

ALARMING PREVALENCE OF TOOTH DECAY AMONG OKLAHOMA'S THIRD GRADE CHILDREN - REVEALED BY THE 2003 OKLAHOMA ORAL HEALTH NEEDS ASSESSMENT

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To better understand the dental health needs of Oklahoma's children, the Oklahoma State Department of Health joined with the University of Oklahoma Colleges of Dentistry and Public Health in 2003 to conduct an oral health needs assessment among Oklahoma's third grade children.

The resulting survey was the first to provide important statewide data that can be used as a baseline for assessing the dental health status of Oklahoma's third grade children. A total of 495 students from 36 schools throughout Oklahoma participated in the assessment.

Good oral health is often taken for granted, but it is essential to our health and well-being. Oral diseases can affect our ability to eat, the foods we choose, the way we look, and how we communicate. Yet in spite of the safe and effective means of maintaining oral health that have benefited most Americans during the last century, a "silent epidemic" of oral diseases is affecting some of our most vulnerable citizens, our children. Dental disease has been called the neglected American epidemic.¹

The Surgeon General's report on Oral Health in America states that tooth decay is the single most common chronic childhood disease (five times more common than asthma and seven times more common than hay fever), and that for each child without medical insurance, there are at least 2.6 children without dental insurance.²

Additionally, the report states the social impact of oral diseases in children is substantial. More than 51 million school hours are lost each year to dental-related illness.

RESEARCH DESIGN

This cross-sectional design included a random sample of third grade students in Oklahoma and direct observation of dental caries and sealants by Oklahoma licensed dentists. The protocol for data collection followed the recommendations of the Association of State and Territorial Dental Directors in their publication "Basic Screening Surveys: An Approach to Monitor-

ing Community Oral Health." The oral health needs assessment was conducted during the 2002-2003 school year.

This study was submitted to and approved by both the University of Oklahoma Health Sciences Center Institutional Review Board (IRB #10401) and the Oklahoma State Department of Health (IRB #02-15).

In order to derive statewide and regional estimates, Oklahoma was divided into six regions – Northeast (NE), Northwest (NW), Southeast (SE), Southwest (SW), Tulsa County, and Oklahoma County. All schools in Oklahoma, both public and private, had an equal opportunity to be included in the survey. (To see the county breakdown by region, go to the Web site at the end of this article.)

CONSENT

Active parental consent and student assent were obtained for this needs assessment. IRB-approved parental consent forms were sent to the schools several weeks before the arrival of the dentists, in order for parents and students alike to have access to the information needed to make an informed decision about the screenings.

These parental consent forms include why the study was being done; how many students were taking part in the study; a description of the study; how long the child would be in the study; what the risks, benefits, and options of the study included; confidentiality of the study; the child's rights as a participant of the study; and pertinent contact information.

Additionally, students could elect to participate or not participate in the study through the student assent form, which was administered at the time of the screening. Voluntary student participation was emphasized on this form, as well. Both parental and student consent forms had to be signed and dated in order to be included in the study.

CONFIDENTIALITY

All data were stored in a password protected computer file. No names were entered into the electronic database. Signed parental consent forms, assent forms, and data entry forms with identifiers were stored in locking files. Only group data were

analyzed, and no names will be used in any publication resulting from this needs assessment.

WEIGHTED ANALYSES

Because the population of third graders and sample of participants were not equal across regions, weighting was used to adjust the statewide estimates. Ninety-five percent confidence intervals were also calculated around the weighted estimates.

RESULTS

A total of 495 third grade students participated in the oral health needs assessment from across Oklahoma. The overall participation rate was quite good, 73.6%. The number of students screened and participation rates varied by region. As an example, schools in the NE region had the highest participation rates (80.9%), while Oklahoma County had the lowest rates of participation (65.5%).

The dental health status of third grade students in Oklahoma is as follows:

- 69.4% of children have dental caries experience.
- 40.2% of children have untreated decay.
- 37.2% of children have dental sealants on at least one permanent molar tooth.
- On average, each third grade child has approximately 2.8 teeth that are decayed or have been decayed, which is the mean DMFT/dmft score.

Large regional differences were observed in the results of this research project. The NW region has the lowest rates of caries experience and untreated decay, and the highest rates of dental sealant prevalence. Also, comparing data from the Oklahoma County region and the Tulsa County region show dramatic differences. Tulsa County shows significantly better oral health statistics than Oklahoma County. In fact, compared to the other project regions, children in Oklahoma County have the second highest rate of caries experience, the highest rate of untreated decay, and the lowest rate of dental sealant prevalence. The following three figures (Figures 1, 2, and 3) show regions in order from best to worst.

