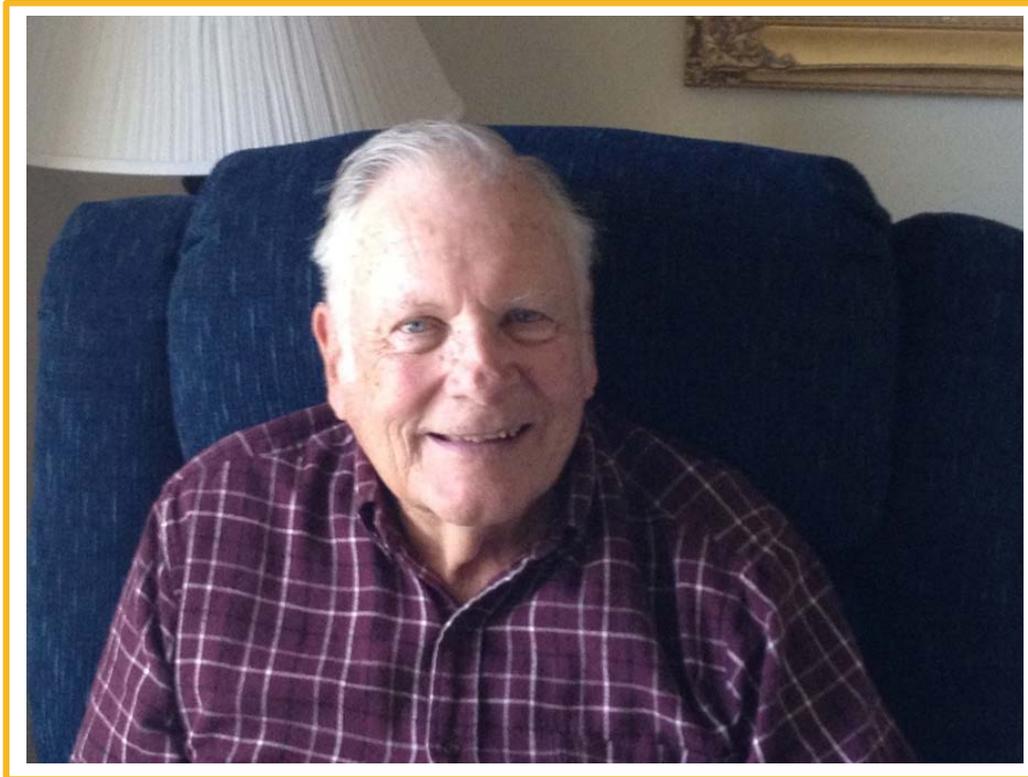


Elder Smiles 2012

*A Survey of the Oral Health of Kansas Seniors
Living in Nursing Facilities*



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ELDER SMILES 2012

A Survey of the Oral Health of Kansas Seniors Living in Nursing Facilities

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EXECUTIVE SUMMARY

In the summer of 2012, the Kansas Bureau of Oral Health and Oral Health Kansas conducted an oral health survey of 540 Kansas elders living in 20 nursing facilities. The survey was based on a nationally recognized protocol and consisted of a clinical oral health screening and a resident questionnaire. Dental hygienist screeners collected information on the presence of teeth and dentures, untreated dental decay, severe gingivitis, tooth mobility, and presence of oral debris. The questionnaire asked the resident (or their guardian if necessary) about their daily oral care, access to dental treatment, and insurance status. This is the first survey of its kind to be conducted in Kansas, providing valuable information about the oral health of this growing segment of the state's population.

KEY FINDINGS:

- **One-Third of Nursing Facility Residents Have Lost All of Their Natural Teeth**

When a person loses all of their natural teeth it affects their appearance and their ability to eat and speak. One third of nursing facility residents in this study had no natural teeth, and an additional 43.7% had lost some, but not all of their teeth. This is significantly higher than the 17.4% of seniors living independently in the community who have lost all of their natural teeth.

- **Nursing Facility Residents Have Had Significant Dental Care In the Past, But Now Have Untreated Dental Disease**

Over one-third of nursing facility residents had untreated dental decay. The screeners noted a large amount of past dental work (crowns, bridges, partial dentures) in the resident's mouths. This indicates past access and investment in professional dental care. The presence of current untreated dental disease suggests that this level of care has not continued in their current life situation.

- **Nursing Facility Residents Have Poor Oral Hygiene**

Daily brushing and flossing removes the bacteria and plaque that irritates gums and leads to inflammation (gingivitis) and periodontal disease. 26% of surveyed residents had severe gingival inflammation, meaning that the gums were swollen, bleeding, and/or painful. 29% had substantial oral debris on at least two-thirds of their teeth. 15% of the residents had natural teeth that were loose. Taken together, these indicators suggest that many nursing facility residents are not removing the plaque and bacteria from their teeth on a regular basis.

- **Nursing Facility Residents Have Limited Financial Resources for Dental Care**

Medicare (the federal governmental health insurance program for Americans over 65) does not cover preventive and restorative professional dental services or dentures. Kansas Medicaid (the state and federal health insurance program for the poor and disabled) offers minimal dental benefits for adults. 66% of the surveyed residents were on Kansas Medicaid. Professional dental care is an out of pocket expense for most seniors, and this a barrier to care for many on limited incomes.

RECOMMENDATIONS:

- **Ensure That Nursing Facilities Residents Receive Daily Preventive Care**
- **Improve Access to Oral Care by Creating More Mobile Programs in Nursing Facilities**
- **Ensure Sustainability of these Programs Through a Reliable Payment Source for Dental Care**

Improving the oral health of nursing facility residents will require a multi-pronged approach. Nursing facilities must monitor residents to ensure they are receiving adequate daily oral care and to identify oral health needs that require professional attention. Access to dental professionals must be physically and financially feasible. All three components are necessary to see impactful and sustainable improvement in the oral health of this population.

