



Florida Public Health Institute Report

Florida Oral Health Metrics



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EXECUTIVE SUMMARY

Currently, there exists a need to understand the collection, surveillance and monitoring of oral health data efforts in Florida. In this report, the term **oral health** is used to encompass more than just healthy teeth. Oral health includes diseases and conditions of the teeth and soft tissues as well as addressing access to preventative care and treatment services such as fluoridation and dental sealants. The term **dental health** is also used in this report, which refers more to the status of tooth issues within oral health. The aim of this report is to not only understand trends in oral health services in Florida, but also what information is being collected so that systemic improvements can be implemented both at the program level as well as through policy improvements and legislation. To accomplish this, the report looks at sample populations including pregnant women, infants, children, children with special needs, and institutionalized seniors.

Data was collected and analyzed across the target population. For pregnant women, data was obtained through the Early Head Start Program. Of the 595 pregnant women enrolled in the Early Head Start Program in 2012, only 26% had received a dental exam and screening, with nearly three-quarters who had not accessed Early Head Start dental services. Additionally, data for this subpopulation was obtained through the Children's Services Council of Palm Beach County's Oral Health Survey. This survey aimed to gain a better understanding of current oral health practices and access to dental health services in Palm Beach County. Four hundred forty-three pregnant women were surveyed in Palm Beach County, and it was found that more women are aware of their own oral health effects on their babies than the oral health effects on themselves. Additionally, while over one-half of the women (53%) were able to access dental care within the past year, over one-third of the women (38%) were not able to access dental care within the past year.

The infant subpopulation was also examined through the Children's Services Council of Palm Beach County's Oral Health Survey by surveying the parent of an infant. There were 315 total respondents, with 84% of the infants insured through Medicaid. Respondents with any type of insurance reported that their babies had higher quality gums and teeth than those without insurance. Nearly a quarter (23%) of women on Medicaid were not aware that their children were eligible for Medicaid dental services. The majority of respondents never put their babies to bed with a bottle containing anything besides water, and a higher proportion of respondents (80%) who *never* put their baby to bed with a bottle described their babies' gums or teeth as *excellent* when compared to respondents who put their babies to bed with a bottle. The majority of respondents described the overall status of the babies' gums/teeth as good or excellent.

The subpopulation of children and oral health status and services specific to this group was examined through the Florida Head Start Program. Annual state reports surveying services of the 67 county Head Start/Early Head Start programs reviewed perceptions of the quality of services which were coordinated at each site, specifics on treatment, and number of clients served. State reports include children and the sub-population of migrant and seasonal Head Start students. In Florida, nearly all of Head Start enrollees had a dental home and access to preventive care. The majority of the registered preschoolers received treatment, with 85.88% of this population using Medicaid. Florida Head Start keeps separate data on the migrant and seasonal Head Start students, with the majority, although slightly less than the non-migrant enrollees, stating they had a dental home. Over three-quarters of preschoolers had preventive care and a dental exam. Head Start programs have been engaged in an oral health project in order to improve a process to update program information reports.

In Palm Beach County, specifically, 269 Head Start children received free dental examinations by pediatric dentists at the Palm Beach State College Dental Clinic facility. A Palm Beach Head Start dental program titled Give Kids a Smile Day saw 107 children. These children received dental examinations, fluoride treatments, prophylaxis and oral health services by dentists and dental hygienists/assistants at Palm Beach State College. Of the 107 children served, approximately half (43.6%) reported problems and a small proportion (3.58%) required immediate attention.

The one- to five-year-old subpopulation was also examined through the Children's Services Council of Palm Beach County's Oral Health Survey by surveying the parent of a child. There were 915 total respondents. Respondents with insurance reported children with better quality teeth than those without insurance, but type of insurance was not related to description of children's teeth. The majority of respondents had never visited a dentist, but children who had visited the dentist within the last year had better teeth quality than those who had never visited a dentist. The majority denied oral health being a cause of absenteeism from school, though considering the mean age for the

children was 3.4 years, many respondents may not yet have children in school or day care, as one-third of respondents reported that this question was *Not Applicable*. Most respondents described the status of children's teeth as *Good* or *Excellent*.

The subpopulation of adult and children athletes with special needs was reported by The Special Smiles® program through the Special Olympics, which conducts a non-intrusive dental screening. It provides Special Olympics athletes with hygiene education to help ensure they are doing an adequate job of brushing and flossing. In addition, it provides nutritional education to help the athletes to understand how their diet affects their total health. The athletes also are provided with a list of dentists/clinics in their area that will treat patients with special needs, should they have difficulty finding a dentist. Statewide, a total of 4,291 screenings were reported from 2007-2011. In summary, a quarter had missing teeth, a third were found with untreated tooth decay, and have had gingival signs.

For the older adult subpopulation, secondary data was obtained through the Association of State and Territorial Dental Directors Basic Screening Survey for Older Adults, reported through the National Oral Health Surveillance System. Data from the years 1999, 2002, 2004, 2006, and 2008 revealed a marginal increase in the proportion of older adults receiving teeth cleaning from 1999 (70%) to 2008 (77%), and generally stable rates for dental visits from 1999 (67%) to 2008 (70%).

Institutionalized seniors have participated in a pilot project by Palm Beach State College at the MorseLife facility. In the spring and fall of 2012, 209 patients were screened. Age ranged from 68 to 102, and the mean age was 90. The majority of patients were female (98%). The results are as follows: 20% of patients had untreated tooth decay, 41% of patients were in need of periodontal care, 36% of patients were in need of early treatment, 9% patients were in need of urgent treatment, and 75% of patients screened had natural teeth.

Finally, a review and analysis of the Florida Agency for Health Care Administration (AHCA) Emergency Department Facility data for the State of Florida was conducted to assess number of emergency department visits and spending across payer sources over the past five years (2007-2011). The overall number of people who received ED dental services increased slightly over the five-year period. The proportion of children (under 18) and the proportion of older adults (65 and over) remained steady across the five-year period. The Total Gross Charges have almost doubled from 2007 (\$99 million) to 2011 (\$193 million). On a per-person basis, the cost significantly increased from \$736 per person in 2007 to \$1195 per person in 2011. Most of the ED visits were during business hours throughout the studied period.

The analysis of these databases has informed recommendations for the future of oral health surveillance and how this affects broader oral health status of Palm Beach County as well as the State of Florida. Recommendations, where appropriate, are provided based on the information that was available and knowledge of how oral health impacts the overall health status of an individual. Policy

efforts, system improvements and educational efforts are part of a collective preventative measure for helping to improve oral health in Florida. Key recommendations from this report include to routinely monitor current oral health data collection and expand data collection throughout state and county level data sources; increase oral health education through the Head Start Program and Early Head Start Program, as well as other health agencies; expand the use of the ASTDD-BSS tool among each county in Florida to monitor oral health among children throughout the state; and support for public health policy modification to expand coverage for preventive services.

This report analyzes and contrasts various data sets and opportunities to provide a comprehensive view of both programs and respective oral health surveillance efforts in the State of Florida. Results of this report should be translated into data summaries and fact sheets for an educational outreach approach to a wide array of decision makers including both health and political leaders in Florida. In order to monitor oral health status effectively, there is a clear need for increased and consistent oral health surveillance across all populations. This type of surveillance should be conducted at both the state and county levels and should be consistent from county to county in order to provide comparative data.

CHAPTER I: Introduction

The oral health system and targeted initiatives in Florida, under the facilitation of the Florida Public Health Institute, strive to improve oral health throughout the state. Aside from supporting programs, which aim to improve oral health in Florida underserved communities, there exists a need to understand the surveillance and monitoring of data collection efforts in Florida. In order to compile a statistical sample of oral health data for the vulnerable populations of uninsured and underinsured populations in Florida, a review of available databases, pilot projects, service providers and programs was conducted on behalf of the Florida Public Health Institute by Urban Health Solutions. Sample populations include pregnant women, children, children with special needs, and institutionalized seniors. The sample sources for data are identified and described in the appropriate sections within this report and analysis is included where available.

