DEPARTMENT OF HEALTH AND HOSPITALS
Oral Health Program

Oral Health in Louisiana

A Document on the Oral Health Status of Louisiana's Population

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The Louisiana Department of Health and Hospitals, Oral Health Program is pleased to share with you the *2010 Louisiana Burden of Oral Disease*. This report documents the status of oral disease in the state and was written with guidance from the Centers of Disease Control and Prevention. It is intended to be used as a tool to guide and lead the State Oral Health Program and its' partners to effectively execute programs and policies to improve of the oral health for all citizens in Louisiana.

This report compiles the most updated information on the oral health status of Louisianans comparing data across different age groups as well as with the Healthy People 2010 goals and objectives. The report summarizes the utilization of proven preventive public health measures including dental sealants, community water fluoridation, and fluoride varnish in addition to the availability of dental services and factors that affect oral health.

The *2010 Louisiana Burden of Oral Disease* is the first of its kind for our state and contains valuable information that will be utilized by our state's policy makers, by public health and health agencies, and by our local communities to take the corrective action against serious, yet preventable, oral diseases.

Sincerely,

Susan R. Jeansonne
Oral Health Program Manager
Office of Public Health
Louisiana Department of Health and Hospitals

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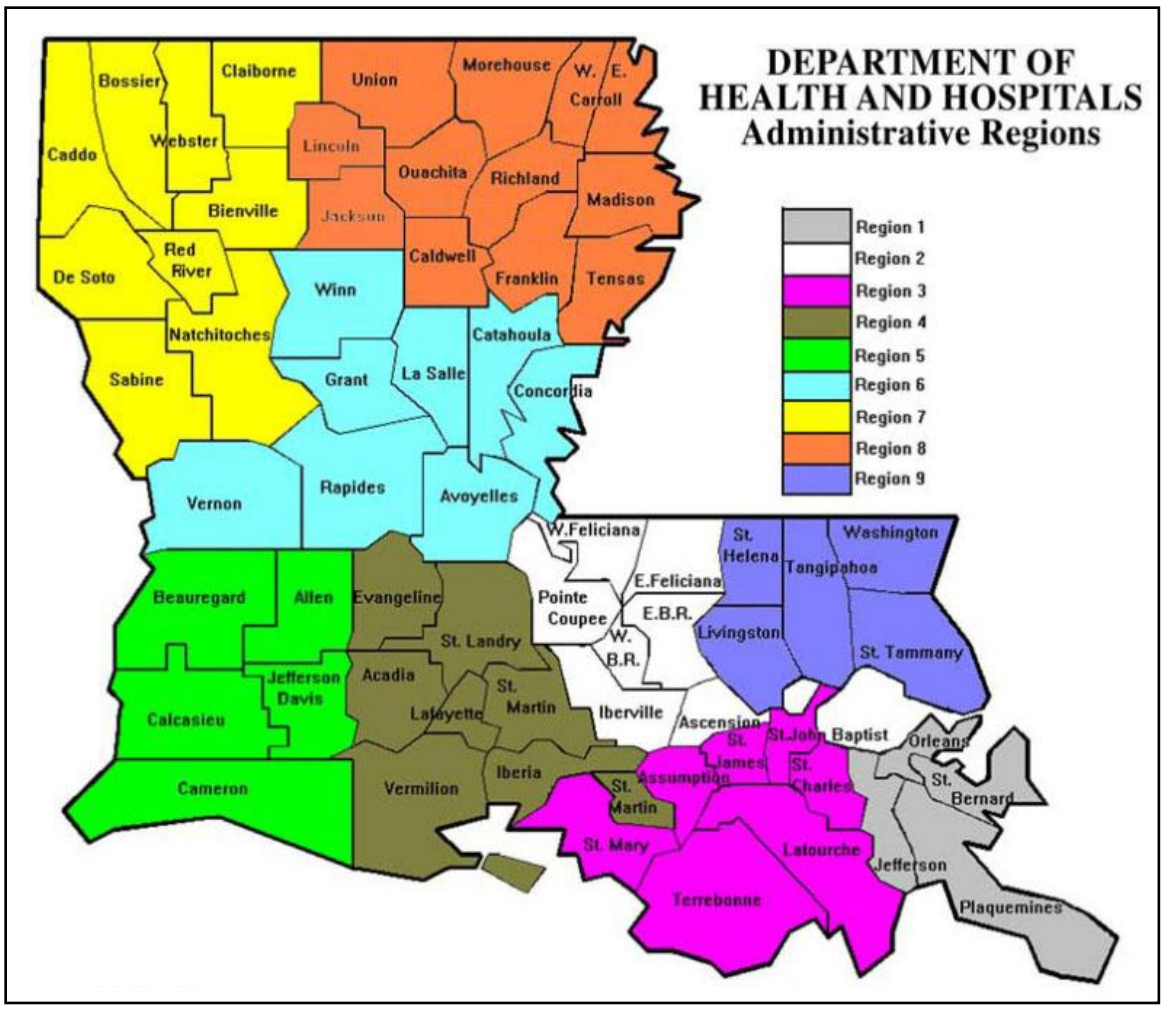

Region 1 -- Jefferson, Orleans, Plaquemines and Saint Bernard parishes

Region 2 -- Ascension, East Baton Rouge, East Feliciana, Iberville, Point Coupee, West Baton Rouge and West Feliciana parishes

Region 3 -- Assumption, Lafourche, Saint Charles, St. James, St. John the Baptist, St. Mary and Terrebonne parishes

Region 4 -- Acadia, Evangeline, Iberia, Lafayette, St. Landry, St. Martin and Vermillion parishes

Region 5 -- Allen, Beauregard, Calcasieu, Cameron and Jefferson Davis parishes

Region 6 -- Avoyelles, Catahoula, Concordia, Grant, La Salle, Rapides, Vernon and Winn parishes

Region 7 -- Bienville, Bossier, Caddo, Claiborne, De Soto, Natchitoches, Red River, Sabine and Webster parishes

Region 8 -- Caldwell, East Carroll, Franklin, Jackson, Lincoln, Madison, Morehouse, Ouachita, Richland, Tensas, Union and West Carroll parishes

Region 9 -- Livingston, St. Helena, St. Tammany, Tangipahoa and Washington parishes

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I. EXECUTIVE SUMMARY

The mouth is our primary connection to the world. It is how we take in water and nutrients to sustain life, our primary means of communication, the most visible sign of our mood and a major part of how we appear to others. Oral health is an essential and integral component of overall health throughout life and is much more than just healthy teeth. Oral refers to the whole mouth, including the teeth, gums, hard and soft palate, linings of the mouth and throat, tongue, lips, salivary glands, chewing muscles and upper and lower jaws. Not only does good oral health mean being free of tooth decay and gum disease, it also means being free of chronic oral pain conditions, oral cancer, birth defects such as cleft lip and palate, and other conditions that affect the mouth and throat. Good oral health also includes the ability to carry on the most basic human functions such as chewing, swallowing, speaking, smiling, kissing and singing.

The mouth is an integral part of human anatomy and plays a major role in our overall physiology. Thus, oral health is intimately related to the health of the rest of the body. For example, mounting evidence suggests that infections in the mouth such as periodontal (gum) diseases may increase the risk of heart disease, may put pregnant women at greater risk of premature delivery, and may complicate control of blood sugar for people living with diabetes. Conversely, changes in the mouth often are the first signs of problems elsewhere in the body, such as infectious diseases, immune disorders, nutritional deficiencies and cancer.

In Louisiana, oral diseases are distributed across all age groups, races and ethnicities and geographical areas. This report summarizes the most current information available on the burden of oral disease in Louisiana also providing detailed information on oral health among all different age groups of the population. It also highlights groups and regions in the state that are at the highest risk of oral health problems, discusses strategies to prevent these conditions and provides access to dental care. Comparisons are made with national data whenever possible and to the *Healthy People 2010* objectives when appropriate. A wide variety of data sources have been utilized in this report to compare the burden of disease between the state and the nation. For some conditions national, not state data, are available. The Oral Health Program will strive to obtain the information on these indicators and will share them with the readers in the next edition of the oral health burden document. It is hoped that this information will help raise awareness of the need for monitoring the oral health burden in Louisiana and guide efforts to prevent and treat oral diseases and enhance the quality of life of Louisiana's residents.

II. NATIONAL AND STATE OBJECTIVES ON ORAL HEALTH

Oral Health in America: A Report of the Surgeon General (the *Report*) alerted Americans to the importance of oral health in their daily lives [USDHHS 2000a]. Issued in May 2000, the report further detailed how oral health is promoted, how oral diseases and conditions are prevented and managed, and what needs and opportunities exist to enhance oral health. The report's message was that oral health is essential to general health and well-being and can be achieved. However, several barriers hinder the ability of some Americans to attain optimal oral health. The Surgeon General's report concluded with a framework for action, calling for a national oral health plan to improve quality of life and eliminate oral health disparities.

One component of a national oral health plan is a set of measurable and achievable objectives on key indicators of oral disease burden, oral health promotion and oral disease prevention. One set of national indicators was developed in November 2000 as part of *Healthy People 2010,* a document that presents a comprehensive, nationwide health promotion and disease prevention agenda [USDHHS 2000b]. *Healthy People 2010* is designed to serve as a roadmap for improving the health of all people in the United States during the first decade of the 21st century. Included are objectives for key structures, processes and outcomes related to improving oral health. These objectives represent the ideas and expertise of a diverse range of individuals and organizations concerned about the nation's oral health.

National objectives on oral health, such as those in *Healthy People 2010,* provide measurable targets for the nation, but most core public health functions of assessment, assurance and policy development occur at the state level. The Louisiana Oral Health Program systematically collects and analyzes primary and secondary state and national oral health data. Currently, the state is able to collect and report data on some but not all of the *Healthy People 2010 Objectives* for Oral Health. In the future, the program will partner and work closely with other state and national health agencies to track and collect more information on oral health indicators. The *Healthy People 2010* oral health objectives for the nation and the current status of each indicator for the Louisiana and United States are summarized in Table I.

Table I: *Healthy People 2010* Oral Health Indicators, Target Levels and Current Status in Louisiana and the United States for Selected Indicators

***Healthy People 2010* Objective**	**Target (%)**	**Louisiana (%)**	**National (%)**
Dental caries (tooth decay) experience for children aged 6-8 years	42	65.7[a]	53[b]
Untreated caries (tooth decay) for children aged 6-8 years	21	41.9[a]	29[b]
Adults with no tooth loss, aged 35–44 years	42	63.3[c]	66.4[d]
Edentulous (toothless) older adults, aged 65–74 years	20	26[e]	17[f]
Oral and pharyngeal cancer death rates reduction (per 100,000 population)	2.7	3.4[g*]	2.5[h*]
Dental sealants for children aged 8 years (1st Molars)	50	33.2[a]	32[b]
Population served by fluoridated water systems, all	75	41.0[i]	69[j]
Low-income children and adolescents receiving preventive dental care during past 12 months, aged 0–18 years	57	36.7[k]	31[l]
Oral health surveillance system, all	51 states & District of Columbia	Yes	Unknown

Table I Sources:
Target Health People 2010 Source:
Healthy People 2010, Understanding and Improving Health
State Data Sources:
[a] Bright Smiles for Bright Futures, Basic Screening Survey, 2007-2009.
[c] Behavioral Risk Factor Surveillance System, Louisiana, 2008.
[e] Behavioral Risk Factor Surveillance System, Louisiana, 2006.
[g] National Cancer Institute, State Cancer Profiles, Louisiana, 2002-2006.
*Age adjusted to the year 2000 standard population.
[i] Louisiana Oral Health Program, 2009.
[k] Early Periodic Screening Diagnosis and Treatment, Louisiana Medicaid, FFY 2009.
National Data Sources:
[b] National Health and Nutrition Examination Survey (NHANES, 1999-2004).
[d] Behavioral Risk Factor Surveillance System, United States 2008.
[f] Behavioral Risk Factor Surveillance System, United States 2006.
[h] National Cancer Institute, National Cancer Profile, 2002-2006.
*Age adjusted to the year 2000 standard population.
[j] National Oral Health Surveillance System, Fluoridation Status 2006.
[l] U.S. Department of Health and Human Services. *Healthy People 2010, Progress Review, 2000.* Data is for 2004.

III. THE BURDEN OF ORAL DISEASES

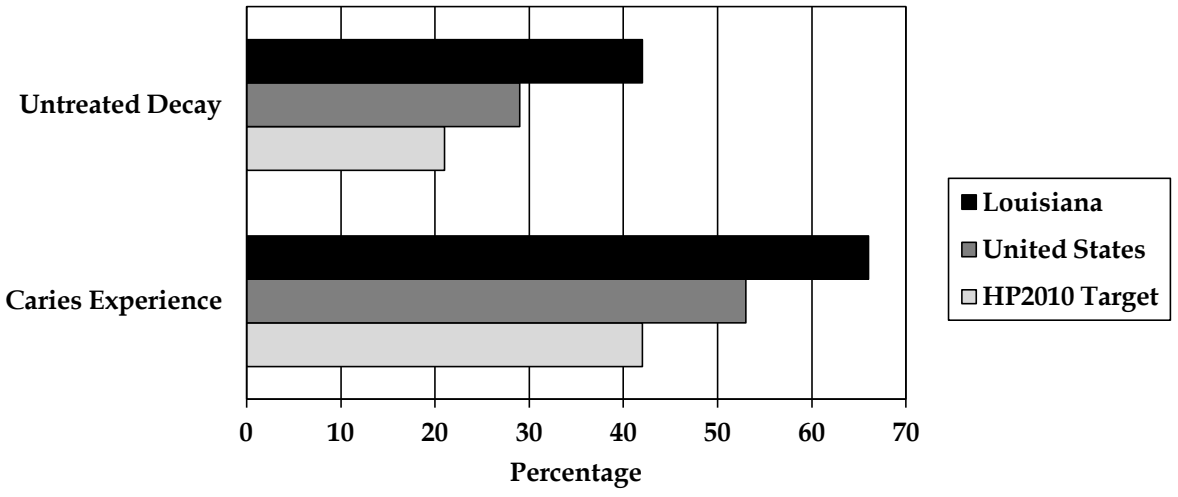
A. Prevalence of Disease and Unmet Needs

1. Children

Nationally, dental caries (tooth decay) is four times more common than childhood asthma and seven times more common than hay fever. Dental caries is a disease in which acids produced by bacteria on the teeth lead to loss of minerals from the enamel and dentin, the hard substances of teeth. Unchecked, dental caries can result in loss of tooth structure, inadequate tooth function, pain, infection, tooth loss and unsightly appearance. The prevalence of decay in children is measured by assessing caries experience (if they have ever had decay and now have fillings), untreated decay (active unfilled cavities) and urgent care (reported pain or a significant dental infection that requires immediate care).

Caries experience and untreated decay are monitored by Louisiana as consistent with the National Oral Health Surveillance System (NOHSS), which allows comparisons with other states and with the nation. The rates of caries experience and untreated cavities are higher in Louisiana than the United States and *Healthy People 2010* target. For comparisons between Louisiana, the nation and the *Healthy People 2010* targets, see Figure I.

Figure I: Dental Caries Experience and Untreated Decay among Third Grade Children in Louisiana and 6 to 8-year olds in the United States and *Healthy People 2010* Target



Source Figure I: *Healthy People 2010*, 2nd edition. U.S. Dept of Health and Human Services, November 2000.
National Data Source: National Health and Nutrition Examination Survey (NHANES, 1999-2004),
Louisiana Data Source: Basic Screening Survey, Bright Smiles for Bright Futures 2007-2009

The prevalence of dental caries among children is not uniformly distributed in Louisiana or in the United States. Some groups are more likely to experience the disease and are less likely to receive treatment. In Louisiana, as well as the United States, the disease burden of caries experience and untreated decay is higher in minority populations and in male children.

Among third grade children in Louisiana:

- *41.9 percent had untreated dental caries.*
- *65.7 percent had dental caries experience; and*
- *42.7 percent had to be referred to dentists for treatment.*

In 2009, Louisiana completed the Basic Screening Survey (BSS) to determine the oral health status of its third grade children (Table II). The 2009 BSS was the first representative sample of third grade children in Louisiana. In the summer of 2007, the Oral Health Program began planning for the 2008 survey. Training for the school nurses was conducted in the spring of 2008. The actual screening of school children began in spring of 2008 (2007-2008 school year) and was completed in the spring of the 2008-2009 school year; only third grade children were screened. A complete report, *Bright Smiles for Bright Futures, Basic Screening Survey: A Report on the Oral Health Status of Louisiana's 3rd Grade Children* is available.

Table II: Dental Caries Experience, Untreated Dental Decay and Urgent Need for Dental Care Among 6 to 8-year-old Children in the United States and Third Graders in Louisiana, by Selected Demographic Characteristics

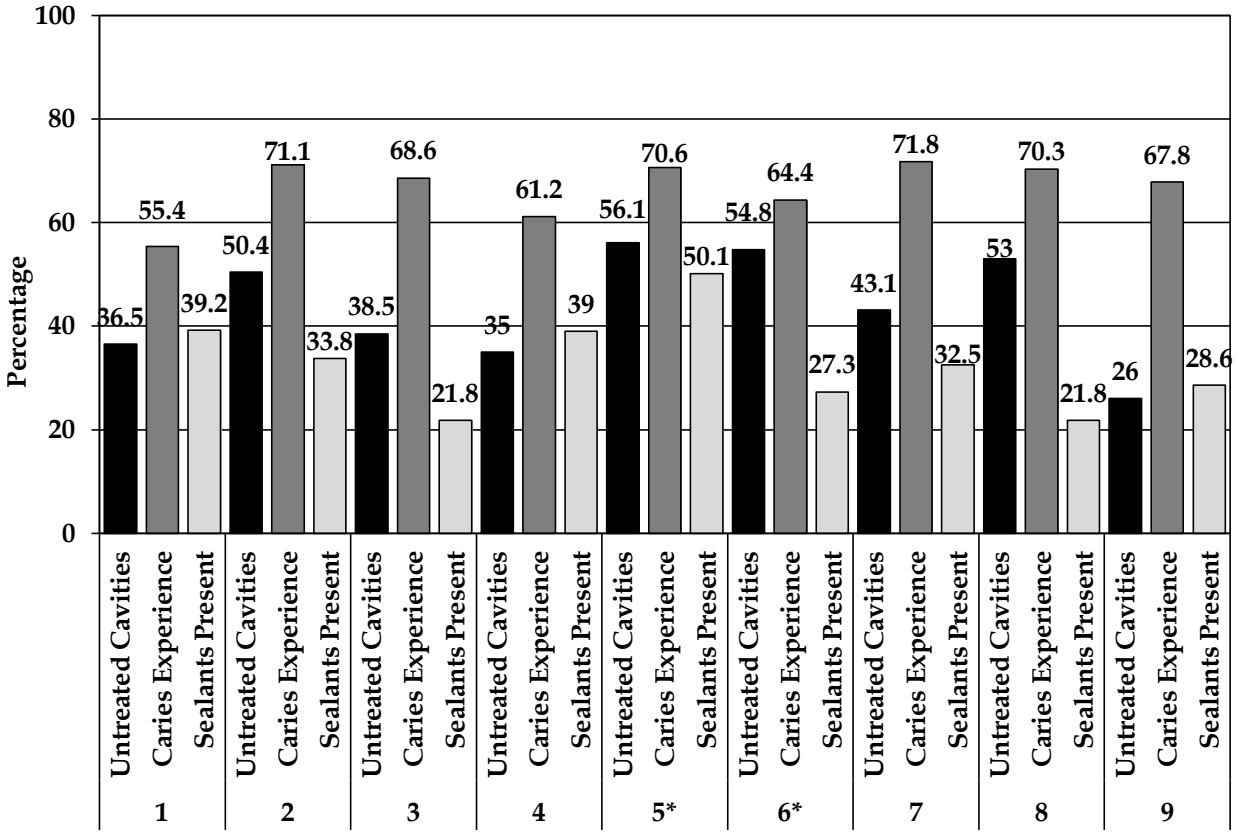
	Caries Experience		Untreated Decay		Urgent Need for Care
	Louisiana[a] (%)	**United States[b] (%)**	**Louisiana[a] (%)**	**United States[b] (%)**	**Louisiana[a] (%)**
TOTAL	66	53	42	29	7
Race or Ethnicity					
Black, non-Hispanic	69	56	47	37	10
White, non-Hispanic	63	49	37	25	5
Others	64	N/A	48	N/A	6
Gender					
Female	66	51	45	28	7
Male	65	56	43	30	8
School Status					
Public	67	N/A	43	N/A	5
Private	51	N/A	27	N/A	7

Table II Sources:
[a] Data are from Basic Screening Survey, Bright Smiles for Bright Futures 2007-2009.
[b] National Data Source: National Health and Nutrition Examination Survey (NHANES, 1999-2004).
*High Standard Error

Figures II and III summarize the BSS data by the nine administrative regions of Louisiana Department of Health and Hospitals. According to the survey:

- The percentage of children with untreated cavities is higher in Regions 2, 5, 6 and 8 and lowest in Region 9;
- More than 70 percent of the children screened from Regions 2, 5 and 7 have experienced dental decay in their life which is higher than the state average of 65.7percent; and
- The lowest percentage of dental decay was experienced by the children from Region 1.