INTRODUCTION

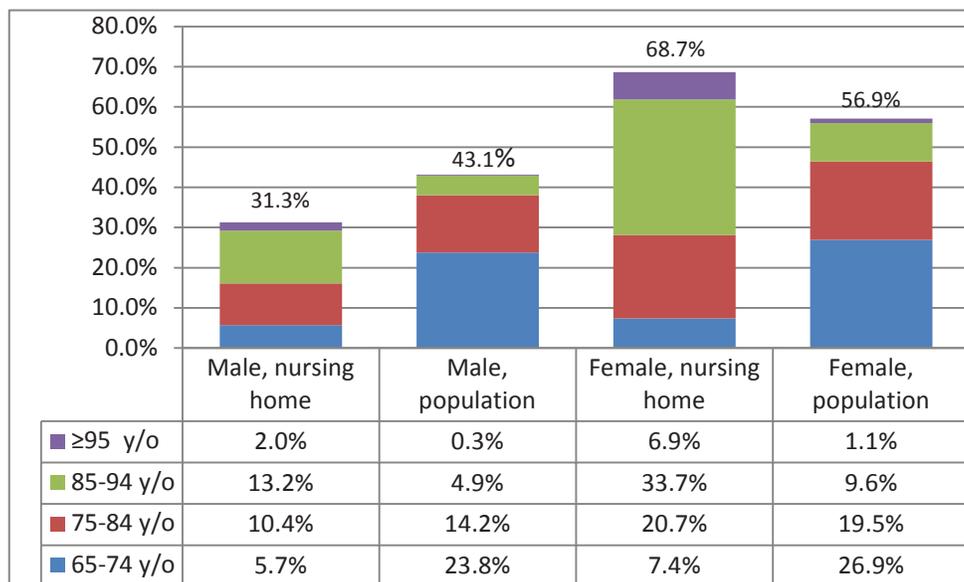
One of the primary functions of the Bureau of Oral Health is to monitor the oral health of Kansans. In this report, we focus for the first time on an important and growing segment of the state’s population, older Kansans. In 2010 Kansas was home to 376,116 seniors, 13% of the total population of the state. This population group is projected to grow to 611,460 by 2030; a 72% increase in just 20 years.¹ Oral health plays a significant, but often overlooked, role in the health and well-being of older populations.

Many Americans have seen a reduction in the prevalence of oral disease over the last 25 years.² Community water fluoridation and routine dental care have led to more people keeping their teeth throughout their lifetime. Only 17.4% of Kansas seniors (age 65 and older) living in the community report having lost all of their teeth.³ For previous generations of elders, losing their teeth was an accepted part of growing old. At the same time, these positive statistics should not obscure the fact that many older people continue to suffer from oral disease. Approximately one-third of older Americans nationally have untreated tooth decay, 47% have periodontal disease⁴, and people over the age of 65 are seven times more likely than younger Americans to be diagnosed with oral cancers.⁵

The Kansas Elder Smiles survey is Kansas’ first attempt to assess the oral health of elders living in nursing facilities, a small segment of the state’s senior population. This subset of Kansas seniors was chosen because they are an easily identified part of the elder community that is perceived to have large unmet dental needs. It is important to stress that this survey is not representative of all Kansas seniors, most of whom live independently within the community. Seniors living in nursing facilities are generally older and are more likely to be female than the population at large.

Age and Gender Percentage Distribution of Kansans Living in Long Term Care Facilities and the General Population

Source: Population data by gender, U.S. Census Bureau, 2010 Census



Many nursing home facility residents are unable to perform one or more of the defined “Activities of Daily Living” (ADLs), routine activities most people do every day without assistance. One of the six basic ADLs is personal hygiene and grooming, which includes oral hygiene. 50% of nursing facility residents have three or more ADL impairments. 47% have moderate to very severe cognitive impairments.⁶ Mobility and dexterity limitations can affect the ability to brush and floss the teeth. Cognitive impairments can affect an individual’s ability to assess the need for dental hygiene and dental treatment. All of these factors contribute to the oral health status of this vulnerable population.

Although state and federal regulations require that nursing care facilities provide adequate access to dental care for the residents⁷, not all facilities report doing so⁸. Nursing home residents’ daily oral care is often the responsibility of direct care staff that may not recognize the signs of poor oral health or be knowledgeable about how to provide adequate daily oral care. Some dentists treat patients in nursing facilities, but most prefer to have these patients transported to their dental offices. For residents that are physically unable to easily leave the facility and/or have no family willing to take them to a dental provider’s office, seeking professional dental care is difficult if not impossible.

Like many Americans, seniors often do not have the financial resources to pay for the oral health services they need. 58% of Kansans over the age of 65 do not have dental insurance⁹. Most Americans with dental insurance receive it as a benefit of employment. Once an employee retires, most lose their employer-sponsored health benefits and rely on federal health programs like Medicare, the federal health insurance program for Americans over the age of 65. Medicare coverage does not include most dental treatment. Seniors who rely on Medicaid, the state and federal health insurance program for poor families and adults with disabilities, do not fare much better, as Kansas Medicaid does not provide a full dental benefit for adults.

It is important to note that some Kansas oral health advocates have taken some steps to address the issue of poor oral health in nursing facilities. Kansas law allows registered dental hygienists with additional training to create and staff independent oral disease prevention programs within long term care facilities. Some community health centers and private practitioners utilize these hygienists and mobile equipment to provide nursing facility based dental services. The Kansas Health Care Association and LeadingAge Kansas have invested in programs and services to improve the oral health of seniors. These efforts include advocacy to increase funding for professional dental care for seniors enrolled in Medicaid, policy and strategy oral health conferences for leaders and managers of facilities on oral health topics, and onsite workshops on daily oral care targeting direct care staff. All of these programs have the potential to improve oral health in nursing facilities. Unfortunately, these programs are only available in a few parts of the state and a lack of sustainable funding and program infrastructure limits their expansion.

Ensuring the good oral health of Kansas seniors is a rapidly emerging challenge to public policy. This study presents a snapshot of the prevalence of oral disease and its impact on the lives of Kansas seniors living in the state’s nursing facilities. Its purpose is to document the unmet needs of this group of elders, raise public awareness of the need for good oral health and oral disease

prevention across the entire life-span, and to suggest ways the state can address this public health challenge. This assessment of the disease burden on a previously under-studied population can be used as a benchmark for measuring Kansas' progress in achieving national targets such as those in Healthy People 2020¹⁰. It also provides information for public policy makers interested in oral health improvement.



METHODS

The Kansas Bureau of Oral Health and Oral Health Kansas conducted a statewide basic oral health screening survey of 540 Kansans age 65 and older living in 20 long-term care facilities. The survey used the Basic Screening Survey (BSS), a brief clinical screening of an individual's mouth for a point-in-time assessment of their oral health condition. The BSS for older adults looks at tooth loss, dental decay, indicators of gingivitis and periodontal disease, and the presence of full and partial dentures. In addition to a clinical oral health screening, trained dental hygienists administered a questionnaire to the same residents (or their guardians if necessary) on their experiences with access to dental care, dental insurance, mouth pain, dry mouth, and daily oral hygiene habits.