For sample data on pregnant oral health data, as well as data on children age 1-5, local and state resources including a local program through the Children's Services Council, Florida Head Start program and Agency for Health Care Administration (AHCA) databases were selected. AHCA emergency room data was also reviewed in order to assess trends outside of normally funded programmatic efforts.

Head Start programs have been engaged in this project in order to continue a process to update program information reports. Initially, an objective was to identify Head Start centers that

have incorporated Association of State & Territorial Dental Directors Basic Screening Survey (ASTDD-BSS) screening and centers that are providing preventive fluoride care. Limitations on available data are described in the corresponding section. State Head Start data is reviewed in the report, as is data from Palm Beach County as a comparison or contrast to state trends.

For institutionalized seniors, a pilot project in Palm Beach County as well as AHCA databases were used to determine trends. The pilot project is being conducted at the MorseLife facility in Palm Beach County by dental hygiene students from Palm Beach State College. The Association of State & Territorial Dental Directors Basic Screening Survey (ASTDD-BSS) was implemented in the fall of 2012 and spring of 2013.

Florida CHARTS was reviewed as a potential data site. CHARTS is a Florida public health statistics and community health data site containing the Community Health Assessment Resource Tool Set maintained by the Florida Department of Health. The tools contain health statistics such as births, deaths, disease morbidity, population, and behavioral risk factors. Data is from various secondary sources from other state collection points such as AHCA, data collection is not primary data. Available CHARTS dental data uses Florida Cancer Data System for Oral Cancer Rates, while Florida Division of Environmental Health provides data on the fluoridation of water supplies. Data regarding direct services and access to care is provided by Florida county level Behavioral Risk Factors Surveillance entry. To date, the populations covered specifically for oral and dental health topics in CHARTS are adults.

AHCA primarily is responsible for the state's \$21.2 billion Medicaid program that serves 3 million Floridians, the licensure of the state's 41,000 health care facilities and the sharing of health care data through the Florida Center for Health Information and Policy Analysis. Therefore AHCA data serves to answer various health questions on trends with the underserved and uninsured populations at the focus of this project, specifically with unmet primary and secondary oral health needs resulting in emergency room visits.

According to a Pew Charitable Trust report on state program and dental sealants In Florida, the cost of treating dental problems in emergency rooms exceeded \$88 million in 2010 (Florida Public Health Institute, *Oral health emergency room spending in Florida*, 2011). Emergency Department (ER) treatment is not only expensive, but is also typically incomplete, requiring patients to seek follow-up care from a dentist to address the underlying problems (Pew Center on the States, 2013).

This report analyzes and contrasts various data sets and opportunities to provide a comprehensive view of both programs and respective oral health surveillance efforts in the State of Florida. Results of this report should be translated into data summaries and fact sheets for an educational outreach approach to a wide array of decision makers including both health and political leaders in Florida.

CHAPTER II: Subpopulation Overviews

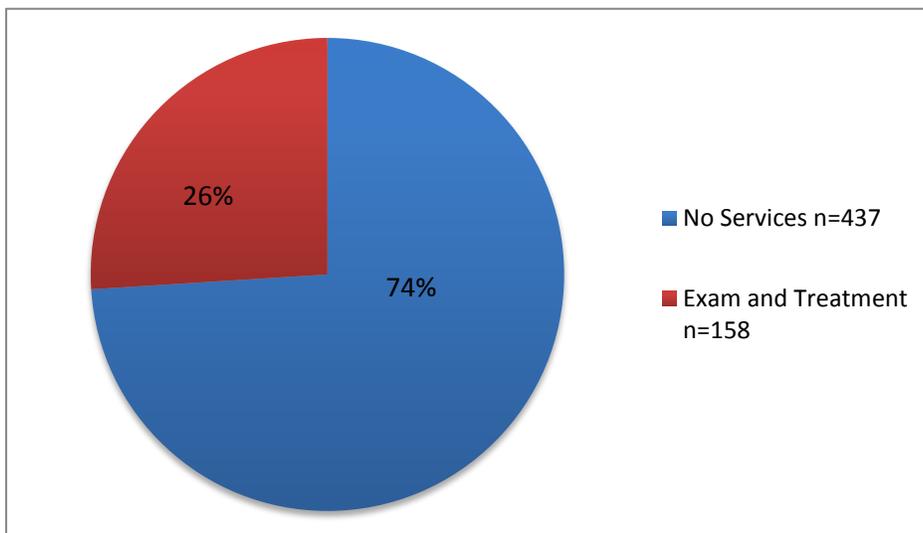
Prenatal

Pregnant women are included in this overview as a vulnerable at-risk population with regards to being underserved with oral health services. Specifically, as a sample population, data was obtained to understand the needs of those served by the Early Head Start program, which includes a recent expansion to include pregnant women in the program for the purposes of securing a place in the Early Head Start program for the unborn child. The inclusion of pregnant women in the program has allowed for direct services and coordination of various beneficial services including dental.

Justification includes evidence that lack of dental and oral health care has been related to serious medical conditions such as premature birth and low birth weight as well as infections of the blood and bones. Positive oral health in pregnant women is associated with positive oral health in the unborn child due to behavioral factors.

According to the 2011 - 2012 Head Start Program Information Report (PIR), Health Services Multi Year Report - State Level, there were 595 pregnant women enrolled in the EHS program. One hundred fifty-eight of those women received dental exams and appropriate treatment (26%). This is a slight increase in percentage of services as seen in the multi-year report from 2010, in which treatment was 21%, of pregnant enrollees and in 2011 treatment rates were 22.7% (Figure 1).

Figure 1. Florida Head Start Pregnant Client Dental Services 2012



Pregnant women are surveyed through the Children’s Services Council of Palm Beach County’s Oral Health Survey. This tool has been utilized to assess maternal level of awareness for their oral

health on their own health as well as level of awareness for their oral health and the health of their babies. The tool also assesses access to dental care, barriers to dental care, and description of her own teeth. A full analysis can be found in Chapter III.

Infant

The Children's Services Council of Palm Beach County also collects oral health data of infants through the Oral Health Survey administered to the parents of infants. For this population, the survey tool assesses whether or not the child has medical and dental insurance, the type of insurance, and the level of awareness of dental care services for children eligible for Medicaid. The survey also assesses how often infants are put to bed with bottles and a description of the infant's gums and/or teeth. A full analysis can be found in Chapter III.

1-5 years old

Early Head Start and Head Start health services are based on the premise that a child must be healthy to achieve optimal learning. Good oral health is essential to a child's growth and development as part of a complete health approach. Florida received a grade of "D" in the Pew Charitable Trust report, *PEW CENTER ON THE STATES: DENTAL SEALANTS*, citing that less than 25% of high-need schools have sealant programs despite no restrictions on hygienists in this area of opportunity. Of note, this is one area that was met with some challenges locally (services in schools) due to the necessary background screening mandates in Florida (Jessica Lunsford Act), according to the Florida Dental Hygiene Association. Some rural areas such as Monroe County were able to provide services in the schools, but that has been discontinued by the particular grantee of the Area Health Education Center.

An annual Head Start state report surveying services of the 67 county Head Start /Early Head Start programs, uses open-ended questions to survey the quality rating of services coordinated, specifics on treatment, and number of clients served. State reports include children and the sub-population of migrant and seasonal Head Start students.

