Kentucky
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Kentucky is Number 1 in "Toothlessness"

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On December 19, 2003 the "Mortality and Morbidity Weekly Report" reported that Kentucky, from the 2002 Behavioral Risk Factor Surveillance System (BRFSS) survey data, was **number one** in **toothlessness** among our older adult citizens (> 65 years of age). In fact, 42.3% of Kentuckians 65 years and older were toothless, they had lost all their natural teeth. For states neighboring Kentucky, the total toothlessness rates were: Tennessee 36.0%; Indiana 24.7%; Ohio 23.6%; West Virginia 41.9%; Illinois 24.0%; and Virginia 21.3%.

What's wrong with toothlessness? Some people contend that it is not only a health issue (not able to eat a balanced diet, speech is difficult), but also a quality of life issue (appearance, self esteem, self confidence).

The self-reported data on toothlessness are discouraging, particularly as the Public Health System in Kentucky has worked so diligently over the past three decades to have the second highest rate of citizens exposed to optimally fluoridated water (90%) in the country - second only to Minnesota. The reality, though, is that fluoridation of public water supplies prevents about 60% of tooth decay in children. Therefore, there are a large number of children who still are at-risk for tooth decay even if exposed to fluoridated community water supplies. **Community water fluoridation is a first step in preventing toothlessness -** preventing toothlessness is a lifetime endeavor and it is easy.

In another paper in this issue, the prevalence of Early Childhood Caries (ECC - formerly called Baby Bottle Tooth Decay) is noted to be very high in Kentucky compared to national studies; the prevalence has increased dramatically from the data published from surveys in 1987 to 2001 - particularly among poor and near poor Kentuckians.

What can we do as a public health organization to stem the tide of Early Childhood Caries?
Since ECC begins at the eruption of the first baby (primary) tooth at about age 7 months to one year of age, it makes sense that a prevention intervention should start at the time of the first tooth's eruption. In Kentucky, most family dentists do not see children until after age four or five years. Their training does not prepare them to deal with very young children. But, family physicians and pediatricians, as well as health departments and other nurses, do see these very young children several times during the first few years of life, as many as 10 times before a child might see a dentist. The American Academy of Pediatrics (AAP) and the American Academy of Pediatric Dentists (AAPD) both recommend that children have their first visit to a dentist about age one.

Starting in fiscal year 2004, as part of the **KIDS NOW** program for children of early childhood, local health department nurses have had the opportunity to participate in training that would prepare them to: twice yearly screen children at their usual visits to health departments, apply a prevention agent (fluoride varnish), provide a preventive oral health message to the caregiver (home care instructions), and make a proper referral to a dentist if necessary. This program is called **KIDS Smile** and is funded from the tobacco settlement funds for children 0 through 5 years of age. The Kentucky Board of Nursing has declared that the KIDS Smile program is within the scope of practice of Registered Nurses in Kentucky.

Once implemented, the activities of **KIDS Smile** should take only two minutes to administer. At this writing more than 600 health department and other nurses have had the training; more than 4000 children have participated; and evaluation of the clinical outcomes will begin in April 2004. As time goes on, all at-risk children in Kentucky will be able to participate in **KIDS Smile** to stem the tide of ECC. **This is the second step in preventing toothlessness,** prevent the infection.

So, why do Kentuckians lose their teeth?

(Continued on Page 2)

Kentucky is Number 1 in Toothlessness

(Continued from Page 1)

Children usually lose their teeth due to untreatable dental decay, an infection that causes the teeth to cavitate (have a cavity), if bacteria are constantly nourished with fermentable carbohydrates (sugars, other substances). Dental decay occurs over a long period of time (one to two years or more) and is preventable with good home care, daily use of fluoride toothpaste and rinses, regular visits to the dentist, and maintaining a balanced diet. **This is step three in preventing toothlessness -** maintain a clean mouth to prevent the infection of tooth decay in baby teeth**.**

In fiscal year 2003, the Kentucky Department for Public Health began funding dental sealant programs whereby local health departments would partner with local dentists and hygienists and local elementary schools to provide dental sealants to children in the 2nd, 3rd, and 6th grades. The 6-year and 12-year adult molars have erupted into the mouth at about these grade levels. The Centers for Disease Control and Prevention list sealants as being an evidence-based prevention intervention that is highly effective in preventing tooth decay in permanent molars. Eighty percent (80%) of decay in elementary children occurs in the pits and fissures on the top surfaces of permanent molar teeth. So far, 18 local health departments have engaged their communities and are providing sealant programs in their health departments with the collaboration of dentists, hygienists, and schools. **This is the fourth step in preventing toothlessness** - use sealants to prevent decay.