Figure II: Oral Health Status by DHH Administrative Region
Louisiana, BSS 2007-2009



Source Figure II: Louisiana Basic Screening Survey, 2007-2009
* High Standard Error

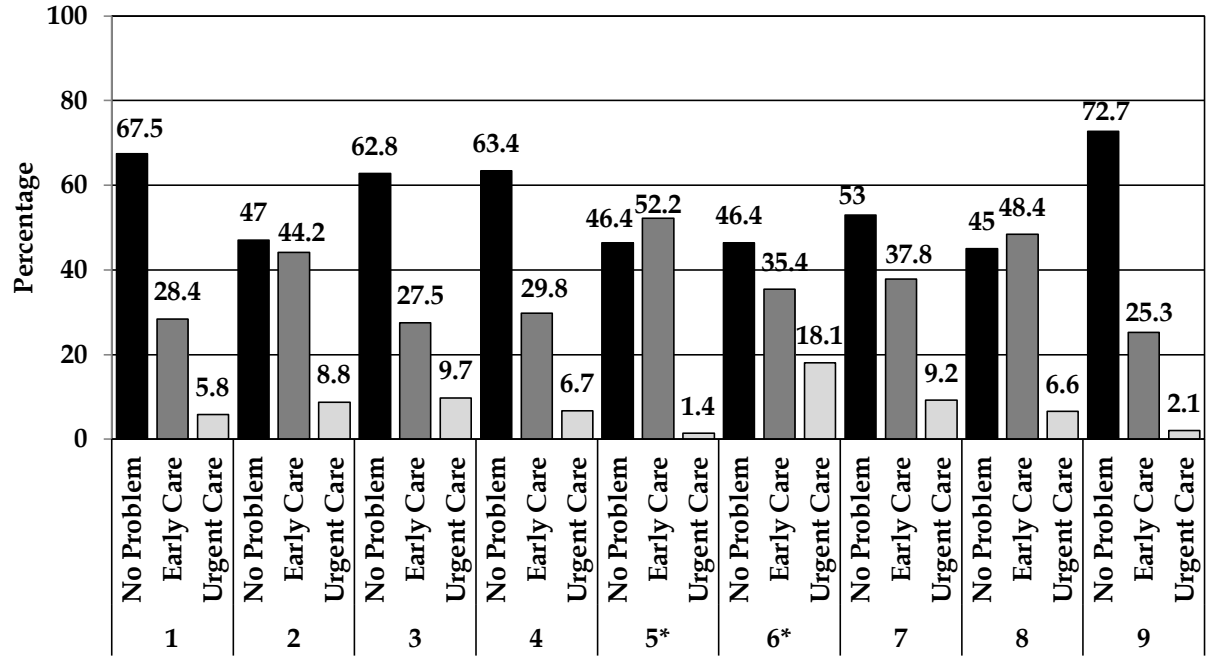
In addition to measuring for prevalence of caries and dental sealants, the BSS also measured for treatment urgency. The three indicators used for treatment urgency were as follows:

- No problem: The child has an absence of untreated decay or requirement to see a dentist so regular care alone would be sufficient.
- Early Care: The child has visible decay or problems and needs to see a dentist in the next two weeks.
- Urgent Care: The child has a very serious decay or problem and needs to see a dentist within 24 hours.

Based on the survey results:

- The children from Region 1 and 9 have demonstrated the best oral health in Louisiana; and
- The demand for early care is abundant in regions 5 and 8; and
- The children in regions 6, 3 and 7 have the greatest need for urgent care.

Figure III: Treatment Urgency by DHH Administrative Region
Louisiana, BSS 2007-2009



Source Figure III: Louisiana Basic Screening Survey, 2007-2009
* High Standard Error

A. Prevalence of Disease and Unmet Needs

2. Adults -Dental Caries

People are susceptible to dental caries throughout their lifetime. Like children and adolescents, adults can experience new decay on the crown (enamel covered) portion of the tooth. Adults can also develop caries on the root surfaces of teeth as those surfaces become exposed to bacteria and carbohydrates as a result of gum recession. In the most recent national examination survey, 85 percent of U.S. adults had at least one tooth with decay or a filling on the crown. Root surface caries affects 50 percent of adults aged 75 years or older [USDHHS 2000a].

Not only do adults experience dental caries, but a substantial proportion of that disease is untreated at any point in time. The prevalence of untreated dental decay in the United States for adults aged 35–44 or 65–74 years, by selected demographic groups, is summarized in Table III. There is noticeable difference of oral health status among these two population age groups; only 18 percent of the older adults have untreated dental caries compared to 28 percent of young adults. In both age groups, the proportion of untreated cavities is higher among current smokers, those with lower incomes and those with a lower education level. Minority populations and males also are at higher risk of having untreated dental caries. The data on untreated dental caries for adult population is not currently collected in Louisiana; however, known risk factors of smoking, poverty and education level are high in the state and therefore untreated decay is likely amongst Louisiana's adult population.

Known risk factors for dental caries among Louisiana's adults:

Prevalence of smoking

- *21 percent of Louisiana's adult smoke compared to 18 percent in the United States*

Education level

Among Population 18 to 24 years:

- *22.2% are less than high school graduates*
- *33.7% are high school graduates*
- *38% have some college degree*
- *6% have Bachelor's degree or higher*

Among Population 25 years & over:

- *19.8% are less than high school graduates*
- *35.3% are high school graduates*
- *24.6% have some college degree*
- *20.4% have Bachelor's degree or higher*

Poverty level

- *26.6% of children under 18 years, 16% of individuals under 18 to 64 years and 13.7% of individuals aged 65 and above are below the poverty level*

Table III: Proportion of Adults* with Untreated Dental Caries, by Selected Age Groups and Demographic Characteristics

	Age 35-44 Years	Age 65+ Years
	United States (%)	United States (%)
***Healthy People 2010* Target**	15	N/A
TOTAL	28	18
Race or Ethnicity		
Black, non-Hispanic	40	37
White, non-Hispanic	23	16
Mexican American	40	41
Sex		
Female	25	16
Male	30	20
Education Level		
Less than high school	50	26
High school graduate	35	18
At least some college	18	14
Smoking History		
Current Smoker	46	27
Former Smoker	20	19
Never Smoked	21	17
Poverty Status		
Less than 100% FPL	49	33
100% - 199% FPL	45	24
Greater than 200% FPL	19	14

Table III Sources:
Aged 35–54 years
U.S. Department of Health and Human Services. *Healthy People 2010, Progress Review, 2000.*
Available at www.cdc.gov/nchs/ppt/hpdata2010/focusareas/fa21.xls.
<The data is for the year 2004>
Aged 65+ years
National Health and Nutrition Examination Survey (NHANES, 1999-2004).
N/A: Data not available

A. Prevalence of Disease and Unmet Needs

2. Adults -Tooth Loss

Full dentition is defined as having twenty-eight natural teeth, exclusive of third molars (the wisdom teeth) and teeth removed for orthodontic treatment or as a result of trauma. Most persons can keep their teeth for life with adequate personal, professional and population-based preventive practices. The most common reasons for tooth loss in adults are tooth decay and periodontal (gum) disease. Tooth loss can also result from infection, unintentional injury and head and neck cancer treatment. In addition, certain orthodontic and prosthetic services require the removal of teeth.

In Louisiana, 63 percent of the 35-44 year old adult population have no tooth extractions due to oral diseases and the state has successfully met the *Healthy People 2010* target of 42 percent. A comparison in this age group among races and socio-economic factors is not available. According to the Behavioral Risk Factor Surveillance System, 2006, in Louisiana, 26 percent of older adults 65-74 years old, reported having lost all of their natural dentition, compared to 17 percent for the same population in the United States. Data for Louisiana and the U.S. on the percentage of adults who have had no teeth extracted because of disease and the percentage that have lost all of their permanent teeth are presented in Table IV.

Table IV: Proportion of Adults 35–44 Years Who have Lost No Teeth due to Disease and Proportion of Adults 65–74 Years Who have Lost All Natural Teeth, by Selected Demographic Characteristics

	Aged 35–44 Years No Tooth Extractions		**Aged 65–74 Years Lost All Natural Teeth**	
	Louisiana[a] (%)	**United States[b] (%)**	**Louisiana[c] (%)**	**United States[d] (%)**
***Healthy People 2010* Target**	42	42	20	20
TOTAL	63	66	26	17
Race or Ethnicity				
Black, non-Hispanic	N/A	N/A	21	N/A
White, non-Hispanic	N/A	N/A	28	N/A
Hispanic or Latino	N/A	N/A	26	N/A
Other	N/A	N/A	N/A	N/A
Sex				
Female	N/A	N/A	23	N/A
Male	N/A	N/A	49	N/A
Education Level				
Less than high school	N/A	N/A	30	N/A
High school graduate	N/A	N/A	13	N/A
At least some college	N/A	N/A	32	N/A
Disability Status				
Persons with disabilities	N/A	N/A	23	N/A
Persons without disabilities	N/A	N/A	24	N/A

Table IV Sources:
[a] Louisiana Data: BRFSS Louisiana 2008
[b] United States Data: BRFSS 2008
[c] Louisiana Data: BRFSS Louisiana 2006
[d] United States Data: BRFSS 2006
DNA = Data not analyzed, N/A = Data not available
DSU = Data are statistically unreliable or do not meet criteria for confidentiality

A. *Prevalence of Disease and Unmet Needs*

2. Adults - Periodontal (Gum) Diseases

Gingivitis is characterized by localized inflammation, swelling and bleeding gums without a loss of the bone that supports the teeth. Gingivitis is usually reversible with good oral hygiene. Daily removal of dental plaque from the teeth is extremely important to prevent gingivitis, which can progress to destructive periodontal disease.

Periodontitis (destructive periodontal disease) is characterized by the loss of the tissue and bone that support the teeth, placing a person at risk of eventual tooth loss unless appropriate treatment is provided. Among adults, periodontitis is a leading cause of bleeding, pain, infection, loose teeth and tooth loss [Burt & Eklund 1999].

In the United States, almost half of the adult population aged 35-44 years old have gingivitis and 16 percent suffer from destructive periodontal disease. Nationally, the prevalence of gingivitis is highest among American Indians and Alaska Natives, Mexican Americans and adults with less than a high school education. Although not all cases of gingivitis progress to periodontal disease, all periodontal disease starts as gingivitis. The prevalence of gingivitis and destructive periodontitis in the United States is summarized in Table V. The same data for Louisiana is currently not collected.

Table V: Proportion of Adults aged 35–44 Years with Gingivitis or Adults Aged 35–44 Years with Destructive Periodontal Disease, by Selected Demographic Characteristics

	Aged 35–44 years Gingivitis	**Aged 35–44 Years Destructive Periodontal Disease***
	United States[a] (%)	**United States[b] (%)**
***Healthy People 2010* Target**	41	14
TOTAL	48	16
Race or Ethnicity		
Black or African American	51	23
White	45	14
Hispanic or Latino	DNA	DSU
Sex		
Female	45	12
Male	52	20
Education Level		
Less than high school	60	34
High school graduate	52	18
At least some college	42	11

Table V Sources:
US Data: a, b: *Healthy People 2010, Progress Review, 2000.* U.S. Department of Health and Human Services. Available at www.cdc.gov/nchs/ppt/hpdata2010/focusareas/fa21.xls.
National Health and Nutrition Examination Survey (NHANES), 1988-1994, 1999-2004
DNA = Data not analyzed
DSU = Data are statistically unreliable or do not meet criteria for confidentiality
* Defined as 1 or more teeth with 4 mm or more loss of periodontal attachment.

A. Prevalence of Disease and Unmet Needs

2. Adults - Oral Cancer

In Louisiana, the rates for oral and pharyngeal cancers in males are more than three times greater than the rates for females and are significantly higher for whites and African American men when compared to the rates for the same populations in the United States:

National Cancer Institute, SEER, 2002-2006

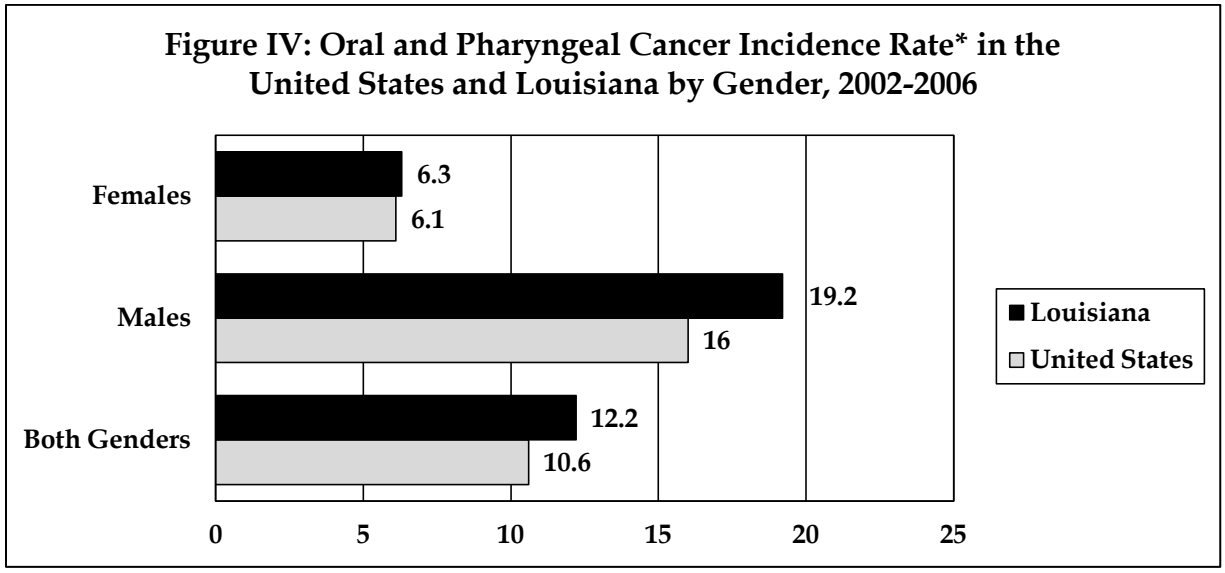
The 2002-2006 age-adjusted (to the 2000 U.S. population) incidence rate of oral cancer in the United States was 10.6 per 100,000 persons. Nearly 90 percent of cases of oral cancer in the United States occur among persons 45 years and older. The age-adjusted incidence was more than twice as high among men (16.0) than women (6.1), as was the mortality rate (3.8 vs. 1.4). Some groups experience a disproportionate burden of oral cancer; in the U.S., blacks are more likely than whites to develop oral cancer and much more likely to die from it. Cigarette smoking and alcohol are the major known risk factors for oral cancer in the United States, accounting for more than 75 percent of these cancers [Blot et al. 1988]. The use of tobacco, including smokeless tobacco [USDHHS 1986; IARC 2005] and cigars [Shanks & Burns 1998] also increases the risk of oral cancer. Dietary factors, particularly low consumption of fruit, and some types of viral infections also have been implicated as risk factors for oral cancer [McLaughlin et al. 1998; De Stefani et al. 1999; Levi 1999; Morse et al. 2000; Phelan 2003; Herrero 2003].

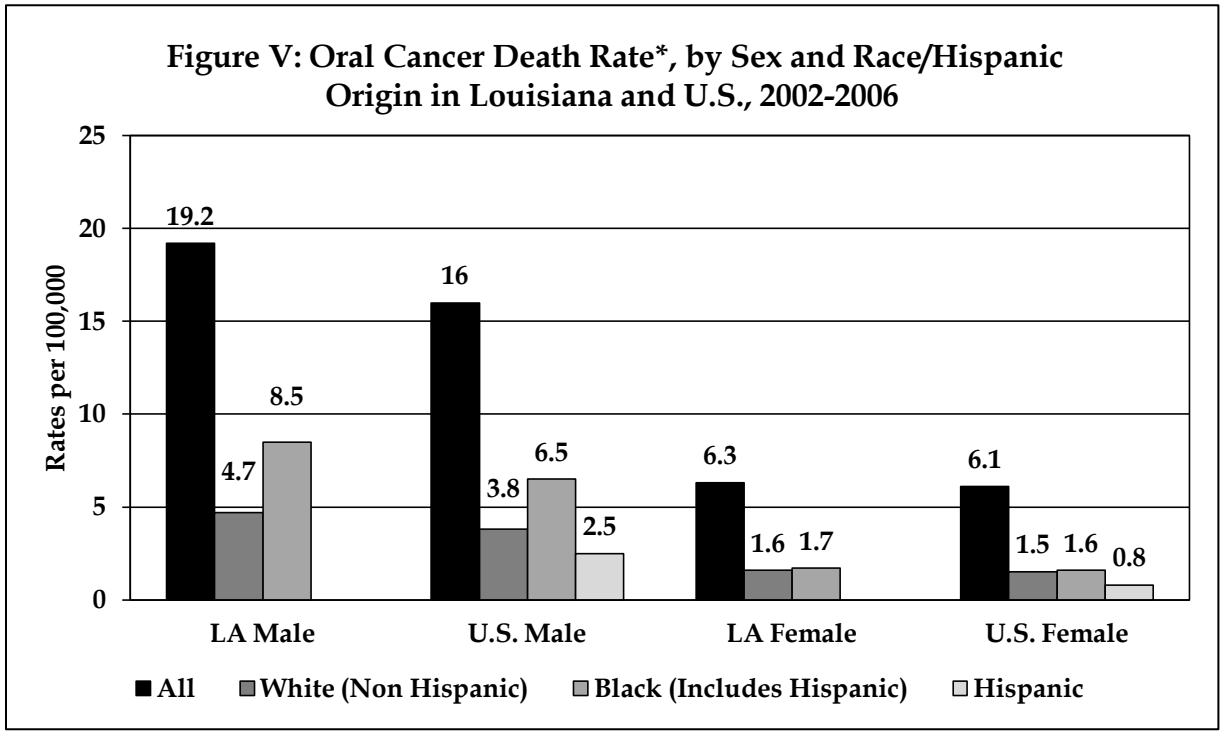
Survival rates for oral cancer have not improved substantially over the past 25 years. More than 40 percent of persons diagnosed with oral cancer die within five years of diagnosis [Ries et al. 2004], although survival varies widely by stage of disease when diagnosed. The 5-year relative survival rate for persons with oral cancer diagnosed at a localized stage is 83 percent. In contrast, the 5-year survival rate is only 52 percent once the cancer has spread to regional lymph nodes at the time of diagnosis and is just 28 percent for persons with distant metastasis.

When compared to the United States, Louisiana has both a higher rate for the incidence and a higher death rate for oral and pharyngeal cancers. In Louisiana, the rates for oral and pharyngeal cancers are significantly higher for whites and black men when compared to the rates for the same populations in the United States.