Overall, data collected by the state office compares Florida program rates, Migrant Head Start program rates for dental home, preventative care, exams, need for treatment, and receipt of treatment. In addition, for those on Medicaid, a survey question inquired if the child was up to date on the Early and Periodic Screening Diagnostic and Treatment (EPSDT) benefit, which provides comprehensive and preventive health care services for children under age 21 who are enrolled in Medicaid. Table 1 shows that Florida Migrant Head Start rates ranks lower than Florida Head Start rates on dental home, preschool preventative care and exams, indicating a disparity in that population.

Table 1. Comparison of Head Start Initiatives 2011-2012

	Program Percentages of Children in Each Area of Care					
	Dental Home	Preschool Preventive Care	Preschool Completed Dental Exam	Preschool Needed Treatment	Preschool Received Treatment	0-2 Up-to-Date on Dental EPSDT Sched
Florida	96.37%	93.72%	93.54%	39.74%	78.17%	85.88%
Migrant Head Start Program	91.32%	77.63%	88.58%	29.29%	81.83%	85.97%
National	91.33%	77.70%	88.34%	29.34%	81.94%	85.99%

Florida Head Start programs independently determine needs and methods for collecting data regarding the oral health status of children they serve. Some pilot projects are considering the Association of State & Territorial Dental Directors Basic Screening Survey (ASTDD-BSS) screening data for future analysis. Pilot projects include the counties of Citrus, Hillsborough, Palm Beach and Orange.

To date, only Orange County is in the process of using the BSS and will continue efforts through May of 2013. Existing data regarding fluoride varnish applications in Early Head Start Centers includes Orange and Palm Beach although no data was available.

Although Head Start dental partnerships vary from county to county, Palm Beach County utilizes the local college dental program for direct services. Recently, Palm Beach County Head Start children that were screened in fall of 2012 totaled 269, and all received an exam. The 269 Head Start children received free dental examinations by pediatric dentists at the Palm Beach State College Dental Clinic facility.

A Palm Beach County Head Start dental program titled “Give Kids a Smile Day” saw 107 children in 2012. These children received dental examinations, fluoride treatments, prophylaxis and oral health services by dentists and dental hygienists/assistants at Palm Beach State College. Of the 107 children served:

- 43.6% had no problems
- 18.6% needed routine care
- 7.78% needed attention soon
- 3.58% required immediate attention

The Children’s Services Council of Palm Beach County’s Oral Health Survey collects oral health data on children 1 to 5 years of age by surveying a parent of the child. For this population, this tool assesses whether or not the child has medical and dental insurance, the type of insurance coverage,

and the awareness of dental care services offered through Medicaid for eligible children. The tool also assesses the length of time from the last dental visit and the main reason the child visited the dentist. The survey captures whether or not children have suffered a toothache within the last six months as well as whether or not children have experienced difficulty attending child care, preschool, or school due to oral health problems. In term of access to care, the survey assesses whether or not the child needed dental care but could not get it and the main reason the child could not access dental care. A general description of the children's teeth is also provided. A full analysis of this survey tool can be located in Chapter III.

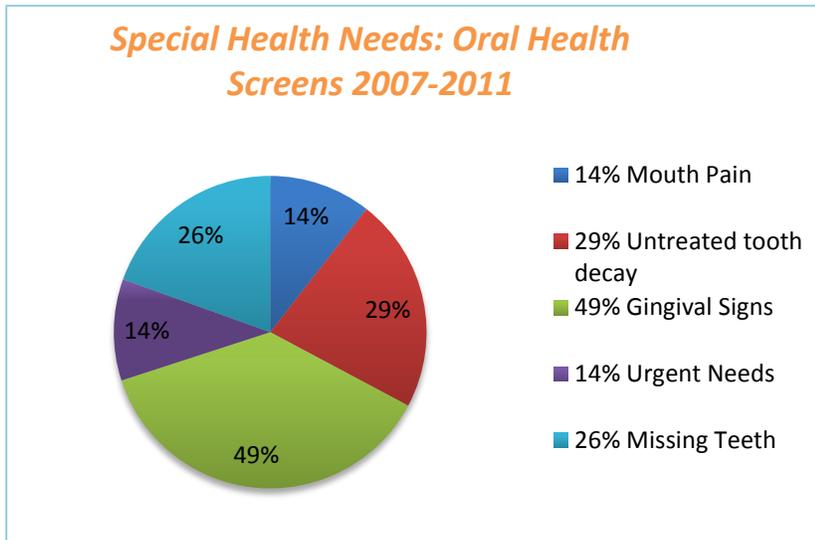
Special Needs Population

The Surgeon General's 2000 Call to Action on Oral Health included documentation on the disparities of various vulnerable populations. Florida children and adults with special health care needs are a unique vulnerable population with access to a model program through the Special Olympics. The Special Smiles® program through the Special Olympics is a non-intrusive dental screening. The program provides adult and children Special Olympics athletes with hygiene education to help ensure they are doing an adequate job of brushing and flossing, as well as nutritional education to understand how their diet affects their total health. The athletes also are provided with a list of dentists/clinics in their area that will treat patients with special needs, should they have difficulty finding a dentist.

Data is available on **4,291** screenings have been done statewide from 2007-2011. During that reporting period, the following was found (Figure 2):

- Nearly half (2094) had gingival signs
- A third (1234) had untreated tooth decay
- More than a quarter (1096) had missing teeth
- Mouth pain (605) and urgent dental referrals (589) needed in 14.3% of participants.

Figure 2. Florida Special Smiles Program



In Palm Beach County, the Special Smiles program served 1,346 athletes and gave additional information on services including fluoride treatments on 86% of the 1,346 local participants and mouth guards for 46% of the participants. Although age breakdown was not available in this data set for this report, this is a future analysis possibility with both the state and local programs.

Institutionalized Seniors

Under the direction of Nancy Zinser, Associate Dean of Health Sciences of Palm Beach State College, a pilot project was conducted to implement the Association of State & Territorial Dental Directors Basic Screening Survey (ASTDD-BSS) for older adults at MorseLife. MorseLife is a senior center offering a variety of services, from short-term rehabilitation to assisted living. Over the course of two semesters (spring 2012 and fall 2012), dental hygiene students from Palm Beach State College screened patients at MorseLife.

In the spring of 2012, 98 patients were screened, and in the fall of 2012, 111 patients were screened (N=209). Age among all patients ranged from 68 to 102, and the majority of patients were female (98%). The results are as follows:

- 42 (20%) patients had untreated tooth decay
- 86 (41%) patients were in need of periodontal care
- 76 (36%) patients were in need of early treatment
- 19 (9%) patients were in need of urgent treatment
- Three-quarters of patients screened had natural teeth

CHAPTER III: Children’s Services Council of Palm Beach County Oral Health Survey

Background

The Children’s Services Council of Palm Beach County (CSC) has implemented the Oral Health Survey developed by the Florida Public Health Institute, which assesses oral health indicators of three different populations: pregnant women; infant; and children 1- to 5-year-old. Parents provided the information on behalf of the infants and children.