The BSS is a nationally recognized oral health surveillance tool developed by the Association of State and Territorial Dental Directors (ASTDD) and the Centers for Disease Control and Prevention (CDC). It provides a uniform framework for collecting oral health data and is commonly used by states to assess the oral health of children and adults. To make this survey as useful as possible to Kansas elder care advocates, an expert work group was convened by Kansas' oral health coalition, Oral Health Kansas. The work group reviewed the BSS screening protocol and made suggestions for Kansas-specific modifications and additions. The final survey tool was reviewed and approved by the Bureau of Oral Health and KDHE Institutional Review Board.

To assure survey consistency, ASTDD recommends that states screen an accessible and stable sector of citizens rather than the population at large. To assess the oral health of seniors, states have used the BSS at both long-term care facilities and community congregant meal sites. The Kansas work group looked at both possibilities and decided that this first Kansas survey would focus on seniors with the greatest perceived unmet oral health needs, and chose to survey residents of Kansas' licensed nursing facilities. The work group understood that this survey only assessed the oral health of this targeted population, and the results could not be generalized to the senior community at large.

The long-term care facilities where the screenings took place were sampled from a list of all of the licensed nursing facilities in Kansas by a statistician consultant from ASTDD. The selected facilities were contacted by staff from Oral Health Kansas and asked if they were willing to participate. If the facility declined, a similar replacement site was selected by ASTDD. If they agreed, the Bureau of Oral Health sent out detailed information for residents, staff and guardians and set up a time to visit the facility in the summer of 2012. If residents were legally incompetent, guardians were required to sign consent forms prior to the resident's participation in the survey. If they were legally competent, the resident completed the questionnaire themselves with the dental hygienist screener on the day of the clinical screening. Individual clinical oral screening results were shared with the residents and their guardians (if necessary) and the facility's director of nursing.

It is important to note some flaws in the survey implementation that could have affected the results. Nursing facility participation was optional, and those facilities with poor oral health policies could have opted out of the survey with no adverse effects. Those who agreed to participate were told that a minimum of thirty residents was required, so some took this to mean that only thirty residents were to be screened. In many cases the screeners were provided with a list of residents that they had permission to screen. The screeners felt that these residents were usually the most cooperative and cognitively alert patients in the facility. Residents that required guardian signatures were rarely included. Because of these factors it is probable that the data are skewed toward healthier residents. The screeners also felt that a significant number of residents that participated in the clinical survey may have lacked the cognitive ability to answer the questionnaire in a consistent and knowledgeable way.

The data were collected on the paper forms that are included in the Appendix of this report. De-identified data were returned to the Bureau of Oral Health and aggregated on an Excel spreadsheet. Data were sent to the consultants at the University of Kansas Medical Center for analysis. A draft report was submitted back to the Bureau of Oral Health, and a final report was completed in December 2012.



2012 ELDER SMILES SURVEY KEY FINDINGS

Key Finding #1

One-Third of Nursing Facility Residents Have Lost All of Their Natural Teeth

Tooth loss most commonly occurs as a result of long standing dental disease, most commonly dental decay and/or periodontal disease. The loss of teeth (edentulism) has negative consequences for health and well-being. The lack of teeth diminishes the effectiveness of chewing, increasing the likelihood of choking and food aspiration. Most persons without teeth and/or well-fitting dentures are severely limited in the variety of foods that they are able to consume. 33% of the nursing facility residents in this survey had lost all of their natural teeth. Another 42.4% had lost at least some of their teeth. Tooth loss increased as the resident population aged.

Percentage of Nursing Facility Residents Who Have Lost Natural Teeth (N=540)				
Age Range	Fully Edentulous		Partially Edentulous	
	Frequency	Percent	Frequency	Percent
65 - 74 years old	17	23.9%	27	38.0%
75 – 84 years old	55	32.7%	0	41.7%
85 – 94 years old	94	37.2%	110	43.5%
95 years old and older	12	25.0 %	22	45.8%
Total	178	33.0%	229	42.4%

30% of the nursing facility residents said that they limit the type of foods they eat to accommodate for their oral condition. The inability to eat a full complement of foods can lead to nutritional deficiencies and weight loss. Tooth loss also affects speech and its impact on appearance can affect a senior's social interactions, leading to greater feelings of isolation and depression. The added burden of edentulism to a senior in a nursing facility can add greater stress to their already precarious health status.

The percentage of seniors living in nursing facilities who are edentulous is significantly higher than the statewide percentage of edentulous seniors living in the community. 17.4% of all Kansans over the age of 65 are fully edentulous.¹¹ Kansas fares well in the national Healthy People 2020 benchmark regarding edentulism, meeting the target of having less than 21.6% of state's adults aged 65-74 with no natural teeth.¹² This is only true for seniors in the general population; this survey indicates that once they enter a nursing facility the number of natural teeth present in the mouth decreases. Almost 9% of the residents in our sample reported losing a tooth in the last year, suggesting the deteriorating oral health status of seniors living in nursing facilities.

Key Finding #2

Nursing Facility Residents Have Had Significant Dental Care In the Past, But Now Have Untreated Dental Disease

The three dental hygienists that performed the clinical screenings noted a large number of residents had extensive restorative dental work such as fillings, crowns, bridges, and partial dentures present in their mouths. For those who had lost teeth, almost 90 percent had either an upper or lower denture (or both) to replace the teeth they had lost. Partial dentures were also commonly seen. The presence of this professional dental work indicates that at some point in their lives, many residents had access to dental care and chose to expend significant resources on their oral health.

Despite having taken care of their mouths in the past, the current oral status of many nursing facility residents reflects an absence of regular preventive and restorative dental care. 34% had untreated dental decay. Tooth decay (caries) is a preventable chronic disease where acid produced through intraoral bacteria feeding on fermentable carbohydrates demineralizes tooth and root structure. Once tooth structure is destroyed, it cannot be replaced, and the tooth usually must be restored (ex. fillings, crowns, bridges) or extracted by a dental professional. Caries can occur under crowns and bridges and on all surfaces of the tooth and roots. Untreated caries can lead to pain, infection, and tooth loss. Caries can be prevented by reducing bacteria through good oral hygiene, reducing carbohydrates through a healthy diet, and strengthening teeth with fluoride and regular visits to dental professionals. 17.2% of the nursing facility residents surveyed had root fragments, meaning that almost all of a tooth had been destroyed, leaving only a small portion of the root in the mouth.