From 2002-2006, the incidence rates among whites and blacks were 12.3 and 12.1 per 100,000 persons respectively. The incidence is higher among black males (20.9) and white females (6.7) than white males (18.8) and black females (5.4). On an average, 148 people die of oral and pharyngeal cancer each year with the mortality rate of 3.4; males die more often than females. The annual mortality rate in males is 5.6 and in females it is 1.6. For black males, the mortality rate is almost double (8.5) when compared with white males (4.7). Black females and white females have almost the same mortality rates of 1.7 and 1.6 respectively.

The incidence rates of cancers of the oral cavity and pharynx for Louisiana and the United States is shown in Figure IV. The oral cancer death rate by sex and race/Hispanic Origin for Louisiana and the United States is shown in Figure V.





Sources for Figure IV and V:
*Per 100,000, age-adjusted to 2000 U.S. population
National Cancer Institute, SEER
For more information on cancer profiles and for cancer data categorized by site, race, and gender, see: NCI state cancer profiles at http://statecancerprofiles.cancer.gov/.

The incidence of oral cancer from 2002-2006 in Louisiana vary by parishes with rates as high as 20.4 in Richland Parish and as low as 7.8 in St. Martin Parish, see Table VI and Map I. Twenty-six parishes are listed as "suppressed" to avoid misinterpretation of unstable rates.

Table VI: Incidence of Oral Cancer Rate Report for Louisiana by Parish, All Races (includes Hispanic), Both Sexes, Oral Cavity & Pharynx, All Ages Sorted by Rate

Parish	Annual Incidence Rate† over rate period (95% Confidence Interval)	Average Annual Count	Rate Period
Louisiana [3]	12.2 (11.7, 12.7)	§	2002-2006
US (SEER+NPCR) [1]	10.6 (10.6, 10.7)	§	2002-2006
Richland Parish [7]	20.4 (12.4, 31.6)	§	2002-2006
Webster Parish [7]	18.2 (12.9, 25.0)	§	2002-2006
Union Parish [7]	17.3 (10.5, 26.9)	§	2002-2006
Jefferson Davis Parish [7]	16.7 (10.7, 24.9)	§	2002-2006
Vernon Parish [7]	16.1 (10.5, 23.4)	§	2002-2006
Acadia Parish [7]	15.6 (11.3, 21.2)	§	2002-2006
Bossier Parish [7]	15.6 (12.1, 19.7)	§	2002-2006
Plaquemines Parish [7]	15.4 (9.1, 24.4)	§	2002-2006
Iberville Parish [7]	15.3 (9.7, 23.1)	§	2002-2006
Ouachita Parish [7]	15.2 (12.3, 18.5)	§	2002-2006
Natchitoches Parish [7]	14.5 (9.4, 21.5)	§	2002-2006
Terrebonne Parish [7]	14.5 (11.2, 18.5)	§	2002-2006
Livingston Parish [7]	14.4 (10.9, 18.6)	§	2002-2006
Washington Parish [7]	14.2 (9.4, 20.5)	§	2002-2006
Morehouse Parish [7]	13.7 (8.6, 21.0)	§	2002-2006
St. Bernard Parish [7]	13.7 (9.6, 19.0)	§	2002-2006
De Soto Parish [7]	13.1 (7.5, 21.3)	§	2002-2006
Calcasieu Parish [7]	12.5 (10.2, 15.2)	§	2002-2006
Avoyelles Parish [7]	12.4 (8.0, 18.4)	§	2002-2006
Tangipahoa Parish [7]	12.4 (9.3, 16.1)	§	2002-2006
St. Tammany Parish [7]	11.8 (9.6, 14.2)	§	2002-2006
Orleans Parish [7]	11.7 (10.2, 13.4)	§	2002-2006
Caddo Parish [7]	11.7 (9.8, 13.8)	§	2002-2006

St. Mary Parish [7]	**11.5 (7.6, 16.7)**	**§**	**2002-2006**
Iberia Parish [7]	**11.5 (8.1, 15.8)**	**§**	**2002-2006**
Vermilion Parish [7]	**11.4 (7.6, 16.4)**	**§**	**2002-2006**
LaFourche Parish [7]	**11.2 (8.1, 15.0)**	**§**	**2002-2006**
East Baton Rouge Parish [7]	**11.0 (9.5, 12.7)**	**§**	**2002-2006**
Jefferson Parish [7]	**11.0 (9.6, 12.5)**	**§**	**2002-2006**
St. Landry Parish [7]	**10.9 (8.0, 14.6)**	**§**	**2002-2006**
Rapides Parish [7]	**10.8 (8.4, 13.8)**	**§**	**2002-2006**
Lafayette Parish [7]	**10.8 (8.6, 13.3)**	**§**	**2002-2006**
Evangeline Parish [7]	**10.7 (6.3, 17.2)**	**§**	**2002-2006**
Beauregard Parish [7]	**10.4 (5.9, 16.9)**	**§**	**2002-2006**
Ascension Parish [7]	**10.3 (7.1, 14.6)**	**§**	**2002-2006**
Lincoln Parish [7]	**10.1 (5.9, 16.2)**	**§**	**2002-2006**
St. Charles Parish [7]	**9.9 (6.1, 15.3)**	**§**	**2002-2006**
St. Martin Parish [7]	**7.8 (4.4, 12.7)**	**§**	**2002-2006**
Allen Parish [7]	*****	**3 or fewer**	**2002-2006**
Assumption Parish [7]	*****	**3 or fewer**	**2002-2006**
Bienville Parish [7]	*****	**3 or fewer**	**2002-2006**
Caldwell Parish [7]	*****	**3 or fewer**	**2002-2006**
Cameron Parish [7]	*****	**3 or fewer**	**2002-2006**
Catahoula Parish [7]	*****	**3 or fewer**	**2002-2006**
Claiborne Parish [7]	*****	**3 or fewer**	**2002-2006**
Concordia Parish [7]	*****	**3 or fewer**	**2002-2006**
East Carroll Parish [7]	*****	**3 or fewer**	**2002-2006**
East Feliciana Parish [7]	*****	**3 or fewer**	**2002-2006**
Franklin Parish [7]	*****	**3 or fewer**	**2002-2006**
Grant Parish [7]	*****	**3 or fewer**	**2002-2006**
Jackson Parish [7]	*****	**3 or fewer**	**2002-2006**
La Salle Parish [7]	*****	**3 or fewer**	**2002-2006**
Madison Parish [7]	*****	**3 or fewer**	**2002-2006**
Pointe Coupee Parish [7]	*****	**3 or fewer**	**2002-2006**
Red River Parish [7]	*****	**3 or fewer**	**2002-2006**
Sabine Parish [7]	*****	**3 or fewer**	**2002-2006**
St. Helena Parish [7]	*****	**3 or fewer**	**2002-2006**

St. James Parish [7]	*	3 or fewer	2002-2006
St. John the Baptist Parish [7]	*	3 or fewer	2002-2006
Tensas Parish [7]	*	3 or fewer	2002-2006
West Baton Rouge Parish [7]	*	3 or fewer	2002-2006
West Carroll Parish [7]	*	3 or fewer	2002-2006
West Feliciana Parish [7]	*	3 or fewer	2002-2006
Winn Parish [7]	*	3 or fewer	2002-2006

Notes:
Created by statecancerprofiles.cancer.gov
State Cancer Registries may provide more current or more local data.
† Incidence rates (cases per 100,000 population per year) are age-adjusted to the 2000 US standard population (19 age groups: <1, 1-4, 5-9, ... , 80-84, 85+). Rates are for invasive cancer only (except for bladder cancer which is invasive and in situ) or unless otherwise specified. Rates calculated using SEER*Stat. Population counts for denominators are based on Census populations as modified by NCI. The US populations included with the data release have been adjusted for the population shifts due to hurricanes Katrina and Rita for 62 counties and parishes in Alabama, Mississippi, Louisiana, and Texas (See US Population Data - 1969-2005 for more information).
§ Data not provided because it did not meet USCS publication standards for one or more years during the rate period of data collection. American Cancer Society's Facts & Figures provides estimates of numbers of new cancer cases and deaths.
* Data has been suppressed to ensure confidentiality and stability of rate estimates. Counts are suppressed if fewer than 16 cases were reported in a specific area-sex-race category.

[1] Source: CDC's National Program of Cancer Registries Cancer Surveillance System (NPCR-CSS) November 2008/January 2009 data submission and SEER November 2008 submission.
[3] Source: SEER November 2008 submission. State Cancer Registry also receives funding from CDC's National Program of Cancer Registries.
[7] Source: SEER November 2008 submission.

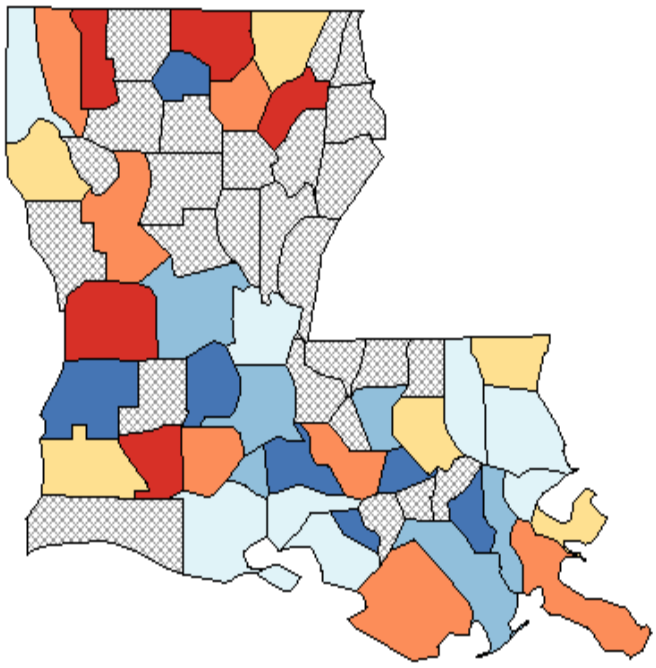
Because of the impact on Louisiana's population for the July - December 2005 time period due to Hurricanes Katrina/Rita, SEER excluded Louisiana cases diagnosed for that six month time period. The count has been suppressed due to data consistency issues.

Interpret Rankings provides insight into interpreting cancer incidence statistics. When the population size for a denominator is small, the rates may be unstable. A rate is unstable when a small change in the numerator (e.g., only one or two additional cases) has a dramatic affect on the calculated rate.

Suppression is used to avoid misinterpretation when rates are unstable.

Map I

Incidence Rates† for Louisiana, 2002 - 2006
Oral Cavity & Pharynx
All Races (includes Hispanic), Both Sexes, All Ages



Age-Adjusted
Annual Incidence Rate
(Cases per 100,000)
Quantile Interval

- 15.7 to 20.4
- 14.5 to 15.6
- 12.5 to 14.4
- 11.3 to 12.4
- 10.8 to 11.2
- 7.8 to 10.7
- Suppressed */**

US (SEER + NPCR)
Rate (95% C.I.)
10.6 (10.6 - 10.7)

Louisiana
Rate (95% C.I.)
12.2 (11.7 - 12.7)

Created by statecancerprofiles.cancer.gov on 04
State Cancer Registries may provide more current or more local data.
Data presented on the State Cancer Profiles Web Site may differ from statistics reported by the State Cancer Registries (for more information).

† Incidence rates (cases per 100,000 population per year) are age-adjusted to the 2000 US standard population (19 age groups: <1, 1-4, 5-9, ... , 80-84, 85+). Rates are for invasive cancer only (except for bladder which is invasive and in situ) or unless otherwise specified. Rates calculated using SEER*Stat. Population counts for denominators are based on Census populations as modified by NCI. The US populations included with the data release have been adjusted for the population shifts due to hurricanes Katrina and Rita for 62 counties and parishes in Alabama, Mississippi, Louisiana, and Texas (See US Population Data - 1969-2006 for more information.)

* Data have been suppressed to ensure confidentiality and stability of rate estimates. Counts are suppressed if fewer than 16 cases were reported in a specific area-sex-race category.

** Data have been suppressed for states with a population below 50,000 per sex for American Indian/Alaska Native or Asian/Pacific Islanders because of concerns regarding the relatively small size of these populations in some states.

Because of the impact on Louisiana's population for the July - December 2005 time period due to Hurricanes Katrina/Rita, SEER excluded Louisiana cases diagnosed for that six month time period. The count has been suppressed due to data consistency issues.

Based on available evidence, oral cancer diagnosed at an early stage has a better prognosis. Data for the United States on the proportion of oral cancer cases detected at the earliest stage (stage I, localized) are presented in Table VII. At this time, the data for the oral cancer cases detected at earliest stage is not collected in Louisiana.

Table VII: Proportion of Oral Cancer Cases Detected at the Earliest Stage, by Selected Demographic Characteristics

	United States* (%)
***Healthy People 2010* Target**	50[a]
TOTAL	35
Race or Ethnicity	
American Indian or Alaskan Native	24
Asian or Pacific Islander	29
Asian	DNA
Native Hawaiian or Other Pacific Islander	DNA
Black or African American	21
White	37
Hispanic or Latino	35
Not Hispanic or Latino	DNA
Black or African American	21
White	38
Sex	
Female	40
Male	33
Education Level	
Less than high school	DNC
High school graduate	DNC
At least some college	DNC
Disability Status	
Persons with disabilities	DNC
Persons without disabilities	DNC

Table VII Sources:
Healthy People 2010, Progress Review, 2000. U.S. Department of Health and Human Services. Available at www.cdc.gov/nchs/ppt/hpdata2010/focusareas/fa21.xls.
DNA = Data not analyzed
DNC = Data not collected
*National data are for 2000
[a]*Healthy People 2010*, 2nd ed. U.S. Department of Health and Human Services, November 2000.

B. Disparities

1. Racial and Ethnic Groups

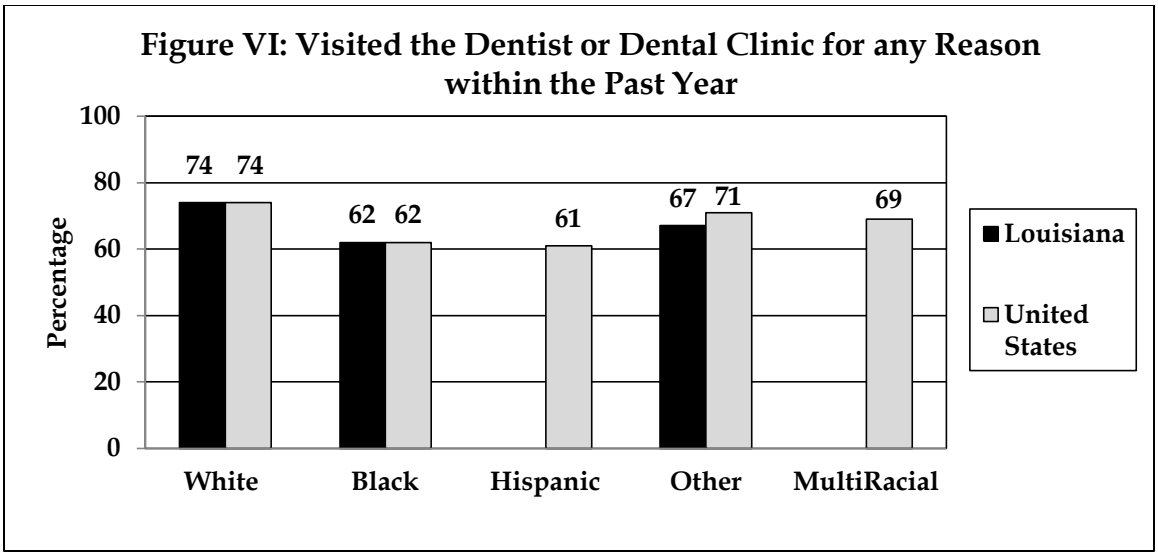
Although gains in oral health status have been achieved for the population as a whole, they have been unevenly distributed across subpopulations. Non-Hispanic African Americans, Hispanics and American Indians and Alaska Natives generally have the poorest oral health in the U.S. population. These groups tend to be more likely than non-Hispanic whites to experience dental caries in certain age groups, are less likely to have received treatment for it and have more extensive tooth loss. Black adults in each age group are more likely than other racial/ethnic groups to have gum disease. Compared with white, black Americans are more likely to develop oral or pharyngeal cancer, are less likely to have it diagnosed at early stages and experience a worse 5-year survival rate.

In Louisiana:

- *Oral Cancer Death Rate is almost two times greater in blacks than whites*
- *Among 65–74 year olds, more whites than blacks have lost all their teeth*
- *Black children have grater untreated cavities, more carries experience, fewer dentals sealants and a greater need for treatment for oral problems*
- *Among adults, a greater proportion of whites visit a dentist than do blacks.*

In Louisiana, among the population aged 65 and older, 33 percent of blacks have had all of their natural teeth extracted (edentulous) as compared to 27 percent of Black Americans in the U.S. Among the white population aged 65 and above in Louisiana, 21 percent of whites are edentulous compared to 18 percent in the U.S.

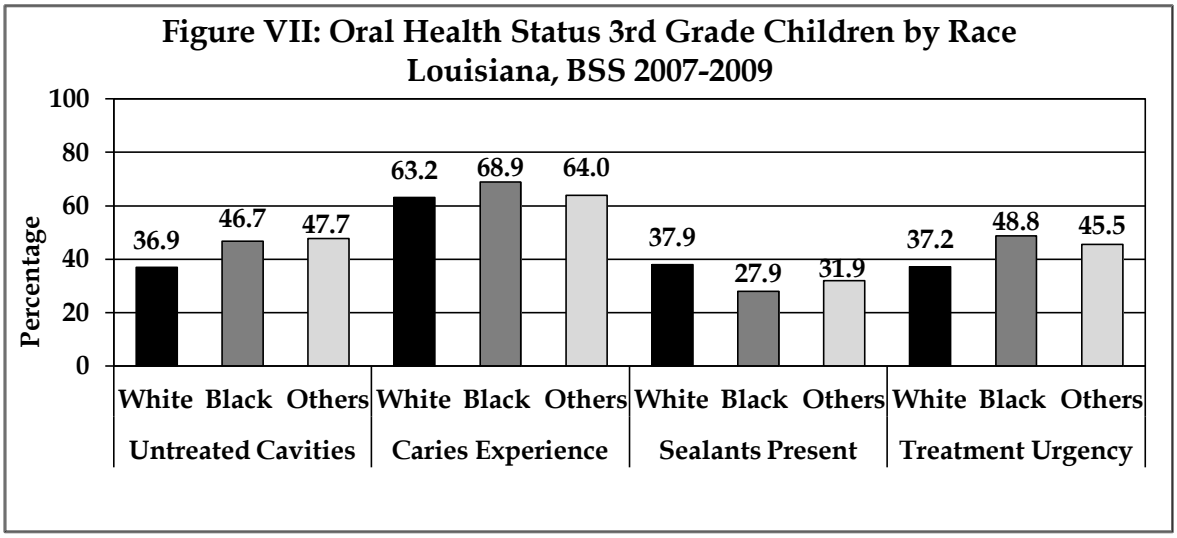
The likelihood of visiting a dental clinic for Louisiana adults also differs by race and ethnicity. Blacks are less likely to visit a dental clinic when compared to whites and other races, see Figure VI. Data for Hispanic and multiracial population was not collected. The statistics for Louisiana and the United States are comparable for whites and blacks; however, for the others, which is relatively a small population, Louisiana is doing better than the rest of the nation. Since 2006, in Louisiana, there has been quite an improvement in the dental visits for all races and when compared, nine percent more blacks, six percent more whites and three percent more others have reported seeing a dentist in 2008.



Source Figure VI: Behavioral Risk Factor Surveillance System 2008

Similar disparities exist for children as well as adults. According to the 2007-2009 Basic Screening Survey of Louisiana, see Figure VII, the following racial/ethnic disparities were reported among third grade children:

- The proportion of children with untreated cavities is higher among "others" which consists of Hispanic, Asian, American Indian/Alaskan Native, Native Hawaiian/Pacific Islander, Multiracial and Unknown followed by Blacks.
- Caries experience is higher for black children than other races.
- Higher proportions of white children have protective dental sealants than blacks and others.
- Need for dental care is higher for black children followed by "others" and whites.