Analysis

Data collected by this survey was analyzed to gain a better understanding of current oral health practices and access the dental health services in Palm Beach County among the target groups. Data analysis was conducted to meet the following objectives:

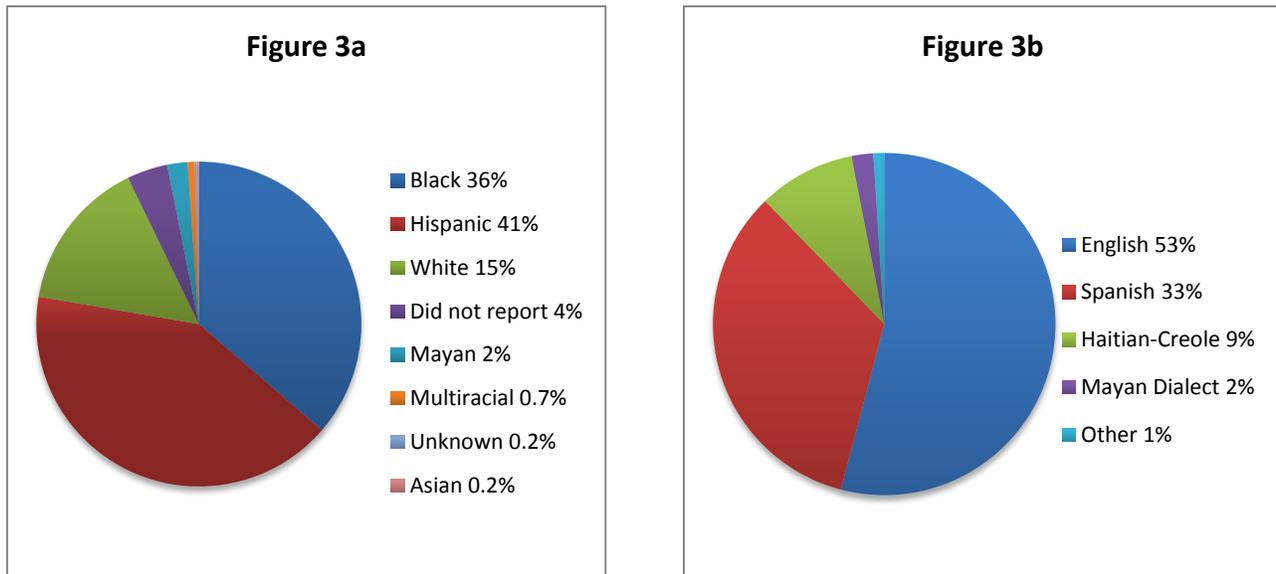
- Provide a summary of the types of oral health data that can be collected through the survey tool;
- Locate gaps in current oral health data by use of the survey tool;
- Provide recommendations to address gaps in data collection;
- Determine the validity survey questions; and
- Determine which questions could be eliminated from the process.

Results

Prenatal – Demographics: N=443

Figures 3a and 3b show *Race & Ethnicity* and *Language Spoken* for respondents respectively.

Figure 3a. Race & Ethnicity and Figure 3b. Language Spoken (N=443)



Analysis was conducted to learn more about how aware mothers are of how their oral health affects their overall health and the health of their babies. The majority of mothers were either *Very Aware* (n=208, 47%) or *Somewhat Aware* (n=173, 39%) that the health of their own gums and teeth can affect their overall health. Similarly, majority of were either *Very Aware* (n=173, 39%) or *Somewhat Aware* (n=137, 31%) that the health of the mother’s gums and teeth can affect the baby’s health.

Stemming from level of awareness, the potential relationships between maternal level of awareness of oral health effects on themselves and their babies and description of the women’s own teeth was examined. There was no relationship between maternal awareness on themselves and their description of their own teeth, χ^2 (N = 438, df = 3) = 4.95, p = .175. However, there was a statistically significant relationship between maternal awareness of oral health effects on their babies, χ^2 (N = 439, df = 3) = 11.61, p = .009. That is, women who were *Very Aware* of oral health effects on their babies said their teeth were in better condition. For example, women who were *Not Aware* or *Somewhat Aware* of oral health effects on their babies were less likely to report that their own teeth were *Excellent* (4%) than women who were *Aware* of oral health effects on their babies (10%).

Data was also analyzed to identify relationships between maternal level of awareness of oral health effects on herself and her baby and women’s ability to get dental care. The majority (237, 53%) of respondents were able to get dental care in the past year when they needed it. About a third (168, 38%) said they were not able to get dental care when it was needed in the past year, and 38

(8%) were not sure or did not remember (Table 2). Respondents who were unsure or did not remember were not included in the following analyses. There was a statistically significant relationship between maternal awareness on themselves and ability to get care, χ^2 (N = 402, df = 1) = 4.23, p = .040. Specifically, women that were *Very Aware* of oral health effects were more likely to not get care (47%) when they needed it in the past year than women who were only *Somewhat Aware* or *Not Aware* (37%). However, there was no relationship between maternal awareness of oral health effects on their babies and ability to get dental care, χ^2 (N = 403, df = 1) = 0.39, p = .532.

Table 2. Mother’s ability to access dental care within the past year

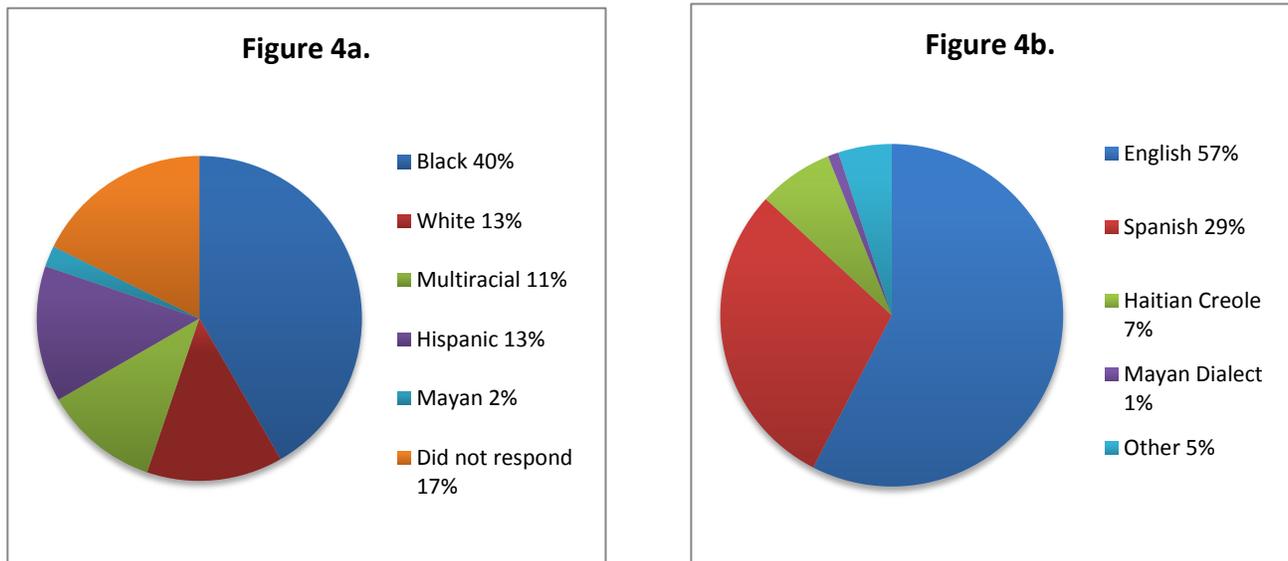
Ability to get care within the past year Percentage, (Sample Size/n)		
Yes	No	Not Sure/Don't Remember
53 (237)	38 (168)	8 (38)

Analysis was also conducted to identify potential relationships between mothers who do not have insurance and their level of awareness of oral health effects on themselves and their babies. Just under one-third (137, 31%) of respondents said they did not have insurance. However, there was no relationship between awareness of oral health effects on the mother and insurance, χ^2 (N = 440, df = 1) = 2.54, p = .111, or between awareness of oral health effects on their babies, χ^2 (N = 441, df = 1) = 0.31, p = .576.

Infant - Demographics: N=315

Figures 4a and 4b show *Race & Ethnicity* and *Language Spoken* for respondents respectively.

