
All Children	51.3%	29.7%	6.9%	9.5%	2.6%

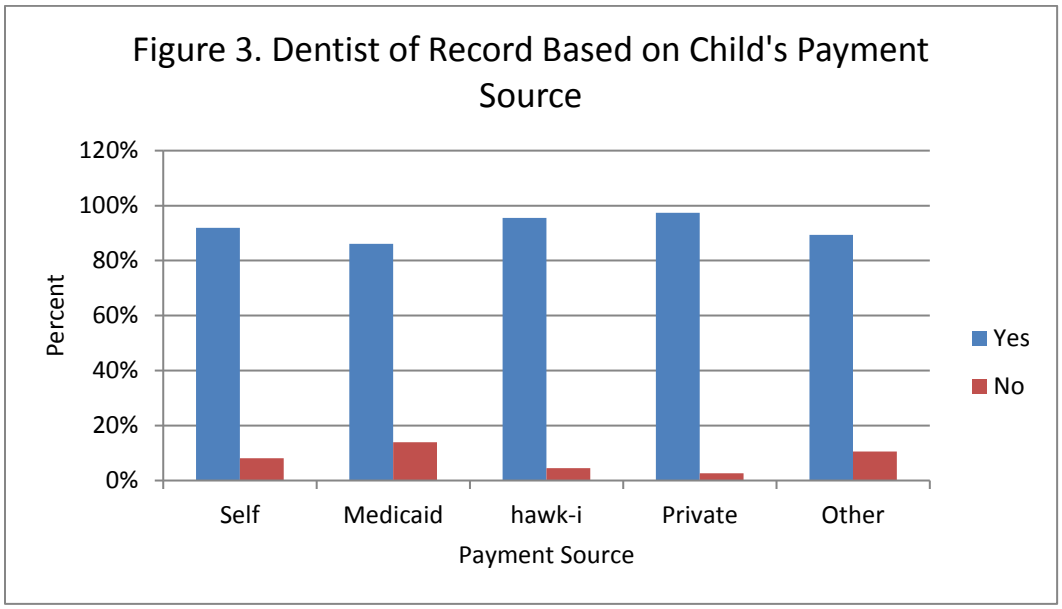
Following a 2015 survey of Head Start students, dental hygienists indicated that although the rate of decay was not changing, anecdotally, they felt that the overall amount of decay within a child's mouth was decreasing. Based on that feedback, for this survey data were collected regarding the number of decayed, filled, and sealed teeth to make determinations about extent of decay and receipt of restorative and preventive care. Results show that untreated decay was isolated to one tooth for 54.4 percent and to two teeth for 24.4 percent of the children with decay. (See Figure 1)



Children on Medicaid and ***hawk-i*** were more likely to have untreated dental decay (20.9 percent and 20.2 percent) and a history of decay (62.5 percent and 58.2 percent) when compared to those with private insurance and those who pay for their own dental care. However, children on Medicaid and ***hawk-i*** were also most likely to have a sealant. (See Figure 2)