Adults usually lose their teeth due to the periodontal diseases. Periodontal diseases are caused by an infection of several species of microbes that, over a long period of time (5 plus years), erode the tissues (gums, bone, ligaments) that support the teeth in the mouth. The infection of periodontal disease is insidious, usually painless until late in the disease. It is detected by bleeding gums and pocketing around the teeth at the gum line, and causes offensive mouth odors. These diseases can be prevented through good, daily home care (flossing and brushing), use of antiseptic mouth rinses, early intervention by regular visits to and cleanings by a dentist or dental hygienist, and maintaining a balanced diet and lifestyle. **Step five in preventing toothlessness -** maintaining periodontal health.

For more information about what you can do to improve oral health in Kentucky, call James Cecil at (502) 564-3246 or email at james.cecil@ky.gov

5 Steps to Preventing Toothlessness (Edentulism)

1. Community water fluoridation
2. Stop infections early
3. Maintain a clean mouth to prevent the infection of tooth decay in baby teeth
4. Use sealants to keep decay from starting
5. Maintain periodontal health

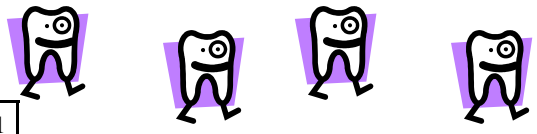


Table 1

Findings From the Parental Questionnaire (N = 572)
(Oral Health Status of Kentucky's Preschoolers, page 3)

Finding	Sample	Weighted Estimate (SE%)
Teething pain	36%	33% (3%)
"Other" dental pain	12%	10% (2%)
Child had previously been to dentist	59%	60% (5%)
Of those who had been to dentist previously, the reason for going was "something was wrong, bothering, or hurting"	23%	23% (3%)
Mother listed as primary caregiver	71%	71% (6%)
Caregiver had been told how to care for child's teeth	78%	78% (2%)
Caregiver had been to the dentist in last 12 months	61%	60% (2%)
Child "ate sweets or snacks.." every day	62%	60% (3%)
...3-4 times a week	25%	27% (2%)
...several times a day	41%	41% (3%)
Child's teeth had been brushed< daily	7%	7% (1%)
"Bad Bottle behaviors"*	49%	44% (4%)

***Bad bottle behaviors were grouped to include positive responses to any of the following:**

- Go to bed with a bottle filled with milk, formula, juice, soda, or something sweet
- Drink from a bottle with liquid other than water throughout the day
- Sleep all night at the breast
- Use a pacifier dipped in something sweet
- Use routine practice of propping the bottle

Oral Health Status of Kentucky's Preschoolers
J. David Hardison, DMD, MBA, College of Dentistry, University of Kentucky
Condensed from Pediatric Dentistry — 25:4, 2003

Introduction

Dental caries has been described as a public health problem especially among children of low socioeconomic status (SES). Early childhood caries (ECC) has been defined by Drury et al as "the presence of one or more decayed (non-cavitated or cavitated lesions), missing (due to caries), or filled tooth surfaces in any primary tooth" in a child 71 months of age or younger. Severe early childhood caries (S-ECC) has been defined in children younger than three years of age as any sign of smooth surface caries. S-ECC is defined for children ages 3 through 5 years, as one or more cavitated, missing (due to caries), or filled smooth surfaces in primary maxillary teeth, or a decayed, missing, or filled surface score ≥ 4 at age 3, ≥5 at age 4, or ≥ 6 at age 5.

The last survey of the oral health status of Kentuckians was completed in 1987 and found that:

- 28% of the 0 – 4 age group had at least one decayed surface, and
- 30% of this group had evidence of caries history.