Although the residents' dentition indicates they have had significant dental care in the past, 53% of sampled residents said they had not seen a dentist in the past year. 31% had not been to a dentist in over three years. Screeners noted almost a quarter of residents had an active dental condition that required professional attention, and close to 4% had pain and/or intraoral swelling. Almost 19% of total sampled residents reported they had experienced oral pain in the last six months. Fifteen residents had what were classified as suspicious oral lesions, a possible precursor to oral cancer. For many nursing facility residents, it appears that regular dental care has become a thing of the past.

Key Finding #3

Nursing Facility Residents Have Poor Oral Hygiene

Daily brushing and flossing removes the bacteria and plaque that irritates gums and leads to inflammation (gingivitis) and periodontal disease. Symptoms of periodontal disease include bleeding, swollen gums that may be tender while eating, and mobile teeth. If left untreated, periodontal disease can lead to infection and tooth loss. Gingival inflammation and periodontal disease may also have an effect on overall physical health; there is some evidence that relates them to cardiovascular disease, diabetes, respiratory illness, and coronary heart disease.

Gingivitis was noted in most of the sampled nursing facility residents with teeth, and 26% had severe gingival inflammation, meaning that the gums were swollen, bleeding and/or painful. 29% had substantial oral debris on at least two-thirds of their teeth. 15% of the residents had natural teeth that were loose. Taken together these indicators suggest that many nursing facility residents are not removing the plaque and bacteria from their teeth with adequate brushing and flossing on a regular basis. Although 64% of the residents report brushing their teeth daily, the screeners noted significant plaque and gingivitis on almost all residents with teeth. Among the 36% who admitted that they didn't brush, 47% said someone else brushes their teeth for them. Despite this response, poor oral hygiene was still noted. It is unclear if the brushing was not being done as reported or if it just was not done adequately.

Another contributor to oral disease and discomfort is the lack of adequate saliva to lubricate the mouth and help rinse the teeth of oral debris. Dry mouth (xerostomia) can increase the likelihood of dental caries and periodontal disease and is a common condition in the elderly. It is a side effect of over five hundred medications including those for high blood pressure, pain, anxiety, depression, allergies, and high cholesterol. Dry mouth was common in our sample. 31% of respondents said that they experienced dry mouth some of the time and 17% said they experienced it most of the time. It is common among individuals with dry mouth to use candy, gum and mints to alleviate the problem temporarily, but unless they are sugarless these methods can increase the likelihood of dental decay. Another dry mouth remedy is to use lemon juice to stimulate saliva flow, but this also increases acidity in the oral environment. Patients with dry mouth and dental disease should consult with their medical professionals to see if their medications are causing the condition. If that is the case, it could be possible to adjust their medication to reduce this side effect. If this is not possible, it is recommended that the resident consult with a dental professional about over the counter mouth moisturizers and saliva substitutes that could be used to mitigate some of the discomfort.

Key Finding #4

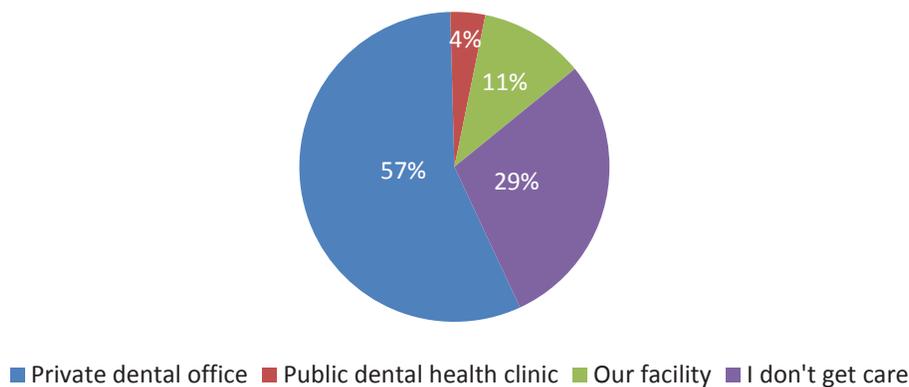
Nursing Facility Residents Have Limited Financial Resources for Dental Care

The majority of the nursing home residents in our survey had difficulty paying for professional dental care. Only 16% reported having dental insurance. 66% of the residents were on Kansas Medicaid, which offers very limited dental benefits. To qualify for the Medicaid nursing home benefit, an individual is limited to assets of \$2,000 and an income of \$62 per month. At that level of poverty it is unlikely that a senior on Medicaid could afford any type of comprehensive dental care. This is consistent with the results of the respondent questionnaire that indicates that cost is the number one reason why residents don't go to the dentist.

Main Reason For Not Visiting A Dentist In The Past Year, n=302		
Main Reason Given	Frequency	Percent
Could not afford it	64	21.19
No way to get there	11	3.64
Don't like to go to the dentist	16	5.30
Don't know where to go	4	1.32
Don't feel well enough to go out	29	9.60
Other reason	178	58.94

When asked where they receive dental care, the respondents indicated that they go to private dental offices. As private offices often require payment at the time of service, it is not surprising that nationally 80% of oral health services for the elderly are paid out-of-pocket. This is a significant barrier for low-income seniors. Although Kansas has several community health centers that offer dental services on a sliding fee scale based on income, relatively few nursing facility residents (4%) access dental care there. 11% told us they get care within their nursing facility, but as few facilities offer onsite care, is unclear what type of services they were receiving. 29% report that they get no care at all.

Source of Dental Care



RECOMMENDATIONS

Good oral health is a lifetime commitment, and the need for good preventive and professional dental care does not stop when a senior enters a nursing facility. Removing teeth rather than caring for them is not a good option. In the best of situations dentures require considerable muscle dexterity and psychological adjustment in order to work successfully, and being edentulous does not eliminate the need for daily oral hygiene and regular professional care. In order to improve the oral health of Kansas seniors living in nursing facilities, Kansas must initiate and sustain oral health programs that are physically and financially accessible and provide the infrastructure for effective, reliable daily home care. Based on the findings of this report, our recommendations are as follows:

- **Ensure that Nursing Facilities Residents Receive Daily Preventive Care**

Oral care is a regular part of daily hygiene. When a person enters a nursing facility, they need to be evaluated to see if they are capable of performing daily tooth brushing and flossing, and then be periodically monitored to ensure that they are doing an adequate job. Dentures also need to be cleaned and the mouth screened for infection and suspicious lesions. Facility staff needs to be adequately trained and monitored to do these tasks.

- **Improve Access to Oral Health Professionals by Creating More Mobile Programs in Nursing Facilities**

Kansas allows dental hygienists that have an Extended Care Permit to provide hygiene services in nursing homes without the direct supervision of a dentist. Last year the Extended Care Permit was expanded to allow these hygienists to perform procedures previously only done by dentists. These procedures include the smoothing of teeth, denture adjustment, temporary denture relines and temporary fillings. Once these new hygienists are trained, programs should be developed to deploy them in nursing facilities. These programs could provide desperately needed services to residents that are unable to access dental professionals outside of the nursing facility.