Figure 4a. Race & Ethnicity and Figure 4b. Language Spoken (N=315)



Analysis to identify relationships between type of insurance and description of babies’ gums or teeth was conducted. There was a statistically significant relationship between insurance and the description of the babies’ gums or teeth, χ^2 (N = 311, df = 2) = 7.19, p = .026. That is, women with insurance reported that their babies had higher quality gums and teeth, for example, 74% of women with insurance said their babies had Excellent gums and teeth compared to 53% of women without insurance.

Next, data was analyzed to identify relationships between those on Medicaid and their awareness of Medicaid dental services. The majority of respondents (n=279, 89%) had insurance, and more than 90% of those respondents reported that they had Medicaid (n=276, 94%) or other insurance (n=16, 6%). In the group of women who had Medicaid, nearly a quarter (n=62, 23%) were not aware that children were eligible for Medicaid.

Data was then analyzed to identify the relationship between frequency of babies being put to bed with bottles containing anything aside from water and description of babies’ gums or teeth. The majority of women (n=214, 68%) said they *Never* put their baby to bed with a bottle, and a small percentage said *Not Often* (n=44, 14%), *Often* (n=20, 6%), or *All the Time* (n=37, 12%). There was a statistically significant relationship between babies being put to bed with bottles and the mother’s description of her baby’s teeth, χ^2 (N = 311, df = 6) = 25.04, p = .003. A much higher proportion of respondents (80%) who never put their baby to bed with a bottle described their baby’s gum or teeth as *Excellent* than respondents who said they put their baby to bed with a bottle *Not Often* (53%), *Often* (45%), or *All the Time* (62%). Table 3 highlights these results.

Table 3. Frequency of Babies put to Bed with a Bottle

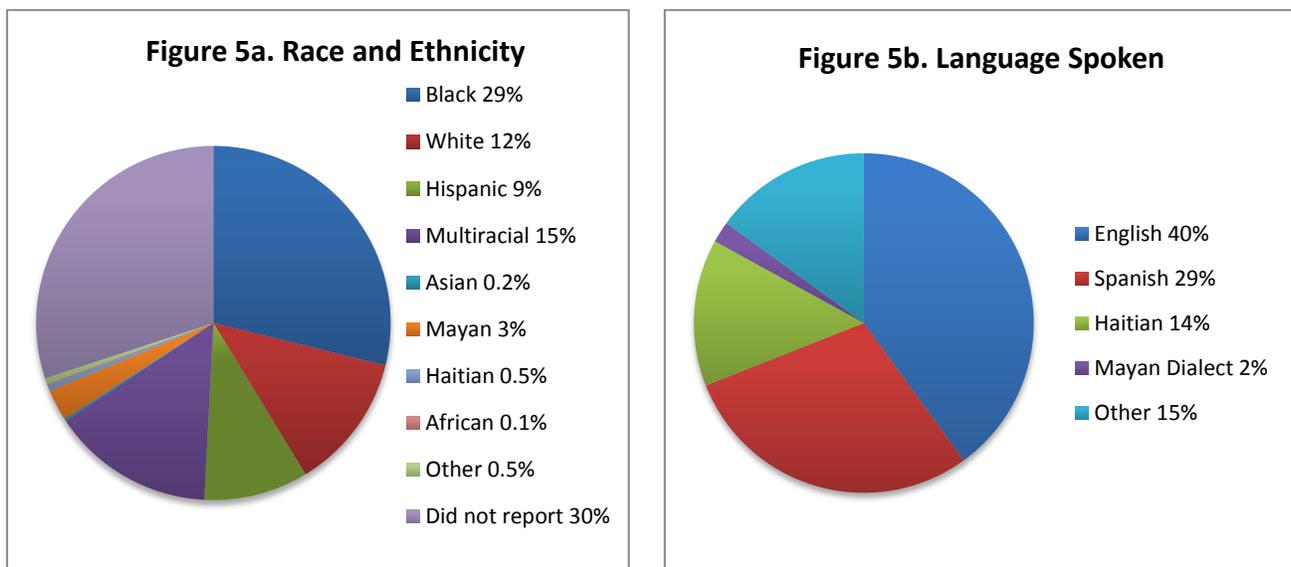
Percentage (n)	Response
68 (214)	Never
14 (44)	Not Often
6 (20)	Often
12 (37)	All the time

Then, analysis was conducted to provide data to support the overall status of the babies’ gums. The status of the babies’ gums/teeth was described as *Good* or *Excellent* by the majority of women. Specifically, most women (n=223, 71%) said that their baby had *Excellent* gums or teeth, and almost a third (n=83, 27%) said the gums or teeth were *Good*. Only a small proportion (n=5, 2%) said *Fair*, *Poor* (n=0), or had no answer (n=4, 1%).

1- to 5-Year-Olds - Demographics: N=915

Figures 6a and 6b show *Race & Ethnicity* and *Language Spoken* for respondents respectively.

Figure 5a. Race & Ethnicity and Figure 5b. Language Spoken (N=915)



Analysis was conducted to identify the relationship between frequency of children being put to bed with bottles containing anything aside from water and description of children’s gums or teeth.

Very few women said they gave their child a bottle before bed, as 745 (81%) endorsed *Never* doing so in the past year. As such, this question was examined by comparing women who endorsed *Never* to women who endorsed any level of bottle use (*Not Often, Often, All the Time*). Respondents who did not provide an answer were not considered in this analysis. There was a statistically significant relationship between being put to bed with a bottle and the description of the child’s teeth, χ^2 (N = 905, df = 3) = 12.26, p = .007. More specifically, 91% of respondents who *Never* used a bottle at bedtime said their child’s teeth were *Good* or *Excellent*, compared to 83% of respondents who used a bottle at bedtime.

Next, analysis identified relationships between type of insurance and description of children’s teeth. Only the respondents who provided information about whether they had insurance were included in these analyses. Most respondents (n=839, 92%) had insurance, and an insignificant amount did not provide an answer to this question (n=3, 0.3%). Of those with insurance, 84% (n=704) had Medicaid, 7% (n=57) had Kid Care, 0.1% (n=1) had Vita Care, and the remaining 9% (n=77) had other insurance or did not specify the type (Table 4). There was a statistically significant relationship between being insured and the description of the child’s teeth, χ^2 (N = 905, df = 3) = 14.21, p = .004. Almost one-third (30%) of respondents with insurance said their children had *Excellent* teeth, compared to only 13% of those without insurance. Respondents with Medicaid did have significantly different descriptions of their child’s teeth than those with Kid Care, χ^2 (N = 755, df = 3) = 3.79, p = .272. Of note, 90% (n=628 those with these 2 insurance types) of respondents with Medicaid and 89% (n=51) with Kid Care described their child’s teeth as *Good* or *Excellent* and (Vita Care was not included due to the low number of cases with this insurance).

Table 4. Child’s Insurance Type

Percentage (n)	Type of Insurance
84 (704)	Medicaid
7 (57)	KidCare
0.1 (1)	Vita Care
9 (77)	Other

Analysis was conducted to assess relationships between children on Medicaid and parental awareness of Medicaid dental care services. Over three quarters of the women (n=298, 75%) had Medicaid. Of these, only 5% (n=18) were *Not Aware* that children are eligible for Medicaid.

Over half the children had been to visit a dentist in the last 3 years, with 283 (31%) less than 6 months ago, 192 (21%) less than a year ago, and 27 (3%) less than 3 years ago. Approximately half, (n=408, 45%) of respondents said their child has *Never* been to the dentist, and 5 (0.5%) did not answer this question (Table 5).

Table 5. Length of Time from Child’s Last Dental Visit

Percentage (n)	Response
31 (283)	Less than 6 months
21 (192)	Less than 1 year
3 (27)	Less than 3 years
45 (408)	Never visited a dentist
0.5 (5)	No response

As might be expected, there was a statistically significant relationship in described teeth quality between those that had *Never* been to the dentist and those who had been in the last 3 years, χ^2 (N = 903, df = 3) = 8.93, p = .030. There was no difference in the description of child’s teeth between those that had been to the dentist in the last year compared to those that had been in the last 3 year or *Never* had been, χ^2 (N = 903, df = 3) = 5.09, p = .164.