In 1998, recognizing the need for current information, the Kentucky Department for Public Health convened a Steering Committee to design, develop, and implement a new survey. There were three main goals:

- **provide a "point-in-time" benchmark that is representative of the oral health status of Kentucky's children;**
- **serve as the baseline for the initiation of the children's portion of a statewide oral health surveillance system to measure objectives for *Healthy Kentuckians 2010*;**
- **allow comparisons to the 1987 state oral health survey and other state and national data sets.**

During the 2000-01 school year, the University of Kentucky College of Dentistry was contracted to conduct the Kentucky Children's Oral Health Survey (KCOHS). The KCOHS targeted: (1) preschool children 24 – 59 months old, and (2) third, sixth, and eighth graders. The survey consisted of a questionnaire for caregivers and a clinical screening for all children except eighth grade students who completed a questionnaire and were not screened clinically. The school survey was conducted using a stratified cluster sample drawn by the Biostatistical Unit of the University of Kentucky Medical Center to represent five regions of the Commonwealth. The same counties drawn for the school sample were used for the preschool portion. This article reports findings from the preschool component of the survey.

Methods

A purposive sample with random elements of selection was used to select 250 health care sites where children 24 – 59 months are typically seen. These included family practice physicians, pediatricians, county health clinics, and pediatric dental offices. Approximately 50 sites in each of five regions were sampled. The dental screening exams for preschool children were designed to be performed by dental or non-dental health care providers.

Results

A total of 274 children were screened in 11 pediatric dental offices and 298 children were screened at 15 medical sites (N = 572). The population included generally conformed closely to state data. Minorities and lower SES individuals were oversampled as indicated by higher rates of Medicaid and Kentucky Child Health Insurance Program (KCHIP) eligibility. Sample data and population estimates for some of the major findings from the parental questionnaire are shown in Table 1 on page 2 of this newsletter. Differences between the sample data and the population estimates were small and ranged from zero to approximately 10% of the sample percentages.

Approximately one-third of the children had teething pain, and 10% had "other" dental pain. Most of the children (60%) had been to the dentist previously with almost one-fourth reporting that the reason was "something wrong, bothering, or hurting." Approximately the same percentage (60%) of caregivers had been to the dentist in the last 12 months. Over three-fourths (78%) of the caregivers had been told how to care for their child's teeth. Most of the children had snacks every day (60%). Several non-nutritive feeding behaviors were listed, and almost half (44%) of those surveyed indicated that one or more of these were current or former practices.

Parents/guardians considered their own dental health to be worse than their children. As a group, the screeners judged about one-fourth of the children to be in "Fair or Poor" condition. The caregivers had indicated that condition for only about 17% of those screened. Between one-third and nearly one-half of the children had un-

(Continued on page 4)

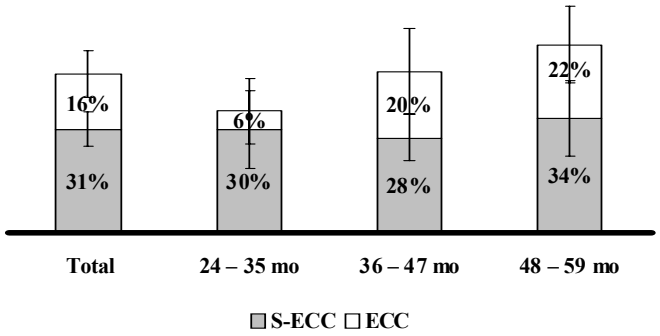
Oral Health Status of Kentucky's Preschoolers (continued)

(Continued from page 3)

treated dental caries. The adjusted population estimates increase with each age group: 34% for age two, 46% for age three, and 47% for age four. The total for all ages combined was 43%.

The high percentage of children surveyed with ECC and S-ECC are shown in Figure 1. The adjusted population estimates increase with each age group: 36% for age two, 48% for age three, and 56% for age four. The total for all ages combined was 47%. The percentage of S-ECC as compared to the total percentage of ECC for the total caries experience is illustrated in this chart. The ratio of S-ECC to ECC was 5.3:1 for two year olds, 1.4:1 for three year olds, 1.6:1 for four year olds, and 1.9:1 overall.