- **Ensure Sustainability of these Programs Through a Reliable Payment Source**

The majority of low income seniors in nursing facilities are enrolled in Kansas Medicaid. Medicaid does not provide comprehensive dental benefits for adults, limiting payment to emergency dental treatment only. As Medicaid enrollees are by definition poor, often their only option for treatment of a decayed tooth is to wait until the decay progresses enough to cause pain and infection. At this point Kansas Medicaid will pay for an emergency extraction. Kansas adult Medicaid does not cover tooth replacement, meaning dentures, bridges, or implants. Of the residents who reported having a tooth extracted in the last year, it is probable that many of these teeth could have been saved by restorative treatment or earlier intervention, but this type of dental care is cost prohibitive for most Medicaid recipients.

Mobile oral programs that set up in nursing facilities can provide dental access to residents for much needed preventive and restorative services. However these programs cannot be financially sustainable unless dental providers are able to receive payment for their services. Programs in other states have used Incurred Medical Expense (IME)¹³ billing to receive Medicaid payment for dental services, but dentists in Kansas have been slow to adopt this mechanism. Under KanCare, Kansas' new managed care Medicaid Program, the KanCare health plans did include dental exams and cleanings in their adult covered services. Two of the three health plans also offer x-rays to their members. Although this is an expansion of the dental services available to adults on Medicaid, this survey shows that most nursing facility residents are in need of more than a standard cleaning. A broader benefit is needed to truly impact the oral health of this population.

Good oral health is an important piece of overall health. Ignoring the oral health status of seniors that live in nursing facilities places them at risk for serious infection and discomfort, reducing their quality of life and potentially shortening their lifespan. This population experiences significant barriers to good oral health. It is important that Kansas address these challenges for this growing segment of the state's population. No one group can solve this problem alone, there must be collective action on the part of policy makers, nursing facility staff/administration, dental professionals, health advocates, and the residents (and their families) to make nursing facility oral health a priority. Improved resident oral hygiene, greater access to dental professionals, and sustainable payment sources for dental treatment are the first steps in addressing this issue.

Appendices

Appendix A: Data Tables

Tables 1 - 6: Demographic Characteristics of Study Participants

Table 1: Age Statistics					
Total # of Study Participants	Minimum	Median	Mean	Std Dev	Maximum
540	65.00	86.00	84.64	7.80	103.00

Table 2: Age Groups				
Age Groups	Frequency	Percent	Cumulative Frequency	Cumulative Percent
65-74	71	13.15	71	13.15
75-84	168	31.11	239	44.26
85-94	253	46.85	492	91.11
95+	48	8.89	540	100.00

Table 3: Gender				
Gender	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Male	169	31.30	169	31.30
Female	371	68.70	540	100.00

Table 4: Gender by Age Groups					
Gender	Age Groups				
Frequency Percent Row Pct Col Pct	65-74	75-84	85-94	95+	Total
Male	31 5.74 18.34 43.66	56 10.37 33.14 33.33	71 13.15 42.01 28.06	11 2.04 6.51 22.92	169 31.30
Female	40 7.41 10.78 56.34	112 20.74 30.19 66.67	182 33.70 49.06 71.94	37 6.85 9.97 77.08	371 68.70
Total	71 13.15	168 31.11	253 46.85	48 8.89	540 100.00

Statistics for Table of Gender by Age Groups

Statistic	DF	Value	Prob
Chi-Square	3	8.1708	0.0426

Table 5: Ethnicity				
Hispanic or Latino	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No	531	98.33	531	98.33
Yes	9	1.67	540	100.00

Table 6: Race				
Race	Frequency	Percent	Cumulative Frequency	Cumulative Percent
White	517	95.74	517	95.74
Black	10	1.85	527	97.59
Asian	1	0.19	528	97.78
AI/AN	6	1.11	534	98.89
Multi-racial	2	0.37	536	99.26
Unknown	4	0.74	540	100.00

Tables 7 - 30: Basic Screening Survey Results

Table 7: Fully Edentulous				
Fully Edentulous?	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No	362	67.04	362	67.04
Yes	178	32.96	540	100.00

Table 8: Fully Edentulous by Age Groups					
Fully Edentulous	Age Groups				
Frequency Percent Row Pct Col Pct	65-74	75-84	85-94	95+	Total
No	54 10.00 14.92 76.06	113 20.93 31.22 67.26	159 29.44 43.92 62.85	36 6.67 9.94 75.00	362 67.04
Yes	17 3.15 9.55 23.94	55 10.19 30.90 32.74	94 17.41 52.81 37.15	12 2.22 6.74 25.00	178 32.96
Total	71 13.15	168 31.11	253 46.85	48 8.89	540 100.00

Statistics for Table of FE by Age Groups

Statistic	DF	Value	Prob
Chi-Square	3	6.0061	0.1113

Partially Edentulous?	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No	311	57.59	311	57.59
Yes	229	42.41	540	100.00

Partially Edentulous?	Age Groups				
	65-74	75-84	85-94	95+	Total
No	44 8.15 14.15 61.97	98 18.15 31.51 58.33	143 26.48 45.98 56.52	26 4.81 8.36 54.17	311 57.59
Yes	27 5.00 11.79 38.03	70 12.96 30.57 41.67	110 20.37 48.03 43.48	22 4.07 9.61 45.83	229 42.41
Total	71 13.15	168 31.11	253 46.85	48 8.89	540 100.00

Statistics for Table of PE by Age Groups

Statistic	DF	Value	Prob
Chi-Square	3	0.9447	0.8146

Removable Lower Denture/Partial	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No	353	65.37	353	65.37
Yes	187	34.63	540	100.00

Removable lower denture/partial?	Age Groups				
	65-74	75-84	85-94	95+	Total
No	62	111	147	33	353
	11.48	20.56	27.22	6.11	65.37
	17.56	31.44	41.64	9.35	
	87.32	66.07	58.10	68.75	
Yes	9	57	106	15	187
	1.67	10.56	19.63	2.78	34.63
	4.81	30.48	56.68	8.02	
	12.68	33.93	41.90	31.25	
Total	71	168	253	48	540
	13.15	31.11	46.85	8.89	100.00