The relationship between school absenteeism and children’s oral health status was then examined. Very few respondents said their child had any absenteeism due to problems with their child’s teeth, 63% (n=574) said *Never*, 33% (n=296) *Not Applicable*. Of the 4% remaining, 2.5% (n=23) said *Not Often*, 0.8% (n=7) had no answer, 0.3% (n=3) answered *Don’t Know*, 0.5% (n=5) said *Often*, and only 0.5% (=5) said *Very Often* (Table 6).

Table 6. Frequency of School Absenteeism Due to Oral Health Status

Percentage (n)	Response
63 (574)	Never
2.5 (23)	Not Often
0.5 (5)	Often
0.5 (5)	Very Often
33 (296)	Not Applicable
0.8 (7)	No Answer
0.3 (3)	Did Not Know

Overall, respondents described the status of children’s teeth as *Good* or *Excellent* (n=757, 88%). Only 8% (n=71) said *Fair*, 3% (n=26) said *Poor*, and 1% (n=8) had no answer (Table 7).

Table 7. Description of Children’s Teeth

Percentage (n)	Parent Perception of Child's Oral Health Condition
28 (257)	Excellent
60 (553)	Good
8 (71)	Fair
3 (26)	Poor
1 (8)	No Answer

Discussion and Recommendations

The CSC Oral Health Survey data was analyzed to assess the type of information that can be obtained through utilization of the tool as well as recommended modifications to the tool and future implementation of the survey. Annual data collection through this survey will allow for examination of how access to and awareness of oral health services varies across populations and geographical locations throughout Palm Beach County. Analysis of this data will help to address oral health needs specific to various demographics and locations.

The survey results demonstrated a gap in awareness of how maternal oral health affects their overall health and the health of their babies. In an effort to boost awareness for oral health importance, it is important to examine sources of oral health education for mothers and their children. Oral health education options may include a variety of sources, from informational videos and handouts to in-person educational discussions. Pediatric nurses may conduct the facilitation of this education. The education curriculum being used by various programs can be evaluated for oral health content and applied in these settings. Education regarding the dental services provided through Medicaid can take place during the Medicaid application and enrollment processes to increase awareness for dental care services.

Considering the differences discovered through analysis between the insured and uninsured populations in terms of oral health, access to oral health services and how this can be increased among the underserved should be addressed. The reduction of disparity between the insured and uninsured populations should also be considered through addressing the increase of access to oral health services in Palm Beach County. Additionally, through both efforts to increase oral health education and access to services, it is important to emphasize oral health promotion and oral health disease prevention.

After finalizing the CSC Oral Health Survey tool for future use, it is important to establish a collection period for CSC survey data. Moving forward, a suggestion for collection would be to implement the survey within a two–three month “window of time” one time per year. This will allow for consistent monitoring of comparable data across time throughout Palm Beach County. This tool

may then also be applied to a greater geographical range. It is also recommended that CSC explore the possibility of Developmental Specialists and nurses in pediatric practices or other health settings that may be able to administer the survey within that “window.”

Conclusion

Analysis of the CSC Oral Health Survey tool was intended to locate gaps in data collection by the tool, provide recommendations addressing those gaps, determine whether or not any questions can or should be eliminated by examining validity of the survey questions, and provide a summary of the types of oral health data the tool collects. When examining the survey tool and analyzing gaps it contains, it has been discovered that diet and nutrition in the applicable age groups are not captured, aside from bottle usage. Additionally, the survey tool does not capture behavioral factors related to oral health hygiene of mothers or babies and children. One specific behavior to address is the oral habit of thumb sucking among babies and children. In addition, to note within the prenatal survey section is the smoking status of the pregnant women. Due to regional variation throughout Palm Beach County, it is also recommended that this survey contain a demographic measure related to the location respondents reside in order to better assess their oral health environment. Due to the nature of the survey questions, tests for validity were not applicable, though it is not recommended to remove any survey questions, as they were not considered repetitive and provided variability and insight. With these minor modifications, the CSC Oral Health Survey tool has the ability to provide valuable data related to awareness of and access to oral health services as well as differences between the insured and uninsured regarding oral health.

CHAPTER IV: Association of State & Territorial Dental Directors Basic Screening Survey of Older Adults: Florida

Background

The Association of State & Territorial Dental Directors has developed two Basic Screening Survey tools: one for surveying children, and another for surveying older adults. Data collected through both ASTDD-BSS tools is compiled, analyzed, and reported by the National Oral Health Surveillance System (NOHSS). As a collaborative effort of the Centers for Disease Control and Prevention (CDC) and ASTDD, NOHSS tracks oral health indicators at the national and state levels. NOHSS includes both adult indicators and child indicators for oral health, but in the State of Florida,

only the ASTDD BSS adult indicators are currently reported. Outreach to obtain raw data sets from the CDC was unsuccessful, thus secondary data obtained through the NOHSS website was analyzed.

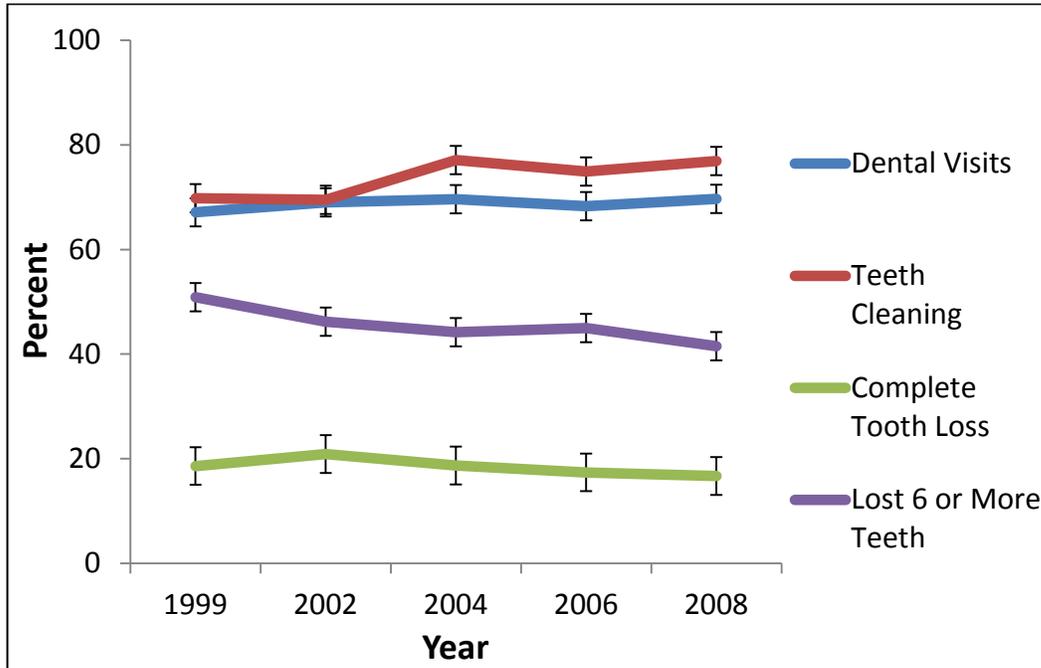
Analysis

While the obtainment of ASTDD-BSS raw data sets for the older adult population was not possible, an analysis of state-wide secondary data acquired from NOHSS has been conducted to examine trends over time of the four elements captured for this population: Adults aged 65+ who have visited a dentist or dental clinic within the past year; Adults aged 65+ who have had their teeth cleaned in the past year (among adults with natural teeth who have ever visited a dentist or dental clinic); Adults aged 65+ who have lost all of their natural teeth due to tooth decay or gum disease; and Adults aged 65+ who have lost six or more teeth due to tooth decay or gum disease. Data sets represent the years 1999, 2002, 2004, 2006, and 2008.