Source Figure VII: Louisiana Basic Screening Survey, 2007-2009

B. Disparities

2. Socioeconomic

People living in low-income families bear a disproportionate burden from oral diseases and conditions. For example, despite progress in reducing dental caries in the United States, children and adolescents in families living below the poverty level experience more dental decay than children who are economically better off. Furthermore, the caries seen in individuals of all ages from poor families is more likely to be untreated than caries in those living above the poverty level.

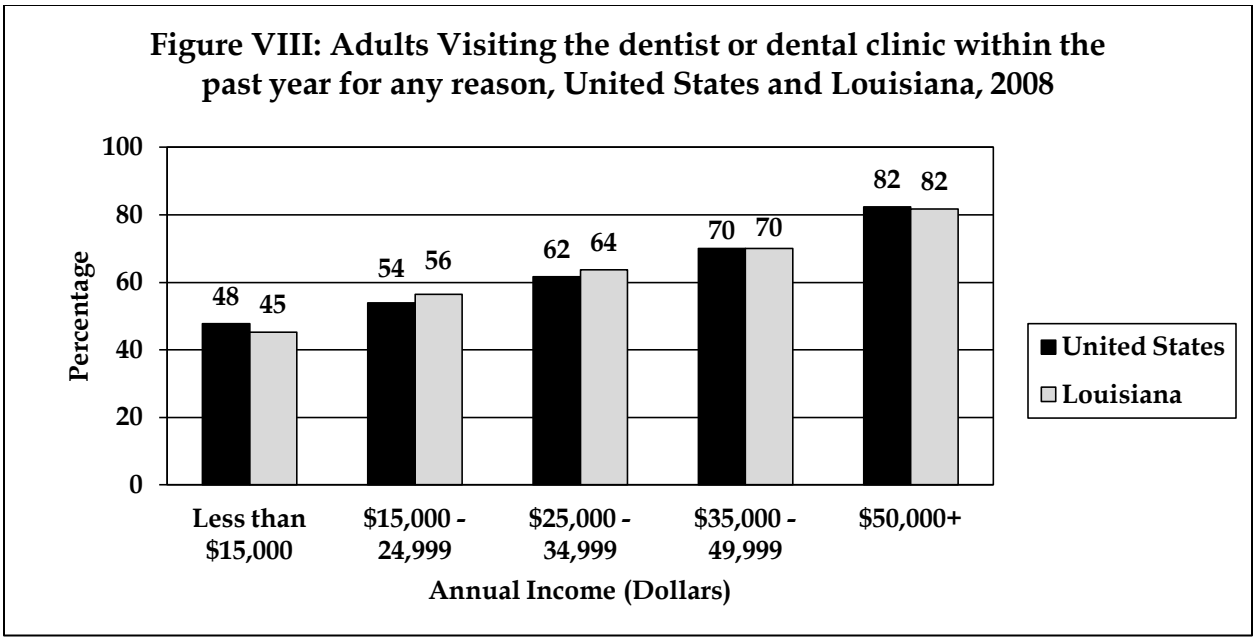
Nationally, 33 percent of poor children aged 2 to 11 years have one or more untreated decayed primary teeth, compared with 15 percent of non-poor children. Poor adolescents aged 12 to 19 years in each racial/ethnic group have a higher percentage of untreated decay in the permanent teeth than does the corresponding non-poor adolescent group. The pattern is similar in adults, with the proportion of untreated decayed teeth being higher among the poor than the non-poor [NHANES 1999-2004]. At every age, a higher proportion of those at the lowest income level than at the higher income levels have periodontitis. Adults with some college (11 percent) experience less destructive periodontal disease than adults with high school (18 percent) or with less than a high school (34 percent) level of education [NHANES 1999-2004]. The visit to a dentist or dental clinic is directly proportional to the income and the educational level of the population; more people access dentist or dental services from the higher educational and income levels.

The demographic characteristics for individuals in Louisiana are explained previously under the chapter "Prevalence of Disease and Unmet Needs, adult dental caries". In 2008, in Louisiana and the U.S., more than 80 percent of people with an annual income of $50,000 or more and those individuals who are college graduates visited a dentist within the past year as illustrated in figures VIII and IX.

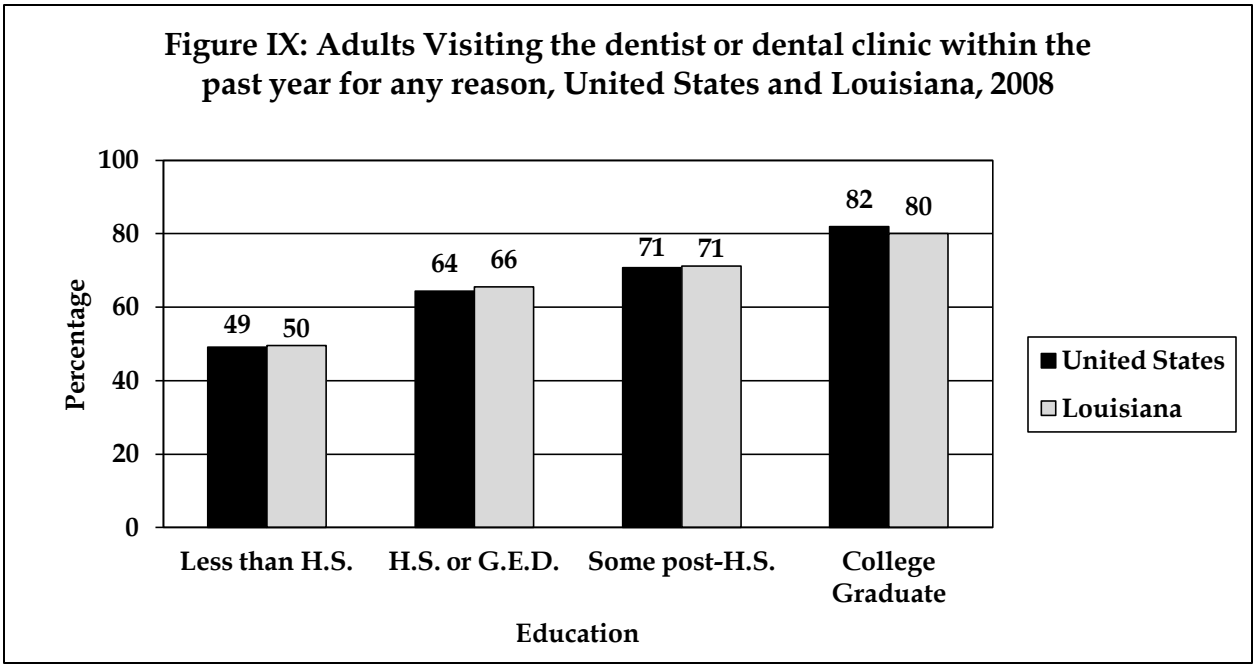
In Louisiana;

- *Almost twice as many people with an income greater than $50,000 see a dentist than people earning less than $15,000*
- *Almost twice as many people with a college degree see a dentist than people with less than a high school education*

Behavioral Risk Factor Surveillance System, 2008



Source Figure VIII: Behavioral Risk Factor Surveillance System, 2008



Source Figure IX: Behavioral Risk Factor Surveillance System, 2008

Overall, a higher percentage of Americans living below the poverty level are edentulous (have lost all their natural teeth) than are those living above the poverty level. People living in rural areas also have a higher disease burden because of difficulties in accessing preventive and restorative services. Among persons aged 65 years and older, 43 percent of individuals with less than a high school education were edentulous,

compared with 14 percent of persons with at least some college [NHANES 1999-2004]. The relationship between the income levels with the loss of all natural teeth in the senior population is described in the table below. Overall, with the decrease in income level, there is an increase in the proportion of people losing their natural teeth. The proportion is higher in Louisiana as compared to the U.S. as shown in Table VIII.

Table VIII: Adults aged 65+ who have had all their natural teeth extracted by Income in Louisiana and the United States

Income	Louisiana (%)	United States (%)
Less than $15,000	41	38
$15,000-24,999	31	27
$25,000-34,999	23	18
$35,000-49,999	14	13
$50,000+	9	7

Source Table VIII: Behavioral Risk Factor Surveillance System, 2008

B. Disparities

3. Women's Health

Most oral diseases and conditions are complex and are the product of interactions between genetic, socioeconomic, behavioral, environmental and general health influences. Multiple factors may act synergistically to place some women at higher risk of oral diseases. For example, the comparative longevity of women, compromised physical status over time, and the combined effects of multiple chronic conditions and side effects from multiple medications used to treat them can result in increased risk of oral disease [Redford 1993].

Many women live in poverty, are not insured and are the sole head of their household. For these women, obtaining needed oral health care may be difficult. In addition, gender-role expectations of women may affect their interaction with dental care providers and could affect treatment recommendations. However, many, but not all, statistical indicators show women to have better oral health status than men [Redford 1993; USDHHS 2000a]. Women are less likely than men at each age group to have severe periodontal disease. Both black and white women have a substantially lower incidence rate of oral and pharyngeal cancers than do black and white men, respectively. However, a higher proportion of women than men have oral-facial pain, including pain from oral sores, jaw joints, face/cheek and burning mouth syndrome.

Disparities in Louisiana between black and white women:

- *9 percent more black women needed to see a dentist*
- *5 percent more white women visited a dentist or during pregnancy*
- *4 percent more black women talked about tooth care with a healthcare worker*
- *9 percent more white women smoked during pregnancy*

***LaPRAMS**, 2007*

Poor oral health in women can also lead to

adverse pregnancy outcomes. The Louisiana Pregnancy Risk Assessment Monitoring System (LaPRAMS) is an ongoing, population-based risk factor surveillance system designed to describe selected maternal behaviors and experiences that occur before and during pregnancy as well as during a child's early infancy. According to LaPRAMS, when comparing data from 2004 to 2007, the number of women that reported needing to see a dentist for a problem increased from 27 to 34 percent; the number of women that visited a dentist or dental clinic during pregnancy also increased from 32 to 37 percent; and the number of women who talked about tooth care with a health care provider, increased from 34 to 38 percent. The proportion of pregnant women with oral health problems also increased between 2004 and 2007.

LaPRAMS data also shows disparities among the pregnant woman population in Louisiana, Table IX. In 2007, 39 percent of black women reported that they needed to see a dentist with an oral health problem during pregnancy as compared to 30 percent of white women. Similarly, in 2007, 32 percent of black women visited a dentist or dental clinic compared to 40 percent of white women. It is discouraging to see an increasing trend in the oral health issues among pregnant women in 2007 compared to 2004; however, there has been an increase in the number of women who talked to their health care provider about tooth care.

Table IX: LaPRAMS, Access to Oral Health Care for Pregnant Women during Pregnancy by Demographics^

	2004 (%)	2007 (%)
Needing to see a dentist	27.3	33.6
Black	28.7	39.3
White	26.6	30.0
Others*	16.8	21.7
Visited a dentist or dental clinic	32.4	36.7
Black	23.8	32.4
White	38.0	39.8
Others*	27.5	36.4
Talked about tooth care with health care worker	33.5	37.7
Black	31.8	40.0
White	35.0	36.0
Others*	14.0	39.0

Source Table IX: Louisiana Pregnancy Risk Assessment Monitoring System, 2004 and 2007.
*High Standard Error

^The data for 2007 has response rate issues

Smoking is associated with both poor oral health and adverse pregnancy outcomes. Most of the women who smoke before pregnancy quit while pregnant and then went back to smoking again once the pregnancy was over (Table X). White women tend to smoke more than black and "other" women before, during and after pregnancy. More women between 20 and 29 years smoke when compared to their younger and older counterparts. Education is an important factor in smoking; women who have more than

a high school education smoke the least throughout their pregnancy. Social support is said to have an impact on the smoking habit; married women smoke less than the others. The women who are on Medicaid also smoke more than the non-Medicaid enrollees.

Table X: LaPRAMS, Smoking Habit among Pregnant women before, during and after Pregnancy by Selected Demographic Characteristics

	Percent of women who reported smoking cigarettes during the 3 months before pregnancy		**Percent of women who reported smoking cigarettes during the last trimester of pregnancy**		**Percent of women who reported cigarette smoking during the 3-6 months after delivery**	
	2004 (%)	**2007 (%)**	**2004 (%)**	**2007 (%)**	**2004 (%)**	**2007 (%)**
Total	28.2	23.7	17.1	12.6	23.4	18.7
Race						
Black	14.4	13	11.6	7.7	14.2	11.2
White	36.6	32	21.4	16.6	29.3	24.9
Other	25.5	10.5	18.6	0.3	12.1	0.3
Age						
Less than 20	30.4	17.6	18.5	8.8	25.9	17.1
20-29	31.1	26.5	19.4	14.8	25.4	21.6
30+	21.6	19.6	14.1	8.8	18.2	12.0
Education						
Less than High School	46.2	27.5	33.3	20.3	39.8	25.2
High School	31.4	30	19.9	14.7	26.9	24.7
More than High School	17.7	16.4	9.1	7.0	13.3	10.6
Marital Status						
Married	23.7	19.3	13.3	8.9	18.2	13.8
Other	34.0	28.2	23.3	16.3	29.9	24.0
Medicaid Status						
Medicaid	34.6	25.9	23.2	15.7	13.2	22.6
Other	18.0	19.2	8.8	6.3	29.7	11.0

Source Table X: Louisiana Pregnancy Risk Assessment Monitoring System, 2004 and 2007

B. Disparities

4. People with Disabilities

The oral health problems of individuals with disabilities are complex. These problems may be due to underlying congenital anomalies as well as to an inability to receive the personal and professional health care needed to maintain adequate oral health. More than 54 million persons are defined as disabled under the Americans with Disabilities Act, including almost 1 million children under 6 years of age and 4.5 million children between 6 and 16 years of age.

No national studies have been conducted to determine the prevalence of oral and craniofacial diseases among the various populations with disabilities. Several smaller-scale studies have shown that the population with intellectual disability or other developmental disabilities has significantly higher rates of poor oral hygiene and needs for periodontal disease treatment than the general population. This is due, in part, to limitations in individual understanding of and physical ability to perform personal prevention practices or to obtain needed services. Caries rates among people with disabilities vary widely but overall their caries rates are higher than those of people without disabilities [USDHHS 2000a].

Table XI compares the percentage of the population living with a disability in Louisiana and the United States. In all age groups, Louisiana has a higher percentage of individuals with disabilities; this is especially true for the population 65 years and above. According to the estimates from the 2005-2007 American Community Survey, 12.1 percent of Louisiana's population is aged 65 and above; based on the survey estimate above, if 47.6 percent are living with a disability that amounts to just over 237,000 people. Growing older and living with a disability poses a challenge for this population to be able to take care of their oral health. For example, the use of certain medications during old age causes the decrease in the secretion of saliva which increases the risk of caries.

Table XI: Disability Status of the Civilian Non-institutionalized Population in Louisiana and the United States

With a Disability	Louisiana (%)	United States (%)
Population 5 years and over	18.5	15.1
Population 5 to 15 years	8.3	6.3
Population 16 to 64 years	15.8	12.3
Population 65 years and over	47.6	40.9

Source Table XI: American Community Survey, 2007

Children with Special Health Care needs

According to the National Survey of Children with Special Health Care Needs (NSCSHC), 2005-2006, 14.8 percent of Louisiana children aged 0-17 years have special health care needs as compared to 13.9 percent nationwide. According to the US Census Bureau, 2008 Estimates, there are, approximately 1.1 million children in Louisiana under 18 years of age. Using this estimate, 14.8 percent equates to roughly 162,116 children in Louisiana with special health care needs status. In Louisiana, 17.4 percent of males compared to 12 percent of females are with special health care needs following the U. S. trend. The percentages by age also did not differ much between the U. S. and Louisiana. When comparing U.S. data with Louisiana, there is measured difference in the percentage reporting missing 11 days or more of school due to illness; 14.3 percent for the U.S. and 18.8 percent for Louisiana. However, the percentages reporting that their condition affected their activities were essentially the same for the U.S. and Louisiana. Other key indicators such as health insurance, access to preventive dental care and levels of poverty were also similar for the U.S. and Louisiana. The data for children with special health care needs from Louisiana and the U.S. are summarized in Table XII.

In Louisiana:

Three out of four children with special health care needs received preventive dental care during the past 12 months. This data is comparable for the same population in the U.S.

NSCSHC, 2005-2006

Table XII: The Children with Special Health Care Needs by Selected Demographic Characteristics

Prevalence of CSHCN	Louisiana (%)	United States (%)
Percent of Children with Special Health Care Needs	14.8	13.9
CSHCN Prevalence by Age		
Age 0-5 years	10.4	8.8
Age 6-11 years	17.5	16.0
Age 12-17 years	16.3	16.8
CSHCN Prevalence by Sex		
Male	17.4	16.1
Female	12.0	11.6
CSHCN Prevalence by Poverty Level		
0-99% FPL	16.9	14.0
100-199% FPL	13.7	14.0
200-399% FPL	13.8	13.5
400% FPL or more	14.9	14.0
CSHCN Prevalence by Hispanic Origin and Race		
Non-Hispanic	14.5	15.0
Black	12.8	15.0
White	15.7	15.5
Multiple Races	23.7	17.9
Hispanic	14.1	8.3
Spanish Language Household	6.5	4.6
English Language Household	16.9	13.1
Child Health		
CSHCN whose conditions affect their activities usually, always, or a great deal	24.6	24.0
CSHCN with 11 or more days of school absences due to illness	18.8	14.3
Health Insurance Coverage		
CSHCN without insurance at some point in past year	8.3	8.8
CSHCN without insurance at time of survey	5.1	3.5
Currently insured CSHCN whose insurance is inadequate	28.2	33.1
Access to Care		
CSHCN receive any preventive dental care during the past 12 months	75.8	78.5

Source Table XII. National Survey of Children with Special Health Care Needs, 2005-2006

C. Societal Impact of Oral Disease

1. Social Impact

Oral health is related to well-being and quality of life as measured along functional, psychosocial and economic dimensions. Diet, nutrition, sleep, psychological status, social interaction, school, and work are affected by impaired oral and craniofacial health. Oral and craniofacial diseases and conditions contribute to compromised ability to bite, chew and swallow foods; limitations in food selection; and poor nutrition. These conditions include tooth loss, diminished salivary functions, oral-facial pain, conditions such as temporomandibular disorders, alterations in taste and functional limitations of prosthetic replacements. Oral-facial pain, as a symptom of untreated dental and oral problems and as a condition in and of itself, is a major source of diminished quality of life. It is associated with sleep deprivation, depression and multiple adverse psychosocial outcomes. More than any other body part, the face bears the stamp of individual identity. Attractiveness has an important effect on psychological development and social relationships. Considering the importance of the mouth and teeth in verbal and nonverbal communication, diseases that disrupt their functions are likely to damage self-image and alter the ability to sustain and build social relationships. The social functions of individuals encompass a variety of roles, from intimate interpersonal contacts to participation in social or community activities, including employment. Dental diseases and disorders can interfere with these social roles at any or all levels. Perhaps due to social embarrassment or functional problems, people with oral conditions may avoid conversation, laughing, smiling or other nonverbal expressions that show their mouth and teeth.

C. Societal Impact of Oral Disease

2. Economic Impact

Direct Costs of Oral Diseases

In 2008, the expenditures for dental services in the United States were $101.2 billion, 4.3 percent of the total spent on health care that year [Centers for Medicare & Medicaid Services 2008]. A large proportion of dental care is paid out-of-pocket by patients. Nationally, in 2008, 44 percent of dental care was paid out-of-pocket, 48.5 percent was paid by private dental insurance and 7 percent was paid by federal or state government sources. In comparison, 10 percent of physician and clinical services was paid out of pocket, 49 percent was covered by private medical insurance and 35 percent was paid by government sources (Centers for Medicare & Medicaid Services, 2008).

In Louisiana the percentage of all dollars spent on dental services is less than the percentage spent in the United States.

Centers for Medicare and Medicaid Services, National Health Expenditure Data, 2004

Dental Services Health Expenditure by State of Residence

In 2004, the total expenditure for the dental services by the state of residence in Louisiana was $781 million which was 3.8 percent of the total health care expenditure for that year. For the same year, in the U.S., the total expenditure was $81.4 billion which was 5.2 percent of the total national expenditure. The total U.S. spending on dental services per capita are $277 as compared to $174 dollars in Louisiana.