Statistics for Table of Removable Lower Denture/Partial by Age Groups

Statistic	DF	Value	Prob
Chi-Square	3	21.2978	<.0001

Removable upper denture/partial?	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No	303	56.11	303	56.11
Yes	237	43.89	540	100.00

Table 14: Removable Upper Denture/Partial by Age Groups					
Removable upper denture/partial?	Age Groups				
Frequency Percent Row Pct Col Pct	65-74	75-84	85-94	95+	Total
No	53 9.81 17.49 74.65	90 16.67 29.70 53.57	130 24.07 42.90 51.38	30 5.56 9.90 62.50	303 56.11
Yes	18 3.33 7.59 25.35	78 14.44 32.91 46.43	123 22.78 51.90 48.62	18 3.33 7.59 37.50	237 43.89
Total	71 13.15	168 31.11	253 46.85	48 8.89	540 100.00

Statistics for Table of Removable Upper Denture/Partial by Age Groups

Statistic	DF	Value	Prob
Chi-Square	3	13.4384	0.0038

Table 15: Substantial Oral Debris				
Debris	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No	256	70.72	256	70.72
Yes	106	29.28	362	100.00

Table 16: Oral Debris by Age Groups					
Substantial Oral Debris	Age Groups				
Frequency Percent Row Pct Col Pct	65-74	75-84	85-94	95+	Total
No	36 9.94 14.06 66.67	88 24.31 34.38 77.88	109 30.11 42.58 68.55	23 6.35 8.98 63.89	256 70.72
Yes	18 4.97 16.98 33.33	25 6.91 23.58 22.12	50 13.81 47.17 31.45	13 3.59 12.26 36.11	106 29.28
Total	54 14.92	113 31.22	159 43.92	36 9.94	362 100.00

Statistics for Table of Oral Debris by Age Groups

Statistic	DF	Value	Prob
Chi-Square	3	4.3946	0.2219

Table 17: Suspicious Soft Tissue Lesion				
Lesion	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No	525	97.22	525	97.22
Yes	15	2.78	540	100.00

Table 18: Suspicious Lesions by Age Groups					
Suspicious Soft Tissue Lesion	Age Groups				
Frequency Percent Row Pct Col Pct	65-74	75-84	85-94	95+	Total
No	68 12.59 12.95 95.77	162 30.00 30.86 96.43	248 45.93 47.24 98.02	47 8.70 8.95 97.92	525 97.22
Yes	3 0.56 20.00 4.23	6 1.11 40.00 3.57	5 0.93 33.33 1.98	1 0.19 6.67 2.08	15 2.78
Total	71 13.15	168 31.11	253 46.85	48 8.89	540 100.00

Statistics for Table of Suspicious Lesions by Age Groups

Statistic	DF	Value	Prob
Chi-Square	3	1.6303	0.6525

Table 19: Untreated Decay				
Untreated	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No	239	66.02	239	66.02
Yes	123	33.98	362	100.00

Table 20: Untreated Decay by Age Groups					
Untreated Decay	Age Groups				
Frequency Percent Row Pct Col Pct	65-74	75-84	85-94	95+	Total
No	26 7.18 10.88 48.15	88 24.31 36.82 77.88	102 28.18 42.68 64.15	23 6.35 9.62 63.89	239 66.02
Yes	28 7.73 22.76 51.85	25 6.91 20.33 22.12	57 15.75 46.34 35.85	13 3.59 10.57 36.11	123 33.98
Total	54 14.92	113 31.22	159 43.92	36 9.94	362 100.00

Statistics for Table of Untreated Decay by Age Groups

Statistic	DF	Value	Prob
Chi-Square	3	15.0898	0.0017

Table 21: Root Fragments				
Root Fragments	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No	336	82.76	336	82.76
Yes	70	17.24	406	100.00

Table 22: Root Fragments by Age Groups					
Root Fragments	Age Groups				
Frequency Percent Row Pct Col Pct	65-74	75-84	85-94	95+	Total
No	33 8.13 9.82 75.00	109 26.85 32.44 87.20	169 41.63 50.30 83.25	25 6.16 7.44 73.53	336 82.76
Yes	11 2.71 15.71 25.00	16 3.94 22.86 12.80	34 8.37 48.57 16.75	9 2.22 12.86 26.47	70 17.24
Total	44 10.84	125 30.79	203 50.00	34 8.37	406 100.00

Statistics for Table of Root Fragments by Age Groups

Statistic	DF	Value	Prob
Chi-Square	3	5.6485	0.1300

Table 23: Gingival Inflammation				
Inflammation	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No	269	74.31	269	74.31
Yes	93	25.69	362	100.00

Table 24: Gingival Inflammation by Age Groups					
Gingival Inflammation	Age Groups				
Frequency Percent Row Pct Col Pct	65-74	75-84	85-94	95+	Total
No	34 9.39 12.64 62.96	88 24.31 32.71 77.88	123 33.98 45.72 77.36	24 6.63 8.92 66.67	269 74.31
Yes	20 5.52 21.51 37.04	25 6.91 26.88 22.12	36 9.94 38.71 22.64	12 3.31 12.90 33.33	93 25.69
Total	54 14.92	113 31.22	159 43.92	36 9.94	362 100.00

Statistics for Table of Gingival Inflammation by Age Groups

Statistic	DF	Value	Prob
Chi-Square	3	6.2704	0.0992

Table 25: Tooth Mobility				
Mobility	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No	308	85.08	308	85.08
Yes	54	14.92	362	100.00

Table 26: Tooth Mobility by Age Groups					
Tooth Mobility	Age Groups				
Frequency Percent Row Pct Col Pct	65-74	75-84	85-94	95+	Total
No	44 12.15 14.29 81.48	96 26.52 31.17 84.96	138 38.12 44.81 86.79	30 8.29 9.74 83.33	308 85.08
Yes	10 2.76 18.52 18.52	17 4.70 31.48 15.04	21 5.80 38.89 13.21	6 1.66 11.11 16.67	54 14.92
Total	54 14.92	113 31.22	159 43.92	36 9.94	362 100.00

Statistics for Table of Tooth Mobility by Age Groups

Statistic	DF	Value	Prob
Chi-Square	3	1.0062	0.7997

Table 27: Treatment Urgency				
Urgency	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No obvious problem	387	71.67	387	71.67
Early care	132	24.44	519	96.11
Urgent care	21	3.89	540	100.00