Figure 1. Proportion of S-ECC to ECC by Age Group (Weighted Estimate)



The definitions for each level of urgency of treatment needed are those used by Association of State and Territorial Dental Directors.

No obvious problem = self explanatory. (The suggested timing for the next dental visit is the next regular check-up.)

Early dental care = Caries without accompanying signs or symptoms, spontaneous bleeding gums, or suspicious white/red soft tissue lesions. (Next dental visit--within several weeks.)

Urgent care = Pain, infection, swelling, soft tissue ulceration of longer than two weeks' duration. (Needs care within 24 hours.)

Early care was needed by more than one-third and urgent care by nearly 10% overall.

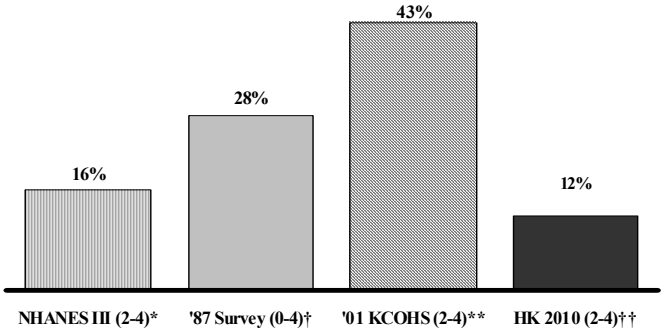
Discussion

Although there is little in the literature about dental pain in preschool children, Slade recently published a literature review of dental pain in children and adolescents. He reported a prevalence in five year olds of 5 – 33% for dental pain (for any reason); our findings are consistent with this report. The percentage of children reported in this study as having been to the dentist is within the range of other reports. However, the total number in this sample may be inflated since approximately half of the children were seen in a dental office and parents may have responded "Yes" to having visited the dentist even if this was the child's first visit. The 60% of parents reporting that they had been to the dentist within the last year is very close to the 63% of Kentuckians over age 18 reported for the same question in the 1999 Kentucky Behavioral Risk Factor Surveillance System.

Reports extending over many years have addressed the effects of frequency, duration, and type of diet on dental caries in young children. Over half of the children in our study consumed "sweets or snacks" every day with 59% of them eating those snacks "several times a day". Between one-third and one-half of the parents also reported employing bottle behaviors known to promote dental caries.

The 17% of children whose dental condition was indicated by parents/caregivers as "Fair/Poor" is notable since parents generally underestimate the presence or severity of dental caries. Slightly more than one fourth of the parents responding to the survey described the condition of their own teeth as being "Fair/Poor". This

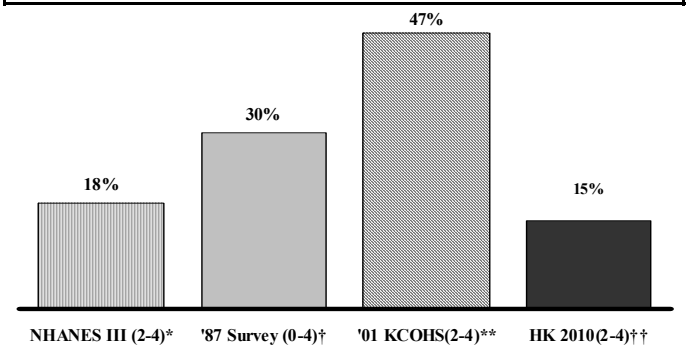
Figure 2. Untreated Dental Decay—Primary Dentition (ages)



* NHANES III (1988-94) 2 to 4 year olds
† 1987 Kentucky Oral Health Survey (surface level data)
†† Healthy Kentuckians 2010 Objectives
** 2001 Kentucky Children's Oral Health Survey

Oral Health Status of Kentucky Preschooler's (continued)

Figure 3. Caries Experience {ECC} — Primary Dentition (ages)