Dental Services Health Expenditure by State of Provider

In 2004, in Louisiana, the total estimated cost of dental services was $777 million which accounted for 3.4 percent of the total health care expenditure in Louisiana. For the same year the national dental expenditure was 5.3 percent of the total health care expenditure (Table XIII). In Louisiana, the expenditure on dental services is less than the United States by state of residence as well as by state of provider.

Table XIII: Total Expenditure for the Dental Services, Louisiana and the U.S., 2004

	Louisiana dollars	Louisiana percentage	United States dollars	United States percentage
By State of Residence	$781 million	3.5	$81,476 million	5.2
Spending by Service	$ 174/person		$ 277/person	
By State of Provider	$777 million	3.4	$81,476 million	5.3

Source Table XIII: National Health Expenditure Data, Health Expenditures by State, Centers for Medicare and Medicaid Services

Indirect Costs of Oral Diseases

Oral and craniofacial diseases and their treatment place a burden on society in the form of lost days and years of productive work. School children lose more than 51 million school hours, and the adult population loses 164 million hours of work because of dental problems or visits, which equates to 117 hours missed per 100 children and 148 hours lost per 100 employed persons. For school children, with the increase in age, the mean missed hours also increases. Females miss more hours than males and white children lose more hours than black. Similar to the school children, working females lost more hours than working males. The population aged less than 65 years lost more work time than 65 years and over. Service workers lose more time than executives in the work place due to dental issues. The populations who lost the most of their work time were females, blacks, age group of 18 to 24 years, less educated, lower income and those without dental insurance. [NIDCR, Oral Health U.S. 2002]

In addition, conditions such as oral and pharyngeal cancers contribute to premature death and can be measured by years of life lost. Once an individual is diagnosed with oral and pharyngeal cancer, the 5-year life expectancy is 83 percent at the localized stage, 52 percent once the cancer has spread to regional lymph nodes at the time of diagnosis and just 28 percent for persons with distant metastasis.

D. Oral Disease and Other Health Conditions

Oral health and general health are integral to each other. Many systemic diseases and conditions including diabetes, HIV and nutritional deficiencies, have oral signs and symptoms, and these manifestations may be the initial sign of clinical disease. Therefore, they may serve to inform health care providers and individuals of the need for further assessment. The oral cavity is a portal of entry as well as the site of disease for bacterial and viral infections that affect general health status. Recent research suggests that inflammation associated with periodontitis may increase the risk of heart disease and stroke, premature births in some women, difficulty in controlling blood sugar in persons with diabetes and respiratory infection in susceptible individuals [Dasanayake 1998; Offenbacher et al. 2001; Davenport et al. 1998; Beck et al. 1998; Scannapieco et al. 2003; Taylor 2001]. More research is needed in these areas. The statistics for some of these diseases in Louisiana are provided in Table XIV.

Table XIV: Prevalence of diseases in Louisiana by Selected Demographic Characteristics

	Diabetes	**Stroke**	**Heart Attack**
	2008 (%)	**2008 (%)**	**2008 (%)**
Total	10.7	3.8	5.3
Race			
Black	13.1	4.0	5.0
White	9.4	3.5	5.0
Other	12.9	5.8	9.9
Age			
18-24	0.8	0.4	0.6
25-34	4.1	2.2	1.8
35-44	5.0	1.4	2.4
45-54	12.1	3.4	4.5
55-64	18.6	5.9	8.6
65 and above	23.2	9.5	13.8
Education			
Less than High School	12.2	9.5	11.9
High School	10.9	4.6	5.7
Some College	9.5	2.9	4.3
College Graduate	7.9	1.8	3.4
Income			
<15,000	19.1	11.3	13.2
15,000-24,999	14.3	5.6	6.1
25,000-34,999	13.6	3.8	7.0
<35,000-49,999	7.8	2.6	3.8
50,000 +	7.4	1.5	3.1

Source Table XIV. Behavioral Risk Factor Surveillance System, 2008.

A. Community Water Fluoridation

Community water fluoridation is the process of adjusting the natural fluoride concentration of a community's water supply to a level that is best for the prevention of dental caries. In the United States, community water fluoridation has been the basis for the primary prevention of dental caries for 60 years and has been recognized as one of 10 great achievements in public health of the 20th century [CDC 1999]. It is an ideal public health method because it is effective, eminently safe, inexpensive, requires no behavior change by individuals, and does not depend on access or availability of professional services. Water fluoridation is equally effective in preventing dental caries among different socioeconomic, racial and ethnic groups. Fluoridation helps to lower the cost of dental care and helps residents retain their teeth throughout life [USDHHS 2000a].

The most common oral disease and conditions can be prevented. Safe and effective measures are available to reduce the incidence of oral disease, reduce disparities and increase quality of Life.

Recognizing the importance of community water fluoridation, the *Healthy People 2010* Objective 21-9 was to "Increase the proportion of the U.S. population served by community water systems with optimally fluoridated water to 75 percent." Currently, 41 percent of the Louisiana population on public water systems receives the benefit of optimally fluoridated water. The latest data available for the United States is for the year 2006 and based on that approximately 184 million persons (69.2 percent of the population served by public water systems) received optimally fluoridated water [CDC 2006].

Not only does community water fluoridation effectively prevent dental caries, it is one of very few public health prevention measures that offers significant cost savings to almost all communities [Griffin et al. 2001]. It has been estimated that about every $1 invested in community water fluoridation saves approximately $38 in averted costs. The cost per person of instituting and maintaining a water fluoridation program in a community decreases with increasing population size. Findings also suggest that Medicaid-eligible children in communities without fluoridated water are three times more likely than Medicaid-eligible children in communities with fluoridated water to receive dental treatment in a hospital operating room, and the cost of dental treatment per eligible child is approximately twice as high [MMWR Weekly September 03, 1999 / 48(34);753-757].

In the 2008 Regular Session, the Louisiana Dental Association, a partner of the Oral Health Program, sponsored a bill to mandate water fluoridation. The resulting law, Act 761, mandates that public water systems with over 5,000 service connections initiate fluoridation as funds are identified by the State. Twenty-five water systems fall under Act 761. The city of Oakdale initiated fluoridation in 2005 and Crowley in 2008. The city of Walker began preparing its water system for fluoridation in 2007, and after a multiyear contract process, will begin fluoridation in 2011. Efforts are underway to gain support for fluoridation in the city of Baton Rouge, the state's capital city. The program has met with the Mayor and the officials of the water company to discuss future actions and to identify funding sources. The fluoridation program also works closely with the DHH-Center for Environmental Health to ensure that all water operators are trained in the safety and reporting requirements for water fluoridation.

The Oral Health Program is the recipient of a five-year grant from the Centers for Disease Control and Prevention to enhance the infrastructure of the Oral Health Program, including the fluoridation management program. The Oral Health Program was able to hire an engineer in 2009 to oversee the technical aspects of the fluoridation program, including approving design plans for water systems, and ensuring the safe delivery of optimally fluoridated water. In 2009, the program hired a fluoridation coordinator who is responsible for conducting community organizing and outreach, and health education with community leaders, policy makers, and civic groups. The Oral Health Program is a member in the Louisiana Dental Association's Healthy Smiles Coalition, which is a collection of professionals and organizations that recognize the health benefit of fluoridated water. In addition, the program is assisted in its fluoridation efforts through a Governor appointed Fluoridation Advisory Board. In recent years, the Board and the Oral Health Program have been successful in securing additional funds for fluoridation efforts and have expanded the community outreach campaign. Board and coalition members have partnered with the program staff in championing fluoridation efforts in Lafayette, Crowley, Denham Springs, Ruston and Walker by meeting with city governments, water operators and the public. The combined efforts of the staff and the program partners have resulted in increased awareness of the benefits of community water fluoridation and the identification of local fluoridation champions.

B. Topical Fluorides and Fluoride Supplements

Because frequent exposure to small amounts of fluoride each day will best reduce the risk of dental caries in all age groups, everyone should drink water with an optimal fluoride concentration and brush their teeth twice daily with fluoride toothpaste [CDC 2001]. For communities that do not receive fluoridated water and persons at high risk of dental caries, additional fluoride measures might be needed. Community measures include fluoride mouth rinse or tablet programs, which typically are conducted in schools. Individual measures include professionally applied topical fluoride gels or varnish for persons at high risk of caries.

Fluoride mouth rinse is available over the counter for weekly or daily use. This concentrated solution helps prevent tooth decay in high risk individuals. The fluoride level in this concentrated solution varies for age-specific use. For 6 years or older, the concentration of fluoride in the over-the-counter rinse is 230 ppm and for the school-based weekly rinsing programs the concentration of fluoride is 920 ppm. Children under 6 years old are not recommended to use it without the prescription of a dentist because of the risk of enamel fluorosis as they tend to swallow it more often than adults.

Fluoride supplements are available by prescription in the form of tablets, lozenges and liquids. These help children prevent tooth decay in case their water supply lacks fluoridation. The tablets and lozenges are intended to be chewed for one-two minutes before being swallowed to increase the topical effect of fluoride. It is recommended that the risk of tooth decay should be weighted before issuing a prescription for these supplements in children younger than 6 years of age because these supplements also increase the risk of enamel fluorosis.

Fluoride gel and foam are also used as a supplement to prevent tooth decay. These are usually applied in dental offices and pose less of a threat for fluorosis in children younger than six because of the big intervals in between the applications. The gel usually has a very high concentration of fluoride but it is less than fluoride varnish. The range of fluoride varies from 1,000 ppm to 12,300ppm depending on the type of product.

The fluoride varnish is usually applied by the dentist. In some states, fluoride varnish can now be applied by physicians in their offices. Fluoride varnish has a fluoride concentration of 22,600ppm, which is painted on the teeth to protect against decay. It should be applied at least twice a year to achieve the maximum benefit. It is usually safe for children under the age of 6 and when applied by a professional the likelihood of being swallowed during the application is very low. (CDC Website)

C. Dental Sealants

Since the early 1970s, the incidence of childhood dental caries on smooth tooth surfaces (those without pits and fissures) has declined markedly because of widespread exposure to fluorides. Most decay among school age children now occurs on tooth surfaces with pits and fissures, particularly the molar teeth.

Pit-and-fissure dental sealants—plastic coatings bonded to susceptible tooth surfaces—have been approved for use for many years and have been recommended by professional health associations and public health agencies. First permanent molars erupt into the mouth at about age 6 years. Placing sealants on these teeth shortly after their eruption protects them from the development of caries in areas of the teeth where food and bacteria are retained. If sealants were applied routinely to susceptible tooth surfaces in conjunction with the appropriate use of fluoride, most tooth decay in children could be prevented [USDHHS 2000b].

Second permanent molars erupt into the mouth at about age 12 to 13 years.
Pit-and-fissure surfaces of these teeth are as susceptible to dental caries as the first permanent molars of younger children. Therefore, young teenagers need to receive dental sealants shortly after the eruption of their second permanent molars.

The *Healthy People 2010* target for dental sealants on molars is 50 percent for 8-year-olds and 14-year-olds. The most recent estimates of the proportion of children aged 8 years and 14 years with dental sealants on one or more molars are presented in Table XV. In Louisiana, 33.2 percent of the third grade children (8-year-olds) have dental sealants on one of their permanent molar teeth. Information for 14 years old will be collected if possible, on future Basic Screening Surveys conducted by the Oral Health Program.

In Louisiana, as well as nationally, within each age group, blacks and others are less likely than non-Hispanic whites to have sealants. It is also interesting to note that the presence of dental sealants is higher among the children living in less poverty as compared to their poorer and less fortunate counterparts.

Table XV: Percentage of Children in United States and Louisiana with Dental Sealants on Molar Teeth, by Age and Selected Characteristics

Children, Selected Ages, 1999–2000 (unless otherwise indicated)	Dental Sealants on Molars			
	21-8a. Aged 8 years		21-8b. Aged 14 years	
	Louisiana, 3rd graders [a] (%)	United States, (8-year-olds) [b] (%)	Louisiana (%)	% United States [b] (%)
***Healthy People 2010* Target**	50	50	50	50
TOTAL	33	32	DNC	21
Race or ethnicity				
Black or African American, not Hispanic or Latino	28	23	DNC	10
White, not Hispanic or Latino	38	38	DNC	23
Others	32	---	DNC	---
Sex				
Female	34	32	DNC	18
Male	32	32	DNC	24
Select Populations				
3rd grade students	33	26	N/A	N/A
Poverty Status				
Less than 100% FPL	DNC	21	DNC	13
100% - 199% FPL	DNC	25	DNC	16
Greater than 200% FPL	DNC	42	DNC	25

Table XV Sources:

[a] Louisiana Data: Basic Screening Survey, 2007-2009
[b] National Data: : *Healthy People 2010, Progress Review, 2000.* U.S. Department of Health and Human Services. Available at www.cdc.gov/nchs/ppt/hpdata2010/focusareas/fa21.xls.
National Health and Nutrition Examination Survey (NHANES), 1999-2004
--- = Data not available
DNC = Data not collected
NA = Not applicable

D. Preventive Visits

Maintaining good oral health takes repeated efforts on the part of the individual, caregivers and health care providers. Daily oral hygiene routines and healthy lifestyle behaviors play an important role in preventing oral diseases. Regular preventive dental care can reduce the development of disease and facilitate early diagnosis and treatment. One measure of preventive care that is being tracked, as shown in Table XVI, is the percentage of adults who have had a teeth cleaning in the past year. Having one's teeth cleaned by a dentist or dental hygienist is indicative of preventive behaviors. In Louisiana, 69 percent of the adults have had their teeth cleaned last year which is comparable to the United States, according to the Behavioral Risk Factor Surveillance System 2008.
As always, the higher educational and income levels are predictors of good oral health as well as for preventive practices.

Among the Medicaid-enrolled children in Louisiana (FFY2009), only 34 percent of the 776,070 total enrolled children received preventive dental services. For the last few years, there has been an increase in the percentage of the children receiving preventive dental services. In FFY 2006, there were only 23 percent of the total enrolled children who received these services; however in FFY 2009, 34% of the enrolled children received these services.

The periodic preventive dental care visits often lead to the better health outcomes and has the potential to reduce the overall cost of oral health care. In 2007, 77 percent of the Louisiana children and 78 percent children nationwide aged 1-17 years had at least one preventive dental care visit. [NSCH 2007]

The importance of preventive dental services cannot be emphasized enough in the case of pregnant women. There is a growing body of evidence that links periodontal disease with pre-term birth, low birth weight and gestational diabetes. The Louisiana Medicaid Program offers Expanded Dental Services for the Pregnant Women (EDSPW). Eligible women can receive preventive and restorative dental services during pregnancy. The EDSPW claims data suggests that 66 percent of the total 39,924 filed claims in SFY 2009 were for the preventive services; the remainder were for restorative services. In total, 5,708 women were seen in the SFY 2009 as compared to 2,085 in SFY 2005.

Table XVI: Percentage of Adults Aged 18 Years or Older Who Had Their Teeth Cleaned Within the Past Year, 2008

	Louisiana (%)	United States (%)
Total	69	69
Age		
18 – 24 years	75	66
25 – 34 years	65	62
35 – 44 years	67	69
45 – 54 years	68	70
55 – 64 years	70	74
65 + years	71	74
Race		
White	74	72
Black	59	59
Hispanic	N/A	61
Other	70	69
Multiracial	N/A	60
Sex		
Male	69	67
Female	69	71
Education Level		
Less than high school	47	49
High school or G.E.D.	65	62
Some post high school	69	69
College graduate	79	81
Income		
Less than $15,000	44	46
$15,000 – 24,999	55	52
$25,000 – 34,999	61	60
$35,000 – 49,999	67	67
$50,000+	80	80

Table XVI Sources:
Louisiana Data: Louisiana BRFSS 2008
National Data: BRFSS 2008
Available at http://apps.nccd.cdc.gov/nohss/ListV.asp?qkey=6&DataSet=2.

E. Screening for Oral Cancer

Oral cancer detection is accomplished by a thorough examination of the head and neck; an examination of the mouth including the tongue, the entire oral and pharyngeal mucosal tissues, the lips and palpation of the lymph nodes. Although the sensitivity and specificity of the oral cancer examination have not been established in clinical studies, most experts consider early detection and treatment of precancerous lesions and diagnosis of oral cancer at localized stages to be the major approaches for secondary prevention of these cancers [Silverman 1998; Johnson 1999; CDC 1998]. If suspicious tissues are detected during an examination, definitive diagnostic tests, such as biopsies, are needed to make a firm diagnosis.

Oral cancer is more common after the age of 60 years. Known risk factors include use of tobacco products and alcohol. The risk of oral cancer is increased 6 to 28 times in current smokers. Alcohol consumption is an independent risk factor and, when combined with the use of tobacco products, accounts for most cases of oral cancer in the United States and elsewhere [USDHHS 2004a]. Individuals should also be advised to avoid other potential carcinogens, such as exposure to sunlight (a risk factor for lip cancer) without protection. Use of lip sunscreen and hats is recommended.

Recognizing the need for dental and medical providers to examine adults for oral and pharyngeal cancer, *Healthy People 2010* Objective 21-7 is to increase the proportion of adults who, in the past 12 months, report having had an examination to detect oral and pharyngeal cancers. In Louisiana, approximately 532 new cases of oral and pharyngeal cancer are reported every year; and of those 148 will die from it. With timely diagnosis the survival rates can be improved a significantly. Currently, there is no mechanism available to report and address the need for these examinations. The Oral Health Program has plans to work with the state's Tobacco Control Program to address the concern emphasized under this objective. Nationally, relatively few adults aged 40 years and older (13 percent) reported receiving an examination for oral and pharyngeal cancer, although the proportion varied by race/ethnicity, see Table XVII.

Table XVII: Proportion[a] of Adults in the United States Who Were Examined for Oral and Pharyngeal Cancer in the Preceding 12 Months

Adults Aged 40 Years and Older	**United States (1998) (%)**
***Healthy People 2010* Target**	20
TOTAL	13
Race or ethnicity	
American Indian or Alaska Native	DSU[b]
Asian or Pacific Islander	12[b]
Asian	12[b]
Native Hawaiian and other Pacific Islander	DSU[b]
Black or African American only	7[b]
White only	14[b]
2 or more races	DNC
American Indian or Alaska Native; White	DNC
Black or African American; White	DNC
Hispanic or Latino	6
Not Hispanic or Latino	14
Black or African American, not Hispanic or Latino	6[b]
White, not Hispanic or Latino	15[b]
Sex	
Female	14
Male	12[b]
Education Level	
Less than high school	5
High school graduate	10
At least some college	19

Table XVII Sources:
H*ealthy People 2010, Progress Review, 2000.* U.S. Department of Health and Human Services. Available at www.cdc.gov/nchs/ppt/hpdata2010/focusareas/fa21.xls.
DNC = Data not collected
DSU = Data are statistically unreliable or do not meet criteria for confidentiality
[a] Age adjusted to the year 2000 standard population.
[b]Persons reported only one race or reported more than one race and identified one race as best representing their race.

F. Tobacco Control

Tobacco use has a devastating effect on the health and well-being of the public. More than 400,000 Americans die each year as a direct result of cigarette smoking, making it the nation's leading preventable cause of premature mortality, and smoking causes more than $150 billion in annual health-related economic losses [CDC 2002]. The effects of tobacco use on the public's oral health are also alarming. The use of any form of tobacco — including cigarettes, cigars, pipes and smokeless tobacco — has been established as a major cause of oral and pharyngeal cancer [USDHHS 2004a]. The evidence is sufficient to consider smoking a causal factor for adult periodontitis [USDHHS 2004a]; one-half of the cases of periodontal disease in this country may be attributable to cigarette smoking [Tomar & Asma 2000]. Tobacco use substantially worsens the prognosis of periodontal therapy and dental implants, impairs oral wound healing and increases the risk of a wide range of oral soft tissue changes [Christen et al. 1991; AAP 1999].