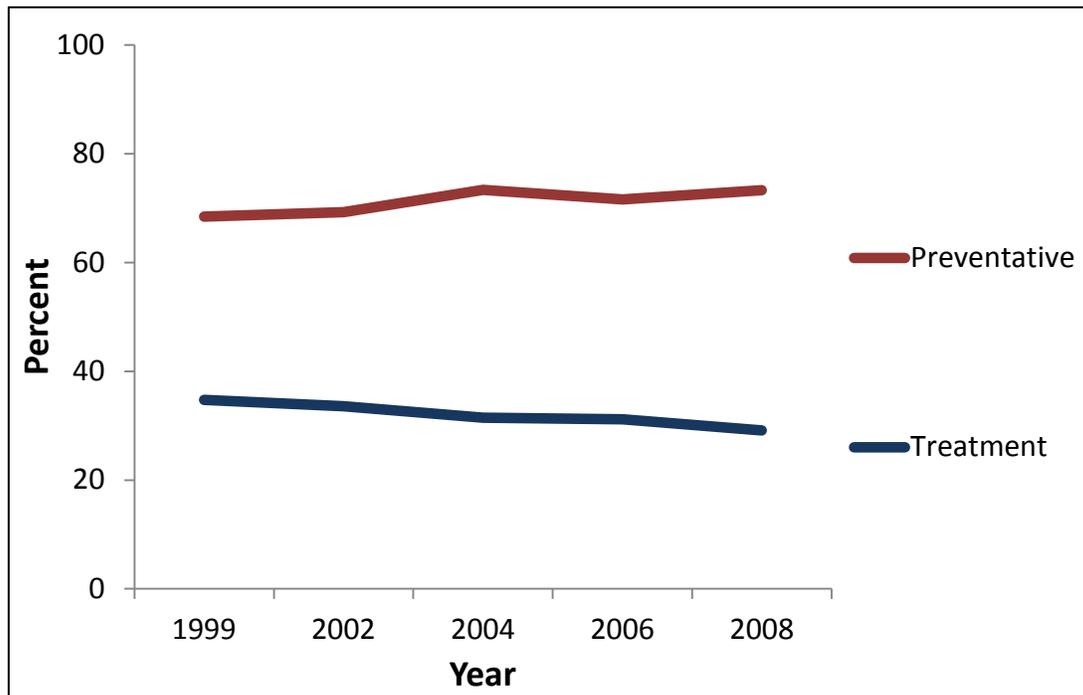
Results

The following graphs represent the ASTDD-BSS secondary dataset. This dataset contains summary scores from five years: 1999, 2002, 2004, 2006, and 2008. Figure 6 (below) shows the trend lines for four factors (*Dental Visits, Teeth Cleaning, Complete Tooth Loss, and Lost 6 Teeth or More*), and Figure 8, shows the trend lines to compare preventative services (*Dental Visits and Teeth Cleaning*) vs. Treatment (*Complete Tooth Loss and Lost 6 Teeth or More*). The combined trend lines in Figure 7 were constructed by taking the arithmetic mean of the two summary scores. Trend lines in Figure 7 should not be considered authoritative, but rather a general guide, because the individual data points were not available for calculations. Error bars are shown in Figure 6, representing 95% confidence intervals. Errors are not shown in Figure 8, as the precision of the scores in this analysis is not known because there was no individual-level data.

Figure 6. Trends in Older Adult's Oral Health in FL



As seen in Figure 6, there has been little change in these four services from 1999 to 2008. There was a minute increase in the proportion of older adults receiving teeth cleaning from 1999 (70%) to 2008 (77%), but generally stable rates for dental visits from 1999 (67%) to 2008 (70%). Additionally, there was a small decrease in losing 6 or more teeth from 1999 (49%) to 2008 (42%), but no change in complete tooth loss from 1999 (19%) to 2008 (17%).

Figure 7. Trends in Older Adult Prevention and Treatment in Florida

As seen in Figure 7, preventative services have increased marginally from 1999 (68%) to 2008 (73%) and Treatment has decreased modestly over the same period (35% in 1999; 29% in 2008). It should be noted that these trend lines are best used for exploratory guides due to the unknown precision in these scores.

Discussion and Recommendations

Analysis was conducted to learn more about the trends of oral health prevention and treatment among older adults. While there may not have been large increases in older adults who have visited a dentist or dental clinic within the last year and older adults who have had their teeth cleaned within the last year, the general increasing trend should be noted. This trend may also be reflected in the reduction of older adults who have lost six or more teeth due to tooth decay or gum disease and older adults who have lost all of their natural teeth due to tooth decay or gum disease.

Based on the trends seen through oral health of older adults from 1999 to 2008, it is clear that there is a need for increased preventive oral health services among this population. These services should also be addressed in adults under the age of 65 in an effort to help reduce the risk of gum disease and tooth loss in older adulthood. Additionally, educational components may aid in increasing the number of older adults who have yearly dental visits and teeth cleanings. These educational components should include information on the benefits of seeking preventive services,

medications that may impact oral health and behavioral actions that can be taken to help reduce the risk of gum disease and tooth loss.

It is recommended that data collection through NOHSS be continually monitored to examine changes to these factors over longer periods of time. While the data presented through the NOHSS website is state-level data, it would be useful to obtain this information at the County level in order to conduct more specific analyses to help tailor senior oral health programs and preventive services to more specific subpopulations within this age group.

Conclusions

In the assessment of oral health trends over time for seniors, it has been discovered that there are slight changes occurring among prevention and treatment of this population. Slight increases in both *Dental Visits* and *Teeth Cleanings* among seniors as well as slight decreases in *Complete Tooth Loss* and *Loss of 6 or More Teeth* demonstrate trends moving in better directions over time, changes of this nature may become more dramatic as various oral health programs or increased preventive services reach older adults. Monitoring of oral health among seniors and programs targeted to this population will become increasingly more important as the older adult population increases in the coming years.

CHAPTER V: Florida Agency for Health Care Administration

Background

A review and analysis of the Florida Agency for Health Care Administration (AHCA) Emergency Department Facility data for the State of Florida has been conducted to assess number of emergency department visits and spending across payer sources over the past five years (2007-2011). Principle Diagnosis data for oral health diagnoses has been compiled at the state level for the State of Florida. While analysis of this type has been conducted previously for the years 2008, 2009, and 2010, a representative from the Florida Center for Health Information and Policy Analysis explained that previous analysis was provided with incomplete data. The analysis conducted for the purposes of this report includes all oral health diagnosis codes for the five most recent years data is available.

Analysis

Analyses were conducted separately on five data sets that correspond to a single year: 2007, 2008, 2009, 2010, and 2011. For each year, analysis was conducted to learn how many people received ED services, the average age of patients, how many of those patients were children (17-years-old and younger), and how many of those patients were older adults (65-years-old and older). Analysis for each year, of the total for Total Gross Charges was provided in order to learn more about trends of oral health ED spending. Across all ages, a breakdown by payer source per year was provided as well as the total amount of Total Gross Charges for each payer source per year. For each year, data was analyzed to provide time of day of visits and day of week of visits. Data included all of the oral health Emergency Department (ED) visits for the State of Florida. Table 8, depicts the summary statistics for each analysis and for each year. With one exception (time of visit), there was no missing data for any variables used in these analyses.