* **NHANES III (1988-94) 2 to 4 year olds**
† **1987 Kentucky Oral Health Survey (surface level data)**
†† **Healthy Kentuckians 2010 Objectives**
** **2001 Kentucky Children's Oral Health Survey**

is less than the aggregate 36% for "Fair" and "Poor" from the National Health and Nutrition Examination Survey (NHANES III) as reported by Gift et al. One of every four of the children was rated by the screeners as having a dental condition of "Fair/Poor". Figures 2 and 3 compare survey results for untreated decay and caries experience with national and state data (Note: the 1987 survey results include children less than two years old). The definition used for untreated dental caries in our study meets the current definition of ECC. Dental caries has a disproportionate impact on children from lower income populations, which is an important demographic issue for Kentucky. It has also been demonstrated that maxillary anterior caries in the primary dentition is associated with an increased risk of future dental caries. The large discrepancy between the findings in this study and the stated goals for *Healthy Kentuckians 2010* accentuates the tremendous amount of work that needs to be accomplished in the current decade. Because of a looming shortage of dental personnel in Kentucky, non-dental professionals will be needed to assist the dental profession in curbing the increasing prevalence and incidence of ECC and S-ECC in Kentucky children.

A large proportion of the children with early childhood caries in our study have the more severe form of the disease (Figure 1). Because we only looked at smooth surface caries on maxillary anterior teeth, our figures for S-ECC probably underestimate the actual prevalence. A little less than half of those screened needed care with one in five of those requiring urgent care.

The very low participation rate of family practitioners and pediatricians was disappointing. Concerns about time and questions/ comments about the relative importance of oral health make it clear that the dental profession must continue to educate our medical colleagues about the significance of oral health as part of overall health.

Conclusions

1. The 2001 Kentucky Children's Oral Health Survey demonstrates a severe dental disease problem in children ages 24 – 59 months.

2. Though there is possible sample bias toward those with more dental needs, it appears that both untreated decay and caries experience have increased since the state's 1987 survey. The state also appears to be much worse than national levels for these same indices.

3. These levels of dental caries are troubling given that 90% of Kentucky's population is exposed to optimally fluoridated water.

4. Physicians, nurses and others need to be included in the "war against ECC and S-ECC".

Condensed with permission from:

Hardison, J.D. et al.: The 2001 Kentucky children's oral health survey: Findings from children ages 24 – 59 months and their caregivers. Pediatric Dentistry 25:4, 365-72. Please review the full journal version for footnotes and references.

Addressing Oral Cancer in Kentucky

Through the Tobacco Use Prevention and Cessation Program, the Oral Health Program has developed the ***Kentucky Quit Spit Program.*** The ***Kentucky Quit Spit Program*** provides spit tobacco prevention education and cessation information to each of Kentucky's Local Health Departments, Family Resource and Youth Services Centers, and Regional Prevention Centers that make up almost 500 public health agencies in the Commonwealth.

The Kentucky Quit Spit Program provides posters, pamphlets, videos, and lesson modules designed specifically to reach 6th and 7th grade students. This intervention is directly related to three of the five Healthy Kentuckians 2010 recommendations on Spit Tobacco.

For more information about this program, contact Sharlee Shirley, RDH, MPH at 502-564-3246.

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RETURN SERVICE REQUESTED

The KDPH Tuberculosis (TB) Control Program's 2004 annual conference will be held September 23-24, 2004, at the Holiday Inn, Capital Plaza, Frankfort, KY. The theme for the 2004 conference is:

"Support, Science and Service"

The key note speaker will be Dr. David Ashkin, Medical Executive Director of A.G. Holley Hospital, Lantana, Florida. A.G. Holley Hospital is the only free-standing medical facility in the United States dedicated to the treatment of TB.

For information contact the TB Control Program: 502-564-4276.
Conference registration will open after July 1, 2004; registration guidelines will be available at: http://chs.ky.gov/publichealth/TB.htm

May
Notes & Reports

State Epidemiologist-open position	502-564-7243	Communicable Disease	502-564-3261	AIDS Information	1-800-420-7431
State Public Health Veterinarian– Michael Auslander, DVM, MSPH	502-564-3418	Immunization Program	502-564-4478	HIV/AIDS Reporting	1-866-510-0008 (Toll Free)
		STD Program	502-564-4804		
		TB Program	502-564-4276	HIV/AIDS Branch	502-564-6539

Division of Epidemiology/Health Planning 502-564-3418; 24HR/7Day Emergency—1-888-973-7678