Comprehensive tobacco control would have a large impact on oral health status. The goal of comprehensive tobacco control programs is to reduce disease, disability and death related to tobacco use by:

- Preventing the initiation of tobacco use among young people;
- Promoting quitting among young people and adults;
- Eliminating nonsmokers' exposure to secondhand tobacco smoke; and
- Identifying and eliminating the disparities related to tobacco use and its effects among different population groups.

The dental office provides an excellent venue for providing tobacco intervention services. More than one-half of adult smokers see a dentist each year [Tomar et al. 1996]. Dental patients are particularly receptive to health messages at periodic check-up visits, and oral effects of tobacco use provide visible evidence and a strong motivation for tobacco users to quit. Because dentists and dental hygienists can be effective in treating tobacco use and dependence, the identification, documentation and treatment of every tobacco user they see needs to become a routine practice in every dental office and clinic [Fiore et al. 2000]. However, national data from the early 1990s indicated that just 24 percent of smokers who had seen a dentist in the past year reported that their dentist advised them to quit, and only 18 percent of smokeless tobacco users reported that their dentist *ever* advised them to quit. The Louisiana Medicaid Program covers a variety of treatment options for tobacco dependents which include NRT (Nicotine Replacement Therapy) gum, NRT patch, NRT nasal spray, NRT inhaler, Varenicline (Chantix) and Bupropion (Zyban). The Louisiana Tobacco Control Program offers a Tobacco Quitline for the counseling of the current smokers and keeps track of its usage. In April, 2010, the Quitline assisted 235 callers and 53 reported that their health care professionals have referred them to use this service.

Smoking is more prevalent among low income and low educated individuals in Louisiana and United States. Currently, 21 percent and 18 percent of the adults in Louisiana and Untied States respectively are smokers. The Healthy People 2010 goal for cigarette smoking among the adult population is 12 percent. Cigarette smoking among adults 18 years older is described in Table XVIII. The data for students who smoked or used other tobacco products is described in Table XIX. Data suggests that white students are smoking and chewing tobacco more than other races.

Table XVIII: Cigarette Smoking among Adults Aged 18 Years and Older

Healthy People 2010* Target: *12%	**Louisiana Status** [a] **(%)**	**United States** [b*] **(%)**
Total	21	18
Race or Ethnicity		
Black	20	21
White	21	18
Hispanic	N/A	16
Other	11	16
Multi-Racial	N/A	23
Sex		
Female	18	17
Male	24	20
Income		
Less than $15,000	32	31
$15,000 - $24,999	27	28
$25,000 - $34,999	23	23
$35,000 - $49,999	23	21
$50,000 +	16	13
Education		
Less than H.S.	30	30
H.S. or G.E.D.	23	25
Some post-H.S.	23	20
College Graduate	13	9

Table XVIII Sources:
H*ealthy People 2010*, 2nd Ed. U.S. Department of Health and Human Services, November 2000.
* Age-adjusted to the Year 2000 standard population.
National and State Data Source: [a,b] BRFSS 2008

Table XIX: Percentage of Students in High School (Aged 12–21 years) who Smoked Cigarettes or who Used Chewing Tobacco or Snuff One or More of the Past 30 Days

	Cigarettes Louisiana[a] (%)	Cigarettes United States[b] (%)	Chew Louisiana[a] (%)	Chew United States[b] (%)
Total	18	20	10	8
Race				
Black	7	12	2	1
White	25	23	14	10
Hispanic	N/A	17	N/A	5
Other	N/A	17	N/A	6
Sex				
Female	16	19	2	2
Male	19	21	17	13

Table XIX Sources:
Division of Adolescent and School Health, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention, Youth Risk Behavior Surveillance System Online
[a]State Data Source: YRBSS 2008
[b] National Data Source: YRBSS 2007

G. Oral Health Education

Oral health education for the community is a process that informs, motivates and helps people to adopt and maintain beneficial health practices and lifestyles; advocates environmental changes as needed to facilitate this goal; and conducts professional training and research to the same end [Kressin & DeSouza 2003]. Although health information or knowledge alone does not necessarily lead to desirable health behaviors, knowledge may help empower people and communities to take action to protect their health. The Oral Health Program collaborates with the Partners for Healthy Babies Program to educate pregnant women about the benefits of good oral health during and after pregnancy. The program also provides information on available Medicaid dentists and resources needed. The Oral Health Program delivers education on the best oral hygiene practices to school children during the delivery of the dental sealant program and collaborates with local agencies and partners to spread the message. During the implementation of the Basic Screening Survey in 2007-2009, the Program provided oral health screening training to more than 120 school nurses across the state. This training was useful in identifying oral diseases and providing referrals if required.

The Louisiana Oral Health State Plan will have a domain on the oral health education, which would include the enhancement of the awareness and knowledge of the general population about oral diseases, prevention and resources to address the issues based on the best practices and the *Healthy People 2010* goals.

Dentists, dental hygienists, nurses and many others are mandated to report on child abuse and neglect cases in the state. The Prevent Abuse and Neglect through Dental Awareness (PANDA) program provides education to dentists and other health care providers to perform their duties as mandated reporters. Dentists reported 18 cases of child abuse and neglect in 2008 and 2009; 8 of which were validated each year. It is believed that a large number of cases go unrecognized every year.

A. Dental Workforce and Capacity

The oral health care workforce is critical to delivering high quality dental care in the United States. Effective health policies intended to expand access, improve quality, or constrain costs must take into consideration the supply, distribution, preparation and utilization of the health workforce.

A. Dental Workforce and Capacity

1. Dental Workforce

Louisiana lags behind the nation in the rate of oral health workforce per population. Factors that compound the situation are workforce models that limit the authorized duties of dental hygienist and expanded duty dental assistants, the lack of workforce in rural areas and the relatively low number of dentists seeing Medicaid patients compared to the Medicaid-eligible population. In 2000, there were 1,920 dentists, 1,420 dental hygienists and 2,480 dental assistants practicing in Louisiana with the rate of 43 dentists per 100,000 residents. At that time, the national rate was 63.6 and Louisiana was ranked 42nd in the nation in dentists per capita. The per capita ratios of dental hygienists and dental assistants were also lower than their respective national rates. By 2009, the number of dental professionals with a license and address in Louisiana had grown to 2,135 dentists and 1,732 dental hygienists, increasing the rate to 48 dentists per 100,000 population. On an average, there is one dentist available for 2,132 individuals in Louisiana.

Louisiana's oral health workforce is poised to experience an even greater shortage as a sizeable amount of the workforce is soon to retire. Almost 27 percent of the total dentists in Louisiana are 60 years and older and, it is expected that within the next ten years many of these dentists will retire. While many dental graduates are electing to stay in Louisiana, the new dental workforce might not be sufficient enough to replace the vacancies made by the retiring workforce.

In Louisiana:

- *On an average one dentist is available for 2,132 individuals in Louisiana*
- *Approximately 27 percent of the current workforce may retire with the next few years*
- *Only 29 percent of dentists bill Medicaid for any dental services*
- *87 percent of Louisiana is designated as Dental HPSA*
- *On an average, 60 dentists and 90 dental hygienists graduate each year*

The shortage of dentists accepting Medicaid patients further compounds Louisiana's lack of adequate oral health providers. In the SFY 2009, out of the total number of 2,135 available dentists, only 968 were enrolled in Medicaid program. Among the enrolled dentists, 610 billed Medicaid for any dental

services and 391 billed Medicaid for $ 10,000 or more per annum. Recent increases in the reimbursement rate have resulted in an increase in the amount billed for services and a small increase in the percentage of eligible population who receive any service.

A. Dental Workforce and Capacity

2. Innovative Workforce Models

> *"Innovative workforce models that expand the number of qualified dental providers, including medical personnel, hygienist and new primary care dental professionals who can provide care when dentist are unavailable" will expand access to care.*
>
> *"Doctors, nurse, nurse practitioners, and physician assistants are increasingly being recognized for their ability to see children, especially infants and toddlers, earlier and more frequently than dentists."*
>
> *The Pew Centers on the States, The Cost of Delay, February 2010*

In February of 2010, The Pew Center on the States released a report on the status of children's oral health care in the United States. The report, *The Cost of Delay* established eight policy benchmarks on an "A" through "F" grading. Louisiana received an "F" for meeting only two of the eight benchmarks. Two benchmarks that Louisiana did not meet are directly related to workforce issues. Louisiana is one of 30 states that requires a dentist's exam before a hygienist sees a child in a school sealant program. Pew cites this as a limiting factor for the number of children that can be served in a school sealant program. Another innovative approach cited by Pew as a way to address shortages of dental professional is the growing trend of allowing medical providers to bill Medicaid for preventive dental services. Louisiana is one of 16 states that does not currently allow this.

A. Dental Workforce and Capacity

3. Dental Professional Educational Institutions

School of Dentistry

The Louisiana State University Health Sciences Center (LSUHSC) School of Dentistry, located in New Orleans, is the only dental school in the state. Approximately 60 dentists graduate each year. In the 2009-2010 school year, LSUHSC School of Dentistry had an applicant pool of 230 dental students; of that, 155 (67.4 percent) were in-state applicants. Of the 65 enrolled students, 57 were in-state. In the 2009 graduating class, 41 of the 59 graduates stayed in Louisiana practicing or pursuing a residency [LSU 2009-2010].

Dental Hygiene Schools

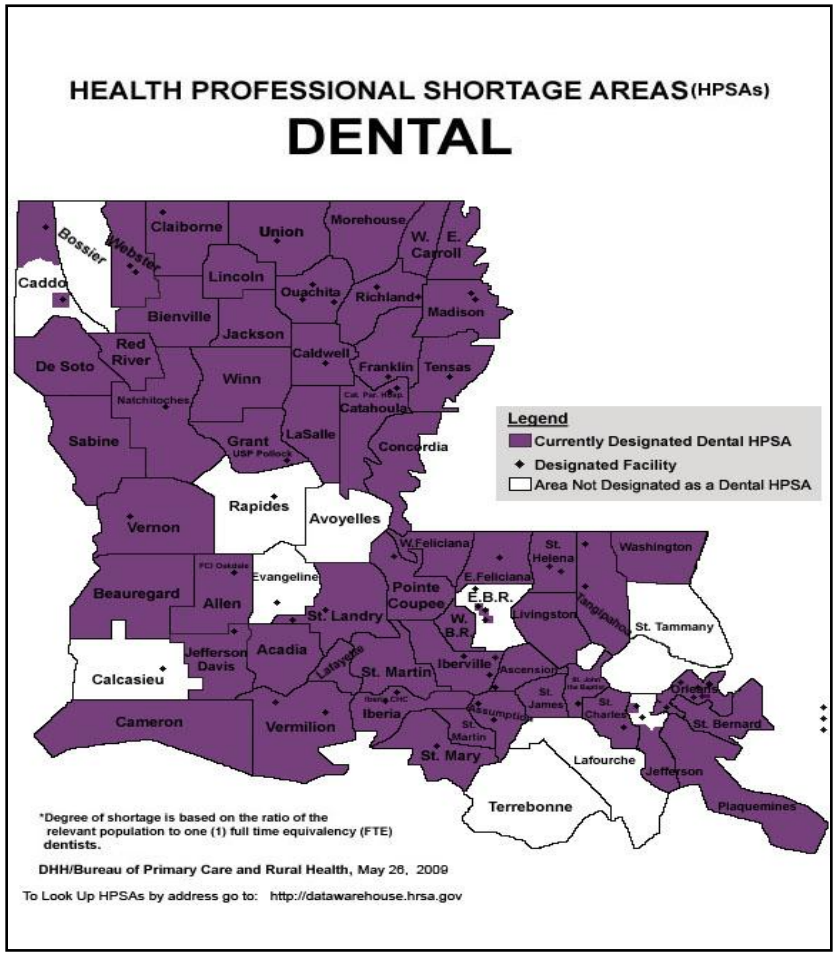
There are three dental hygiene schools in Louisiana. The Louisiana State University Health Sciences Center School of Dentistry has two campuses, New Orleans and Lafayette. The other two schools are the University of Louisiana at Monroe College of Health Sciences and Southern University at Shreveport Division of Allied Health. All of these schools combined graduate approximately 90 dental hygienists each year. Some of the dental schools offer Expanded Duty Dental Assistant training, however candidates must be trained Dental Assistants to attend.

A. Dental Workforce and Capacity

4. Dental Health Professional Shortage Areas

Despite an increase in the number of dental health care professionals, 56 out of the 64 parishes or 87.5 percent of the state is designated as Dental Health Professional Shortage Areas (HPSAs). Of the parishes that are designated as Dental HPSAs, three parishes, Caddo, East Baton Rouge and Jefferson, are designated as partial and 53 parishes are designated as complete. Only eight parishes are not designated as Dental HPSAs: Calcasieu, Terrebonne, Lafourche, St. Tammany, Avoyelles, Evangeline, Rapides and Bossier as illustrated in Map II.

Map II



Map II Source: LA Department of Health and Hospitals, Bureau of Primary Care and Rural Health

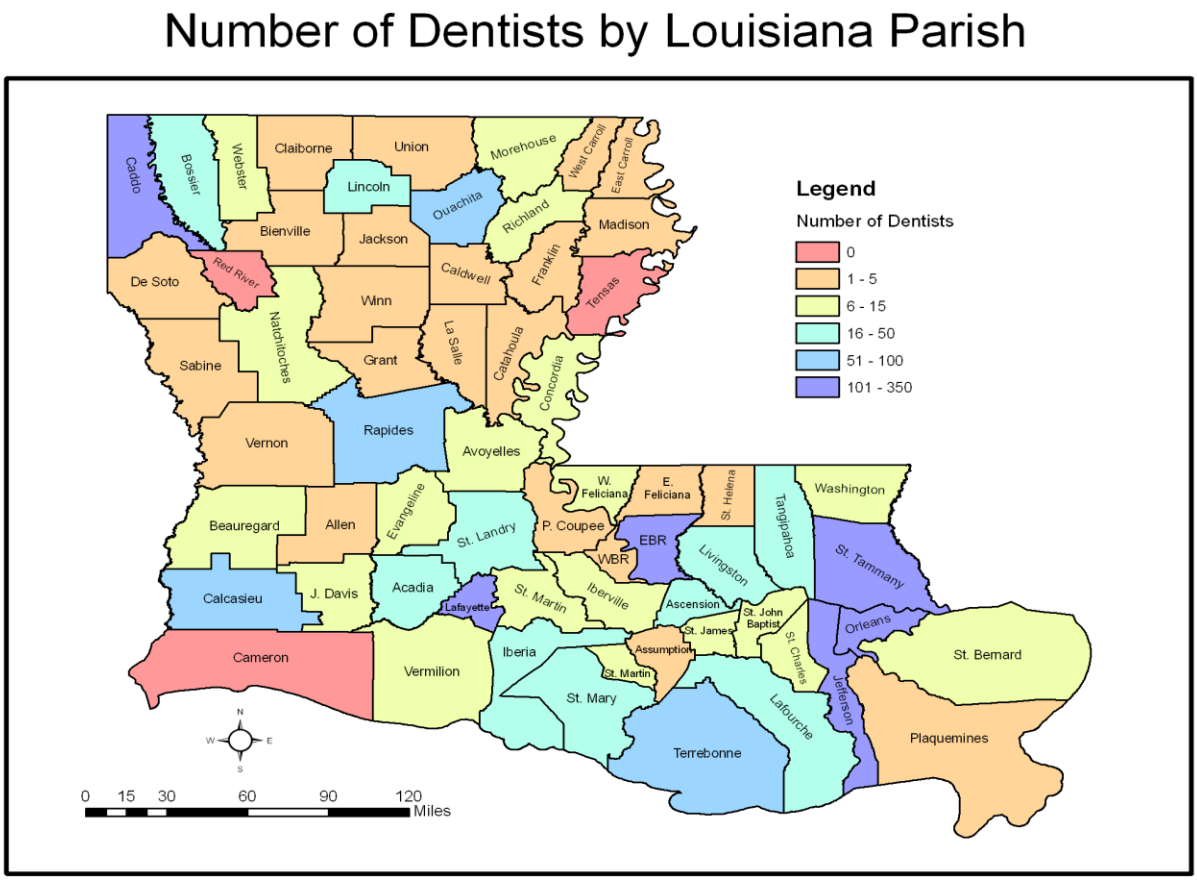
Table XX: Distribution of Dentists in the Number of Parishes, 2009

Number of Dentists	Total Number of Parishes
No Dentist	3
1 to 5	23
6 to 15	18
16 to 50	10
50 to 100	4
101 and more	6
Total 2135	Total 64

Table XX Source: Louisiana State Board of Dentistry, 2009

In addition to the fact that 87.5 percent of the state is designated as Dental HPSA, Louisiana also suffers from an unevenly distributed oral health workforce between predominately urban and predominately rural parishes as illustrated in Map III and Table XX. Not surprisingly, the metropolitan areas of Lafayette, New Orleans, Baton Rouge and Shreveport boast ample numbers of dentists while the smaller urban cities of Alexandria, Lake Charles, Houma/Thibodaux, and Monroe also have an acceptable ratio of dentists to population. Three parishes, Red River, Cameron and Tensas don't have any dentists.

Map III



Map 3 Source: Louisiana State board of Dentistry, 2009

B. Dental Workforce Diversity

One cause of oral health disparities is a lack of access to oral health services among under-represented populations. Increasing the number of dental professionals from under-represented racial and ethnic groups is viewed as an integral part of the solution to improving access to care [USDHHS 2000b]. The most recent data on the race/ethnicity of dental care providers was gathered in a survey conducted by the American Dental Association in 1997 [ADA 1999]. According to this survey of professionally active dentist, 1.9 percent of active dentists in the United States identified themselves as black or African American. However, for the same time period, this group constituted 12.1 percent of the U.S. population. The survey also reported that Hispanic/Latino dentists made up 2.7 percent of U.S. dentists, compared with 10.9 percent of the U.S. population that was Hispanic/Latino.

In 2008, Louisiana had a population of 4.4 million; 65 percent were White, 32 percent were Black, 1.4 percent were Asian, and the rest were identified as "others", which include American Indian and Alaskan Native, Native Hawaiian and Pacific Islander and multiracial. In 2009, of the 2,135, approximately 89 percent were White, five percent were Black, three percent were Asian, and the remaining three percent were identified as "others". In the LSU School of Dentistry, the enrollment of dental students also varies by race and ethnicity. Among the 65 students enrolled in 2009-2010 school year, 54 were white, seven were Asians, one was black and the remaining three belonged to the "others" category.

United States Department of Health and Human Services:
Increasing the number of dental professionals from under-represented racial and ethnic groups is viewed as an integral part of the solution to improving access to care [USDHHS 2000b]

2009-2010 Class
LSU School of Dentistry

- *83 percent were white*
- *11 percent were Asian*
- *5 percent were "Others"*
- *1percent were black*

LSUHSC, 2009

C. Use of Dental Services

1. General Population

While appropriate home-based oral health care and population-based prevention are essential, professional care is also necessary to maintain optimal dental health. Regular dental visits provide an opportunity for the early diagnosis, prevention and treatment of oral diseases and conditions for people of all ages, as well as for the assessment of self-care practices.

Adults

Adults who do not receive regular professional care can develop oral diseases that eventually require complex treatment and may lead to tooth loss and health problems. People who have lost all of their natural teeth are less likely to seek periodic dental care than those with teeth, which, in turn, decreases the likelihood of early detection of oral cancer or soft tissue lesions from medications, medical conditions and tobacco use, as well as from poor-fitting or poorly maintained dentures. Table XXI illustrates the demographic makeup of people in Louisiana who report visiting a dentist in the last 12 months. There is no difference reported between men and women and little difference reported between racial and ethnic population. The most significant differences are indicated in the income and education demographics. Adults with higher education and those with higher incomes visit the dentist more often than those with low education and income.