Table 28: Treatment Urgency by Age Groups					
Treatment Urgency	Age Groups				
Frequency Percent Row Pct Col Pct	65-74	75-84	85-94	95+	Total
No obvious problem	41 7.59 10.59 57.75	130 24.07 33.59 77.38	184 34.07 47.55 72.73	32 5.93 8.27 66.67	387 71.67
Early care	24 4.44 18.18 33.80	31 5.74 23.48 18.45	61 11.30 46.21 24.11	16 2.96 12.12 33.33	132 24.44
Urgent care	6 1.11 28.57 8.45	7 1.30 33.33 4.17	8 1.48 38.10 3.16	0 0.00 0.00 0.00	21 3.89
Total	71 13.15	168 31.11	253 46.85	48 8.89	540 100.00

Statistics for Table of Urgency by Age Groups

Statistic	DF	Value	Prob
Chi-Square	6	15.5098	0.0166

Table 29: Treatment Urgency by Dental Insurance				
Dental Insurance	Treatment Urgency			
Frequency Percent Row Pct Col Pct	No obvious problem	Early care	Urgent care	Total
No	273 59.48 70.54 84.78	100 21.79 25.84 84.75	14 3.05 3.62 73.68	387 84.31
Yes	49 10.68 68.06 15.22	18 3.92 25.00 15.25	5 1.09 6.94 26.32	72 15.69
Total	322 70.15	118 25.71	19 4.14	459 100.00
Frequency Missing = 81				

Statistics for Table of Dental Insurance by Urgency

Statistic	DF	Value	Prob
Chi-Square	2	1.6933	0.4288

Table 30: Care Within Past Year by Treatment Urgency				
Time Since Last Dental Care	Treatment Urgency			
Frequency Percent Row Pct Col Pct	No obvious problem	Early care	Urgent care	Total
<= 12 months	140 37.04 78.65 53.23	29 7.67 16.29 29.59	9 2.38 5.06 52.94	178 47.09
> 12 months	123 32.54 61.50 46.77	69 18.25 34.50 70.41	8 2.12 4.00 47.06	200 52.91
Total	263 69.58	98 25.93	17 4.50	378 100.00
Frequency Missing = 162				

Statistics for Table of Care Within Past Year by Urgency

Statistic	DF	Value	Prob
Chi-Square	2	16.2589	0.0003

Tables 31 – 43: Questionnaire Responses

Table 31: Do you have dental insurance?				
Q1	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No	387	84.31	387	84.31
Yes	72	15.69	459	100.00

Frequency Missing = 81

Table 32: Are you enrolled in Medicaid?				
Q2	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No	156	33.99	156	33.99
Yes	303	66.01	459	100.00

Frequency Missing = 81

Table 33: How long since last cleaning by dentist?				
Q3: Time since last screening (recoded)	Frequency	Percent	Cumulative Frequency	Cumulative Percent
<= 12 months	178	47.09	178	47.09
> 12 months	200	52.91	378	100.00

Frequency Missing = 162

Table 34: What was the main reason you have not visited a dentist in the past year?				
Q4	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Could not afford it	44	15.60	44	15.60
No way to get there	11	3.90	55	19.50
Don't like to go to the dentist	16	5.67	71	25.18
Don't know where to go	4	1.42	75	26.60
Don't feel well enough to go out	29	10.28	104	36.88
Other reason	178	63.12	282	100.00

Frequency Missing = 258

Table 35: Fully Edentulous by Time Since Last Dental Visit			
Fully Edentulous	Time Since Last Dental Visit		
Frequency Percent Row Pct Col Pct	<= 12 months	> 12 months	Total
No	150 39.68 55.35 84.27	121 32.01 44.65 60.50	271 71.69
Yes	28 7.41 26.17 15.73	79 20.90 73.83 39.50	107 28.31
Total	178 47.09	200 52.91	378 100.00
Frequency Missing = 162			

Statistics for Table of FE by Time Since Last Dental Visit

Statistic	DF	Value	Prob
Chi-Square	1	26.2201	<.0001

Table 36: Partially Edentulous by Time Since Last Dental Visit			
Partially Edentulous	Time Since Last Dental Visit		
Frequency Percent Row Pct Col Pct	<= 12 months	> 12 months	Total
No	95 25.13 44.60 53.37	118 31.22 55.40 59.00	213 56.35
Yes	83 21.96 50.30 46.63	82 21.69 49.70 41.00	165 43.65
Total	178 47.09	200 52.91	378 100.00
Frequency Missing = 162			

Statistics for Table of PE by Time Since Last Dental Visit

Statistic	DF	Value	Prob
Chi-Square	1	1.2133	0.2707

Table 37: How often in the past six months have you had any pain in your mouth?				
Q5	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Most of the time	17	3.30	17	3.30
Some of the time	78	15.15	95	18.45
Seldom	420	81.55	515	100.00

Frequency Missing = 25

Table 38: Where do you get your dental care?				
Q6	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Private dental office	295	56.51	295	56.51
Public dental health clinic	19	3.64	314	60.15
Our facility	57	10.92	371	71.07
I don't get care	151	28.93	522	100.00

Frequency Missing = 18

Table 39: Does your mouth feel dry?				
Q7	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Most of the time	81	16.36	81	16.36
Some of the time	152	30.71	233	47.07
Seldom	262	52.93	495	100.00

Frequency Missing = 45

Table 40: Have you had a tooth pulled in the past year?				
Q8	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No	451	91.30	451	91.30
Yes	43	8.70	494	100.00

Frequency Missing = 46

Table 41: How often do you limit the foods you eat because of problems with your teeth or dentures?				
Q9	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Most of the time	66	12.92	66	12.92
Some of the time	89	17.42	155	30.33
Seldom	356	69.67	511	100.00

Frequency Missing = 29

Table 42: Do you brush your teeth or dentures daily?				
Q10	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No	156	35.86	156	35.86
Yes	279	64.14	435	100.00

Frequency Missing = 105

Table 43: If no, does someone else brush them for you?				
Q11	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No	87	53.05	87	53.05
Yes	77	46.95	164	100.00

Frequency Missing = 376

APPENDIX B: Participating Nursing Facilities

Facility Name	Town
Brandon Woods at Alvamar	Lawrence
Emporia Presbyterian Manor	Emporia
Heritage Health Care Center	Chanute
Arma Care Center	Arma
Pleasant Valley Manor	Sedan
Aldersgate Village	Topeka
Phillips County Retirement Center	Phillipsburg
Smokey Hills Rehabilitation Center	Salina
Topeka Community Healthcare Center	Topeka
Garden Terrace at Overland Park	Overland Park
Overland Park Nursing Center	Overland Park
Villa St. Francis	Olathe
Mount Joseph Senior Village	Concordia
Haysville Healthcare Center	Haysville
Kansas Soldiers Home	Fort Dodge
Mennonite Friendship Manor	South Hutchinson
Pratt Residence Center	Pratt
Sandpiper Healthcare Center	Wichita
Pleasant View Home	Inman
Ashbury Park	Newton