Figure 1. Comparison of Oklahoma Regions: Prevalence of Caries Experience

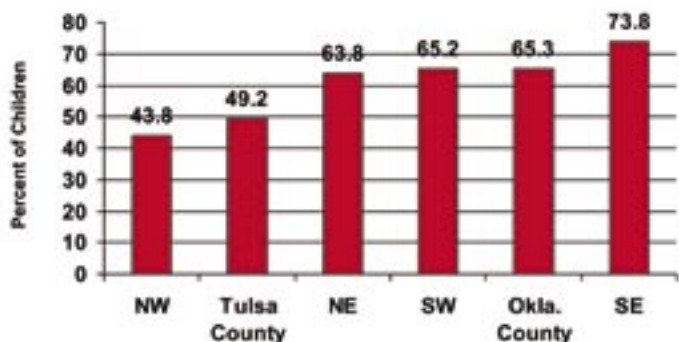


Figure 2. Comparison of Oklahoma Regions: Prevalence of Untreated Decay

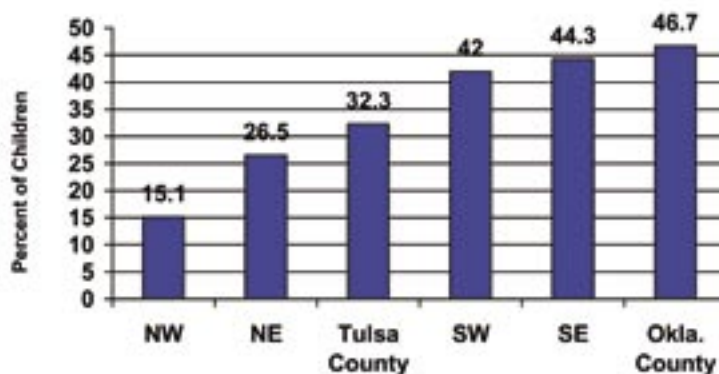
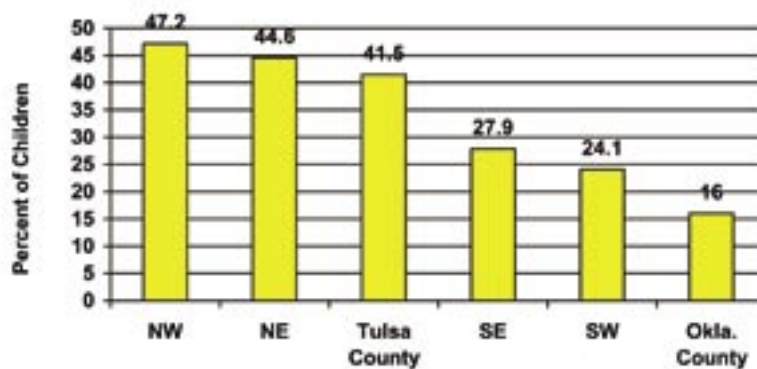


Figure 3. Comparison of Oklahoma Regions: Prevalence of Dental Sealants



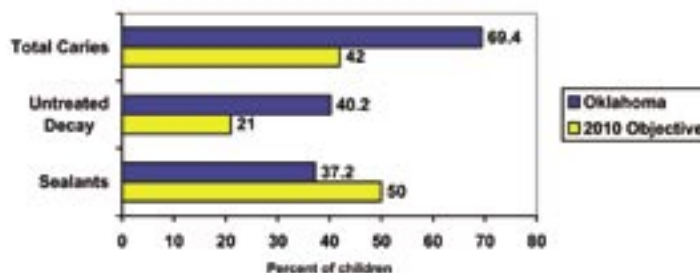
DISCUSSION

The Healthy People 2010 Objectives are national objectives to be reached by the year 2010 and include several measures related to oral health in children. These national goals include to:

- Reduce the proportion of children with dental caries experience in their primary and permanent teeth to 42%.
- Reduce the proportion of children with untreated dental decay in primary and permanent teeth to 21%.
- Increase the proportion of children receiving dental sealants on their molar teeth to 50%.

Data from this study of Oklahoma children indicate significant improvements are needed before the 2010 Objectives can be met (Figure 4).