In Louisiana;

- *80 percent of adults with a college degree reported seeing a dentist in the past year as compared to only 50 percent with less than a high school degree.*
- *82 percent of adults earning $50,000 or more reported seeing a dentist in the past year as compared to only 45 percent earning less than $15,000.*

BRFSS. 2008

Table XXI: Proportion of Persons Aged 18 Years and Older Who Visited a Dentist in the Previous 12 Months

	Louisiana (%)
TOTAL	70
Race and ethnicity	
Black	62
White	74
Other	67
Sex	
Female	70
Male	70
Education Level (persons aged 25 years and over)	
Less than high school	50
High school graduate	66
Some Post High School	71
College Graduate	80
Income	
Less than $15,000	45
$15,000-24,999	56
$25,000-34,999	64
$35,000-49,999	70
$50,000+	82

Table XXI Sources:
Data Source: Behavioral Risk Factor Surveillance System, Louisiana 2008

Schoolchildren

> ***In Louisiana:***
> - *77 percent of children ages 1 to 17 years received a preventive dental visit*
> - *Only 31 percent of Hispanic children in Spanish speaking households received a preventive dental visit*
>
> *National Survey of Children's Health, 2007*

According to the 2007 National Survey of Children's Health, the average rate of school children in Louisiana that report having a preventive dental visit is, by and large, in accordance with the national trends. However, select populations of Louisiana's children showed care-seeking rates that were significantly lower than the U.S. for the same populations. Among the Hispanic children in the household where Spanish is the primary household language, care-seeking rates were reported to be very low; See Table XXII.

Table XXII: Preventive Dental Visits among Children 1-17 Years old in Louisiana and the United States

	Louisiana (%)	United States (%)
TOTAL	77	78
Race and ethnicity		
Black, non-Hispanic	75	78
White, non-Hispanic	79	81
Hispanic or Latino	65	72
Multi-racial, non-Hispanic	74	78
Other, non-Hispanic	66	78
Sex		
Female	77	79
Male	76	78
Special Health Care Needs Status	80	84
One or More Emotional, Behavioral or Developmental Issues	74	83
Household Income Level		
0-99% FPL	66	69
100-199% FPL	74	72
200-399% FPL	82	81
400% FPL or higher	84	86
Consistency of Health Coverage		
Consistently Insured	77	81
Currently Insured or periods w/no coverage	67	62
Primary Household Language		
Hispanic Children, Spanish is primary Household Language	31	66
Hispanic Children, English is primary Household Language	77	78
Non-Hispanic Children	77	80

Table XXII Source: National Survey of Children's Health, 2007

C. Use of Dental Services

2. Dental Medicaid Program

Children

Medicaid is the primary source of health care for low-income families, the elderly and people with disabilities in the United States. This program became law in 1965 and is jointly funded by the federal and state governments (including the District of Columbia and the territories) to assist states in providing medical, dental and long-term care assistance to people who meet certain eligibility criteria. Eligibility is determined on the basis of state and national criteria. In Louisiana, dental services are a required component of the Early and Periodic Screening, Diagnosis and Treatment (EPSDT) for the Medicaid-eligible children under the age of 21. Services must include, at a minimum, relief of pain and infections, restoration of teeth and maintenance of dental health. Dental services may not be limited to emergency services for EPSDT recipients [Centers for Medicare & Medicaid Services, 2004]. The children enrolled under this program can receive preventive and restortative dental services.

In Louisiana:

- *Only 38.3 percent of Medicaid-eligible children receive any dental services[1]*
- *77 percent of children had preventive dental visits during the past 12 months[2]*
- *76 percent of children with special health care needs received preventive dental care during the past 12 months[2].*

[1] Louisiana Department of Health and Hospitals, Medicaid Data Warehouse
[2] National Survey of Children's Health, 2007

According to the PEW report, the national average for Medicaid-enrolled children receiving any dental services is 38.1 percent. In Louisiana for the FFY 2009, 38.3 percent of the 776,070 children enrolled in EPSDT received dental care, putting the state as one of only 26 to achieve that benchmark. In the past four years, there has been a steady increase in both the number of children enrolled and the percentage of enrolled receiving any dental services from 28 percent in FFY 2006 to 38 percent in FFY 2009. Despite this increase, in FFY 2009, 478,533 children did not receive any dental care. See Table XXIII.

Table XXIII: Utilization of Early Periodic Screening, Diagnosis, and Treatment Program Details by Any Dental Services, No Visits and Total Eligible Children

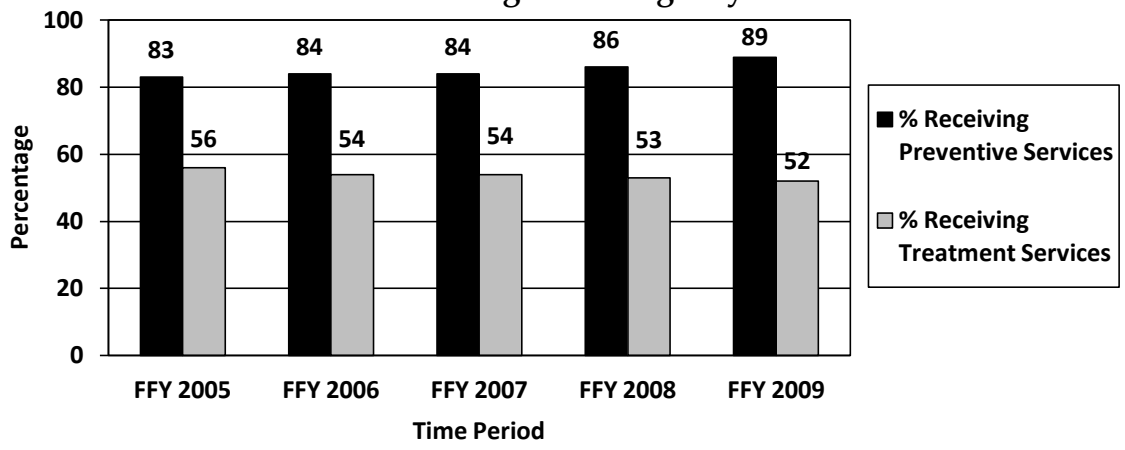
	FFY 2005	FFY 2006	FFY 2007	FFY 2008	FFY 2009
Any Dental Services	234,927	214,399	227,840	245,194	297,537
No Visits	527,576	562,813	542,886	508,798	478,533
Total Eligible Children	762,503	777,212	770,726	753,992	776,070
% Receiving Services	31	28	30	33	38

Source: Louisiana Department of Health and Hospitals, Medicaid Data Warehouse

In Louisiana, the total expenditure for the EPSDT program has increased 97.5 percent from 53 million in SFY 2005 to 104.7 million in the SFY 2009. This increase in expenditure is due to the increase in the Medicaid reimbursements for the services and the increase in the number of participants receiving dental services.

In the EPSDT program, children receive two types of services, preventive and treatment. Of the children receiving any dental services in FFY 2009, 89 percent received preventive and 52 percent obtained treatment services. Over the last five years, the percentage of children receiving preventive services increased from 83 percent to 89 percent, but the percentage of children receiving treatment services declined from 56 percent to 52 percent as shown in Figure X.

Figure X: Percent of Children Receiving Preventive and Treatment Services Among Receiving Any Dental Services



Source Figure X: Louisiana Department of Health and Hospitals, Medicaid Data Warehouse

Pregnant Women

Studies documenting the effects of hormones on the oral health of pregnant women suggest that 25–100 percent of these women experience gingivitis and up to 10 percent may develop more serious oral infections [Amar & Chung 1994; Mealey 1996]. Recent evidence suggests that oral infections such as periodontitis during pregnancy may increase the risk of preterm or low birthweight deliveries [Offenbacher et al. 2001]. During pregnancy, a woman may be particularly amenable to disease prevention and health promotion interventions that could

EDSPW Dental Services in Louisiana:

- *61 percent of the dental services were for primary prevention; examination, X-rays, and removing plaque and cleaning the teeth*
- *5 percent were full mouth debridement and periodontal scaling; the removal of excessive amounts of plaque and tartar*
- *34 percent were restorative services: fillings, crowns and extractions*

LaDHH Medicaid, SFY 2009

enhance her health or that of her fetus [Gaffield et al. 2001].

The Louisiana Medicaid Program offers an Expanded Dental Services for the Pregnant Women (EDSPW) Program, which allows eligible pregnant women to see a dentist during pregnancy. This is a relatively new program that started in 2004. Eligible women under this program can receive preventive and restorative dental services. The eligibility for this program ends with the conclusion of the pregnancy. The program has shown growth in the amount of dollars spent from $268,918 in SFY2005 to $2,436,539 in SFY 2009; an increase of 806 percent. This increase in spending can be accounted for by the increase in reimbursement rates and the increase in the number of services provided to the patient; cost per patent in SFY 2005 was approximately $130 as compared to $425 in SFY 2009. The number of patients treated through EDSPW increased by 173 percent from 2,085 patients served in SFY 2005 to 5,708 served in SFY 2009. However, for the same time period, the number of providers only showed a modest 21 percent increase from 268 to 343. Even though usage of the dental services has increased, anecdotal evidence suggests that access to care is still a primary issue. The details of this program have been summarized in Table XXIV.

Table XXIV: Expanded Dental Services for Pregnant Women (EDSPW) Program Details by Expenditure, Number of Patients treated, Number of Providers Participated and Average Cost per Patient.

	July 2004 to June 2005	July 2005 to June 2006	July 2006 to June 2007	July 2007 to June 2008	July 2008 to June 2009
Total Expenditures	$ 268,918	$342,991	$879,539	$ 1,695,623	$ 2,436,539
# of Patients Treated *	2085	2699	4051	4758	5708
#of Providers*	268	276	272	277	343
Avg. cost/ pt	$ 129	$127	$ 217	$ 356	$ 427

*Unduplicated Count
Source: Louisiana Department of Health and Hospitals, Medicaid Data Warehouse

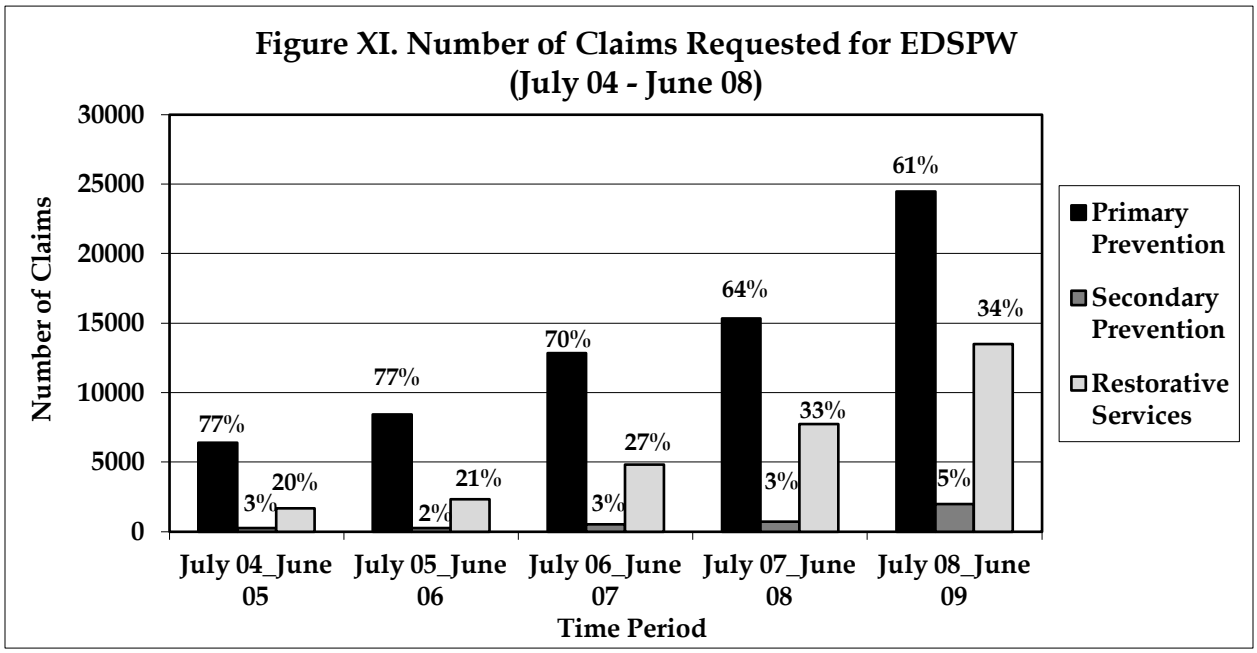
During SFY 2009, there were 39,924 total claims requested from Medicaid under EDSPW program, amounting to a total expenditure of 2.4 million (Table XXV). An analysis of the data for SFY 2009 by level of services shows that out of the total claims, 61 percent were for Level 1 services or primary prevention (examination, radiograph, and prophylaxis), 5percent were for Level 2 or Secondary prevention (full mouth debridement and periodontal scaling), and 34percent were for Level 3 or restorative services (amalgams, resins, pin retention, stainless steel/resin crowns and extractions); see Figure XI. However, the money reimbursed for these services is in inverse proportion to the level of services. In the same time period, 23.2 percent of the total expenditure was reimbursed for Level 1 services, 9.5 percent for Level 2 services and

67.3 percent for Level 3 services (Table XXVI and Figure XII). From SFY 2005 to 2009, this trend has remained steady. Since dental services end when the pregnancy ends, anecdotal evidence suggests that many women begin treatment, but are not able to complete it prior to the conclusion of the pregnancy.

Table XXV: Total Number of Claims Requested Under EDSPW Program, July 2004 through June 2009

	July 04 - June 05	July 05 - June 06	July 06 - June 07	July 07 - June 08	July 08 - June 09
Primary Prevention	6,410	8,439	12,825	15,326	24,485
Secondary Prevention	239	236	520	713	1,959
Restorative Services	1,671	2,330	4,831	7,738	13,480
Total	8,320	11,005	18,176	23,777	39,924

Source Table XXV: Louisiana Department of Health and Hospitals, Medicaid Data Warehouse

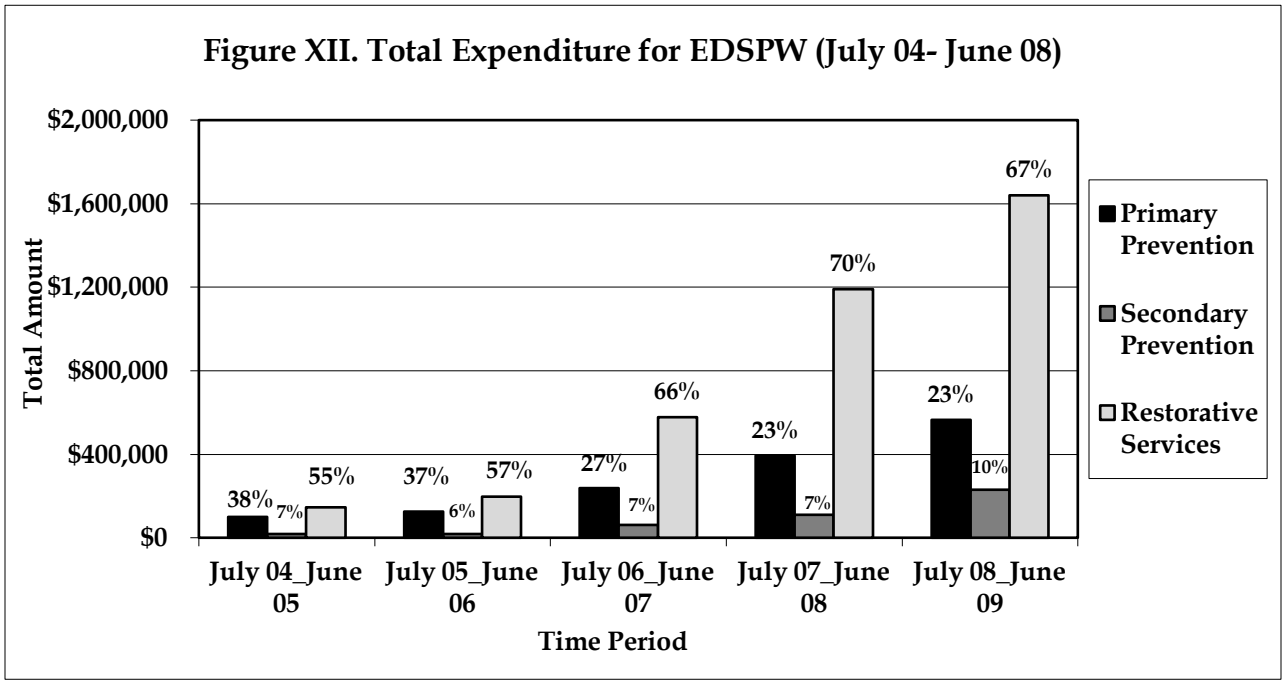


Source Figure XI: Louisiana Department of Health and Hospitals, Medicaid Data Warehouse

Table XXVI: Total Expenditure under EDSPW Program, July 2004 through June 2009

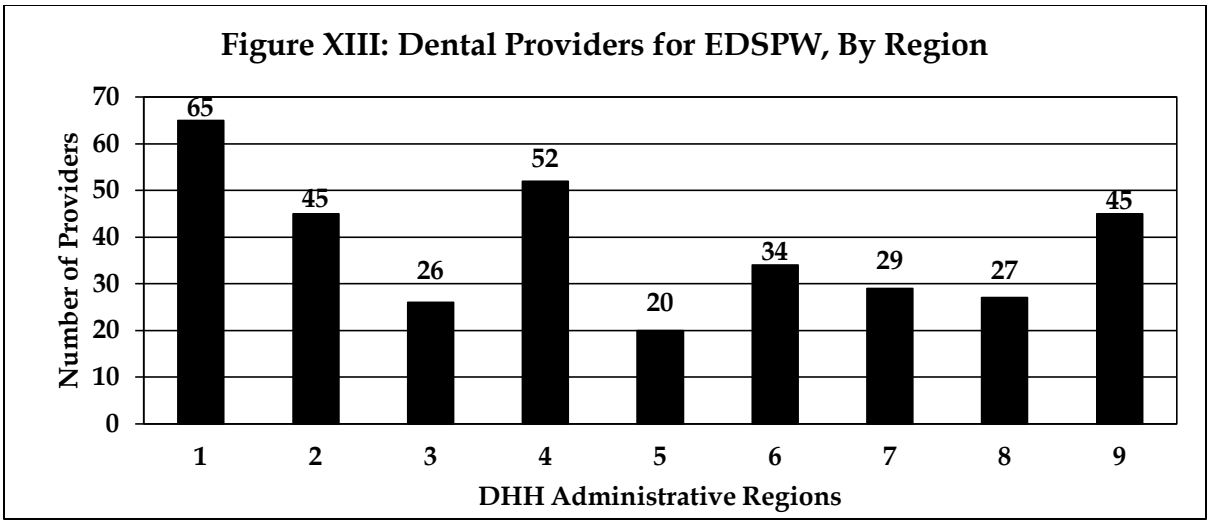
	July 04 - June 05	July 05 - June 06	July 06 - June 07	July 07 - June 08	July 08 - June 09
Primary Prevention	6,410	8,439	12,825	15,326	24,485
Secondary Prevention	239	236	520	713	1,959
Restorative Services	1,671	2,330	4,831	7,738	13,480
Total	8,320	11,005	18,176	23,777	39,924

Source Table XXV: Louisiana Department of Health and Hospitals, Medicaid Data Warehouse



Source Figure XII: Louisiana Department of Health and Hospitals, Medicaid Data Warehouse

Access to dental services for pregnant women in the EDSPW program is challenging in Louisiana. Even though there has been an increase in the number of providers participating in the EDSPW program, there are still many parishes where there were no claims filed. The number of parishes where there were no claims filed has varied little from 18 in the SFY 2005 to 16 in SFY 2009 which included Assumption, Bienville, Bossier, Cameron, Caldwell, East Carroll, Jackson, La Salle, Sabine, St. James, St. Helena, Tensas, Vernon, Webster, Winn and West Baton Rouge. The distribution of the participating providers for this program is provided below in Figure XIII. The concentration of providers is higher in Regions 1, 2, 4 and 9.