APPENDIX C: Basic Screening Survey Form and Resident Questionnaire

Kansas Department of Health and Environment, Bureau of Oral Health
Surveillance of Older Adults,
Summer, 2012

SITE INFORMATION

Screen Date □□/□□/□□	Site ID Code □□□ □□□	Resident ID	Screener ID Code □□
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DEMOGRAPHIC INFORMATION

Age □□□	Gender 1 = Male 2 = Female □	Race (Hispanic or Latino) 0 = No 1 = Yes □	Ethnicity 1 = White 5 = AI/AN 2 = Black 6 = Pacific 3 = Islander 4 = Asian 7 = Multi-racial 9 = Unknown
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ORAL SCREENING INFORMATION

Edentulous		
Fully edentulous <input type="checkbox"/> 0 = No 1 = Yes	If No 	Partially edentulous <input type="checkbox"/> 0 = No 1 = Yes
Removable lower denture/partial? <input type="checkbox"/> 0 = No 1 = Yes		Removable upper denture/partial? <input type="checkbox"/> 0 = No 1 = Yes
Substantial Oral Debris <input type="checkbox"/> 0 = No 1 = Yes		Suspicious Soft Tissue Lesion <input type="checkbox"/> 0 = No 1 = Yes

Remove excess oral debris if necessary.

Untreated Decay <input type="checkbox"/> 0 = No 1 = Yes	Root Fragments <input type="checkbox"/> 0 = No 1 = Yes
Gingival Inflammation <input type="checkbox"/> 0 = No 1 = Yes	Tooth Mobility (indicator of Periodontal Disease) <input type="checkbox"/> 0 = No 1 = Yes
	Treatment Urgency <input type="checkbox"/> 0 = No obvious problem 1 = Early care – within the next several weeks 2 = Urgent care (pain or infection) – within the next week

Consent Form & Resident Questionnaire

Verbal Consent given by resident

My name is _____, I am a Registered Dental Hygienist from the Bureau of Oral Health part of the Kansas Department of Health and Environment. Today we are conducting an oral health assessment. The purpose is to collect data on the oral condition of elders living in nursing facilities in the state of Kansas. Screenings are minimally invasive and involve a tongue depressor and light source. The data will be collected in a professional manner and no personally identifiable patient information will be taken from the site or included in the final report. After I complete your oral screening I will share the results with you, your guardian if appropriate, and the nursing staff to keep in your file. . Your participation is voluntary and will not affect any services you may receive from the state of Kansas or the nursing facility. You do not have to answer any questions you don't want to, and you can end the interview or examination at any time. Would you like to participate in the screening and questionnaire today?

-----Please answer the following questions to help us learn more about access to dental care.

1. Do you have dental insurance? (check one)
 No Yes Don't know
2. Are you enrolled in Medicaid? (check one)
 No Yes Don't know
3. How long has it been since you had your teeth cleaned by a dentist or dental hygienist? (check one) **If less than 12 months please skip question #4.**
 6 months or less 12 months 2-3 years
 More than 3 years Never Don't remember
4. What is the **main** reason you have not visited a dentist in the past year? (choose only one).
 Could not afford it No way to get there Don't like to go to the dentist
 Don't know where to go Don't feel well enough to go out Other reason
 Don't know/Don't remember
5. How often in the past six months have you had any pain in your mouth?
 Most of the time Some of the time Seldom
6. Where do you get your dental care?
 Private dental office Public dental health Clinic Our facility
 Hospital Emergency Room I don't get care
7. Does your mouth feel dry?
 Most of the time Some of the time Seldom
8. Have you had a tooth pulled in the past year?
 No Yes Don't remember
9. How often do you limit the foods you eat because of problems with your teeth or dentures?
 Most of the time Some of the time Seldom
10. Do you brush your teeth or dentures daily?
 No Yes Don't know
 Refused to answer
11. If no, does someone else brush them for you?
 No Yes Don't know
12. Are you Hispanic or Latino?
 No Yes
13. Which of the following best describes you? (check all that apply)
 White Asian Black/African American
 American Indian/Alaska Native Native Hawaiian/Pacific Islander

THANK YOU FOR PARTICIPATING IN "Healthy Mouths Healthy Bodies"



REFERENCES

1. http://www.cedbr.org/index.php?option=com_content&view=article&id=563&Itemid=220. Wichita State University, Center for Economic and Business Research, accessed June 20, 2012.
2. Dye, B. S. (2007). *Trends in Oral Health Status: United States, 1988-1994 and 1999-2004*. Hyattsville, MD: National Center for Health Statistics.
3. http://www.kdheks.gov/brfss/Survey2010/ct2010_rfrmvteth65.html, 2010 Kansas Behavioral Risk Factor Surveillance System, KS Department of Health and Environment, accessed November 2012.
4. Eke P.I., Dye B.A., Wei L., Thornton-Evans G.O., Genco R.J. Prevalence of Periodontitis in Adults in the United States: 2009 and 2010. (2012) *Journal of Dental Research*, 91(10), pp. 914-920.
5. Vargas CM, EA Kramarow, JA Yellowtiz. The Oral Health of Older Americans. Centers for Disease Control and Prevention, National Center for Health Statistics, March 2001.
6. Centers for Medicare and Medicaid Services. Nursing home data compendium, 2010 Edition.
7. Kansas Administrative Regulations 28-39-159, Authorized by and implementing K.S.A. 39-932; effective Nov. 1, 1993; amended Feb. 21, 1997.
8. Dolan T.A., Et.al. 2005. Access to Dental Care among Older Adults, *Journal of Dental Education* 69(9):961-974.
9. http://www.kdheks.gov/brfss/Survey2010/ct2010_rfrmvteth65.html, 2010 Kansas Behavioral Risk Factor Surveillance System, KS Department of Health and Environment, accessed November 2012.
10. <http://healthypeople.gov/2020/topicsobjectives2020/pdfs/OralHealth.pdf>, U.S. Department of Health and Human Services, accessed November 2012.
11. Ibid.
12. <http://healthypeople.gov/2020/topicsobjectives2020/pdfs/OralHealth.pdf>, U.S. Department of Health and Human Services, accessed November 2012.
13. http://www.ada.org/sections/professionalResources/pdfs/ime_documents.pdf, Incurred Medical Expenses, Paying for Dental Care: A How To Guide; American Dental Association. Accessed November 2012.

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and Environment