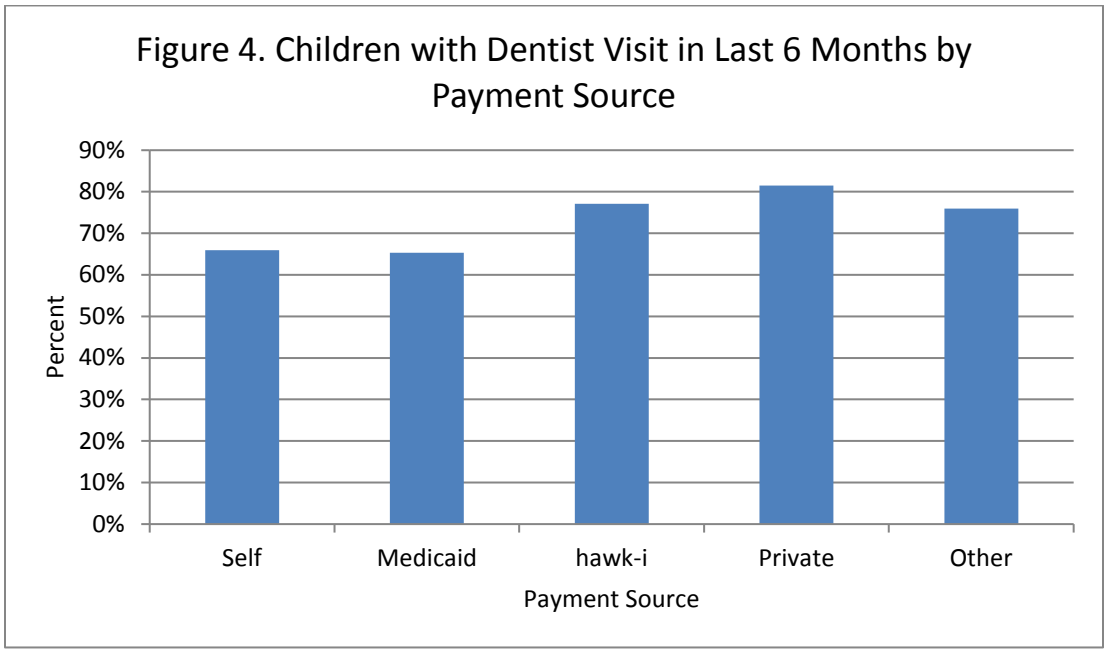


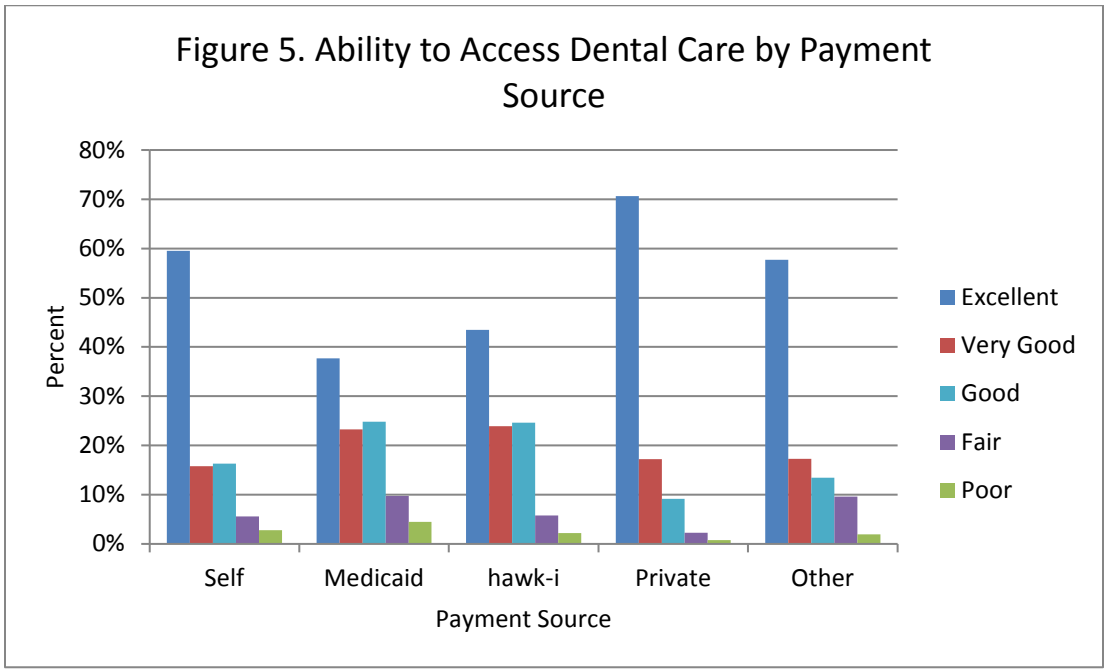
Regardless of payment source, most parents reported that their child had a dentist. A higher percentage of children with private insurance reported having a dentist (97.4 percent), compared to Medicaid-enrolled children (86.1 percent) and those who indicated they pay for care out of pocket (91.9 percent). (See Figure 3)



A higher percentage of children with private dental insurance saw a dentist within the past six months (81.5 percent) than children that had another payment source for dental care. Sixty-six percent of the self-pay and 65.4 percent of Medicaid-enrolled saw a dentist in the same time period. (See Figure 4)

More parents of children with private insurance rated their ability to access dental care as "excellent" (70.6 percent) than parents who pay out-of-pocket for care (59.5 percent) or parents of Medicaid-enrolled children (37.7 percent). (See Figure 5)





Discussion

For the past ten years, Iowa's I-Smile™ dental home initiative has built a strong foundation for improved oral health of Iowa children, using local coordinators and others to provide preventive care and care coordination in an effort to prevent dental disease and help children receive regular dental care. The efforts of I-Smile™ may be evidenced through the increases this year of children with a dental sealant and a payment source for dental care.

This year, the percent of children with dental sealants rose (from 45.6 percent in 2012 to 59.4 percent in 2016), likely due to Iowa's investment in the expansion of school-based dental sealant programs. Through funding from Medicaid, federal grants, and Delta Dental of Iowa Foundation, IDPH has expanded school oral health services from within 27 of Iowa's 99 counties in 2012 to 78 counties by 2015. This expansion must be maintained and expanded, as needed, to create more opportunities so that all at-risk students may receive preventive dental services.

More Iowa children now have a payment source for their dental care than in previous years. There are more children with private insurance since 2012 (51.3 percent compared to 49.9 percent), and more are enrolled in Medicaid (29.7 percent compared to 24.8 percent) and ***hawk-i*** (6.9 percent compared to 5.3 percent). Increased outreach efforts to enroll children and families on Medicaid and ***hawk-i*** are strategies of the I-Smile™ program. In addition, state policies such as presumptive eligibility for Medicaid and the dental-only ***hawk-i*** option could contribute to the higher enrollment numbers.

Although there has been a slight increase in the rate of untreated decay from 2012 to 2016 (14.1 percent to 16 percent), of the children with untreated decay, more than half (54.4 percent) had decay in just one tooth and only 24.4 percent had decay in two teeth. These results seem indicative that early prevention may be helping to reduce rampant decay that children could have, as those children experiencing tooth decay are identified sooner and therefore fewer teeth are affected.

Despite the positive changes in children's oral health in Iowa, inequities still exist for low-income families. Children from families of low socioeconomic status are experiencing more tooth decay. Having a way to help pay for dental care does not automatically translate into more access to services – this is particularly true for those on Medicaid. Although children on Medicaid have a slightly higher likelihood of having a preventive dental sealant, these children were the least likely to have seen a dentist in the last 6 months, have a dentist of record, or describe their ability to get care as excellent. It will be important for the state's I-Smile™ Coordinators to maintain relationships and referral systems with dental providers to ensure that low-income children have access to the dental care that they need.

It will also be important for public health programs, such as I-Smile™, to continue working to prevent dental disease of low-income Iowa children. IDPH will consider how best to assure Iowa children can have early and regular dental care, including preventive services to stop dental disease before it can begin. I-Smile™ will be critical for provision of gap-filling preventive care, care coordination services for families to receive regular dental care, outreach and enrollment assistance regarding payment sources for dental care, and oral health promotion for the public about the importance of oral health. In turn, the oral health of Iowa children may improve and contribute to the goal of being the healthiest state in the nation.

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