Source Figure XII: Louisiana Department of Health and Hospitals, Medicaid Data Warehouse

D. Community Health Centers, Compassionate Care and other Programs

D. Community Health Centers, Compassionate Care and other Programs

1. Community Health Centers

Community health centers (CHCs) provide family-oriented primary and preventive health care services for people living in rural and urban medically underserved communities. These centers exist in areas where economic, geographic or cultural barriers limit access to primary health care. The centers provide high quality care, help reduce health disparities and improve patient outcomes. Among other services provided, many community health centers provide dental care services.

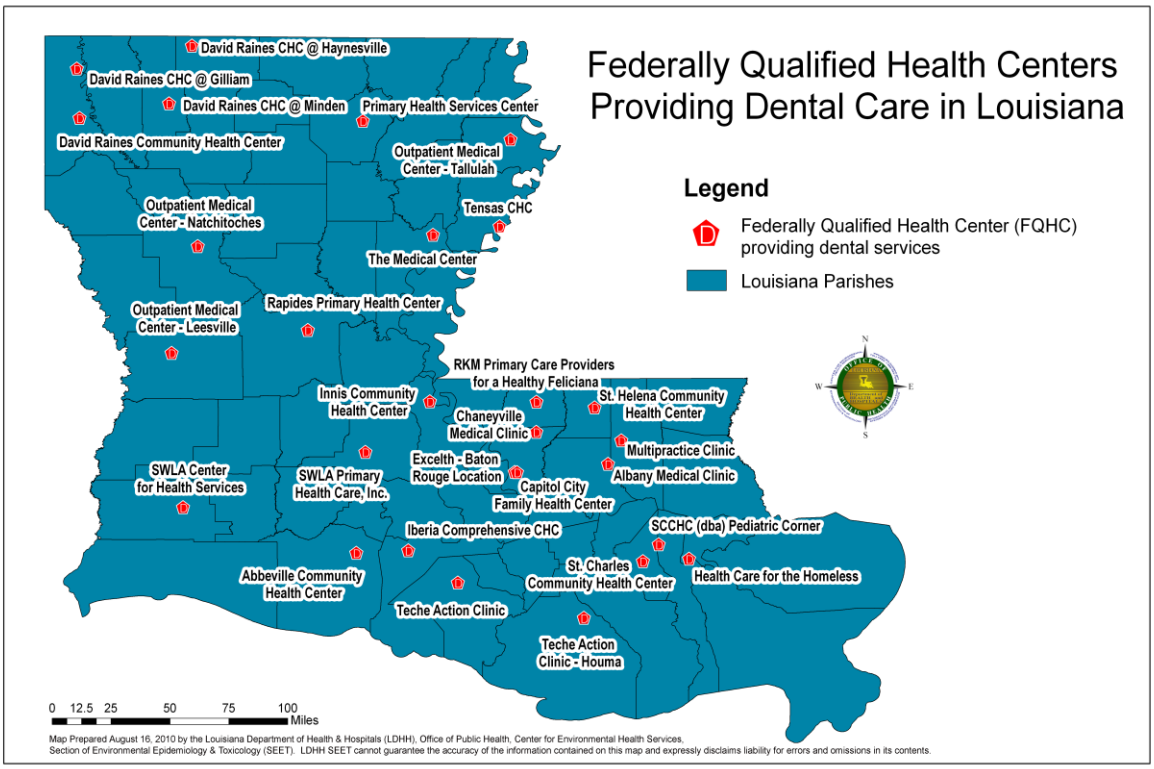
The Healthy People 2010 objective 21-14 is to "Increase the proportion of local health departments and community-based health centers, including community, migrant and homeless health centers that have an oral health component" [USDHHS 2000b]. In the United States for 2002, 61 percent of local jurisdictions and health centers had an oral health component [USDHHS 2004b]; the *Healthy People 2010* target is 75 percent. The data for Louisiana for this indicator is not available.

According to the National Association of Community Health Centers (NACHC), in Louisiana for 2008, there were 28.7 full-time equivalent (FTE) dentists, 5.6 FTE dental hygienists and 56 FTE dental assistants, aides and techs employed at these clinics. In 2008, for all services, 14 percent of those served in these centers were of low income and/or uninsured; 4 percent were Medicaid eligible (2006); and 13 percent were at or

below 100 percent of federal poverty level. The NACHC estimates that in 2006 these centers, for all services, generated approximately 78.5 Million for local communities.

In Louisiana in 2008, according to the Department's-Bureau of Primary Care and Rural Health, there were 22 Federally Supported Health Centers with 99 delivery sites; 28 of these sites provided on-site dental services to 42,956 patients. FQHCs are considered safety-net providers because they serve the general population and those without any type of insurance. Fees for services to patients without insurance are provided on a sliding scale based on the patient's income. The distribution of FQHCs with dental components is provided in Map IV and the services provided by the FQHCs are illustrated in Table XXVII.

Map IV



Map IV Source: LaDHH, Bureau of Primary Care and Rural Health

Table XXVII: Oral Health Services Delivered in FQHCs in Louisiana, 2008

Selected Service	Number of Encounters	Number of Patients	Encounters per Patient
Emergency Services	5,683	4,887	1.16
Oral Exams	32,978	25,566	1.29
Prophylaxis-Adult or Child	17,184	15,572	1.10
Sealants	6,498	3,031	2.14
Fluoride Treatment	11,100	9,880	1.12
Restorative Services	11,597	7,252	1.60
Oral Surgery	11,955	9,522	1.26
Rehabilitation Services	4,190	2,898	1.45

Source Table XXVII: U.S. Department of Health and Human Services, Summary for Louisiana 2008

D. Community Health Centers, Compassionate Care and other Programs

2. Compassionate Care Programs

Across the state there are also clinics that offer compassionate care for the homeless and the indigent with various eligibility requirements. According to the Louisiana Dental Association (LDA), Louisiana currently has 42 active "clinics" where dental services are provided for low income and uninsured individuals. Information on these sites can be accessed from the LDA website (ladental.org/Consumers and Community Service). An example of one such program is the Greater Baton Rouge Community Clinic or Virtual Clinic that provides health care services, including oral health care, in nine parishes. Eligibility is based on work history and earned income. To be eligible, the patient needs to be currently employed, working a minimum of 30 hours per week, worked for 10 of the last 12 months and fall under 200 percent of the federal poverty guidelines. Currently, the Virtual Clinic is providing services in East Baton Rouge, Iberville, West Baton Rouge, Pointe Coupee, East and West Feliciana, St. Helena, Livingston and Ascension parishes.

Louisiana Donated Dental Services (DDS) Program

The Louisiana Dental Association (LDA) and Louisiana Foundation of Dentistry for the Handicapped (LFDH) partner together under the Donated Dental Services (DDS) program developed and coordinated by the National Foundation of Dentistry for the Handicapped. This program provides dental services to the elderly and disabled

population through the DDS program using volunteer dentists and dental labs. In general, this program targets high-risk populations, which cannot afford to pay for their oral health care and might not be eligible for the government support programs. According to the Louisiana Donated Dental Services (DDS) Annual Program Report Activities, in 2006, 362 dentists and 118 labs participated in this program donating $404,161 worth of services for the treatment of 213 patients; an additional 199 patients were referred to volunteer dentists to receive care. The total expenditure for this program in 2006 was $465,153 which included $404,161 of donated dental services, $48,331 of program support, and $12,661 of management and fundraising costs.

D. Community Health Centers, Compassionate Care and other Programs

3. Other Programs

School-Based Dental Sealant Programs

The Louisiana Oral Health Program coordinates and partners with private dentists and FQHC's to provide dental sealants to the second, third, and sixth grade students in school settings. Dental hygiene education and oral hygiene supplies are an integral part of the program to educate the children on the importance of good oral health in the early stages of their childhood and incorporating good oral health hygiene practices in their daily life. In addition to the school-based dental sealant program, the LDA coordinates "Give Kids a Smile" Day activities to also provide dental sealants.

Mobile Dentistry

There are several mobile dentistry vans that bring dental service to the citizens. One such van is the Orleans Parish "Tooth Bus." The "Tooth Bus" is a collaboration between Children's Hospital and the LSU School of Dentistry, which provides dental services in the New Orleans area. This mobile dental clinic serves children from low income families and provides them with preventive and restorative dental care. On average, this mobile dental serves approximately 800 patients per month. The Oral Health Program does not have an accurate count of the number of mobile dental vans available in Louisiana at this time.

VI. CONCLUSIONS

The overall oral health of Americans has improved tremendously in the last decade. People are enjoying good oral health and are retaining more of their permanent teeth even as they age. Children are less prone to cavities and are accessing oral health care based on proven best practices. Despite all of these improvements, there are still a lot of challenges associated with access to preventive and restorative services. These challenges are especially profound in the minority and the desperate population.

Nationally, children between two and five years old continue to suffer more from the prevalence of dental caries than any other group. In minorities, the situation is worst as compared to other communities. In Louisiana, there is a chronic shortage of oral health data and the Oral Health Program is striving to overcome this challenge. National, state and regional data resources have been used in this document to provide and compare the statistics in the most meaningful way possible.

VII. REFERENCES

Amar S, Chung KM. Influence of hormonal variation on the periodontium in women. *Periodontol 2000*:1994;6:79–87.

American Academy of Periodontology. Position paper: Tobacco use and the periodontal patient. *J Periodontol* 1999;70:1419–27.

American Dental Association. *Distribution of Dentists in the United States by Region and State*, 1997. Chicago, IL: American Dental Association Survey Center;1999.

Beck JD, Offenbacher S, Williams R, Gibbs P, Garcia R. Periodontics: A risk factor for coronary heart disease? *Ann Periodontol* 1998;3(1):127–41.

Blot WJ, McLaughlin JK, Winn DM, Austin DF, Greenberg RS, Preston-Martin S. Smoking and drinking in relation to oral and pharyngeal cancer. *Cancer Res* 1988;48(11):3282–7.

Brown LJ, Wagner KS, Johns B. Racial/ethnic variations of practicing dentists. *J Am Dent Assoc* 2000;131:1750–4.

Bureau of Primary Health Care. Community Health Centers: Program information. 2005. Available at: http://www.bphc.hrsa.gov/programs/CHCPrograminfo.asp.

Burt BA, Eklund BA. *Dentistry, dental practice, and the community*. 5th ed. Philadelphia: WB Saunders; 1999.

Centers for Disease Control and Prevention. Preventing and controlling oral and pharyngeal cancer. Recommendations from a national strategic planning conference. *MMWR* 1998; 47(No. RR-14):1–12.

Centers for Disease Control and Prevention. Achievements in public health, 1900–1999: Fluoridation of drinking water to prevent dental caries. *MMWR* 1999;48(41):933–40.

Centers for Disease Control and Prevention. Populations receiving optimally fluoridated public drinking water — United States, 2000. *MMWR* 2002;51(7): 144–7.

Centers for Disease Control and Prevention. Recommendations for using fluoride to prevent and control dental caries in the United States. *MMWR* Recomm Rep 2001;50(RR-14):1–42.

Centers for Disease Control and Prevention. Annual smoking-attributable mortality, years of potential life lost, and economic costs—United States, 1995–1999. *MMWR* 2002;51(14):300–3.

Centers for Medicare & Medicaid Services. National Health Expenditure (NHE) amounts by type of expenditure and source of funds: Calendar years 1965–2013. Updated October 2004. Available at: http://www.cms.hhs.gov/oralhealth/6.asp

Centers for Medicare & Medicaid Services. Health Accounts. CMS Web site. Available at: http://www.cms.hhs.gov/statistics/nhe/.

Christen AG, McDonald JL, Christen JA. The impact of tobacco use and cessation on nonmalignant and precancerous oral and dental diseases and conditions. Indianapolis, IN: Indiana University School of Dentistry; 1991.

Dasanayake AP. Poor periodontal health of the pregnant woman as a risk factor for low birth weight. *Ann Periodontal* 1998;3:206–12.

Davenport ES, Williams CE, Sterne JA, Sivapathasundram V, Fearne JM, Curtis MA. The East London study of maternal chronic periodontal disease and preterm low birth weight infants: Study design and prevalence data. *Ann Periodontol* 1998;3:213–21.

De Stefani E, Deneo-Pellegrini H, Mendilaharsu M, Ronco A. Diet and risk of cancer of the upper aerodigestive tract--I. Foods. *Oral Oncol* 1999;35(1):17–21.

Fiore MC, Bailey WC, Cohen SJ, et al. Treating tobacco use and dependence. Clinical practice guideline. Rockville, MD: U.S. Department of Health and Human Services, Public Health Service; 2000. Available at: http://www.surgeongeneral.gov/tobacco/treating_tobacco_use.pdf.

Gaffield ML, Gilbert BJ, Malvitz DM, Romaguera R. Oral health during pregnancy: An analysis of information collected by the pregnancy risk assessment monitoring system. *J Am Dent Assoc* 2001;132(7):1009–16.

Genco RJ. Periodontal disease and risk for myocardial infarction and cardiovascular disease. *Cardiovasc Rev Rep* 1998;19(3):34-40.

Griffin SO, Jones K, Tomar SL. An economic evaluation of community water fluoridation. *J Public Health Dent* 2001;61(2):78–86.

Herrero R. Chapter 7: Human papillomavirus and cancer of the upper aerodigestive tract. *J Natl Cancer Inst Monogr* 2003; (31):47–51.

International Agency for Research on Cancer (IARC). IARC Monographs on the Evaluation of Carcinogenic Risks to Humans, Volume 89, Smokeless tobacco and some related nitrosamines. Lyon, France: World Health Organization, International Agency for Research on Cancer; 2005 (in preparation).

Johnson NW. *Oral Cancer*. London: FDI World Press, 1999.

Komaromy M, Grumbach K, Drake M, Vranizan K, Lurie N, Keane D, Bindman AB. The role of black and Hispanic physicians in providing health care for underserved populations. *N Engl J Med* 1996;334(20):1305–10.

Kressin NR, De Souza MB. Oral health education and health promotion.
In: Gluck GM, Morganstein WM (eds). *Jong's Community Dental Health*, 5th ed.
St. Louis, MO: Mosby; 2003:277–328.

Levi F. Cancer prevention: Epidemiology and perspectives. *Eur J Cancer* 1999;35(14):1912–24.

McLaughlin JK, Gridley G, Block G, et al. Dietary factors in oral and pharyngeal cancer. J Natl Cancer Inst 1988;80(15):1237–43.

Mealey BL. Periodontal implications: medically compromised patients. *Ann Periodontol* 1996;1(1):256–321.

Morse DE, Pendrys DG, Katz RV, et al. Food group intake and the risk of oral epithelial dysplasia in a United States population. *Cancer Causes Control* 2000;11(8):713-20.

Offenbacher S, Jared HL, O'Reilly PG, Wells SR, Salvi GE, Lawrence HP, et al. Potential pathogenic mechanisms of periodontitis associated pregnancy complications. *Ann Periodontol* 1998;3(1):233–50.

Offenbacher S, Lieff S, Boggess KA, Murtha AP, Madianos PN, Champagne CM, et al. Maternal periodontitis and prematurity. Part I: Obstetric outcome of prematurity and growth restriction. *Ann Periodontol* 2001;6(1):164–74.

Phelan JA. Viruses and neoplastic growth. *Dent Clin North Am* 2003;47(3):533–43.

Redford M. Beyond pregnancy gingivitis: Bringing a new focus to women's oral health. *J Dent Educ* 1993;57(10):742–8.

Ries LAG, Eisner MP, Kosary CL, Hankey BF, Miller BA, Clegg L, et al. (Eds). SEER Cancer Statistics Review, 1975–2001, National Cancer Institute: Bethesda, MD; National Cancer Institute; 2004. Available at: http://seer.cancer.gov/csr/1975_2001/.

Scannapieco FA, Bush RB, Paju S. Periodontal disease as a risk factor for adverse pregnancy outcomes. A systematic review. *Ann Periodontol*. 2003;8(1):70–8.

Shanks TG, Burns DM. Disease consequences of cigar smoking. In: Cigars: Health effects and trends. Smoking and Tobacco Control Monograph 9. Bethesda, MD: U.S. Department of Health and Human Services, Public Health Service, National Institutes of Health, National Cancer Institute, 1998.

Silverman SJ, Jr. *Oral Cancer,* 4th edition. Atlanta, GA: American Cancer Society, 1998.

Taylor GW. Bidirectional interrelationships between diabetes and periodontal diseases: An epidemiologic perspective. *Ann Periodontol* 2001;6(1):99–112.

Tomar SL, Asma S. Smoking-attributable periodontitis in the United States: Findings from NHANES III. *J Periodontol* 2000;71:743–51.

Tomar SL, Husten CG, Manley MW. Do dentists and physicians advise tobacco users to quit? *J Am Dent Assoc* 1996;127(2):259–65.

U.S. Department of Health and Human Services. *The Health Consequences of Using Smokeless Tobacco: A Report of the Advisory Committee to the Surgeon General*. Bethesda, MD: U.S. Department of Health and Human Services, Public Health Service; 1986. NIH Publication No. 86-2874.

U.S. Department of Health and Human Services. *Current Estimates from the National Health Interview Survey, 1996.* Series 10, No. 200. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics; 1999. DHHS Publication No. 99-1528. Available at: http://www.cdc.gov/nchs/products/pubs/pubd/series/sr10/200-210/200-210.htm

U.S. Department of Health and Human Services. *Oral Health in America: A Report of the Surgeon General*. Rockville, MD: U.S. Department of Health and Human Services, National Institutes of Health, National Institute of Dental and Craniofacial Research; 2000a. NIH Publication No. 00-4713.

U.S. Department of Health and Human Services. Oral Health. In: *Healthy_People 2010,* 2nd edition. With Understanding and Improving Health and Objectives for Improving Health. 2 vols. Washington, DC: U.S. Government Printing Office; 2000b.

U.S. Department of Health and Human Services. *National Call to Action to Promote Oral Health*. Rockville, MD: U.S. Department of Health and Human Services, Public Health Service, National Institutes of Health, National Institute of Dental and Craniofacial Research; 2003. NIH Publication No. 03-5303.

U.S. Department of Health and Human Services. *The health consequences of smoking: A report of the Surgeon General*. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health; 2004a. Available at: http://www.cdc.gov/tobacco/sgr/sgr_2004/index.htm.

U.S. Department of Health and Human Services. *Healthy People 2010_progress review: Oral health.* Washington, DC: U.S. Department of Health and Human Services, Public Health Service; 2004b. Available at: http://www.healthypeople.gov/data/2010prog/focus21/.

Weaver RG, Ramanna S, Haden NK, Valachovic RW. Applicants to U.S. dental schools: An analysis of the 2002 entering class. *J Dent Educ* 2004;68(8):880–900.

U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, Trends in Oral Health Status: United States, 1988-1994 and 1999-2004. Data from the Continuous National Health and Nutrition Examination Survey (NHANES)

National Institute of Dental and Craniofacial Research, National Institute of Health, Oral Health U.S., 2002. Available at:
http://drc.hhs.gov/report/index.htm

Water Fluoridation and Costs of Medicaid Treatment for Dental Decay -- Louisiana, 1995-1996, [MMWR Weekly September 03, 1999 / 48(34);753-757].

Centers for Disease Control and Prevention, Other Fluoride Products. Available at:
http://www.cdc.gov/fluoridation/other.htm

National Survey of Children's Health and With Children on Special Health Care Needs, Oral Health Status Available at:
http://nschdata.org/Content/Default.aspx and
http://cshcndata.org/Content/Default.aspx

U.S. Department of Health and Human Services, Bureau of Health Professionals, State Health Workforce Profiles Available at:
http://bhpr.hrsa.gov/healthworkforce/reports/profiles/

Center of Disease Control and Prevention, Behavioral Risk Factor Surveillance System, State Oral Health Profiles, available at:
http://apps.nccd.cdc.gov/brfss/page.asp?yr=2008&state=LA&cat=OH#OH

U.S. Department of Health and Human Services, Centers of Medicare and Medicaid Services, National Health Expenditure Data Available at:
http://www.cms.gov/NationalHealthExpendData/01_Overview.asp#TopOfPage

Louisiana Department of Health and Hospitals, Bright Smiles for Bright Futures, The Basic Screening Survey of 3rd Grade Population.

Louisiana Dental Association, Consumers and Community Service, available at:
http://www.ladental.org/cms/index.php

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