Figure 4. Oklahoma Dental Health Measures Compared to Healthy People 2010 Targets



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At the time of this research project, eight other states had conducted similar assessments of their third grade children's oral health, and Oklahoma does not fare well by comparison.

These states include Nevada, New Mexico, Utah, Vermont, Maine, Maryland, New Hampshire, and Oregon. The statewide prevalence for dental caries experience in Oklahoma third graders is 69.4%, meaning at least one permanent or primary tooth is decayed (untreated), missing (prematurely lost to decay), or filled (treated/restored), which is higher than any other state reported.

Likewise, the rate of untreated decay in Oklahoma (40.2%), defined as untreated caries in at least one permanent or primary tooth, is also higher than any other reporting state. The proportion of children with protective sealants on at least one permanent molar tooth (37.2%) is in the middle of the data from other reporting states (four above and four below).

The following three figures (Figures 5, 6, and 7) were developed from data provided by the Association of State and Territorial Dental Directors.

Figure 5. Comparison of States: Prevalence of Caries Experience

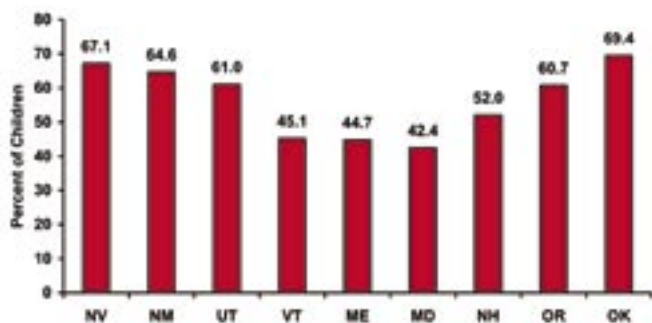


Figure 6. Comparison of States: Prevalence of Untreated Decay

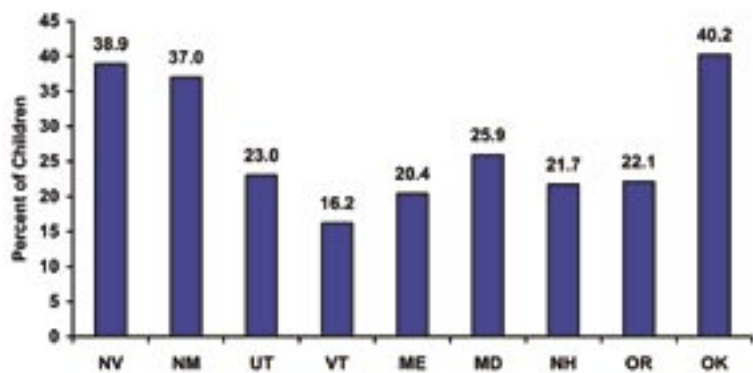
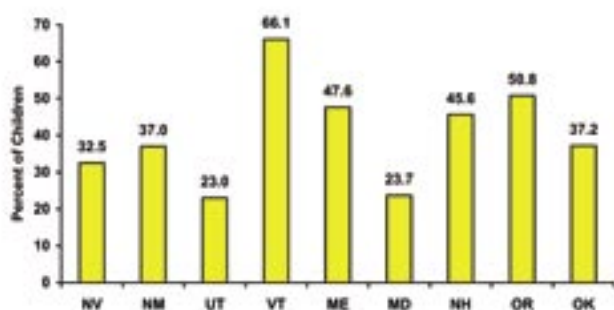


Figure 7. Comparison of States: Prevalence of Dental Sealants



Recommendations to Improve Oral Health for Oklahoma Children and Adolescents

1. Increase efforts to educate the public about the importance of oral health as a part of total health.
2. Increase access to dental care for children eligible for Medicaid.
3. Emphasize the importance of dental sealants for children to both the public and dental professionals to increase their usage.
4. Increase the number of public water systems that fluoridate so a greater percentage of Oklahomans will have access to this safe and cost-effective method to reduce dental caries.
5. Decrease the incidence of tobacco use to reduce oral lesions and oral disease.

Since dental caries (tooth decay) is the single most common chronic childhood disease, all Oklahomans must work together to make oral health a priority in our state.

To review the 2003 Oral Health Survey Report, visit the Web site: www.health.ok.gov/program/dental/index.html.

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REFERENCES

- 1 "The Nation's Health," American Public Health Association, May-June 1990, p. 2.
- 2 "Oral Health in America: A Report of the Surgeon General (Executive Summary)," U.S. Public Health Service, 2000, p. 2.