Results

The overall number of people who received Emergency Department (ED) dental services increased slightly over the five-year period. The average age (approximately 31 years) of these patients was stable over this period. The number of children served through ED oral health services increased from 18,002 in 2007 to 19,885 in 2011, but the proportion of children remained relatively steady throughout this five-year period. Additionally, while the number of older adults served through ED oral health services increased from 4,209 in 2007 to 5,168 in 2011, this proportion remained steady as well.

The Total Gross Charges have almost doubled from 2007 (\$99 million) to 2011 (\$193 million). On a per-person basis, the cost increased from \$736 per person in 2007 to \$1195 per person in 2011. The greatest increase was from 2007 to 2008. The Table shows the breakdown by payer source (where available) by year. Note that the payer structure in the datasets changed in 2010.

Most of the ED visits were during business hours. The proportion of visits during business hours was stable (60%) over the five-year period. This proportion is higher than would be expected strictly by chance (42%). As shown in the table, less than 1% of the cases were missing data about the time of the visit. The majority of visits (70%) were during the weekend, which was also stable over the five-year period. The weekday-weekend ratio is approximately what would be expected for a period that is 5 days versus 2 days (71% versus 29%).

Table 8. Summary statistics for each year (total N = 748,760)

		2007	2008	2009	2010	2011
# People received ED services		134,881	143,535	152,630	155,787	161,927
Florida population, millions ^a		18.4	18.5	18.7	18.8	19.1
Average age (SD), years		30.93 (15.60)	31.15 (15.62)	31.32 (15.69)	31.55 (15.76)	31.72 (15.77)
# Children (<18)		18,002 (13%)	18,352 (13%)	19,351 (13%)	19,499 (13%)	19,885 (12%)
# Older adults (65+)		4,209 (3%)	4,522 (3%)	4,821 (3%)	5,132 (3%)	5,168 (3%)
Total Gross Charges, \$		99,327,744	131,563,398	153,865,789	173,465,512	193,485,770
Total Gross charge per person, \$		736.41	916.59	1008.10	1113.48	1194.90
Total Gross Charges (\$) for each payer source (denoted by letter) ^b	A	9,393,319	11,894,414	13,604,705	16,279,096	17,183,930
	B	2,532,000	3,885,190	5,033,600	6,218,167	7,231,796
	C	11,702,343	16,162,914	22,324,095	29,392,535	34,718,854
	D	9,061,907	12,886,698	18,385,516	23,514,547	26,695,774
	E	4,782,204	5,633,558	5,458,309	29,582,518	30,619,048
	F	8,707,311	10,299,524	12,243,934	--	--
	G	9,301,657	11,513,233	12,631,604	--	--
	H	262,592	277,989	371,680	421,125	342,552
	I	1,119,127	1,205,424	1,632,939	1,668,684	1,827,341
	J	241,651	343,141	330,620	338,260	385,096
	K	1,399,019	1,837,416	1,583,141	2,078,363	2,254,021
	L	35,175,525	49,237,018	52,006,389	56,442,634	64,313,983
	M	149,619	218,710	216,257	379,278	492,316
	N	5,274,696	5,889,958	7,575,451	5,887,892	6,186,395
	O	224,774	278,211	467,549	721,570	576,850
	P	--	--	--	49,829	50,419
	Q	--	--	--	491,014	607,395
Visit during business hours (8am-6pm)		79,695 (59%) 1 missing	86,501 (60%) 98 missing	92,859 (61%) 3 missing	94,865 (61%) No missing	98,780 (61%) 1 missing
Visit on weekday (M-F)		92,563 (69%)	98,840 (69%)	106,115 (70%)	108,507 (70%)	112,243 (69%)

Note. ^aUS Census Bureau, 2012. ^b Payers changed in 2010: A – Medicare, B – Medicare HMO, C – Medicaid, D – Medicaid HMO, E – Commercial Insurance, F – Commercial HMO, G – Commercial PPO, H – Workers’ Compensation, I – CHAMPUS, J – VA, K – Other State/Local Government, L – Self pay. No third party coverage, M – Other, N – Charity, O – Kidcare. Includes Healthy Kids, MediKids and CMS, P – Unknown, Q – unlisted.

Discussion and Recommendations

Analysis of AHCA data was important to understand and assess costs associated with oral health ED services. In an effort to avoid elevating medical costs associated with ED oral health visits associated with the current system as demonstrated by results of this analysis, it is recommended that preventive oral health services be expanded among all populations, especially the underserved. Without proper preventive services, problematic dental issues become severe to the point of seeking ED services, which, as demonstrated in the analysis, is extremely costly. These types of routine services for adults should be covered by Medicaid to help expand the reach of prevention, requiring action within public health policy. An increase in Medicaid reimbursements may also help provide patients with better access to dental services. Preventive services may be provided through schools and local health departments to reach underserved populations. In addition, educating communities on local dental and dental hygiene schools that may offer lower-cost services can also provide an alternative to emergency departments as well.

The majority of ED oral health visits occurred during regular business hours (defined as 8:00AM to 6:00PM) and during weekdays (Monday through Friday). This shows that many people are accessing ED services rather than dental practice or alternative services when facing oral health problems. Expansion of the aforementioned preventive services and service coverage will aid in the reduction of ED utilization during regular business hours, then reducing ED spending as oral health costs of dental services are far less than that of emergency services. Educational efforts to expand knowledge of the limited oral health services emergency departments offer relative to oral health services of a dental office may help in moving patients away from the high price of the emergency department.

Conclusions

Analysis was conducted to examine costs associated with oral health ED visits, cost per payer sources for ED visits, and when ED visits most frequently occurred. As demonstrated by the analysis, Total Gross Charges have steadily increased over the five-year period from \$99,327,744 in 2007 to \$193,485,770 in 2011. When broken down by payer source, both Medicaid and Medicaid HMO spending has nearly tripled from 2007 to 2011. Self-pay patients made up the majority each year. Additionally, patient visits charged to children's payer sources (Kidcare, which includes Healthy Kids, MediKids, and Children's Medical Services) had also more than doubled across the five-year span. Oral health ED visits occur most frequently during regular business hours. All of these factors are important to keep in mind when expanding oral health programs. Prevention-based programs aimed

at getting patients out of emergency departments and into the chairs of dental service providers will aid in the reduction of increasing oral health care ED costs.

CHAPTER VI: Conclusions

Through both review and analysis of current oral health data collection, surveillance, and monitoring, gaps have been discovered in oral health status of the subpopulations examined in this report. Across most subpopulations, disparities between the insured and uninsured came to light. This was especially apparent in analysis of the AHCA database, with a large margin seeking ED services rather than services provided through a dental practice. Additionally, gaps exist in one's ability to access dental services, as noted through the CSC Oral Health Survey results. This may, in part, be due to a lack of awareness for services provided, lack of ability to access the services of a dental practice because of a lack of insurance coverage, or other geographical or socioeconomical challenges. Gaps in awareness for oral health services may be improved through educational efforts in a variety of settings such as parental outreach in the Head Start Program and prenatal outreach in the Early Head Start Program. Additional programs which may prove to be viable outlets for oral health education and service outreach may be the Florida Healthy Start program, Children's Services Council programs, Medicaid enrollment offices, Special Olympics programs, Children's Medical Services and other agencies which serve at-risk and medically fragile infants and children.

In order to monitor oral health status effectively, there is a clear need for increased and consistent oral health surveillance across all populations including those with special needs. This type of surveillance should be conducted at both the state and county levels and should be consistent from county to county in order to provide comparative data. This data can be utilized to inform public health policy to improve oral health services and funding in Florida. It can also help to identify areas with the largest disparities and guide strategies for the future. Additionally, educational efforts can be tailored to these communities as a promotional and preventative measure for helping to improve oral health in Florida.

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